EOI Document
for

Selection of consortium partner for Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years

EOI   No: TCIL/ITT-1/NAGPUR/ITMS/2024/04

Date of Issue: 25/07/2024

Issued By:
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IS/ISO 9001

Contents

SECTION-1

EXPRESSION OF INTEREST (EOI)

EOIs are invited from all eligible bidders for Pre-Tender Tie-up with TCIL for "Selection of consortium partner for Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years" against client's Tender No. TCO/D-4/ RoadSafety/ITMS/2024/ON-2191 dated: 23/02/2024.

Telecommunications Consultants India Ltd. (TCIL) is a Govt. of India Enterprise, under Department of Telecommunications, Ministry of Communications. It was set up in 1978 to share Indian experience and expertise with developing countries and to assist bulk users of telecom services in setting up dedicated telecom networks.

TCIL has been undertaking various projects in all fields of telecommunications and information technology and also continuously deploying new technologies in the field of Telecom Software, Switching and Transmission Systems, Cellular Services, Rural Telecommunications, Optical Fiber based Backbone Transmission Systems etc. TCIL has diversified its operation and has been executing projects in the field of Civil Infrastructure, Architecture and Power, Rural Roads and Civil Construction. TCIL has been executing projects in the latest technologies like FTTH, VOIP, IPTV etc.

TCIL intends to participate in the said tender as Lead Implementation Partner. This EOI is floated for selection of consortium partner ready to work in the above project for TCIL on exclusive basis.

Submission of Online Bids is mandatory for this EOI. Prospective bidders need to submit their bids with the most competitive Techno-commercial offer for the aforesaid work. EOI document is available on TCIL website (https://www.tcil-india.net.in/nit.php) & GePNIC portal (https://www.etenders.gov.in). The important dates are as given below:

1.1 IMPORTANT DATES

Date of Posting of EOI:	25/07/2024
Start Date of downloading/viewing EOI:	25/07/2024
Last date & time for Online submission of Bids:	08/08/2024, 17:00 Hrs
Online Opening of Technical Bid (Part-I):	08/08/2024, 18:00 Hrs
Online Opening of Financial Bid (Part-II):	To be notified later

Bids shall be submitted on GePNIC Portal (https://www.etenders.gov.in). Bidders are advised to visit GePNIC portal (https://www.etenders.gov.in) and/or TCIL website regularly for updates/amendments, if any. Bidders can contact NIC for Telephonic Help Support on Toll Free Help Desk Number- 1800 3070 2232 for requisite queries regarding registration, training, demonstration, minimum system requirements etc. of Government e-Procurement System of NIC (GePNIC).

1.2 ELIGIBILITY CRITERIA

S.No.	QUALIFICATION CRITERIA	DOCUMENTS REQUIRED
(a)	(i) In procurement of all goods, services or works in respect of which the nodal ministry/department has communicated that there is a sufficient local capacity and local competition, only Class-I local supplier as defined under the order shall be eligible to bid respective purchase value. (ii) Only Class-I and Class-II local supplier, as defined under the order shall be eligible to bid in procurement undertaken by procuring entity, except when global tender enquiry has been	Undertaking regarding the same on the bidder's Letter Head. And Local Content Calculation Sheet.

S.No.	QUALIFICATION CRITERIA	DOCUMENTS REQUIRED
	issued. (Mandatory Undertaking for Purchase Preference to MAKE In INDIA to be submitted along with this EOI. The bidder needs to submit calculation of local content as per format attached in Section-11. The detailed clause is mentioned at Clause 2.3 in Section-2 of this EOI and the documents required for verification of local content needs to be submitted as per this Clause.)	
(b)	The bidder should be an Indian Registered Company under Companies Act 1956 or 2013/ Proprietorship /Partnership Firm/ Government Societies. Copy of Certificate of Incorporation/ Registration/ Partnership Deed or any other relevant document, as applicable, should be submitted along with a copy of address proof.	Copy of Certificate of Incorporation/Registration / Partnership Deed or any other relevant document, as applicable
(c)	The bidder shall fulfill the following financial criteria:- i. Average Annual Financial Turnover during the last 3 years (i.e. FY 2022-23, 2021-22 and 2020-21), ending 31st March 2023 should be **at least Rs.21.49 Cr (Rs. 17.91 Cr** for Micro and Small Enterprises (MSEs) & Startups). ii. Net worth should be positive as on 31st March of 2023 iii. The bidder should be in profit before tax (PBT) in two out of last three financial years.	Audited Balance Sheets & CA Certificate
(d)	The bidder should have successfully completed any one of the following Similar Works in the preceding seven years ending last day of month previous to the one in which EOI is invited: i. One similar completed work costing not less than the amount equal to **Rs. 28.65 Cr (Rs. 25.07 Cr** for MSEs & Startups) OR ii. Two similar completed works costing not less than the amount equal to **Rs. 21.49 Cr (Rs. 17.91 Cr** for MSEs & Startups) "Similar work" implies • CCTV surveillance system Project OR • Road or Highway Traffic enforcement / Management System OR • Controlling traffic signals and issuing challans with centralized software system OR • Intelligent Traffic Management System OR • IT/ITeS/ICT One Similar Work means a Single Work/Purchase Order of value as given in this	The bidder should submit supporting documents i.e., work order and completion certificate from client.

S.No.	QUALIFICATION CRITERIA	DOCUMENTS REQUIRED
	clause above.	
(e)	The bidder should have a valid PAN and GST Registration (copy of PAN card and GST Registration certificate should be submitted in the bid). Copy of PAN card and GST Registration certificate should be submitted in the bid. In case GST registration is not available, the bidder shall give undertaking that it will get registered before start of work, if work is awarded to them	a) PAN copy b) GST copy
(f)	**MAF** The bidder should submit Manufacturers Authorization Certificate (MAF) from Original Equipment Manufacturers (OEMs) specific to the bid for items mentioned in the end client RFP. In case of unavailability of MAF at the time of EOI response, bidder should submit an undertaking stating that the same shall be submitted before opening of Financial bid.	Bidder must submit bid specific Manufacturer Authorization Form (MAF) from OEM
(g)	The bidder should not be insolvent, in receivership, bankrupt or being wound up, not have had their business activities suspended and not be the subject of legal proceedings for any of the foregoing. An undertaking by the bidder should be submitted.	Undertaking regarding the same on the bidder's Letter Head.
(h)	The Bidder should not be blacklisted/debarred/banned/restricted by any Union Govt./State Govt. /PSU as on date of submission of the Bid. "No-Conviction Certificate" duly signed by authorized signatory signing the bid, should be submitted in the prescribed format.	**"No Conviction Certificate"** in prescribed format should be submitted
(i)	The bidder shall submit an undertaking on their letter-head stating that: "In reference to the Government of India, Ministry of Finance, Department of Expenditure, Office Memorandum No. F.No. 6/18/2019-PPD, Dated 23-07-2020. I hereby submit that: "We have read the Clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; We certify that we (in case of Consortium all the Consortium Partners) are not from such a country *or their beneficial owner is not from such a country or we will not sub-contract any work to a contractor from such countries,* if from such a country, have been registered with the Competent Authority. We hereby certify that we (in case of Consortium all the Consortium Partners) fulfill all requirements in this regard and are eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]".	Undertaking regarding the same on the bidder's Letter Head.
(j)	The bidder needs to submit un-priced BOQ	Unpriced BoM should be submitted

S.No.	QUALIFICATION CRITERIA	DOCUMENTS REQUIRED
	along with their technical bid with explicitly mentioning the Make and Model	
(k)	The bidder needs to submit an Undertaking stating that: Vendors, whose Purchase Order(s) for any Project of TCIL was/were cancelled on risk & cost basis for non-performance or non-submission of performance guarantee in last 2 years, are not eligible to participate in this tender.	Undertaking regarding the same on the bidder's Letter Head.
(l)	Proof of PF registration to be submitted by the bidder.	Submit PF Proof of Registration.
(m)	The bidder should have GST registered Local Office where work is to be executed. Else, he should give an undertaking that he will open GST registered Local office after Award of Work.	Undertaking regarding the same on the bidder's Letter Head.
(n)	**LABOUR LAWS (wherever applicable):** The Bidder should have compliance to Labour laws, Payment of Minimum Wages Act, Workman's Compensation Act, EPF/ESI provisions and any such statutory provisions. In case the bidder is found to be not complying to any of the relevant statutory requirement, action as deemed fit may be initiated by TCIL at its sole discretion.	Undertaking regarding the same on the bidder's Letter Head.
(o)	It is a mandatory requirement that the bidder shall provide formally certified skilled workforce or commitment to the effect that they would ensure that all their workers would be skilled through Recognition of Prior Leaning (RPL) within two months from the date of commencement of work under the project, at the cost of the bidder. This is in compliance to Ministry of Skill Development and Entrepreneurship (MSDE) D.O dated 12.09.2022.	The bidder shall provide undertaking to this effect.
(p)	Consortium is not allowed	
(q)	The bidder should give an undertaking on the company's letter head that all the documents/certificates/information submitted by them against this EOI are genuine.	Undertaking regarding the same on the bidder's Letter Head.
(r)	A statement showing Clause-by-Clause compliance to all Terms & Conditions of all the Sections of this EOI as well as client's tender(which forms part of this EOI), duly Signed and Stamped on the Letter Head of their Organization. The bidder shall submit No-Deviation Certificate along with above.	Undertaking regarding the same on the bidder's Letter Head.
(s)	**Integrity PACT**	Integrity pact on plain paper.
(t)	**Performance Bank Guarantee** The Successful bidder has to submit the back to back PBG.	Bidder has to submit undertaking for this clause.
(u)	**Payment Terms**	On back to back basis except advance (if any)
(v)	**Liquidated Damages**	As per Client Tender on absolute terms
(w)	**SLA**	As per Client Tender

S.No.	QUALIFICATION CRITERIA	DOCUMENTS REQUIRED
(x)	Bidder is required to submit "SEI CMMI-Level 5 for Software development and services (SVC)" as asked in the end client tender.	Submit the copy of the certificate

a) **LABOUR LAWS (wherever applicable):**

The Bidder should comply with all applicable Indian Labour laws, Payment of Minimum Wages Act, Workman's Compensation Act, EPF/ESI provisions and any such statutory provisions. In case the bidder is found to be not complying to any of the relevant statutory requirement, action as deemed fit may be initiated by TCIL at its sole discretion.

b) It is a mandatory requirement that the bidder shall provide formally certified skilled workforce or commitment to the effect that they would ensure that all their workers would be skilled through Recognition of Prior Leaning (RPL) within two months from the date of commencement of work under the project, at the cost of the bidder. This is in compliance to Ministry of Skill Development and Entrepreneurship (MSDE) D.O dated 12.09.2022.

The bidder shall provide undertaking to this effect.

1.3   The bidder should give an undertaking on the company's letter head that all the documents/certificates/information submitted by them against this EOI are genuine.

In case any of the documents/certificates/information submitted by the bidder is found to be false or forged, TCIL shall immediately reject the bid of such bidder(s) or cancel/terminate the contract and forfeit bid security / Performance Security submitted by the bidder and debar them from participation in future EOIs/tenders of TCIL for a period upto 2 years.

1.4   A statement showing Clause-by-Clause compliance to all Terms & Conditions of all the Sections of this EOI as well as client's tender (which forms part of this EOI), duly Signed and stamped on the Letter Head of their Organization.

The bidder shall submit No-Deviation Certificate along with above. Bidder shall submit technical data sheet by highlighting each complied specification. Wherever technical specifications and operational/functional requirements are not mentioned in the datasheet, OEM compliance shall be submitted.

1.5   The Client's Tender No. TCO/D-4/ RoadSafety/ITMS/2024/ON-2191 dated: 23/02/2024 and its amendments form an integral part of this EOI.

1.6   Bidder is required to submit the solution document along with OEM brochures and technical data sheets of the quoted items.

1.7   Bidder is required to submit the compliance of the technical specifications mentioned in the end client RFP and its further issued corrigendum on the letterhead of the OEM.

1.8   Bidder is required to submit any other relevant document which is required for the submission of bid by TCIL to the end client.

1.9   Bidder is required to submit the OEM documents as per the eligibility criteria (PQ & TQ wherever asked) asked in the end client tender to get the maximum marks in those criteria.

1.10 Bidder is required to submit all the documents asked by the consortium partner in the end client tender.

1.11 BID SECURITY (EARNEST MONEY DEPOSIT)

EMD shall be of **Rs. 21,30,900/-**

EMD amount can be submitted in the form of Demand Draft (DD) drawn in favour of "Telecommunications Consultants India Limited" payable at New Delhi along with the bid, OR in the form of a Bank Guarantee (BG) / e-BG in the prescribed format (Section-8) from a SFMS enabled Scheduled Commercial Bank through SFMS Platform OR as an Insurance Surety Bond as per format given in Section-22 OR Fixed Deposit Receipt (FDR) OR Bankers Cheque.

The validity period of Bid Security/EMD (in any form) should be 120 days.

Details of beneficiary for issue of BG under SFMS Platform is as below:

Name Of Beneficiary and ITS Details	Name	Telecommunications Consultants India Limited
	Address	TCIL Bhawan, Greater Kailash-1, New Delhi-110048
	Account No	000705005880
Name Of Beneficiary Bank and ITS Details	Name	ICICI Bank Limited
	Address	9-A PHELPS Building, Connaught Place, New Delhi- 110001
	Unique Identifier code	TC503394486 (UID to be mentioned in field 7037 of the BG advising message code)
	IFSC Code	ICIC0000007

In addition to this, the successful bidder is required to submit the balance back to back client EMD of **Rs. 1,78,69,100/-** (back to back client EMD of **Rs. 2,00,00,000/- for MSE & Start-Up)** in the form of BG/e-BG/Insurance Surety Bond/DD/NEFT/RTGS/FDR/Bankers Cheque in favour of "Telecommunications Consultants India Limited" payable at New Delhi along with the bid. This back to back EMD will not be exempted to any bidder. It is mandatory to submit this balance back to back EMD of Rs. **1,78,69,100/-** (back to back client EMD of **Rs. 2,00,00,000/- for MSE & Start-Up)**.
Bidder has to submit undertaking that if selected as Successful bidder, they will submit the balance back to back client EMD of **Rs. 1,78,69,100/-** (back to back client EMD of **Rs. 2,00,00,000/- for MSE & Start-Up)** in the form of BG/e-BG/Insurance Surety Bond/DD/NEFT/RTGS/FDR/Bankers Cheque in favour of "Telecommunications Consultants India Limited" payable at New Delhi along with the bid on or before bid submission of TCIL to End Client.

Details of beneficiary for issue of BG under SFMS Platform is as below:

Name of Beneficiary and its Details	Name	Telecommunications Consultants India Limited
	Address	TCIL Bhawan, Greater Kailash-1, New Delhi-110048
Name of Beneficiary Bank and its Details	Name	ICICI Bank Limited
	Account No	000705005880
	Address	9-A PHELPS Building, Connaught Place, New Delhi- 110001
	Unique Identifier Code	TC503394486 (UID to be mentioned in field 7037 of the BG advising message code)
	IFS Code	ICIC0000007

EMD can also be paid through the following prescribed electronic modes of payment **(UTR No. is to be provided by bidder in the technical online bid):**

a. Debit card powered by RuPay
b. Unified Payment Interface (UPI) (BHIM-UPI) – TCIL VPA ID – tcil80@ICICI
c. Unified Payment Interface (UPI) Quick Response Code: As below.
d. Bank details for NEFT: same as given above.

Note: Bids received without Bid Security (EMD) may be summarily rejected.

1.12 TENDER FEES

Tender Fees of Rs. 20,000 + 18% GST (i.e. Rs. 23,600/-). Tender Fee can be paid through the following prescribed electronic mode of payment (*UTR No. is to be provided by bidder in the technical online bid*):

a. Debit card powered by RuPay
b. Unified Payment Interface (UPI) (BHIM-UPI) – TCIL VPA ID – tcil80@ICICI
c. Unified Payment Interface (UPI) Quick Response Code: As below.
d. Bank details for NEFT: same as given above.

Notes for EMD and Tender Fees Exemption:

a) Micro & Small Enterprises (MSEs) (For goods and services tenders) and Start-up Enterprises are exempted from the payment of EMD & Tender Fees

b) To avail benefits prescribed in the tender for **Start-up Enterprises**, the bidder shall submit their registration certificate issued by DIPP/DPIIT. Non-submission of requisite proof shall be treated as non-Start-up Enterprise bid.

c) To avail benefits prescribed in the tender for Micro & Small Enterprises (MSEs), the bidder shall submit Udyam Certificate for item/services (mentioned in this tender) along with a certificate from their Statutory Auditors certifying the amount of investment in plant and machinery by Micro and Small Enterprise in accordance with provisions of MSMED Act 2006 to be read with notifications No SO 2119(E) dated 26.06.2020. Non-submission of requisite proof and certificate from statutory auditors shall be treated as non-MSE bid.

d) Traders/ resellers / distributors/authorized agents will not be considered for availing benefits under MSME Act 2006 and PPP Policy 2012 as per MSE guidelines issued by MoMSME.

e) MSEs who are manufacturer of Goods /Items and provider of Services, need to ensure that ALL delivered Goods/items and Services of the tender are listed in their MSME/NSIC certificate. Partial listing of Goods/Services in their certificate shall render MSEs ineligible for benefits.

f) The bids submitted without bid security/tender fees or inadequate bid security/tender fees will be rejected. No interest shall be payable on bid security amount.

g) If bid security/tender fees is submitted as BG/DD, it should reach o/o Tender Accepting Authority, TCIL Bhawan, 4th Floor, Greater Kailash-I, New Delhi-110 048 within the last date & time stipulated for bid submission in the tender.

h) The EMD/Bid Security of unsuccessful bidder shall be returned as promptly as possible but not later than 30 days after expiry of the bid validity period.

i) The EMD/Bid Security may be forfeited if:

(i)   If the Bidder withdraws his bid during the period of bid validity specified by the Bidder on the Bid form or

(ii) fails or refuses to execute the Contract, if required; or

(iii) The successful bidder fails to submit performance security within the prescribed time. or

(iv) The proceeds of EMD shall be payable to TCIL in case of breach of any of the terms and conditions of the contract/PO/tender by the vendor.

1.13 EVALUATION

a) TCIL shall evaluate bids in respect to substantive responsiveness of the bid or otherwise. TCIL shall carry out detailed evaluation of the substantially responsive bids only.

b) A bid determined as substantially non-responsive technically/financially shall be rejected, even after opening the price bid.

c) TCIL may waive any minor infirmity or non-conformity or irregularity in the bid which does not constitute a material deviation.

d) Among all technically qualified bids, the lowest bid will be termed as L1 (excluding taxes) derived from Price Bid Schedule. The Purchase Preference needs to be given as per Purchase Preference defined in this EOI.

e) If there is a discrepancy between the unit price and total price that is obtained multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.

f) NPV BASED EVALUATION CRITERIA:

(i)   Applicable for works/tenders where scope of work includes CAPEX and OPEX (O&M/AMC) or only OPEX, where OPEX activity is spread over a period of two or more years.
(ii) Bids shall be evaluated on the basis of the lowest NPV (Net Present Value) without taxes.
(iii) Total cost shall be CAPEX+NPV of O&M/ AMC.
(iv) The discounting rate of 10% per annum shall be used for calculating NPV.

1.14 VALIDITY PERIOD OF BID

Bid shall remain valid for 150 days after the date of bid opening. The bid valid for a shorter period shall be rejected as non-responsive.

In exceptional circumstances, TCIL may request the bidder for an extension to the period of bid validity if same is extended by end client and accordingly, the bid security shall also be suitably extended by the bidder.

1.15 IP PROGRAMME

As a part of implementation of Integrity Pact Programme (IPP) in TCIL, all tenders with the estimate value equal to or exceeding the threshold value will be covered under the Integrity Pact Programme (IPP) and the vendors are required to sign the IP document and submit the same to TCIL before or along with the bids. Latest IP document is available at TCIL website (www.tcil.net.in) Link-https://www.tcil.net.in/integrity_pact.php. Even in case of tenders with the estimated value less than the threshold value, the vendors would be required to sign the IP document if the total value of the Purchase Orders (POs) exceeds the threshold value in respect of:

- Multiple/repeat POs on the single vendors against a tender.
- POs placed on multiple vendors against a tender.

Only those vendors who have signed the IP document can send their grievances, if any, to the Independent External Monitors (IEMs) through the nodal officer, i.e., Chief Vigilance Officer (CVO). TCIL in the prescribed proforma.

NAME OF IEMs WITH THEIR CONTACT DETAILS:

1) Shri Anil Kumar Shrivastava, Independent External Monitor Email ID: anilifs86@gmail.com
2) Shri Harishwar Dayal, Independent External Monitor E mail ID: dayalagra@gmail.com

NAME & CONTACT DETAILS OF NODAL OFFICER (IP) IN TCIL:

Mr. V. K. Sinha, Chief Vigilance Officer E-mail ID: vk.sinha@tcil.net.in

If the Order, with total value equal to or more than the threshold value, is split to more than one vendor and even if the value of PO placed on any/each vendor(s) is less than the threshold value, IP document having been signed by the vendors at bid stage itself, the Pact shall continue to be applicable.

In respect of tenders for Pre-bid tie up/Expression of Interest (EOI) : In case of TCIL getting the Order from the client, before placement of Purchase Order/Work Order on technically & commercially qualified vendor, the selected vendor is required to sign the IP document.

IP document shall be in plain white sheet and to be signed by the vendor and TCIL with two witnesses from each party. The name, designation, company etc. of the persons signing the IP document and the project/tender name shall be clearly mentioned. All pages of the IP document shall be initialed by both parties along with company seal.

Tender received without signed & stamped copy of the Integrity Pact document will be liable to be rejected, and the bidder himself will be responsible for that.

1.16 INTEGRITY PACT

a) This EOI is covered under the Integrity Pact Programme of TCIL and bidders are required to sign the Integrity Pact Document and submit same to TCIL before or along with the bids.
b) The integrity Pact Agreement duly signed and stamped by Authorized Signatory & Witnesses has to be submitted in physical form at the time of bid submission. In case of consortium bid, the lead partner shall sign as authorized signatory and the consortium partner as witness.
c) EOI received without a signed copy of the Integrity Pact document will be liable to be rejected.

d) In case of Joint Venture, all partners of the joint venture should sign the Integrity Pact. In case of sub-contracting, the Principal Contractor shall take the responsibility of the adoption of IP by the sub-contractor. It is to be ensured that all sub-contractors also sign the IP.

e) Mediation Clause

In the event of any dispute between management and the contractor relating to those contracts where integrity pact is applicable, in case, both the parties are agreeable, the dispute may be settled through mediation before the panel of IEMs in a time bound manner. If required, the organizations may adopt any mediation rules for this purpose.

In case the dispute remains unresolved even after mediation by panel of IEMs, the organization may take further action as per terms and conditions of the contract.

1.17 SIGNING OF NON-DISCLOSURE AGREEMENT

Bidders interested to participate in a EOI, where client requires signing of NDA, then bidder also have to sign a NON-DISCLOSURE AGREEMENT with TCIL on a non-judicial stamp-paper of Rs. 100, and the required EOI document fee has to be deposited to TCIL. In case the bid is to be submitted by a consortium, NDA should be signed by each partner of the consortium. Participation without compliance to the above shall be invalid and such bids will not be considered by TCIL.

1.18 AUTHORIZATION LETTER/ BOARD RESOLUTION

The bidders need to submit board resolution along with authorization Letter in Online mode authorizing the signatory to act on behalf of the bidder. The Authorized person should be either authorized by Board or a employee authorized by one of the following person who has the Board Resolution to delegate authorization to other:

1. Managing director
2. The Chief Executive Officer
3. The Manager
4. The Company Secretary
5. The Whole-time director
6. The Chief Financial Officer

The bidder should ensure that the Digital Signature used for uploading the tender document in e-tender portal should be of the authorized signatory.

1.19 AGREEMENT

The selected bidder will have to sign a consortium agreement with TCIL (as per format enclosed in the end client tender) before TCIL submits bid to the end client.

1.20 SUBMISSION OF FORGED DOCUMENTS

Bidders should note that TCIL may verify authenticity of all the documents/certificate/information submitted by them against the EOI. In case at any stage of this process, if it is established that bidder has submitted forged documents/certificates/information towards fulfillment of any of the EOI/contract conditions, TCIL shall immediately reject the bid of such bidder(s) or cancel/terminate the contract and forfeit bid security / Performance Security submitted by the bidder and debar them from participation in future tenders of TCIL for a period upto 2 years.

1.21 CLARIFICATION FROM BIDDERS

The queries may be asked from bidders for submitting shortfall to be submitted within specified date and time. Also, every document submitted against following queries should be signed by the person authorized as per Authorization letter / Board Resolution submitted by bidder against tender, without which the documents will not be accepted as valid.

1.22 REGISTRATION OF MSE VENDORS

All MSE bidders may be registered on TReDS platform (http://www.rxil.in) and MSME-SAMADHAAN portal. Participating MSE bidders shall submit an undertaking regarding the same.

1.23 The bidder must ensure that their bid is complete in all respects and conforms to EOI terms and conditions, EOI specifications etc. including client specifications, failing which the bids are liable to be rejected without seeking any clarifications on any exception/deviation taken by the bidder in their bid.

1.24 TCIL reserves the right to accept or reject any or all the EOIs without assigning any reason.

1.25 On award of work of the Tender/Work/Project, the vendor shall provide its GeM Seller id to TCIL (not applicable for "works" contract or non-Indian vendor).

1.26 CONTACT INFORMATION

Sharad Singh	**Avinash Kumar**	**Gautam**
Deputy General Manager	**Assistant General Manager**	**Deputy Manager**
011-26202630	**011-26202426**	**011-26202541**
9045099880	**8318757450**	**7838794493**
sharad.singh@tcil.net.in	**avinashkumar@tcil.net.in**	**gautam@tcil.net.in**

END OF SECTION-1

SECTION-2

GENERAL TERMS & CONDITIONS OF THE CONTRACT

2.1 **FINANCING OF TRADE RECEIVABLES OF MSE'S THROUGH TRADE RECEIVABLES DISCOUNTING SYSTEM (TREDS) PLATFORM**

a) Based on the initiatives of government of India to help MSME vendors get immediate access to liquid fund based on TCIL's credit rating by discounting MSE's trade receivables through an auction mechanism where multiple financers can participate and bid, TCIL registered itself on TReDS platform with M/s RXIL.

b) Micro and Small Enterprise (MSE) bidders / vendors can avail this benefit by registering themselves with M/s RXIL providing e-discounting/electronic factoring services on its TReDS platform and following the procedures defined therein.

c) All costs relating to availing the facility of discounting on TReDS platform including but not limited to Registration charges, Transaction charges for financing, Discounting Charges, Interest on financing, or any other charges known by any name shall be borne by MSE Bidders / Vendor.

d) MSE Bidders / Vendor hereby agrees to indemnify, hold harmless and keep TCIL and its affiliates, Directors, officers, representatives, agents and employees indemnified, from any and all damages, losses, claims and liabilities (including legal costs) which may arise from Sellers submission, posting or display, participation, in any manner, on the RXIL's TReDS Platform or from the use of Services or from the TCIL's breach of any of the terms and conditions of the Usage Terms or of this Agreement and any Applicable Law on a full indemnity basis.

e) TCIL shall not be liable for any special, indirect, punitive, incidental or consequential damages or any damages whatsoever (including but not limited to damages for loss of profits or savings, business interruption, loss of information), whether in contract, tort, equity or otherwise or any other damages resulting from using facilities on RXIL's TReDS platform.

2.2 **PRICE PREFERENCE TO MICRO AND SMALL ENTERPRISES**

(Price Preference to MSEs shall be extended as per GOI guidelines applicable from time to time).

a) If items mentioned in EOI are **non-splittable / non-dividable** and L1 is non-MSE bidder:

   i) If a MSE vendor / bidder is within L1+15% price range, the complete purchase / work order shall be given to MSE bidder subject to their matching the L1 price.

   ii) If MSE vendor / bidder is not within L1+15% price range, then complete purchase / work order shall be given to L1 bidder.

b) If items mentioned in EOI are **splittable / dividable** and MSE is neither L1 nor within L1+15%, The purchase/work order shall be given to L1 bidder.

c) If the items mentioned in EOI are **splittable / dividable** and MSE is not L1 but within L1+15%, 25% of total procurement shall be made from MSE, subject to their matching of L1 price. In case of more than such eligible MSEs who are within L1+15% range, procurement will be shared equally among such MSEs with a minimum 4% procurement from SC/ST MSEs, subject to their matching of L1 price. In event of failure of SC/ST MSEs to participate in EOI process or meet EOI requirements and L1 price or none of these SC/ST MSEs are in L1+15%, then this 4% sub-target shall be met from other MSEs. Minimum 3% reservation within above mentioned 25% reservation shall be applicable for women owned MSEs.

2.3 **PURCHASE PREFERENCE: MAKE IN INDIA (Purchase Preference to Make IN India shall be given as per GOI guidelines applicable from time to time.)**

a) Minimum local content: **(to be specified)**

b) Margin of purchase preference: 20%

c) Subject to the provisions of this order and to any specific instructions issued by the Nodal Ministry or in pursuance of this Order. Purchase preference shall be given to Class –I local supplier in procurements undertaken by procuring entities in the manner specified here under

d) In the procurements of goods or works, which are covered by para 1.2(a)(ii) and which are **divisible in nature** 'Class –I local supplier' shall get purchase preference over Class –II local supplier as well as non-local supplier' as per following procedure:

   i.   Among all qualified bids, the lowest bid will be termed as L1. If L1 is Class –I local supplier the contract for full quantity will be awarded to L1.

   ii. If L1 bid is not a Class-I local supplier, 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the Class –I local supplier will be invited to match the L1 price for the remaining 50% quantity subject to the Class –I local supplier's quoted price falling within the margin of Purchase preference and contract for that quantity shall be awarded to such Class –I local supplier subject to matching the L1 Price. In case such lowest eligible Class –I local supplier fails to match the L1 price or accepts less than the offered quantity the next higher 'Class –I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L1 bidder.

e) In the procurements of goods or works, which are covered by para 1.2(a)(ii) above and which are **not divisible in nature** and in procurement of services where the bid is evaluated on price alone, the 'Class-I local suppliers' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier' as per following procedure.

   i)   Among qualified bids, the lowest bid will be termed as L1. If L1 is Class-I local supplier, the contract will be awarded to L1.

   ii) If L1 is not 'Class-I local supplier' the lowest bidder among the Class-I local supplier will be invited to match the L1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price.

   iii) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the Class-I local supplier within the margin of purchase preference matches the L1 price, the contract may be awarded to the L1 bidder.

f) 'Class-II local supplier' will not get purchase preference in any procurement undertaken by procuring entities.

g) Verification of local content:

   i.   In cases of procurement for a value less than Rs. 10 crores, the local supplier (Class-I and Class-II), at the time of bidding, shall submit a self-certification that the item offered meets the minimum local content and shall give details of the location(s) at which the local value addition is made.

   ii. In cases of procurement for a value in excess of Rs. 10 crores, the local supplier (Class-I & Class-II) shall be required to provide a certificate from statutory auditor or cost auditor of company (in case of companies) or from practicing cost accountant or chartered accountant (in respect of suppliers other than companies) giving percentage of local content in addition to self-certification at point (i)

2.4 **RESTRICTIONS ON PROCUREMENT FROM A BIDDER OF A COUNTRY WHICH SHARES A LAND BORDER WITH INDIA**

Bidders shall submit the certificate for sourcing products and services in tender as per clause 1.2.i. [wherever applicable the bidder must submit evidence of valid registration by Competent Authority]

2.4.1 The bidder shall offer and supply only those product(s)/goods/equipment(s)/Software(s) under this contract which are in compliance with Government of India, Ministry of Finance, Department of Expenditure, Office Memorandum No. F.No. 6/18/2019-PPD dated 23-07-2020, circular attached as Section-20 of this EOI.

GUIDELINES FOR ELIGIBILITY OF A 'BIDDER FROM A COUNTRY WHICH SHARES A LAND BORDER WITH INDIA'

As per Order dated 23.07.2020, issued by Department of Expenditure, Ministry of Finance, Govt, of India in this regard, the following guidelines have been issued by DoE for tenders:-

1. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

   Competent Authority for the purpose of registration shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT), as mentioned under Annex I of the Order (Public Procurement No.1) dated 23.07.2020.

2. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.

3. "Bidder from a country which-shares a land border with India" for the purpose of this Order means;-

   i. An entity incorporated, established or registered in such a country; or

   ii. A subsidiary of an entity incorporated, established or registered in such a country; or

   iii. An entity substantially controlled through entities incorporated, established or registered in such a country; or

   iv. An entity whose beneficial owner is situated in such a country; or

   v. An Indian (or other) agent of such an entity; or

   vi. A natural person who is a citizen of such a country; or

   vii. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.

4. The beneficial owner for the purpose of (3) above will be as under:

   i. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person (s), has a controlling ownership interest or who exercises control through other means.
   Explanation-
      a) "**Controlling ownership interest**" means ownership of or entitlement to, more than **twenty-five per cent**, of shares or capital or profits of the company;
      b) "**Control**" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

   ii. In case of a partnership firm, the beneficial owner is the natural person who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than **fifteen percent of capital or profits of the partnership;**

iii.   In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

iv.   Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

v.   In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

vi.   An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

2.4.2 PROCUREMENT OF PRODUCTS FROM TRUSTED SOURCES

If the supplied product(s) under this contract is to be connected with Telecommunication Network then such product(s)/goods/equipment(s)/Software(s) shall be only from Trusted Sources duly certified by NSCT as notified by Govt. of India, Ministry of Communication vide OM No. 20-271/2010 AS-I (Vol-III) dated 10.03.2021. Copy of circular/guidelines is attached as Section-21 of this EOI.

2.4.3   Bidder who is found violating these directions /guidelines of Govt. of India or any other guidelines in this regard shall be liable to face action from TCIL which may include non-award of work, cancellation of contract, rejection of goods supplied, getting the work done at risk and cost of the bidder, forfeiting the Performance Security , banning for future work for period up to **five (5) years** or any other action as deemed fit.

2.5 RISK PURCHASE

a)   In case, the sub-contractor/ Supplier is not performing its obligations under the contract, the notice shall be sent as per law to the sub-contractor informing that in case of non-performance by a particular date/period, the contract shall be terminated and the work/project will be executed (through a third party) at the risk and cost of the said sub-contractor/ supplier as per the terms of the contract.

b)   On completion of the specified period/date, the notice of termination shall be issued clearly specifying that the remaining work shall be executed (through a third party) at the risk and cost of the sub-contractor/supplier. Along with this notice of termination, intimation shall be sent to the said sub-contractor/supplier for joint preparation of inventory of the works performed/ supplies already undertaken by him. If the sub-contractor/supplier fails to turn up on an appointed date for joint preparation of inventory, in that situation he shall be proceeded ex parte and the inventory shall be prepared by TCIL/Employer and the same be sent to the sub-contractor/supplier.

c)   Further at the time of award of work to another sub-contractor/ Supplier, if the work is awarded at an additional cost than the original sub-contractor/ Supplier, another notice may be issued to the original sub-contractor/ Supplier specifying that the work has been awarded to another agency at the additional cost of such and such amount, and he is liable to pay that amount to TCIL.

d)   Demand notices may be sent to the original sub-contractor / supplier from time to time.

2.6 GENERAL LIEN / SET-OFF

a)   Whenever under this contract, any sum of money is recoverable from and payable by the supplier, the purchaser shall be entitled to recover such sum by appropriating in part or in whole the security deposit of the supplier, if a security is taken from the supplier. In the event of the security being insufficient or if no security has been taken from the supplier, the balance or the total sum

recoverable, as the case may be, shall be deducted from any sum due to the supplier or which at any time thereafter may become due to the supplier under this or any other contract with the purchaser. Should this sum not be sufficient to cover the full amount recoverable, the supplier, shall pay to the purchaser on demand the remaining balance due.

b) Any some of money (including refundable security deposit) due and payable to the supplier, under this contract or any other contract entered between the parties herein whether continuing or completed may be appropriated by TCIL and set off against any claim of TCIL of any nature whatsoever, arising under this contract or any other contract entered into between the parties, herein whether continuing or completed.

2.7 REPEAT / ADD-ON ORDER

a) In exceptional situation where the requirement is of an emergent nature, the purchaser reserves the right to place repeat order up to 50% of the value of goods and services contained in the running tender/contract within a period of twelve months from the date of commissioning/ commercialization of the project (date of acceptance of APO of the items procured in case where no installation, commissioning is involved) at the same rate or a rate negotiated (downwardly) with the existing venders considering the reasonability of rates based on prevailing market conditions and the impact of reduction in duties and taxes etc.

b) Further if required, an additional order for 50% of the value of the goods & services limited to 100% of the value of goods and services contained in the running tender/contract may be placed within a period of twelve months from the date of commissioning/ commercialization of the project (date of acceptance of APO of the items procured in case where no installation, commissioning is involved) on the existing vendors at the same rate or a rate negotiated (downwardly) considering the reasonability of rates based on prevailing market conditions and the impact of reduction in duties and taxes etc.(with due approval of the Board).

2.8 PURCHASERS RIGHT TO VARY QUANTITIES

TCIL will have the right to increase or decrease up to 25% of the value of goods and services specified in the schedule of requirements without any change in the unit price or other terms and conditions at the time of award of contract.

2.9 FORCE MAJEURE

The supplier shall be exempted from the responsibility for any non-performance arising from a case of force majeure or act of God, hereinafter called force majeure (a) war and (b) earthquake. If such circumstances should arise, the supplier shall inform the purchaser within 72 hours in writing of the existence of the fact before suspending work without penalty on either side from the period of such suspension not exceeding 3 months. Likewise, it must proceed to inform the end of such fact. As soon as the facts constituting a force majeure cease in their effects, the supplier shall restart or continue the fulfillment of its obligations agreed upon. Should suspension of work as explained above exceed three months, the contract shall be violable at the option of either party without penalty on either side.

2.10 DISPUTE RESOLUTION

1) The parties to this agreement/contract agree that they shall resolve all disputes or differences whatsoever arising between them under and/or in connection with and/or in respect of this Tender/EOI/Agreement/Purchase Order/MoU through a "Conciliation and Settlement Mechanism (CSM)" and the detailed guidelines/procedure for such CSM is annexed hereto as **Annexure-A** in Section-19 of this EOI. That it is understood and agreed between the parties that the CSM annexed as **Annexure-A** with the present agreement forms and shall be treated as part and parcel of the present agreement.

2) If the parties fail to resolve such disputes through the conciliation proceedings, then and only then, a party shall refer the dispute to arbitration as mentioned in the following manner:

a. All disputes or differences whatsoever arising among the parties under and/or in connection with and/or in respect of this Tender/EOI/Agreement/Purchase Order/MoU shall be referred to and decided by a sole arbitrator, who shall be appointed by the CMD, TCIL only. The arbitration shall be conducted in accordance with Arbitration and Conciliation Act of 1996, as amended from time to time, and the venue of the arbitration shall be in New Delhi.

b. Notwithstanding the generality of the above, it is a term of this contract that no person other than a person appointed by CMD, TCIL as aforesaid, should act as arbitrator and if for any reason that is not possible or any party does not agree to such appointment of Arbitrator by CMD, TCIL for whatsoever reason, then the matter is not to be referred to arbitration at all and such disputes shall be resolved under the mechanism provided by the state in form of Courts of Law/Ordinary Civil Courts for resolution of such disputes under applicable Laws.

3) The courts at New Delhi shall have exclusive jurisdiction in respect to any dispute pertaining to this agreement.

4) The parties shall continue to perform their respective obligations as per the Agreement during the pendency of proceedings under this clause.

For Public Sector Undertaking / Government Departments:

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Center Enterprise (CPSEs)/Port Trusts inter se and also between CPSEs and Govt. Depts/ organizations (excluding disputes relating to Railways, Income Tax, Customs & Excise Dept), such dispute or difference shall be taken up by either party for its resolution through AMRCD as mentioned in DPE OM No. 05/003/2019-FTS-10937 dated 14th December 2022 and the decision of AMRCD on the said dispute will be binding on both the parties

2.11 FALL CLAUSE

a) The prices once fixed will remain valid during the scheduled delivery period. Further, if at any time during the contract

I. It comes to the notice of purchaser regarding reduction of price for the same or similar equipment/ service

And/or

II. The prices received in a new tender for the same or similar equipment/service are less than the prices chargeable under the contract.

The purchaser, for the purpose of delivery period extension/during rate contract, if any, will determine and intimate the new price, taking into account various related aspects such as quantity, geographical location etc., and the date of its effect for the balance quantity/ service to the vendor. In case the vendor does not accept the new price to be made applicable during the extended delivery period and the date of its effect, the purchaser shall have the right to terminate the contract without accepting any further supplies. This termination of the contract shall be at the risk and responsibility of the supplier and the purchaser reserves the right to purchase the balance unsupplied quantity/ service at the risk and cost of the defaulting vendor besides considering the forfeiture of his performance security.

b) The vendor while applying for extension of time for delivery of equipment/services, if any, shall have to provide an undertaking as "We have not reduced the sale price, and/ or offered to sell the same or similar equipment/ service to any person/organization including Department of central/state Government or any central/state PSU at a price lower than the price chargeable under the contract for scheduled delivery period."

In case undertaking as in (b) above is not applicable, the vendor will give the details of prices, the name(s) of purchaser, quantity etc. to the purchaser, while applying extension of delivery period.

2.12 OFFLINE DOCUMENTS

The Bidder should submit all the bid documents (except Bank Guarantee/DD) online as indicated in the Tender /EOI schedule. The Tender Fees / EMD if paid through online mode), UTR No. is to be provided by bidder in their online bid. Only Bank Guarantee if required in tender/EOI schedule shall be taken in offline mode. (Address to be given where it is to be submitted)

Documents submitted in online mode should be uploaded using DSC of the person authorized as per Authorization letter /Board Resolution for signing bid documents.

2.13 BANNING OF NON-PERFORMING VENDOR

In case any of the vendor's work/PO/agreement is cancelled/terminated by TCIL after award, due to non-performance, the vendor may be banned/blacklisted up to 2 years or action as deemed fit may be taken by TCIL.

2.14 AMENDMENT TO BID DOCUMENTS

a) At any time, prior to the date of submission of bids, TCIL may for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the bid documents by amendments, which shall be available on TCIL Website and the e-tendering portal.

b) In order to give the required time to the prospective bidders, in which to take the amendments into action in preparing their bid, TCIL may at its discretion extend the deadline for submission of bid suitably.

2.15 BID PRICE

a) The prices quoted by the bidder shall remain firm during the entire period of the contract and shall not be subject to variation (unless asked by TCIL). Clauses such as "at actual", "extra', "to be given later" etc. shall also be treated as non-responsive & are liable for rejection.

2.16 MODIFICATION AND WITHDRAWAL OF BIDS

a) Bid withdrawal/modification shall not be allowed after end date and time of bid submission.

b) Withdrawal of a bid between the deadline for submission of bids and the expiration of the period of bid validity specified in the tender or as extended, may result in the forfeiture of the bid security. Such defaulting vendor is liable to be debarred from participating in future bids for a period of up to 2 years.

2.17 CLARIFICATION OF BIDS

During evaluation of bids, TCIL may at its discretion ask the Bidder for clarifications / confirmations / deficient documents of its bid. The request for clarification and the response shall be in writing and no change in the price of substance of the bid shall be sought or permitted.

2.18 PURCHASER'S RIGHT TO SEEK QUOTES DIRECTLY FROM OEM

During the EOI / NIT process, TCIL reserves its right to seek rates directly from OEM or its authorized representative / distributor for one or all items of BOQ under this EOI.

2.19 TERMINATION FOR DEFAULT

a) TCIL may, without prejudice to any other remedy for breach of contract, by written notice of default, sent to the supplier, terminate this contract in whole or in part.

- if the supplier fails to deliver any or all the services/goods within the time period specified in the contract, or any extension thereof granted by TCIL.
- if the supplier fails to perform any other obligation(s) under the contract;
- if the supplier, in either of the above circumstances, does not remedy his failure within a period of 15 days (or such longer period as TCIL may authorize in writing) after receipt of the default notice from TCIL.
- Failure of the successful bidder to comply with the requirement of submission of performance security shall constitute sufficient ground for cancellation of the award of work and forfeiture of the bid security.

b) In the event TCIL terminates the contract in whole or in part pursuant to above clause, TCIL may procure, upon such terms and in such manner as it deems appropriate, goods/services similar to those undelivered and the supplier shall be liable to TCIL for any excess cost for such similar goods/services. However, the supplier shall continue the performance of the contract to the extent not terminated.

2.20   TERMINATION FOR INSOLVENCY

TCIL may at any time terminate the contract by giving written notice to the supplier, without compensation to the supplier, if the supplier becomes bankrupt or otherwise insolvent as declared by the competent court; provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to TCIL.

2.21   At any time, in case it comes to the knowledge of TCIL any of wrong information related with eligibility of the bidder or non-compliance to any terms and conditions of tender, then TCIL reserves the right to cancel or reject the bid of such bidder, cancel the tender or take any other action as deemed fit in accordance with tender terms and conditions.

2.22   ADDITIONAL CLAUSES FOR DEBARMENT:

A. A bidder or any of its successor, shall be debarred from participating in any procurement process undertaken by TCIL for a period not exceeding **three (3) years** if he has been convicted of an offence as under:

   a) under the Prevention of Corruption Act, 1988; or
   b) the Indian Penal Code or any other law for the time being in force, for causing any loss of life or property or causing a threat to public health as part of execution of a public procurement contract.

B. A bidder or any of its successor, shall be debarred from participating in any procurement process undertaken by TCIL for a period not exceeding **two (2) years** if the following code of integrity as per rule 175 of GFRs 2017, is breached:

   1. prohibition of
      a) making offer, solicitation or acceptance of bribe, reward or gift or any material benefit, either directly or indirectly, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process.
      b) any omission, or misrepresentation that may mislead or attempt to mislead so that financial or other benefit may be obtained or an obligation avoided.
      c) any collusion, bid rigging or anticompetitive behaviour that may impair the transparency, fairness and the progress of the procurement process.

    d) improper use of information provided by the procuring entity to the bidder with an intent to gain unfair advantage in the procurement process or for personal gain.

    e) any financial or business transactions between the bidder and any official of the procuring entity related to tender or execution process of contract; which can affect the decision of the procuring entity directly or indirectly.

    f) any coercion or any threat to impair or harm, directly or indirectly, any party or its property to influence the procurement process.

    g) Obstruction of any investigation or auditing of a procurement process.

    h) *making false declaration or providing false information* for participation in a tender process or to secure a contract;

2. disclosure of conflict of interest.

3. Disclosure by the bidder of any previous transgressions made in respect of the provisions of sub-clause (i) with any entity in any country during the last three years or of being debarred by any other procuring entity.

C. A bidder or any of its successor, shall be debarred from participating in any procurement process undertaken by TCIL for a period not exceeding **two (2) years** if the following is breached:

(i) If a Bidder withdraws the proposal or increases the quoted prices after opening of the Proposal and during the period of Bid validity period or its extended period, if any.

(ii) In case of a successful Bidder, if the Bidder fails to sign the Agreement in accordance with the terms and conditions (including timelines for execution of the Agreement) of this tender or fails to furnish the Performance Security in accordance with the terms and conditions (including timelines for furnishing Performance Security) of this tender.

(iii) During the Bid process, if a Bidder indulges in any act as would jeopardize or unnecessarily delay the process of bid evaluation and finalization.

D. The debarment in all cases shall be automatically extended to all its allied firms. In case of Joint ventures/Consortium is debarred all partners shall also stands debarred for a period specified in debarment order. The names of partners should be clearly specified in the debarment order.

END OF SECTION-2

SECTION – 3

SPECIAL CONDITIONS OF CONTRACT

(In case clauses/ sub-clauses have any difference mentioned in this EOI at different places, the conditions mentioned in Section-3 shall prevail. The terms and conditions of Secction-3 shall be on back to-back basis based on client's tender no. TCO/D-4/ RoadSafety/ITMS/2024/ON-2191 dated: 23/02/2024)

3.1 PAYMENT TERMS

On back to back basis, except advance (if any)**.**

3.2 PERFORMANCE SECURITY

Performance Security can be submitted in the following modes:

1) Performance Bank Guarantee (PBG) / e-PBG (as per format given in Section-17)
2) Fixed Deposit Receipts (FDR)
3) Insurance Surety Bond (as per format given in Section-23)
4) Bankers Cheque

i) The bidder will submit undertaking to submit back-to-back PBG (Performance Security) as submitted by TCIL to end Client if the contract is awarded to TCIL by end Client.

ii) PBG to be submitted in the prescribed format from a SFMS enabled Scheduled Commercial Bank through SFMS Platform as per details below:

Name of Beneficiary and its Details	Name	Telecommunications Consultants India Limited
	Address	TCIL Bhawan, Greater Kailash-1, New Delhi-110048
Name of Beneficiary Bank and its Details	Name	ICICI Bank Limited
	Account No	000705005880
	Address	9-A PHELPS Building, Connaught Place, New Delhi- 110001
	Unique Identifier Code	TC503394486 (UID to be mentioned in field 7037 of the BG advising message code)
	IFS Code	ICIC0000007

iii) The proceed of performance security shall be payable to TCIL in case of breach of any of the terms and conditions of the contract/PO/tender by the vendor. Recovery/adjustment due to LD or any other loss to TCIL shall be in addition to point f).

iv) The performance security will be discharged by TCIL after completion of supplier's obligations, including any warranty obligations, under the contract.

v) PBG should be valid for 02 months more than the validity asked in the end client tender. The PBG shall be refunded once the PBG of TCIL is returned by the client.

vi) Failure of the successful bidder to submit the Performance Security or bidders' failure to complete its obligations under the contract shall constitute sufficient ground for the annulment of the award / cancellation of the award of work and forfeiture of the bid security/performance security.

vii) Additionally, TCIL reserves the right to debar such defaulting bidder from participating in future bids for a period up to 2 years.

3.3 PRICE BASIS

As per Client's Terms and conditions.

3.4 PAYING AUTHORITY

GM (F&A-IT)

3.5 INSURANCE

As per Client's Terms and conditions.

3.6 DELIVERY / IMPLEMENTATION SCHEDULE

As per Client's Terms and conditions.

3.7 WARRANTY

As per Client's Terms and conditions.

3.8 PERIOD OF CONTRACT

As per Client's Terms and conditions.

3.9 TERMINATION OF CONTRACT

As per Client's Terms and conditions.

3.10 PENALTY

As per Client's Terms and conditions on absolute terms.

3.11 SLA

As per Client's Terms and conditions.

3.12 UPTIME

As per Client's Terms and conditions.

3.13 LIQUIDATED DAMAGES

As per Client's Terms and conditions on absolute terms.

3.14 DELIVERY PERIOD EXTENSION

a) DP extension beyond 16 weeks would not be generally allowed. The extension beyond 16 weeks may be decided in most exceptional circumstances on case to case basis, by the Tender approving authority, stating reasons and justifications for grant of extension of delivery period beyond 16 weeks.

b) In the case of package supply/ turnkey projects when the delayed portion of the supply materially hampers installation and commissioning of the systems, LD charges shall be levied as above on the total value of the concerned package of the Purchase Order.

c) Quantum of liquidated damages assessed and levied by the purchaser and decision of the purchaser thereon shall be final and binding on the supplier, further the same shall not be challenged by the supplier either before Arbitration tribunal or before the court. The same shall

stand specifically excluded from the purview of the arbitration clause, as such shall not be referable to arbitration.

d) The total value of the liquidated damages as per above sub-clauses shall be limited to a maximum of 12% (Twelve percent) i.e. LD shall be levied up to 15 weeks only as per provision at Para (a).

e) The Liquidated Damages shall be calculated on the all inclusive Price CIF-destination inclusive of Freight, Forwarding Packing, insurance, any other incidental charges and other non-creditable taxes after discount, if any but excluding GST and other creditable taxes. GST on LD shall be calculated as per GST rule as applicable from time to time.

f) If the deliveries are made after expiry of the contracted delivery period, without prior concurrence of the purchaser and accepted by the consignee, such delivery will not deprive the purchaser of its right to recover liquidated damages under clause 3.13.2 above.

3.15 In cases where the scheduled delivery period is distributed month-wise or is in installments, the liquidated damages shall be imposed for delay in each scheduled month/ installment. Liquidated damages shall be calculated separately for quantities to be supplied in every month/ installment and the corresponding delay. If the supplier supplies full quantity before the expiry of the scheduled delivery period of the last month/ installment but there is delay in month-wise/ installment-wise supply, then also liquidated damages shall be levied on the supplies against the earlier months/ installments that have been delayed. Twenty (20) weeks for the purpose of additional BG and grant of DP extension shall be counted from the last month/ installment.

3.16 Notwithstanding anything contained in this Agreement or any other agreement between the parties, the Purchaser may, without prejudice to its right to effect recovery by any other method, deduct the amount of Liquidated Damages from any money belonging to the supplier in its hand in relation to this or any other contract between the parties (which includes purchaser's right to claim such amount against invoices raised by the supplier or Bank Guarantees submitted by the supplier under this Contract or any other contract) or which may become due to the supplier. Any such recovery of Liquidated Damages shall not in any way relieve the supplier from any of its obligations to complete the Works or from any other obligation and liabilities under the Contract.

3.17 To facilitate recovery of Liquidated Damages from the invoices raised by the supplier, the Credit Note shall be issued by the supplier, failing which the purchaser shall adjust the amount to be recovered from the pending payments by issuing an invoice/debit note for the corresponding amount, at the risk and cost to the supplier including applicable GST, interest and penalty, if any.

3.18 Taxes (GST)

GST invoice / Debit Note / Credit Note:

a. It shall be the responsibility of Bidder / Supplier / Contractor / Vendor to raise Tax Invoice (e-invoice wherever applicable) as per the provisions of GST Laws and send to TCIL promptly.

b. The Bidder / Supplier / Contractor / Vendor shall ensure that Tax Invoice contains all the requirements as per GST Law from time to time, for eg. E-Way bill along with transportation details etc, wherever applicable. TCIL GST Number to be mentioned on the Invoices as advised by TCIL, etc.

c. The Bidder / Supplier / Contractor / Vendor shall ensure to issue Debit / Credit Note (wherever applicable) as prescribed under GST Act and send to TCIL within the prescribed time limit. All documents should be received well in advance so as to enable TCIL to claim eligible credit.

GST Compliances:

d. The Bidder / Supplier / Contractor / Vendor shall ensure

- To issue Tax Invoice / Debit Notes / Credit Notes to enable TCIL to claim tax benefit on or before the stipulated time period provided by the GST law.
- To file its GST Returns (GSTR – 1 and GSTR – 3B) within the time limits prescribed in GST Laws with all Debit and Credit Note details, so as to ensure availing ITC Credit of GST by TCIL.
- To declare correct information on invoice and GSTN viz. the amount, the place of supply, rate of tax etc.
- To issue all Tax Invoices / Debit Notes / Credit Notes to the registered premise of TCIL for availing of credit and ensure that the place of supply as per GST law is same as registered premise of TCIL.

e.   The Bidder / Supplier / Contractor / Vendor shall ensure to keep its GST Numbers active at all times and in case the same is blacklisted, cancelled or blocked etc by GST Authorities, the same needs to be promptly intimated to TCIL.

Tax Indemnity:

f.   There should not be any loss of ITC of GST to TCIL due to default of bidder. In case of any financial loss including interest, same will be recovered from the Bidder / Supplier / Contractor / Vendor for delay / non-compliance on the part of the Bidder / Supplier / Contractor / Vendor.

g.   In case, the eligibility of ITC of GST is questioned or denied to TCIL on account of default by the Bidder, the same would be recovered by TCIL from the Bidder / Supplier / Contractor / Vendor.

h.   No payment shall be made by TCIL against Performa Invoice issued by Bidder / Supplier / Contractor / Vendor. Payment will be made only against Valid Tax Invoice as per GST Laws.

i.   In case of delay in deposit of Tax & filling GSTR-1 by the Bidder / Supplier / Contractor / Vendor, the input tax credit will not be available to TCIL and as a result TCIL to pay the total output tax without availing input tax credit and in such case the financial loss including interest shall be recovered from the Bidder / Supplier / Contractor / Vendor.

Documents:

j.   Self-declaration along with evidence that the Bidder / Supplier / Contractor / Vendor is not blacklisted.

k.   An undertaking from the Bidder / Supplier / Contractor / Vendor that information provided by him is correct and in case of any loss, the Bidder / Supplier / Contractor / Vendor is fully responsible.

3.19   Release of GST Payment along with payment of RA Bill

a)   In all projects, where running bill continue to be raised periodically, GST shall be paid along with running bill but amount equivalent to GST of previous RA bill as well as current RA shall be withheld if GST of previous bill is not paid/reflecting at time of payment of next (current) RA bill.

b)   At the time of final bill of the project, GST shall be paid only if payment of all GST dues of the project by vendor is visible in GST portal.

c)   The above shall be applicable for all projects involving payment in multiple trenches (Running bill).

Note: As payment of GST dues in statutory requirement hence no undertaking is required separately for this from vendor.

END OF SECTION-3

SECTION-4

SCOPE OF WORK & TECHNICAL SPECIFICATIONS

Motor Vehicles Department, Maharashtra (MMVD) MMVD intends to establish Intelligent Traffic Management Systems (ITMS) on three key high-risk National Highway corridors in the Maharashtra State in this Nagpur Circle Project, spanning a total length of 445+ km.

For detailed Scope of work, please refer Client RFP Tender No. TCO/D-4/ RoadSafety/ITMS/2024/ON-2191 dated: 23/02/2024 attached in the last of this EOI.

END OF SECTION-4

SECTION-5

PROJECT EXPERIENCE

S. No	Item	Details
General Information		
1	Customer Name/Government Department	
2	Name of the Contact Person and Contact details for the Project	
Brief Description of scope of Project		
Size of the Project		
3	Contract Value of the Project (in crore) excluding taxes	
4	Contract Value of the Project (in crore) including taxes	
Project Details		
5	Name of the Project	
6	Start Date & End Date	
7	Current Status (work in progress in %, completed)	
8	Contract Tenure	
9	Type of Project	

END OF SECTION-5

SECTION – 6

PRICE BID SCHEDULE

To: [Head of Department]

Dear Sir,

We, the undersigned, offer to provide the [Insert title of assignment] against your EOI No. [Insert EOI No.] dated [Insert Date]. Our attached Financial Proposal is for the sum of [Insert amount(s) in words and figures1].

Yours sincerely,

Authorized Signature [*In full and initials*]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

Bill of Material

Sr.	Item Rate (All inclusive, excluding GST)	(All inclusive, excluding GST) (Upto two decimal only)	
		In Figures	In Words
1	**Per Challan Rate** (Applicable for any type of violation detected through ITMS system subject to T&C of the RFP)	Eg. XX.XX	
	Commercial Bid Total		

Note 1:- The bidder to provide un-priced Price-Bid along with Technical bid.

Notes2:-

a) Lowest Bid will be on the basis of Grand Total

b) Bidder shall mandatory mention the 8 digit / 6 digit applicable HSN / SAC code of all the Quoted items.

c) In case of change in rate due to change in Taxes/Duties the rate shall be applicable on prorate basis based on actual nos. of applicable days.

d) Before Submitting their Duly Filled "Price Bid Schedule & BOQ" the bidders should ensure that they do not enter any Comments in the above Table like " As per Actuals, Will be Intimated Later on etc" . If Bidder uses these type of Comments while filling up the above Table for Price Bid Schedule & BOQ Or if the charges for any item is left blank the Charges for the Items wherever such comments are used or if left blank shall be Considered as "Zero" and the same shall be a binding on the bidder.

e) If there is a discrepancy between the unit price and total price that is obtained multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.

f) The Bidder must specify the make of each product / Line items of the BOQ in the price bid.

g) The requirement / Quantity mentioned above are indicative & may vary as per the actual requirements.

END OF SECTION-6

SECTION-7

MANUFACTURER'S AUTHORISATION FORM

Bidder is required to submit the MAF as per the format provided in the end client tender.

END OF SECTION-7

SECTION - 8

BID SECURITY BANK GUARANTEE (EMD) FORMAT

Whereas ……………………. (hereinafter called "the Bidder") has submitted its bid dated …………… For the supply of …………. Vide Tender No. ……………………….. dated …………… KNOW ALL MEN by these presents that WE ……………………. OF ………………. Having our registered office at ………….. (hereinafter called "the Bank") are bound unto Telecommunications Consultants India Limited (hereinafter called "the Purchaser") in the sum of Rs. ………………… for which payment will and truly to be made of the said Purchaser, the Bank binds itself, its successors and assigns by these present.

THE CONDITIONS of the obligation are:

1.   If the Bidder withdraws his bid during the period of bid validity specified by the Bidder on the Bid form or

2.   If the Bidder, having been notified of the acceptance of his bid by the Purchaser during the period of bid validity

   (i)   fails or refuses to execute the Contract, if required; or

   (ii) The successful bidder fails to submit performance security within the prescribed time. or

   (iii) The proceed of EMD shall be payable to TCIL in case of breach of any of the terms and conditions of the contract/PO/tender by the vendor.

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the purchaser having to substantiate its demand, provided that in its demand, the purchaser will note that the amount claimed by it is due to it owning to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force upto and including THIRTY (30) days after the Period of bid validity and any demand in respect thereof should reach the Bank not later than the specified date/dates.

                                        Signature of the Bank Authority.

                                            Name

                                            Signed in Capacity of

Name & Signature of witness   Full address of Branch

Address of witness   Tel No. of Branch
                                            Fax No. of Branch

END OF SECTION-8

SECTION-9

INTEGRITY PACT

[As per format given in TCIL Website – Link https://www.tcil.net.in/public/pdf/integrity_pact.pdf

END OF SECTION-9

SECTION-10

AUTHORIZATION LETTER

Format for Authorization letter to be submitted by Bidder

Know all men by these presents that we (name of Company) _____ _____, incorporated in India under the Companies Act, 1956 and having its Registered Office at _____. (India) ("Hereinafter called the Company") DOTH hereby nominate, constitute and appoint (Name, Designation) _____, S/o _____ to be true and lawful authorized signatory in fact and at law of the Company for and in the name and on behalf of the Company, to do, execute and perform all or any of the following acts, deeds, matters and things namely:-

1.   To represent the Company to all intents and purposes in connection with the matters pertaining to signing & submission of (EOI No, EOI Date, EOI Description)_____ , _____, _____and all affairs ancillary or incidental thereto.

2.   AND the Company hereby agrees that all acts, deeds and things lawfully done by the said authorized signatory shall be construed as acts, deeds and things done by the Company itself and the Company hereby undertakes to ratify and confirm all and whatever its authorized signatory shall lawfully do or cause to be done for and on behalf of the Company by virtue of the powers hereby given.

In witness whereof (Name , Designation) _____, _____of the Company acting for and on behalf of the Company under the authority conferred by the Board of Directors of the Company in its _____ meeting held on (Date) _____ has signed this Authorization Letter at (place)_____on this (Date) _____.

The signatures of (Name, Designation) _____ given below are hereby certified.

Signature: _____

Signature of (Name, Designation) _____

CERTIFIED

Signature: _____

WITNESS:

Signature: _____

(Name, Designation): _____

END OF SECTION-10

SECTION-11

CALCULATION OF LOCAL CONTENT

Sl. No.	Description of the Item	Qty	Unit	Basic Rate W/o Tax (INR)		Total Cost W/o Tax (INR)		Domestc + Imported
				Domestic (Excluding net Domestic indirect Taxes)	Imported (Including All Custom Duties)	Domestic (Excluding net Domestic indirect Taxes)	Imported (Including All Custom Duties)	
			a	b	c	d=a*b	e=a*c	f=d+e
1	Item Description	1	Nos					
2	Item Description	1						
3	Total				-		-	

% of Local Content = (Total Cost Domestic 3(d) / Total Cost (domestic + Imported) (3 (f))) * 100

(To be used by bidder for their internal calculation and to submit if demanded by TCIL at any stage)

END OF SECTION-11

SECTION-12

NO-CONVICTION CERTIFICATE

[To be submitted on the Letterhead of the Bidder]

Offer No.: _____   Date: _____

To
[Head of Department]
Telecommunications Consultants India Limited,
TCIL Bhawan, Greater Kailash-I,
New Delhi-110 048 (INDIA)

Sub: Self Declaration of not been blacklisted for [EOI No.] dated [EOI date]

Dear Sir,

This is to notify you that our Firm /Company/ Organization <p**rovide Name of the Firm/ Company/ Organization>** intends to submit a proposal in response to [EOI No.] dated [EOI date] for [EOI Name].

In accordance with the above, we declare that:

a. We are not involved in any major litigation that may have an impact of affecting or compromising the delivery of goods / services as required under this [EOI No] dated [EOI date].

b. We are neither banned/ debarred/ blacklisted/ put on holiday list nor action for banning / debarment / blacklisting / holiday listing has been initiated by any Central/ State Government/ agency of Central/ State Government of India or any other country in the world/ Public Sector Undertaking/ any Regulatory Authorities in India or any other country in the world for any kind of fraudulent activities on any ground including but not limited to indulgence in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice as on date of submission of the Bid.

Yours sincerely,

(Signature of the Authorized signatory of the Bidding Organization)

Name:

Designation:

Contact details (including E-mail):

Business Address:

Date:

Seal:

END OF SECTION-12

SECTION-13

BID SUBMISSION FORM

Offer No.:   Date:

To: [Head of Department], TCIL

Dear Sir,

In response to your Tender No. _____, we hereby submit our offer herewith.

1. Bidder Name : _____

2. Website Address : _____

3. Email Address :_____

4. Address for Communication : _____
   _____
   _____

5. Telephone Number : _____

6. Fax/Telefax Number : _____

7. Authorized Person -   Name   :_____
                         Designation :_____
                         Mobile No. :_____
                         Email ID   : _____

8. Alternate Person   Name: :_____
                         Designation :_____
                         Mobile No. :_____
                         Email ID   : _____

9. PAN Number : _____

10. GST Regn. No. with Address : _____
    _____
    _____

11. Beneficiary's complete Bank Details.
    Bank Account No.   : _____
    IFSC / NEFT Code   : _____
    Name of the Bank   : _____
    Address of the Branch   : _____

12. Particulars of EMD
    Amount   : Rs. _____
    Mode of Payment (DD/BG) : _____
    DD/BG No.   : _____
    Date   : _____
    Name of the Bank   : _____
    Address of the Bank   : _____
    Validity of BG   : _____

13. Particulars of Tender Fee
    Amount   : Rs._____

DD No.   :_____
Date   : _____
Name of the Bank   : _____
Address of the Bank   : _____

14. Turnover of the Bidder in last 3 years:

Year	Year Annual Report attached at Page No.	Turnover in Rs. (Lakh)
Average Turnover		

15. Are you a MSME Unit. If yes, please furnish Registration Details, Name of the DIC/State.
_____

16. If you are MSME, is it owned by SC/ST Entrepreneurs or Women Entrepreneurs? If Yes, please specify the Name of the Owner who is SC or ST or Women Entrepreneur (as applicable).
_____

17. Following Documents are submitted to substantiate other eligibility criteria.

i) _____

ii) _____

iii) _____

DECLARATION

1. We have read and understood the terms & conditions of the above-mentioned tender and comply to all Terms & Conditions of the Tender.
   (In case of any deviation, the Bidder must attach a separate sheet clearly mentioning the Clause No. of the Tender and Deviation thereto)

2. We certify that the information mentioned above are true and correct to best of our knowledge.

Place: Signature of Authorized Signatory with Seal
Date: Name:
                                          Designation:

END OF SECTION -13

SECTION-14

MAKE IN INDIA UNDERTAKING

A. Bidder shall furnish following self-certificate on its letter head along with their techno-commercial bid.

"We M/s_____ (Name of bidder) hereby certify that we meet the mandatory minimum Local Content requirements of the Tender of equal to or more than 50% (for Class-I) / greater than 20% and less than 50% (for Class-II) (in value terms) quoted vide our offer No ._____dated _____against TCIL Tender No. ----------------- dated ……….. . Given below are the list of items (goods and services) which meets the Local Content Criteria. along with details of the location(s) at which the local value addition is made in respective items (goods and services)"

S#	Description of Items / Products / services	Make	Model	location(s) at which the local value addition is made

B. If value of procurement is more than INR 10 Crore, above undertaking shall be supported by the following certificate from Statutory Auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing charted accountant (in respect of suppliers other than companies giving the percentage of local content, on the letter head of such Statutory Auditor.

"We_____ the statutory auditor of M/s._____ (name of the bidder) hereby certify that M/s._____(name of bidder) meet the mandatory Local Content requirements of the Project Work under this Tender i.e. equal to or more than 50% (for Class-I) / greater than 20% and less than 50% (for Class-II) (in value terms) quoted vide offer No._____ dated_____ against TCIL Tender No. ----------- dated ---- by M/s._____(Name of the bidder).

(Note: In case of bidder(s) for whom Statutory Auditor is not required as per law, required certificates shall be provided by a practicing Chartered Accountant.)

For Details, Govt. of India Order N0. P-45021/2/2017-PP (BE-II) dated 04.06.2020 may be referred.

END OF SECTION-14

SECTION-15

EOI CHECKLIST

S.No	Document	Submitted (Yes or No)
1	Tender Fee	
2	EMD (BG / DD / NEFT / Insurance Surety Bond / FDR etc.)	
3	For MSME Exemption, Udyam Registration Certificate and Statutory Auditor Certificate for Investment in Plant and Machinery.	
4	For StartUp DPIIT certificate	
5	Authorization Letter/Board Resolution	
6	MAKE IN INDIA Undertaking	
7	Certificate of Incorporation/ Registration/ Partnership Deed or any other	
8	Financial criteria	
9	Similar Experience Criteria	
10	Pan & GST	
11	MAF	
12	Insolvent Undertaking	
13	No-Conviction Certificate	
14	Land Border Sharing Declaration	
15	Unpriced BOQ	
16	Undertaking from Vendors for non-cancellation of Purchase Order(s) on risk and cost on risk & cost basis or non-performance.	
17	PF Registration	
18	Local Office Undertaking	
17	Labor Laws Compliance Undertaking	
18	Consortium Agreement	
19	Genuine Documents Undertaking	
20	No-Deviation Certificate/ Clause-by Clause Compliance	
21	Technical Brochure and Data Sheet	
22	Integrity Pact document as applicable	
23	Bid Submission Form	
24	NDA as applicable	
25	Any Other Undertaking/ document as per EOI.	

END OF SECTION-15

SECTION-16

RATE CONTRACT

[The following terms and conditions need to be included in Rate Contracts only]
[Other terms and conditions shall be as per EOI format]
[Refer point 21 of EOI guidelines]

1. The quantity to be supplied during the currency of the rate Contract is not fixed and will be decided based on their actual requirement as per approved Budget/ Indent on "as and when" required basis.
2. The Company can place the orders during the validity of the rate contract period at the same rate, terms and conditions.
3. Normally, no variation is allowed except statutory variations in Sales Tax and Excise Duties. Sometimes, there are significant variations in the raw-material prices during the rate contract period. If there are downward variations and the client insists for revised quotations, the earlier rate contract is cancelled and new tenders are invited.

4. **FALL CLAUSE (applicable for Rate Contract)**

a) The prices once fixed will remain valid during currency of rate contract. Further, if at any time during the contract

   i. It comes to the notice of purchaser regarding reduction of price by the supplier/vendor for the same or similar equipment/ service;

   And/or

   ii. The prices received in a new tender for the same or similar equipment/service are less than the prices chargeable under the contract.

The purchaser, for the purpose of rate contract, if any, will determine and intimate the new price, taking into account various related aspects such as quantity, geographical location etc., and the date of its effect for the balance quantity/ service to the vendor. In case the vendor does not accept the new price to be made applicable during the extended delivery period and the date of its effect, the purchaser shall have the right to terminate the contract without accepting any further supplies. This termination of the contract shall be at the risk and responsibility of the supplier/vendor/contractor and the purchaser reserves the right to purchase the balance unsupplied quantity/ service at the risk and cost of the defaulting vendor besides considering the forfeiture of his performance security.

b) The vendor during any time of the currency of the rate contract, shall have to provide an undertaking as "We have not reduced the sale price, and/ or offered to sell the same or similar equipment/ service to any person/organization including Department of central/state Government or any central/state PSU at a price lower than the price chargeable under the contract for scheduled delivery period."

In case clarification is required by TCIL, the vendor supplier shall produce related documents such as PO/Agreement etc.

END OF SECTION-16

SECTION -17
PERFORMANCE SECURITY (BANK GUARANTEE FORMAT)

(TO BE ISSUED BY A DELHI BRANCH)

M/s Telecommunications Consultants India Ltd.,
TCIL Bhawan, Greater Kailash-I
New Delhi – 110 048 (INDIA)

(With due stamp duty if applicable)

OUR LETTER OF GUARANTEE No: _____

In consideration of TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED, having its office at TCIL Bhawan, Greater Kailash-I, New Delhi – 110 048 (INDIA) (hereinafter referred to as "TCIL" which expression shall unless repugnant to the content or meaning thereof include all its successors, administrators and executors) and having entered into an agreement dated _____/issued Purchase Order No. _____ dated _____ with/on M/s _____ (hereinafter referred to as "The Supplier" which expression unless repugnant to the content or meaning thereof, shall include all the successors, administrators, and executors).

WHEREAS the Supplier having unequivocally accepted to supply the materials/Services as per terms and conditions given in the Agreement dated _____ /Purchase Order No. _____ dated _____ and TCIL having agreed that the Supplier shall furnish to TCIL a Performance Guarantee for the faithful performance of the entire contract, to the extent of 10% (ten percent) of the value of the Purchase Order i.e. for _____.

We, _____ ("The Bank") which shall include OUR successors, administrators and executors herewith establish an irrevocable Letter of Guarantee No. _____ in your favour for account of _____ (The Supplier) in cover of performance guarantee in accordance with the terms and conditions of the Agreement/Purchase Order.

Hereby, we undertake to pay up to but not exceeding _____ (say _____ only) upon receipt by us of your first written demand accompanied by your declaration stating that the amount claimed is due by reason of the Supplier having failed to perform the Agreement and despite any contestation on the part of above named supplier.

The proceed of performance security shall be payable to TCIL in case of breach of any of the terms and conditions of the contract/PO/tender by the vendor.

This Letter of Guarantee will expire on _____ including 30 days of claim period and any claims made hereunder must be received by us on or before expiry date after which date this Letter of Guarantee will become of no effect whatsoever whether returned to us or not.

_____
Authorized Signature
Manager
Seal of Bank
Contact details

END OF SECTION-17

SECTION-18

MEMORANDUM OF UNDERSTANDING

(*Format when backend partner is in consortium)
(To be signed by all Consortium Partners)

This Memorandum of Understanding (MoU) is made on ___ day of _____ at New Delhi by and between:

M/s Telecommunications Consultants India Limited, a Company registered under the Indian Companies Act 1956, with its registered and corporate office at TCIL Bhawan, Greater Kailash-1, New Delhi – 110048, hereinafter referred to as **"TCIL",** which expression shall include its successors and its permitted assigns, of one part.

AND

_____ **CONSORTIUM** consisting of **M/s _____** **(Vendor Name)**, registered under the _____ Act, with its registered office at _____ **(Lead Member), M/s _____ (Vendor Name),** registered under the _____ Act, with its registered office at _____ **(Consortium Partner)** and **M/s _____** **(Vendor Name),** registered under the _____ Act, with its registered office at _____ **(Consortium Partner)** hereinafter the said consortium shall be referred to as "_____", which expression shall include its successors and permitted assigns, of the other part.

"TCIL" and "_____"are individually referred to as "Party" and collectively as "Parties".

WHEREAS TCIL, a Government of India Enterprise under the Ministry of Communications and Information Technology, is a leading company in Telecommunications and Information Technology and has to its credit successful execution of many consultancy and turnkey projects in the fields of Telecom, IT and Civil both in India and abroad and it also acts as procurement consultant/agent/executing agency/implementing agency for number of Government of India enterprises/undertaking.

WHEREAS_____ (Name of Lead Member) is in the business of_____. .

WHEREAS_____ (Name of Consortium Partner) is in the business of_____.

WHEREAS_____ (Name of Consortium Partner) is in the business of_____.

WHEREAS _____ (Client Name) (herein after called "_____") issued TENDER No. _____ dated _____ for '_____, hereinafter referred to as "_____ (Client Name) tender" /"Work"/"Project".

WHEREAS TCIL published EOI No. _____ dated _____ (hereinafter referred as TCIL EOI) for selection of back-end partner for _____ (Client Name) tender.

AND WHEREAS M/s _____ & M/s _____ has entered into a Consortium Agreement / Memorandum of Agreement dated _____ **(Annexure A)** and a Role & Responsibility Matrix dated _____ **(Annexure B)** for the purpose of forming a consortium to participate in TCIL EOI wherein it is mentioned that _____ shall act as the Lead Member & _____ shall act as consortium partner and the Lead Member is authorized to sign the MOU with TCIL and accordingly they have submitted their offer for _____in response to TCIL EOI & pursuant to the same were selected by TCIL as back-end partner for _____ (Client name) Tender.

Now, therefore, it is agreed between the Parties as under:

1.   The Parties wish to work together with the understanding that TCIL shall act as the bidder (lead bidder) and _____ (consortium name) (partner for _____) for participating in the ____ (client name) Tender.

Please note that the term "Lead bidder" shall be mentioned only when TCIL shall bid in consortium with backend partner.

2.   _____ (consortium name) shall not participate directly or indirectly whether in consortium or separately in _____ (client name) Tender and shall not quote rates to any other party participating/pre-qualified for _____ (client name) Tender directly or indirectly through its subsidary, partnership, ownership, individual firm etc.

3.   On award of the work of the _____(client name) Tender to TCIL, TCIL will enter into a detailed agreement with _____ (consortium name) based on the terms & conditions of this MoU, TCIL EOI and _____ (client name) Tender.

4.   The term of this MoU shall be for _____ months ("Term") from the date of signing of this MoU ("Effective Date") or till the completion of the project & release of all payments thereof whichever is later. All obligations hereunder shall only apply during the Term of this MoU and to such obligations and commitments in relation to the Tender/Work/Project under the scope of TCIL EOI & _____ (Client name) tender, as may have been undertaken by the Parties during the Term with validity exceeding the Term. The Term of this MoU can be extended by mutual agreement between the Parties, depending upon the requirement.

5.   After mutual consultation, a joint team consisting of representatives of the parties will be formed for various activities like, technical discussions, deciding the preparation of final Bid/offer, terms & conditions and demonstration of functionality required in the _____ (Client name) Tender/Work/Project.

6.   TCIL and _____ (consortium name) hereby mutually agree that both of them shall remain as irrevocable members of this tie-up for the complete execution and completion of _____ (client name) Tender/Work/Project (as per scope of TCIL EOI & _____ (Client name) tender).

7.   Expenses towards bid preparation would be borne by the individual Parties viz. TCIL and _____ (consortium name) for their respective work. TCIL will not reimburse any such expenses to _____ (consortium name) towards preparation and submission of the bid.

8.   All technical, financial and commercial terms and conditions of the Tender, except pricing, risk purchase, limitation of liability, advance payment & termination, will apply on back-to-back basis between TCIL and _____ (consortium name), for their respective part/scope of work. However, if _____ (consortium name) or any of its member fails to fulfill its part of the work to the satisfaction of TCIL, then TCIL shall have the right to terminate the contract with _____ (consortium name) and get the same executed departmentally or by other agencies at the risk and cost of _____ (consortium name).

9.   Both M/s _____ (Lead Member name) and M/s _____ (Consortium Partner name) shall be jointly and severally responsible for compliance of all the terms and conditions of the tender document, this MOU and TCIL's contract with main client relating to performance of this MOU. Any non-compliance by either party of the Consortium shall be treated as a breach of this MOU.

10.   Both M/s _____ (Lead Member name) and M/s _____ (Consortium Partner name) shall be jointly and severally liable to TCIL to compensate any losses or damages if so suffered by TCIL for any breach of this agreement and/or action initiated by the main client for non-performance of the contract.

11.   In case of failure of either of M/s _____ (Lead Member name) or M/s _____ (Consortium Partner name), the total responsibility shall shift upon remaining party.

12.   Notwithstanding anything contained in any other agreement, document, correspondence, arrangement between the parties in respect of _____(Client name) Tender/ Works / Projects, the _____ (consortium name) understands, agrees and undertakes that:

a) _____ (consortium name) participated in TCIL EOI and that all terms & conditions of the TCIL EOI shall apply to _____ (consortium name).

b) Prices quoted by _____ (consortium name) shall remain firm and fixed till the execution of the Tender.

c) the payments terms between TCIL & _____ (consortium name) are on back-to-back basis and the payment shall be released by TCIL only if and when received by TCIL from _____ (Client name) and subject to terms & conditions of agreement (as stipulated in 3 above) and submission of complete required documents.

d) _____ (consortium name) will not demand or make any claim under any law with respect to the pending payment till the time corresponding payment is received by TCIL from _____ (Client name). TCIL shall not be responsible in any manner whatsoever for any delay in releasing the payments or withholding of payments by _____ (Client name).

e) the (day) date of delivery of goods and/or rendering of services by the _____ (consortium name) shall be the date of realization of payment from the client once the goods and/or services are accepted by the client.

f) if in the instant contract, _____ (consortium name) is acting only as trader / reseller / distributor/authorized agents and/or is engaged in a WORKS contract, no benefits under MSME Act 2006 and PPP Policy 2012 as per MSE Guidelines issued by Ministry of MSME would be applicable to it on account of acceptance of back to back payment terms as above. By agreeing to the terms of _____ (client name) Tender, the _____ (consortium name) agrees to forgo its rights under this Act and Policy.

g) _____ (consortium name) hereby agrees to ensure timely GST compliances as per the statutory requirements. All the costs pertaining to any GST non-compliance including but not limited to any loss of eligible input tax credit due to non-payment/non-filing of GST return and applicable interest/penalties shall be borne/indemnified by _____ (consortium name). Further _____ (consortium name) hereby agrees that TCIL reserves the right for reimbursement of any such cost incurred out of the aforesaid non-compliance(s). _____ (consortium name) will provide payment of GST proof i.e. GSTR-1, GSTR-3B, cash ledger and challan for taking GST payment from TCIL against invoices.

h) Any deductions by the _____ (Client name) towards LD/penalties/contingencies shall be borne by _____ (consortium name) in terms of TCIL EOI.

i) At any given point of time, _____ (consortium name) may not assign or delegate its rights, duties or obligations under this MOU without prior written consent of TCIL.

j) On award of work of the Tender/Work/Project, _____ (consortium name) shall provide its GeM Seller id to TCIL (not applicable for "works" contract or non-Indian vendor).

k) In the event of breach of any of the terms & conditions of this MOU or in case of any default of any terms & conditions of this MOU, on the part of _____ consortium and/or M/s _____ (Lead Member name) and/or M/s _____ (Consortium partner Name), TCIL reserves the right to take necessary steps / action as per available documents, including but not limited to, termination of contract, forfeiture of Performance Security / EMD, blacklisting / banning etc. and execute the work at their risk & cost.

13. TCIL and _____ (consortium name) agree to keep confidential all information shared with each other and disclose to third party only after taking prior written consent of each other. This clause excludes information available in public domain. The confidentiality provisions of this MoU shall remain in full force and effect during the term of this MoU and 12 months thereafter.

14. Any sum of money (including refundable security deposit) due and payable to the_____ (consortium name) and/or _____ (Lead bidder name) and/or _____ (Consortium partner name), under this contract or any other contract entered between the parties herein whether continuing or completed may be appropriated by TCIL and set off against any claim of TCIL of any nature whatsoever, arising under this contract or any other contract entered into between the parties, herein whether continuing or completed.

15. Nothing in this MoU shall constitute, create or give effect or recognize a JV, partnership or business entity of any kind.

16. This MoU shall be construed and governed by the laws of India and the parties hereby submit to the exclusive jurisdiction of the Delhi Courts of Law.

17.   Any matter which is not stipulated in the MoU, shall be settled in good faith by discussion among the parties in the spirit of understanding and cooperation.

18.   Dispute Resolution:

1. The parties to this agreement/contract agree that they shall resolve all disputes or differences whatsoever arising between them under and/or in connection with and/or in respect of this Tender/EOI/Agreement/Purchase Order/MoU through a "Conciliation and Settlement Mechanism (CSM)" and the detailed guidelines/procedure for such CSM is annexed hereto as Annexure-A (*Section-19 to made part of MOU*). That it is understood and agreed between the parties that the CSM annexed as Annexure-A with the present agreement forms and shall be treated as part and parcel of the present agreement.

2. If the parties fail to resolve such disputes through the conciliation proceedings, then and only then, a party shall refer the dispute to arbitration as mentioned in the following manner:

    a. All disputes or differences whatsoever arising among the parties under and/or in connection with and/or in respect of this Tender/EOI/Agreement/Purchase Order/MoU shall be referred to and decided by a sole arbitrator, who shall be appointed by the CMD, TCIL only. The arbitration shall be conducted in accordance with Arbitration and Conciliation Act of 1996, as amended from time to time, and the venue of the arbitration shall be in New Delhi.

    b. Notwithstanding the generality of the above, it is a term of this contract that no person other than a person appointed by CMD, TCIL as aforesaid, should act as arbitrator and if for any reason that is not possible or any party does not agree to such appointment of Arbitrator by CMD, TCIL for whatsoever reason, then the matter is not to be referred to arbitration at all and such disputes shall be resolved under the mechanism provided by the state in form of Courts of Law/Ordinary Civil Courts for resolution of such disputes under applicable Laws.

3. The courts at New Delhi shall have exclusive jurisdiction in respect to any dispute pertaining to this agreement.

4. The parties shall continue to perform their respective obligations as per the Agreement during the pendency of proceedings under this clause.

Please Note that in case of agreement/MoU with Government Organization, the following clause shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Center Enterprise (CPSEs)/Port Trusts inter se and also between CPSEs and Govt. Depts/ organizations (excluding disputes relating to Railways, Income Tax, Customs & Excise Dept), such dispute or difference shall be taken up by either party for its resolution through AMRCD as mentioned in DPE OM No. 05/003/2019-FTS-10937 dated 14th December 2022 and the decision of AMRCD on the said dispute will be binding on both the parties

19.   During its Term, this MOU will be terminated in the event of
        a.   Client withdrawing the Tender provided it does not create any financial obligation on TCIL.
        b.   Tender not awarded to TCIL
        c.   Mutual agreement between the "Parties"
        d.   As per TCIL EOI

20.   Notices and other communications under this MoU shall be in writing and communicated through post, courier, fax, email or any other recognized mode of such communication. All such notices and communications shall be directed to the address as mentioned in the MoU.

21.   By signing this MoU, the "Parties" acknowledge that it correctly records the understanding they have reached with regard to the Project.

22.   EOI document, technical / financial bid, any further negotiations, all correspondences with or from _____ (consortium name) till EOI finalization shall be an integral of this MOU.

IN WITNESS WHEREOF, each party hereto has caused this MoU to be executed in duplicate to be effective as of the Effective Date, by its duly authorized representative.

For Telecommunications Consultants India Ltd   **For _____ Private Limited**

Signature: Signature:

Name: Name:

Designation: Designation:

Date: Date:

Witness: Witness:

Memorandum of Understanding
(*Format when backend partner is a single bidder)

This Memorandum of Understanding (MoU) is made on ____th day of _____ at New Delhi by and between:

M/s Telecommunications Consultants India Limited, a Company registered under the Indian Companies Act 1956, with its registered and corporate office at TCIL Bhawan, Greater Kailash-1, New Delhi – 110048, hereinafter referred to as **"TCIL",** which expression shall include its successors and its permitted assigns, of one part.

AND

M/s _____ **(vendor name),** registered under the Indian Companies Act 1956/2013 (whichever is applicable), with its registered office at _____, hereinafter referred to as **"_____",** which expression shall include its successors and permitted assigns, of the other part.

"TCIL" and "_____"are individually referred to as "Party" and collectively as "Parties".

WHEREAS TCIL, a Government of India Enterprise under the Ministry of Communications and Information Technology, is a leading company in Telecommunications and Information Technology and has to its credit successful execution of many consultancy and turnkey projects in the fields of Telecom, IT and Civil both in India and abroad and it also acts as procurement consultant/agent/executing agency/implementing agency for number of Government of India enterprises/undertaking.

WHEREAS_____ (vendor name) is in the business of_____.
WHEREAS _____ (Client Name) (herein after called "_____") issued TENDER No. _____ dated _____ for '_____, hereinafter referred to as "_____ (Client Name) tender" /"Work"/"Project".

WHEREAS TCIL published EOI No. _____ dated _____ (hereinafter referred as TCIL EOI) for selection of back-end partner for _____ (Client Name) tender.

AND WHEREAS _____ (Vendor Name) submitted their offer and pursuant to the same was selected by TCIL as back-end partner for _____ (Client Name) Tender.

Now, therefore, it is agreed between the Parties as under:

1. The Parties wish to work together with the understanding that TCIL shall act as the bidder (lead bidder) and _____ (vendor name) (partner for _____) for participating in the ____ (client name) Tender.
   Please note that the term "Lead bidder" shall be mentioned only when TCIL shall bid in consortium with backend partner.

2. _____ (vendor name) shall not participate directly in ____ (client name) Tender and shall not quote rates to any other party participating/pre-qualified for ____ (client name) Tender directly or indirectly through its subsidiary, partnership, ownership, individual firm etc.

3. On award of the work of the _____ (client name) Tender to TCIL, TCIL will enter into a detailed agreement with _____ (vendor name) based on the terms & conditions of this MoU, TCIL EOI and _____ (client name) Tender.

4. The term of this MoU shall be for _____ months ("Term") from the date of signing of this MoU ("Effective Date") or till the completion of the project & release of all payments thereof whichever is later. All obligations hereunder shall only apply during the Term of this MoU and to such obligations and commitments in relation to the Tender/Work/Project under the scope of TCIL EOI & _____

(Client name) tender, as may have been undertaken by the Parties during the Term with validity exceeding the Term. The Term of this MoU can be extended by mutual agreement between the Parties, depending upon the requirement.

5.   After mutual consultation, a joint team consisting of representatives of the parties will be formed for various activities like, technical discussions, deciding the preparation of final Bid/offer, terms & conditions and demonstration of functionality required in the _____ (Client name) Tender/Work/Project.

6.   TCIL and _____ (vendor name) hereby mutually agree that both of them shall remain as irrevocable members of this tie-up for the complete execution and completion of _____ (client name) Tender/Work/Project (as per scope of TCIL EOI & _____(Client name) tender).

7.   Expenses towards bid preparation would be borne by the individual Parties viz. TCIL and ____ (vendor name) for their respective work. TCIL will not reimburse any such expenses to _____ (vendor name) towards preparation and submission of the bid.

8.   All technical, financial and commercial terms and conditions of the Tender, except pricing, risk purchase, limitation of liability, advance payment & termination, will apply on back-to-back basis between TCIL and ____ (vendor name), for their respective part/scope of work. However, if _____ (vendor name) fails to fulfill its part of the work to the satisfaction of TCIL, then TCIL shall have the right to terminate the contract with _____ (vendor name) and get the same executed departmentally or by other agencies at the risk and cost of _____ (vendor name).

9.   Notwithstanding anything contained in any other agreement, document, correspondence, arrangement between the parties in respect of _____(Client name) Tender/ Works / Projects, the _____ (vendor name) understands, agrees and undertakes that:

   l)   _____ (vendor name) participated in TCIL EOI and that all terms & conditions of the TCIL EOI shall apply to ____ (vendor name).
   m)   Prices quoted by _____ (vendor name) shall remain firm and fixed till the execution of the Tender.
   n)   the payments terms between TCIL & _____ (vendor name) are on back to back basis and the payment shall be released to ____ (vendor name) by TCIL only if and when received by TCIL from _____ (Client name) and subject to submission of complete documents and invoices etc. by it.
   o)   _____ (vendor name) will not demand or make any claim under any law with respect to the pending payment till the time corresponding payment is received by TCIL from _____ (Client name). TCIL shall not be responsible in any manner whatsoever for any delay in releasing the payments or withholding of payments by _____ (Client name).
   p)   the (day) date of delivery of goods and/or rendering of services by the ____ (vendor name) shall be the date of realization of payment from the client once the goods and/or services are accepted by the client.
   q)   if in the instant contract, ____ (vendor name) is acting only as trader / reseller / distributor/authorized agents and/or is engaged in a WORKS contract, no benefits under MSME Act 2006 and PPP Policy 2012 as per MSE Guidelines issued by Ministry of MSME would be applicable to it on account of acceptance of back to back payment terms as above. By agreeing to the terms of _____ (client name) Tender, the _____ (vendor name) agrees to forgo its rights under this Act and Policy.
   r)   ____ (vendor name) hereby agrees to ensure timely GST compliances as per the statutory requirements. All the costs pertaining to any GST non-compliance including but not limited to any loss of eligible input tax credit due to non-payment/non-filing of GST return and applicable interest/penalties shall be borne/indemnified by ____ (vendor name). Further ____ (vendor name) hereby agrees that TCIL reserves the right for reimbursement of any such cost incurred out of the aforesaid non-compliance(s). ____ (vendor name) will provide payment of GST proof i.e. GSTR-1, GSTR-3B, cash ledger and challan for taking GST payment from TCIL against invoices.

s) Any deductions by the _____ (Client name) towards LD/penalties/contingencies shall be borne by _____ (vendor name) in terms of TCIL EOI.

t) At any given point of time, _____ (vendor name) may not assign or delegate its rights, duties or obligations under this MOU without prior written consent of TCIL.

u) On award of work of the Tender/Work/Project, _____ (vendor name) shall provide its GeM Seller id to TCIL (not applicable for "works" contract or non-Indian vendor).

v) In the event of breach of any of the terms & conditions of this MOU or in case of any default of any terms & conditions of this MOU, on the part of the _____ (vendor name), TCIL reserves the right to take necessary steps / action as per available documents, including but not limited to, termination of contract, forfeiture of Performance Security / EMD, blacklisting / banning etc. and execute the work at their risk & cost.

10. TCIL and _____ (vendor name) agree to keep confidential all information shared with each other and disclose to third party only after taking prior written consent of each other. This clause excludes information available in public domain. The confidentiality provisions of this MoU shall remain in full force and effect during the term of this MoU and 12 months thereafter.

11. Any sum of money (including refundable security deposit) due and payable to the_____ (vendor name), under this contract or any other contract entered between the parties herein whether continuing or completed may be appropriated by TCIL and set off against any claim of TCIL of any nature whatsoever, arising under this contract or any other contract entered into between the parties, herein whether continuing or completed.

12. Nothing in this MoU shall constitute, create or give effect or recognize a JV, partnership or business entity of any kind.

13. This MoU shall be construed and governed by the laws of India and the parties hereby submit to the exclusive jurisdiction of the Delhi Courts of Law.

14. Any matter, which is not stipulated in the MoU, shall be settled in good faith by discussion among the parties in the spirit of understanding and cooperation.

15. Dispute Resolution:

1. The parties to this agreement/contract agree that they shall resolve all disputes or differences whatsoever arising between them under and/or in connection with and/or in respect of this Tender/EOI/Agreement/Purchase Order/MoU through a "Conciliation and Settlement Mechanism (CSM)" and the detailed guidelines/procedure for such CSM is annexed hereto as Annexure-A (*Section 19 to be made part of MOU*) . That it is understood and agreed between the parties that the CSM annexed as Annexure-A with the present agreement forms and shall be treated as part and parcel of the present agreement.

2. If the parties fail to resolve such disputes through the conciliation proceedings, then and only then, a party shall refer the dispute to arbitration as mentioned in the following manner:

   a. All disputes or differences whatsoever arising among the parties under and/or in connection with and/or in respect of this Tender/EOI/Agreement/Purchase Order/MoU shall be referred to and decided by a sole arbitrator, who shall be appointed by the CMD, TCIL only. The arbitration shall be conducted in accordance with Arbitration and Conciliation Act of 1996, as amended from time to time, and the venue of the arbitration shall be in New Delhi.

   b. Notwithstanding the generality of the above, it is a term of this contract that no person other than a person appointed by CMD, TCIL as aforesaid, should act as arbitrator and if for any reason that is not possible or any party does not agree to such appointment of Arbitrator by CMD, TCIL for whatsoever reason, then the matter is not to be referred to arbitration at all and such disputes shall be resolved under the mechanism provided by the state in form of Courts of Law/Ordinary Civil Courts for resolution of such disputes under applicable Laws.

3. The courts at New Delhi shall have exclusive jurisdiction in respect to any dispute pertaining to this agreement.

4. The parties shall continue to perform their respective obligations as per the Agreement during the pendency of proceedings under this clause.

Please Note that in case of agreement/MoU with Government Organization, the following clause shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Center Enterprise (CPSEs)/Port Trusts inter se and also between CPSEs and Govt. Depts/ organizations (excluding disputes relating to Railways, Income Tax, Customs & Excise Dept), such dispute or difference shall be taken up by either party for its resolution through AMRCD as mentioned in DPE OM No. 05/003/2019-FTS-10937 dated 14th December 2022 and the decision of AMRCD on the said dispute will be binding on both the parties

16. During its Term, this MOU will be terminated in the event of
    ii) Client withdrawing the Tender provided it does not create any financial obligation on TCIL.
    iii) Tender not awarded to TCIL
    iv) Mutual agreement between the "Parties"
    v) As per TCIL EOI

17. Notices and other communications under this MoU shall be in writing and communicated through post, courier, fax, email or any other recognized mode of such communication. All such notices and communications shall be directed to the address as mentioned in the MoU.

18. By signing this MoU, the "Parties" acknowledge that it correctly records the understanding they have reached with regard to the Project.

19. EOI document, technical / financial bid, any further negotiations, all correspondences with or from _____ (vendor name) till EOI finalization shall be an integral of this MOU.

IN WITNESS WHEREOF, each party hereto has caused this MoU to be executed in duplicate to be effective as of the Effective Date, by its duly authorized representative.

For Telecommunications Consultants India Ltd   *For _____ Private Limited*

Signature: Signature:

Name: Name:

Designation: Designation:

Date: Date:

Witness: Witness:

NOTE (For User Division):

The template of Pre-bid MoU documents [(1) with consortium, and (2) without consortium] are enclosed. Necessary changes/modifications as applicable should be made prior to floating in EOI/signing the MoU. The relevant MoU format may be made a part of EOI document, so that it can be signed on selection of vendor at pre-bid stage.

END OF SECTION-18

SECTION-19

Annexure-A to Dispute Resolution Clause

Establishment of a Conciliation & Settlement Mechanism (CSM) for Contractual Disputes under the contract agreements with the Contractors / Concessionaires / Consultants in TCIL.

1. **Objective:**

   The TCIL has been entering into various contract agreements with the Contractors/ Concessionaires/ Consultants for implementing projects and obtaining services in various modes. Several disputes have been arising under these contract agreements. The associated legal costs and diversion of manpower of both parties are enormous. The early resolution/ settlement of claim, preferably through an out-of-court settlement process, is in the interest of all the stakeholders.

2. **The Standing Operating Procedure (SoP)**

   The procedure given hereunder will be implemented for resolving disputes through conciliation mechanism:

   1) If any commercial/contractual dispute arises between TCIL and Bidder/MoU partner/Vendor/Contractor, then any of the party shall send a reference about the dispute containing a written brief identifying the subject of the dispute to the CMD, TCIL along with a copy of such reference to other party for resolution of dispute through conciliation.

   2) CMD, TCIL or his authorized representative shall, within seven days of receipt of such a reference, nominate an officer of TCIL to act as the conciliator and shall arrange to issue necessary intimation to both the parties.

   3) Within three days of appointment of conciliator by CMD, TCIL both the parties shall intimate to the conciliator, the name of their respective officer(s) who shall be representing such a party in the conciliation proceedings. The maximum number of such officer(s) shall not be more than three and no legal practitioner/advocate shall be part of such a team.

   4) Thereafter, both the teams of the parties shall meet on the dates as fixed by the conciliator, discuss the agenda and explore the possibilities of conciliation/settlement. First such meeting shall be held within Seven (7) days of the nomination of the conciliation team by both the parties. The venue for conducting conciliation proceedings will be TCIL Bhawan, Greater Kailash-I, New Delhi 110048.

   5) The conciliator shall assist the parties in an independent and impartial manner in their attempt to reach an amicable settlement of their dispute.

6) The conciliator shall be guided by principles of objectivity, fairness and justice, giving consideration to, among other things, the rights and obligations of the parties, the usages of the trade concerned and the circumstances surrounding the dispute, including any previous business practices between the parties.

7) The conciliator may conduct the conciliation proceedings in such a manner as he considers appropriate, taking into account the circumstances of the case, the wishes the parties may express, including any request by a party that the conciliator hear oral statements, and the need for a speedy settlement of the dispute.

8) The conciliator may, at any stage of the conciliation proceedings, make proposals for a settlement of the dispute. Such proposals need not be in writing and need not be accompanied by a statement of the reasons therefor.

9) The teams thereafter can meet any number of times under the guidance and supervision of Conciliator and will try to find a solution that is acceptable to both the parties. The conciliation may be successful or partially successful. On the points of dispute or part of a dispute wherein parties have agreed for a common ground, the officers representing each party shall seek approval of their respective company/entity. After that a settlement deed shall be drafted and signed by the authorized representatives of the parties. When the parties sign the settlement agreement, it shall be final and binding on the parties and persons claiming under them respectively and this shall not be challenged by any of the party in any court or under any law. The parties shall unequivocally affirm, declare and confirm in the settlement agreement that they have signed the agreement without any coercion, duress, inducement and were fully competent to sign the said agreement.

10) The conciliator shall endorse and authenticate the settlement agreement and furnish a copy thereof to each of the parties.

11) The conciliation process shall be concluded within 60 days of nomination of its representatives by the second party. However, the parties, with mutual consent can extend this period and then the conciliation proceedings shall be concluded in this extended period.

12) If no settlement is arrived between the parties in the time mentioned in clause 5) above, then the conciliation proceedings shall be deemed to have been failed.

13) The conciliator shall intimate the appointing authority the final outcome of the conciliation proceedings.

3. **Resort to arbitral or judicial proceedings:**

The parties shall not initiate, during the conciliation proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject-matter of the conciliation proceedings

except that a party may initiate arbitral or judicial proceedings where, in his opinion, such proceedings are necessary for preserving his rights.

4. **Admissibility of evidence in other proceedings.**

   1) The parties shall not rely on or introduce as evidence in arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of the conciliation proceedings,—

      (a) views expressed or suggestions made by the other party in respect of a possible settlement of the dispute;

      (b) admissions made by the other party in the course of the conciliation proceedings;

      (c) Proposals made by the parties or conciliator;

      (d) The fact that the other party had indicated his willingness to accept a proposal for settlement made by the other party.

5. **Confidentiality**.

   Notwithstanding anything contained in any other law for the time being in force, the parties shall keep confidential all matters relating to the conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of implementation and enforcement.

6. **Termination of conciliation proceedings.**

   The conciliation proceedings shall be terminated on happening of any of the conditions below:-

   1) by the signing of the settlement agreement by the parties, on the date of the agreement; or

   2) by a written declaration of the conciliator, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of the declaration; or

   3) by a written declaration of the parties addressed to the conciliator to the effect that the conciliation proceedings are terminated, on the date of the declaration; or

   4) by a written declaration of a party to the other party and the conciliator, if appointed, to the effect that the conciliation proceedings are terminated, on the date of the declaration; or

   5) by the lapse of time or extended time as provided in clause 2(12) above

END OF SECTION – 19

SECTION - 20

Office Memo of Department of Expenditure regarding Rule 144 of GFR 2017

F.No.6/18/2019-PPD
Ministry of Finance
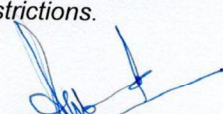Department of Expenditure
Public Procurement Division

161, North Block,
New Delhi
23rd July, 2020

Office Memorandum

Subject: Insertion of Rule 144 (xi) in the General Financial Rules (GFRs), 2017

Rule 144 of the General Financial Rules 2017 entitled 'Fundamental principles of public buying', has been amended by inserting sub-rule (xi) as under:

Notwithstanding anything contained in these Rules, Department of Expenditure may, by order in writing, impose restrictions, including prior registration and/or screening, on procurement from bidders from a country or countries, or a class of countries, on grounds of defence of India, or matters directly or indirectly related thereto including national security; no procurement shall be made in violation of such restrictions.

(Sanjay Prasad)
Joint Secretary (PPD)
Email ID: js.pfc2.doe@gov.in
Telephone: 011-23093882

To,
(1)   Secretaries of All Ministries/ Departments of Government of India
(2)   Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi

F.No.6/18/2019-PPD
Ministry of Finance
Department of Expenditure
Public Procurement Division

161, North Block,
New Delhi
23rd July, 2020

Order (Public Procurement No. 1)

Subject: Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017

Attention is invited to this office OM no. 6/18/2019-PPD dated 23rd July 2020 inserting Rule 144 (xi) in GFRs 2017. In this regard, the following is hereby ordered under Rule 144 (xi) on the grounds stated therein:

Requirement of registration

1. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in **Annex I**.

2. This Order shall not apply to (i) cases where orders have been placed or contract has been concluded or letter/notice of award/ acceptance (LoA) has been issued on or before the date of this order; and (ii) cases falling under **Annex II**.

Transitional cases

3. Tenders where no contract has been concluded or no LoA has been issued so far shall be handled in the following manner: -

    a) *In tenders which are yet to be opened, or where evaluation of technical bid or the first exclusionary qualificatory stage (i.e. the first stage at which the qualifications of tenderers are evaluated and unqualified bidders are excluded) has not been completed*: No contracts shall be placed on bidders from such countries. Tenders received from bidders from such countries shall be dealt with as if they are non-compliant with the tender conditions and the tender shall be processed accordingly.

    b) *If the tendering process has crossed the first exclusionary qualificatory stage*: If the qualified bidders include bidders from such countries, the

3/12

entire process shall be scrapped and initiated *de novo*. The *de novo* process shall adhere to the conditions prescribed in this Order.

    c) As far as practicable, and in cases of doubt about whether a bidder falls under paragraph 1, a certificate shall be obtained from the bidder whose bid is proposed to be considered or accepted, in terms of paras 8, 9 and 10 read with para 1 of this Order.

Incorporation in tender conditions

4. In tenders to be issued after the date of this order, the provisions of paragraph 1 and of other relevant provisions of this Order shall be incorporated in the tender conditions.

Applicability

5. Apart from Ministries / Departments, attached and subordinate bodies, notwithstanding anything contained in Rule 1 of the GFRs 2017, this Order shall also be applicable
    a. to all Autonomous Bodies;
    b. to public sector banks and public sector financial institutions; and
    c. subject to any orders of the Department of Public Enterprises, to all Central Public Sector Enterprises; and
    d. to procurement in Public Private Partnership projects receiving financial support from the Government or public sector enterprises/ undertakings.
    e. Union Territories, National Capital Territory of Delhi and all agencies/ undertakings thereof

Definitions

6. "Bidder" for the purpose of this Order (including the term 'tenderer', 'consultant' 'vendor' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.

7. "Tender" for the purpose of this Order will include other forms of procurement, except where the context requires otherwise.

8. "Bidder from a country which shares a land border with India" for the purpose of this Order means

a) An entity incorporated, established or registered in such a country; or

b) A subsidiary of an entity incorporated, established or registered in such a country; or

c) An entity substantially controlled through entities incorporated, established or registered in such a country; or

d) An entity whose *beneficial owner* is situated in such a country; or

e) An Indian (or other) agent of such an entity; or

f) A natural person who is a citizen of such a country; or

g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

9. "Beneficial owner" for the purpose of paragraph 8 above will be as under:

(i)   In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.
Explanation—

a. "Controlling ownership interest" means ownership of, or entitlement to, more than twenty-five per cent of shares or capital or profits of the company;

b. "Control" shall include the right to appoint the majority of the directors or to control the management or policy decisions, including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

(ii)   In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

(iii)   In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

(iv)   Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

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(v)   In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

10. "Agent" for the purpose of this Order is a person employed to do any act for another, or to represent another in dealings with third persons.

Sub-contracting in works contracts

11. In works contracts, including turnkey contracts, contractors shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "contractor from a country which shares a land border with India" shall be as in paragraph 8 above. This shall not apply to sub-contracts already awarded on or before the date of this Order.

Certificate regarding compliance

12. A certificate shall be taken from bidders in the tender documents regarding their compliance with this Order. If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law.

Validity of registration

13. In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution.
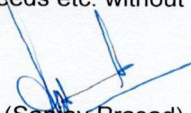
Government E-Marketplace

14. The Government E-Marketplace shall, as soon as possible, require all vendors/ bidders registered with GeM to give a certificate regarding compliance with this Order, and after the date fixed by it, shall remove non-compliant entities from GeM unless/ until they are registered in accordance with this Order.

<u>Model Clauses/ Certificates</u>

15. Model Clauses and Model Certificates which may be inserted in tenders / obtained from Bidders are enclosed as **Annex III**. While adhering to the substance of the Order, procuring entities are free to appropriately modify the wording of these clauses based on their past experience, local needs etc. without making any reference to this Department.

(Sanjay Prasad)
Joint Secretary (PPD)
Email ID: js.pfc2.doe@gov.in
Telephone: 011-23093882

To

(1)   Secretaries of All Ministries/ Departments of Government of India for information and necessary action. They are also requested to inform these provisions to all procuring entities.

(2)   Secretary, Department of Public Enterprises with a request to immediately reiterate these orders in respect of Public Enterprises.

(3)   Secretary DPIIT with a request to initiate action as provided under Annex I

(4)   Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi

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Annex I: Competent Authority and Procedure for Registration

A. The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT)*.

B. The Registration Committee shall have the following members*:

   i.   An officer, not below the rank of Joint Secretary, designated for this purpose by DPIIT, who shall be the Chairman;
   ii. Officers (ordinarily not below the rank of Joint Secretary) representing the Ministry of Home Affairs, Ministry of External Affairs, and of those Departments whose sectors are covered by applications under consideration;
   iii. Any other officer whose presence is deemed necessary by the Chairman of the Committee.

C. DPIIT shall lay down the method of application, format etc. for such bidders as stated in para 1 of this Order.

D. On receipt of an application seeking registration from a bidder from a country covered by para 1 of this Order, the Competent Authority shall first seek political and security clearances from the Ministry of External Affairs and Ministry of Home Affairs, as per guidelines issued from time to time. Registration shall not be given unless political and security clearance have both been received.

E. The Ministry of External Affairs and Ministry of Home Affairs may issue guidelines for internal use regarding the procedure for scrutiny of such applications by them.

F. The decision of the Competent Authority, to register such bidder may be for all kinds of tenders or for a specified type(s) of goods or services, and may be for a specified or unspecified duration of time, as deemed fit. The decision of the Competent Authority shall be final.

G. Registration shall not be granted unless the representatives of the Ministries of Home Affairs and External Affairs on the Committee concur*.

H. Registration granted by the Competent Authority of the Government of India shall be valid not only for procurement by Central Government and its agencies/ public enterprises etc. but **also for procurement by State Governments and their agencies/ public enterprises etc. No fresh registration at the State level shall be required.**

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I. The Competent Authority is empowered to cancel the registration already granted if it determines that there is sufficient cause. Such cancellation by itself, however, will not affect the execution of contracts already awarded. Pending cancellation, it may also suspend the registration of a bidder, and the bidder shall not be eligible to bid in any further tenders during the period of suspension.

J. For national security reasons, the Competent Authority shall not be required to give reasons for rejection / cancellation of registration of a bidder.

K. In transitional cases falling under para 3 of this Order, where it is felt that it will not be practicable to exclude bidders from a country which shares a land border with India, a reference seeking permission to consider such bidders shall be made by the procuring entity to the Competent Authority, giving full information and detailed reasons. The Competent Authority shall decide whether such bidders may be considered, and if so shall follow the procedure laid down in the above paras.

L. Periodic reports on the acceptance/ refusal of registration during the preceding period may be required to be sent to the Cabinet Secretariat. Details will be issued separately in due course by DPIIT.

[*Note:
i.   In respect of application of this Order to procurement by/ under State Governments, all functions assigned to DPIIT shall be carried out by the State Government concerned through a specific department or authority designated by it. The composition of the Registration Committee shall be as decided by the State Government and paragraph G above shall not apply. However, the requirement of **political and security clearance as per para D shall remain and no registration shall be granted without such clearance**.

ii. Registration granted by State Governments shall be valid only for procurement by the State Government and its agencies/ public enterprises etc. and shall not be valid for procurement in other states or by the Government of India and their agencies/ public enterprises etc.]

Annex II: Special Cases

A. Till 31st December 2020, procurement of medical supplies directly related to containment of the Covid-19 pandemic shall be exempt from the provisions of this Order.

B. *Bona fide* procurements made through GeM without knowing the country of the bidder till the date fixed by GeM for this purpose, shall not be invalidated by this Order.

C. *Bona fide* small procurements, made without knowing the country of the bidder, shall not be invalidated by this Order.

D. In projects which receive international funding with the approval of the Department of Economic Affairs (DEA), Ministry of Finance, the procurement guidelines applicable to the project shall normally be followed, notwithstanding anything contained in this Order and without reference to the Competent Authority. Exceptions to this shall be decided in consultation with DEA.

E. This Order shall not apply to procurement by Indian missions and by offices of government agencies/ undertakings located outside India.

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Annex III
Model Clause /Certificate to be inserted in tenders etc.
(While adhering to the substance of the Order, procuring entities and GeM are free to appropriately modify the wording of the clause/ certificate based on their past experience, local needs etc.)

Model Clauses for Tenders

I.   Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.

II.   "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

III. "Bidder from a country which shares a land border with India" for the purpose of this Order means: -
    a. An entity incorporated, established or registered in such a country; or
    b. A subsidiary of an entity incorporated, established or registered in such a country; or
    c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
    d. An entity whose *beneficial owner* is situated in such a country; or
    e. An Indian (or other) agent of such an entity; or
    f. A natural person who is a citizen of such a country; or
    g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

IV.   The *beneficial owner* for the purpose of (iii) above will be as under:

1.   In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.
      Explanation—

      a.   "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

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b.   "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

2.   In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3.   In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

4.   Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

5.   In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V.   An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI.   *[To be inserted in tenders for Works contracts, including Turnkey contracts]* The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Model Certificate for Tenders (for transitional cases as stated in para 3 of this Order)

> *"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I hereby certify that this bidder is not from such a country and is eligible to be considered."*

Model Certificate for Tenders

> *"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the*

Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate for Tenders for Works involving possibility of sub-contracting

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate for GeM:

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this vendor/ bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this vendor/ bidder fulfills all requirements in this regard and is eligible to be considered for procurement on GeM. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

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END OF SECTION – 20

SECTION-21

Office Memo of DOT regarding amendment to Unified License for procurement of Telecommunication Equipment

File No. 20-271/2010 AS-I (Vol-III)
Government of India
Ministry of Communications
Department of Telecommunications
(Access Services Wing)
20, Ashoka Road, New Delhi – 110001

Dated 10th March, 2021

To,

All Unified Licensees

Subject: Amendment to the Unified License for procurement of Telecommunication equipment- reg.

In pursuance to Condition 5.1, the Licensor hereby amends the Unified License Agreement and appends the following sub-clause number 39.7.1 in Security Conditions, Chapter-VI of Part-I as under:
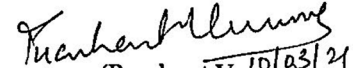
"39.7.1. The Government through the Designated Authority will have the right to impose conditions for procurement of Telecommunication Equipment on grounds of Defence of India, or matters directly or indirectly related thereto, for national security. Designated Authority for this purpose shall be National Cyber Security Coordinator. In this regard, the licensee shall provide any information as and when sought by the Designated Authority.

Designated Authority shall notify the categories of equipment for which the security requirement related to Trusted Sources are applicable. For the said categories of equipment, Designated Authority shall notify the Trusted Sources along with the associated Telecommunication Equipment (Trusted Products). The Designated Authority may also notify a list of Designated Sources from whom no procurement can be done. Procedure for inclusion of Telecommunication Equipment in the list of Trusted Sources will be issued by the Designated Authority.

With effect from 15thJune 2021, the licensee, shall only connect Trusted Products in its network and also seek permission from Designated Authority for upgradation of existing Network utilizing the Telecommunication Equipment not designated as Trusted Products. However, these directions will not affect ongoing Annual Maintenance Contracts (AMC) or updates to existing equipment already inducted in the network as on date of effect.

The licensees shall comply with the Guidance for Enhanced Supervision and Effective Control of Telecommunication Networks, as per guidelines to be issued by the licensor."

2.   This amendment shall be part and parcel of the Unified License Agreement and all others Terms & Conditions shall remain unchanged.

(Prashant Verma)
Assistant Director General (AS-I)
For and on behalf of the President of India
Ph. No. 23036580

Copy to:

1. Chairman, TRAI.
2. DG (T) HQ, DoT HQ.
3. CMD (BSNL)/ CMD (MTNL).
4. Advisor (Economics)/ Sr. DDG (TEC)/ Wireless Advisor/ DDG (LFP)/ DDG (LFA)/ DDG (WPF)/ DDG (SA)/ DDG (SPPI)/ CVO, DoT.
5. DDG (CS)/ DDG (DS)/ DDG (Satellite)/DDG (A/C) DoT HQ.
6. Director (IT) may kindly arrange to upload this letter on the website of DoT.
7. All Directors of AS Division.

END OF SECTION-21

SECTION – 22

FORMAT FOR INSURANCE SURETY BOND FOR EMD / BID SECURITY
(To be stamped in accordance with Stamp Act of India)

(TO BE ISSUED FROM A DELHI BRANCH)

This BOND is made as a deed AMONG the following parties
The "Bidder" as contractor………………….. (name and address)
The "Surety Insurer" as guarantor (name and address) and "Purchaser" as Telecommunications Consultants India Limited, (TCIL), TCIL Bhawan, Greater Kailash -I, New Delhi 110048

Whereas ……………………. (hereinafter called "the Bidder") has submitted its bid dated …………… for the …………. vide Tender No. ………………………... dated ……………

KNOW ALL MEN by these presents that We ……………………. Of ………………. Having our registered office at ………….. (hereinafter called "the Surety Insurer") irrevocably, unconditionally and without reservation guarantee the due and faithful fulfilment and compliance of the terms and conditions of the Bidding Documents and the RFP Document by the Bidder and are irrevocably and unconditionally bound unto Telecommunications Consultants India Limited (hereinafter called "the Purchaser") to the sum of Rs. ………………… for which payment will and truly to be made of the said Purchaser, the Surety Insurer binds itself, its successors and assigns by these present.

THE CONDITIONS of the obligation are:

1. If the Bidder withdraws his bid during the period of bid validity specified by the Bidder on the Bid form or

2. If the Bidder, having been notified of the acceptance of his bid by the Purchaser during the period of bid validity

    i.   Fails or refuses to execute the Contract, if required; or

    ii. The successful bidder fails to submit performance guarantee / security within the prescribed time.

         or

    iii. The proceeds of Surety Bond (EMD) shall be payable to TCIL in case of breach of any of the terms and conditions of the tender by the bidder.

We, the Surety Insurer, undertake to immediately and forthwith pay to the Purchaser up to the above amount upon receipt of its first written demand, without the purchaser having to substantiate its demand, provided that in its demand, the purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

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

This Surety Bond will remain in force up to and including THIRTY (30) days after the period of bid validity and any demand in respect thereof should reach the Surety Insurer not later than the specified date/dates. TCIL shall have the fullest liberty without affecting in any way the liability of the Surety Insurer under this Surety Bond from time to time to vary any of the terms and conditions in the said Bidding Documents or to extend time for submission of the Bids or the bid validity period or the period for fulfillment and compliance with all or any of the terms and conditions contained in the said Bidding Documents by the said Bidder and the Surety Insurer shall not be released from its liability under these presents by any exercise by the TCIL of

the liberty as aforesaid or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect or releasing the Surety Insurer from its such liability.

The parties acknowledge and agree that neither this Surety Bond nor any obligations hereunder are transferable or assignable.

The Surety Insurer declares that this Insurance Surety Bond is issued as per applicable rules and regulations of Insurance Regulatory Development Authority of India (IRDAI).

Name & Signature of witness   Signature of the authorized Surety Insurer

Address of witness   Name

                                                    Signed in Capacity of

                                                    Full address of Branch

                                                    Tel No. of Branch

                                                    Fax No. / email of Branch

Notes:

1)   The Insurance Surety Bond shall be from an Insurer as per guidelines issued by Insurance Regulatory and Development Authority of India (IRDAI).

2)   The Insurance Surety Bond should be on non-judicial stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the state(s).

3)   The executing officer of the Surety Bond will indicate his name, designation, and Power of Attorney No. on last page of the Surety Bond.

END OF SECTION - 22

SECTION – 23

FORMAT OF INSURANCE SURETY BOND FOR PERFORMANCE GUARANTEE /
PERFORMANCE SECURITY
(To be stamped in accordance with Stamp Act of India)

(TO BE ISSUED BY A DELHI BRANCH)

M/s Telecommunications Consultants India Ltd.,
TCIL Bhawan, Greater Kailash-I
New Delhi – 110 048 (INDIA)

Surety Bond No: _____

This BOND is made as a deed AMONG the following parties
The "Supplier" as contractor………………….. (name and address)
The "Surety Insurer" as guarantor (name and address) and "Purchaser" as Telecommunications Consultants
India Limited, (TCIL), TCIL Bhawan, Greater Kailash -I, New Delhi 110048

WHEREAS TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED, having its office at TCIL
Bhawan, Greater Kailash-I, New Delhi – 110 048 (INDIA) (hereinafter referred to as "TCIL" which
expression shall unless repugnant to the content or meaning thereof include all its successors, administrators
and executors) has accepted the bid of the Supplier in relation to the Tender/RFP/EOI Number ……… dated
……………………and having entered into an agreement dated _____ / issued Purchase Order No.
_____   dated   _____   with/on   M/s
_____ (hereinafter referred to as "The Supplier"
which expression unless repugnant to the content or meaning thereof, shall include all the successors,
administrators, and executors).

WHEREAS the Supplier having unequivocally accepted to supply the materials and/or Services as per terms
and   conditions   given   in   the   Agreement   dated   _____   /   Purchase   Order   No.
_____ dated _____ and TCIL having agreed that the Supplier shall furnish
to TCIL a Surety Bond for the faithful performance of the entire contract, to the extent of xx% (xx percent)
of the value of the Purchase Order / Agreement i.e. for Rs _____.

1. We, _____ ("The Surety Insurer") which shall include
   OUR successors, administrators and executors irrevocably, unconditionally and without reservation
   guarantee the due and faithful fulfillment and compliance of the terms and conditions of the said
   Agreement/PO by the said Supplier and unconditionally and irrevocably undertake to pay forthwith
   to the TCIL an amount of Rs.*** ** (Rupees *** ** only (hereinafter referred to as the "Surety
   Bond") as our primary obligation without any demur, reservation, recourse, contest or protest and
   without reference to the Supplier, if the Supplier shall fail to fulfill or comply with all or any of the
   terms and conditions contained in the said Agreement/PO.

2. Hereby,   we   undertake   to   pay   up   to   but   not   exceeding   _____   (say
   _____ only) upon receipt by us of TCIL's first written demand
   accompanied by TCIL's declaration stating that the amount claimed is due by reason of the Supplier
   having failed to perform as per the Purchase Order / Agreement and despite any contestation on the
   part of above named supplier. Any such written demand made by the TCIL stating that the supplier
   is in default of the due and faithful fulfillment and compliance with the terms and conditions
   contained in the Agreement/PO shall be final, conclusive and binding on the surety Insurer,
   notwithstanding any differences between the TCIL and the Bidder or any dispute pending before any
   Court, Tribunal, Arbitrator or any other TCIL.

3. TCIL shall have the fullest liberty without affecting in any way the liability of the Surety Insurer
   under this Surety Bond from time to time to vary any of the terms and conditions in the said
   Agreement/PO or to extend time for fulfillment and compliance with all or any of the terms and
   conditions contained in the said Agreement/PO by the said supplier or to postpone for any time and

from time to time any of powers exercisable by it against the said supplier and either to enforce or forbear from enforcing any of the terms and conditions contained in the said Agreement/PO, and the Surety Insurer shall not be released from its liability under these presents by any exercise by the TCIL of the liberty with reference to the matters aforesaid or by any change in the constitution of the TCIL or the Supplier or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect or releasing the Surety Insurer from its such liability. In the event of extension of time for performance of the contract, the Surety Insurer shall be liable to extend the validity of the present Insurance Surety Bond without any demur, condition or protest.

4. WE hereby acknowledge and understand that it shall not be necessary for TCIL to proceed against the said supplier before proceeding against the Surety Insurer and the Surety Bond herein contained shall be enforceable against the Surety Insurer, notwithstanding any other security which the TCIL may have obtained from the said supplier or any other person and which shall, at the time when proceedings are taken against the Surety Insurer hereunder, be outstanding or unrealized.

5. We, the Surety Insurer, further undertake not to revoke this Surety Bond during its currency except with the previous express consent of TCIL in writing.

6. The Surety Insurer declares that it has power to issue this Surety Bond and discharge the obligations contemplated herein, the undersigned is duly authorized and has full power to execute this Surety Bond for and on behalf of the Surety Insurer.

7. The Surety Bond shall not be affected by any change in the constitution or winding up of the Bidder or the Surety Insurer or any absorption, merger or amalgamation of the Bidder or the Surety Insurer with any other person.

8. This Surety Bond will expire on _____ including 30 days of claim period and any claims made hereunder must be received by us on or before expiry date after which date this Surety Bond will become of no effect whatsoever whether returned to us or not.

9. The parties acknowledge and agree that neither this Surety Bond nor any obligations hereunder are transferable or assignable.

10. The Surety Insurer declares that this Insurance Surety Bond is issued as per applicable rules and regulations of Insurance Regulatory Development Authority of India (IRDAI).

_____
Authorized Signature
Manager
Seal of Insurer Surety
Contact details

Name & Signature of witness	Signature of the authorized Surety Insurer
Address of witness	Name
	Signed in Capacity of
	Full address of Branch
	Tel No. of Branch
	Fax No. / Email of Branch

Notes:

1) The Insurance Surety Bond shall be from an Insurer as per guidelines issued by Insurance Regulatory and Development Authority of India (IRDAI).

2) The Insurance Surety Bond should be on non-judicial stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the state(s).

3) The executing officer of Surety Bond will indicate his name, designation, and Power of Attorney No. on last page of the Surety Bond

END OF SECTION – 23

<< To be printed on the Bidder's Letter Head and shall be signed by Authorized Signatory>>

Commercial Bid

To,
Chief General Manager (ICT Biz 1)
Telecommunications Consultants India
Limited TCIL Bhawan, GK-1
New Delhi- 110048

Subject: Commercial bid

Please find detailed Bill of Quantity for each line item and entire project. We have also added additional line item separately with all the necessary justification and details (if any). All the rates are all inclusive, i.e. inclusive of all taxes, GST, levies, other expenses and charges.

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
1	Field Components	**Spot and Average speed system**	One Spot speed - avg in 20 km *Separate mount*	1 Lane	28				
2		Radar + Evidence Camera + IR + ANPR + lane wise speed display ANPR can be one or more for min. no. of required lanes		2 Lanes	20				
3		**Lane Discipline Violation Detection System**	One Lane - avg in 20 km	1 Lane	28				
4		Only separate analytics per location (Coupled with Evidence Camera)	*Mount with Spot Speed*	2 Lanes	20				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
5		**Vehicle Actuated Speed Signs** (Speed Detection and Display Systems)	One avg in every 20 km	Nos.	48				
6		**Wrong Way Entry / Exit Violation Detection System (separate locations)** ANPR can be one or more for min. no. of required lanes (Analytics + Evidence Camera + IR + ANPR)	One avg in every 20 km 1 lane detection + with RLVDs in below row	Nos.	18				
7		**Red Light Violation Detection System** **Stop Line Violation Detection System**	One avg in every 33 km **1 Lane, 2 Arm:**		10				
8		**Seat Belt Violation Detection System** **Wrong Way Entry / Exit Violation Detection System** 4 Analytics + Evidence Camera + IR + ANPR	**1 Lane, 3 Arm: 2 lanes, 3 arm:**	Nos.	10				
9		ANPR can be one or more for min. no. of required lanes	*Separate mount*		10				
10		**Unauthorized Parking Violation Detection System** Only separate analytics per location (Coupled with Evidence Camera)		Nos.	96				
		Dynamic Messaging Systems VMS board + Controller + Hardware and Accessories + Mounting + UPS + VMS Software	One avg in every 80 km **2.8 mtr length x 1.2 mtr height**	Nos.	12				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
			50% on separate mount 50% on existing mount						
11			One avg in every 80 km **3.8 mtr length x 1.8 mtr height** *50% on separate mount 50% on existing mount*	Nos.	12				
12		**Two-Wheeler** No- Helmet Violation Detection System Triple Riding Violation Detection System Only separate analytics per location (Coupled with Evidence Camera)		Nos.	96				
13		**Vehicle Document Related Violation** Restricted Vehicle Type/ Over Dimensional Cargo Others	No separate analytics	Nos.	0		To be included		
14	**Toll Plaza Apparatus**	ANPR (hardware, software etc.) at Toll Gates		Unit	38				
15		AVCC with Over height detection, Vehicle profiling At each Toll Gate	Separate Mounting	Nos.	38				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
16		Signal and Dynamic Registration number display		Set	38				
17	Extra Items	Signboards (1 ft. x 1.5 ft.) and mounting accessories etc.		Nos.	118				
18		Road Marking at junctions	Arm Wise	Arms	110				
19		**Galvanized Cantilever Pole (for covering 1 / 2 Lanes)**	All spot on 1 / 2 lane road and All arms for RLVD	Nos.	213				
20		**Installation for Galvanized Cantilever Pole** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	213				
21		**Galvanized Poles** (7 mtr to 9 mtr as per site requirement)	Wrong Way and DMS of varied size on separate mount	Nos.	78				
22		**Installation for Galvanized Pole** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	78				
23	Mounting	**Mounting and Installation of AVCC**		Per Toll Gate	38				
24		**Poles (Min. 3 Mtr.) for following at Toll Plaza:** ANPR AND Display AND Signal	Min. 1 Pole per Toll Gate	Nos.	38				
25		**Installation for Pole at Toll Plaza** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	38				
26		**Pole for Electrical Junction Box**	Each location with Pole / Cantilever and Toll Plaza	Per location	166				
27		**Installation for Pole for Electrical Junction Box** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	166				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
28	**Network and Power** **Field Components, Toll Plaza, Porta Cabin, CCC**	**Junction Box (IP 65 rated with RAIN Canopy, SS Glands 6 no., Lock, DIN Rail, Pole / Ground mounting kit)** (including installation and all connections, Power DB, Sub Meter connectivity, Cables, Industrial Grade DIN Rail Mount POE Switch with Industrial Grade SFP Modules, Industrial Grade DIN Rail PSU for switch, WAGO Terminal Block, Connectors, 12 Port Outdoor LIU, SM LC-LC Patch Cord 1 M, Power Line Surge Protector, POE Ethernet Surge Protector, MCB, RCCB, Power Strip 4X6AMP, 3 Core 2.5 Sq mm Armoured Power Cable, Armoured CAT6 Cable, Field Termination Plug, CAT 6 RJ45 Jacks, Cable Route Marker, 50mm HDPE, Metal Conduit, Flexible conduit, Lightning Arrester, Power cabling, chemical earthing and grounding etc.)	Minimum 1 per location	Per location	118+14				
29		Local Processing Unit (LPU)		Per location	118+14				
30		Solar Panels to provide necessary power for all the field components at respective location	Solar Panel + Solar UPS + Batteries + Installation + Mounting Accessories **(For Field Components)**	Per location	130				
31		Field Solar UPS with invertor Minimum 2KVA (24 hrs backup with Solar as Primary Power)			130				
32		Li-Ion/ Li-Po Battery with Air Cooled Junction Box for 24 hrs backup			130				
33		**Electrical Junction Box** (including ACDB, MCB power switches, cabling, colling fans, space for UPS and Batteries, earthing connection etc.)		Per location	166+14+10+1				
34		Armoured 3 core 2.5 mm power cable	For Last mile Connectivity as	Per location	166+14+10				
35		HDPE Pipe			166+14+10				
36		GI Pipe			166+14+10				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
37		Power Cable laying Cost	per Site requirement For Field Components through Solar and Toll Plaza Components through Grid Power.		166+14+10				
38		CAT6 cable, min. 12 core OFC as per requirement	For Last mile Connectivity as per Site requirement	Per location	166+14+10				
39		Network Cable laying cost (Trenching, Ducting, Slicing, Termination, Manhole, etc.)		166+14+10				
40		Industrial Grade Dual SIM 5G Router	For Field Components	Per Location	118				
41		Recurring SIM cost - LTE (Primary and Secondary for redundancy) - 5G unlimited upload	For Field Components	2 SIM per location	130				
42		Electricity Charges Recurring charges for electricity at Toll Plaza apparatus		Per Location	14				
43		Electricity Charges Recurring charges for electricity at Porta Cabin		Per Location	10	**Provided by the Dept.**			
44		Electricity Charges Recurring charges for electricity at CCC		Per Location	1				
45		5KVA UPS with batteries to cover all Toll Plaza components with 60 min backup	For Toll Plaza apparatus	Per Location	14				
46		2 KVA 3Ph in 1 Ph out UPS with Battery Bank for 60 min backup (Excluding AC)	For Porta Cabin	Per Location	10				
47		20 KVA UPS with batteries to cover all CCC components with 60 min backup	For CCC	Per Location	1				

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48	**Command and Control Center**	**Display Wall 3 x 3 with min 55" LED Display**		Nos.	1				
49		Videowall Processor / Controller Unit for display wall with required software		Nos.	1				
50		Connector cables and peripherals for Video Wall & Brackets		Lot (as Required)	1				
51		Audio Visual Annunciator System		Nos.	1				
52		Monitoring Workstations (3 Monitors per workstation)		Nos.	5				
53		Network Colour Multifunctional Device (Printer, Scanner, Copier) with required accessories (paper, ink, toner, printer head etc.) for 5 years		Nos.	5				
54		IP Dome Camera System		Nos.	5				
55		Access Control System		Set	1				
56		VESDA and Fire suppression system		Set	1				
57		Switches and all other networking components		Lumpsum (As Required)	1				
58		Redundant SDWAN Router with SDWAN Orchestration License		Lumpsum (As Required)	1				
59		Civil Work for Command Center (Including Stage, Table, Chair, AC, Power Backup, Passive Cabling, False Ceiling, cladding, Carpet, partitioning etc.)		LumpSum	1				
60		Desktops for IMVs for Challans		Nos.	3				
61		DG set components, setup, accessories, cables, storage etc. + Diesel (~50 Ltrs per day)-including fuel at CCC		Set	1				

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A	B	C	D	E	F	G	H = F x G	I	J = I x 10
62	Central Hosting Infra at CCC	**100 mbps ILL** Redundant ILL Link from 2 different ISPs		LumpSum	1				
63		LLB,WAF, Security feature Hardware Box including all security License cost - Smart Rack Mountable Single Hardware Box		Set	1				
64		Routing & Security Solution		LumpSum	1				
65		L2 Switch - For ISP Internet Link(ILL) Termination and connecting workstations		Set	3				
66		24 Port L3 Core Switch - For Connecting Server, Storage		Set	2				
67		**Redundant 2U Application Servers (Smart Rack Mountable)** 2 X 24 Core Processor, 64 GB RAM, 54 TB HDD, RAID, OS, Virtualization, Onsite support)		Set	3				
68		Storage Type 1 (160TB)	Earler 2 qty	Set	1				
69		24 Port Fully Loaded CAT6 Patch Panel		Set	2				
70		Smart Server Rack		Set	1				
71		IP PDU		Set	2				
72		Modular 20 KVA 3Ph in 1 Ph out UPS with Battery Bank for 60 min backup		Set	1				
73	Porta Cabin for Counselling	**Porta Cabin for Counselling** (False Ceiling, Flooring, including Seating arrangements for 10 people, Cladding for wall, Electrical wiring, switches etc., (min 2) air-condition, concrete foundation etc. as per RFP)	10 x 15 x 8.5 Ft.	Set	10				
74		**50 Mbps ILL** ILL Link from 1 ISP		LumpSum	10				
75		55" LED Display / Workstation - for counselling		Unit	10				
76		Desktop with Monitor - for Viewing Center		Set	10				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
77		Workstation Desk - for viewing center		Set	10				
78		24 Port L2 POE Switch with 4 SFP+ Modules		Unit	10				
79		12U Wall Mount Network Rack		Unit	10				
80		IP Dome Camera with NVR (as per requirement to cover entire area)		Set	10				
81		Manpower (24 x7) - for manning all Porta Cabin and assisting MMVD	1-2 people in 2 shifts	Nos.	0				
82		Security and Facility Management Staff	12 hrs 2 shifts		20				
83		Command and Control Centre Application including incident management.		Lumpsum	1				
84		Geographic Information Software including Base Map preparation, data layers etc. (or can be merged with ICCC/ ITMS Application) as applicable. excluding Satellite Imagery (to be provided by Dept.)		Lumpsum	1				
85	Software	Video Management System (VMS Base license + Per Camera License)	For DC, DR,	Lumpsum	1				
86		ITMS Base License		Lumpsum	1				
87		Enterprise Management Software (EMS) (Asset Management System, Network Management, System Security Management, Manpower Management, SLA Management System etc.)		Lumpsum	1				
88		Web Portal - for Commuters and Responders		Lumpsum	1				
89		Mobile App - for Responders		Lumpsum	1				
90		Integrations APIs - eChallan, Vahan / Saarthi etc.		Lumpsum	10				
91	Misc.	**Insurance Cost** For Theft, Fire, Death, Third Party Damage etc.		LumpSum	1				

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A	B	C	D	E	F	G	H = F x G	I	J = I x 10
92		Security Audit	Minimum 6 times as per RFP	LumpSum					
93		Field Survey		LumpSum					
94		SMS Recurring Cost		LumpSum					
95		Cloud Hosting of all applications **Application Availability, Security - and Performance in Cloud DR**		Lumpsum					
96	**Training**	Functional Training		At least once every year					
97		Implementation Manpower		Lumpsum (As Required)					
98		Project Manager		Nos.	1				
99		Technical Manager		Nos.	To be proposed by bidder to meet RFP minimum requirement as per bidder's requirements				
100		Lead Command and Control Operator	As defined in RFP Clause 2 under "Project Phases"	Nos.					
101	**Manpower**	Command and Control Center Operators including GIS operators		Nos.					
102		CCC Support Staff + housekeeping + security		Nos.					
103		Repair and Maintenance Staff		Nos.					
		Total Cost (Exclusive of Applicable Taxes)							
		Total Cost (Inclusive of Applicable Taxes)							

{Bidder may insert additional line item here, if any with all the required details}
{Bidder may insert all the assumptions here}

Thanking you

Yours faithfully

(Signature of the authorized representative of the Bidder)
Name:
Designation:
Seal:
Date and Place:
Business Address:

Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years

Part I

Tender Notification No:
Date:

<u>Issued By</u>
The Transport Commissioner
Motor Vehicles Department
Government of Maharashtra

Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai - 400 001
Tel: 022 – 20826498
Email ID: etendercomp.tpt-mh@gov.in

Confidentiality

This document has been designed for limited circulation only, amongst the interested parties (Bidders) who have requested for "RFP for Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years". Information shared with Bidders through this document, and any subsequent written document or verbally in this regard is confidential in nature. Any further circulation of this information without prior permission of MMVD is prohibited and shall attract punishment / penalties.

Disclaimer

Motor Vehicles Department, Maharashtra (hereinafter referred to as "MMVD") has issued this Request for Proposal (hereinafter referred to as "RFP") for "Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years" on such terms and conditions as set out in this RFP document, including but not limited to the Functional and Technical Specifications and requirements set out in different parts of this RFP document.

This RFP has been prepared with an intention to invite prospective Bidders and to assist them in making their decision of whether or not to submit a proposal.

It is hereby clarified that this RFP is not an agreement and the purpose of this RFP is to provide the bidder(s) with information to assist them in the formulation of their proposals. This RFP document does not purport to contain all the information bidders may require. This RFP document may not be appropriate for all persons, and it is not possible for MMVD to consider the investment objectives, financial situation and particular needs of each bidder. MMVD has taken due care in preparation of information contained herein. However, this information is not intended to be exhaustive. Interested parties are required to make their own inquiries and respondents shall be required to confirm in writing that they have done so and they do not solely rely on the information contained in this RFP in submitting their proposal. This RFP includes statements, which reflect various assumptions and assessments arrived at by MMVD in relation to the project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require.

This RFP is not an agreement by and between MMVD and the prospective bidders or any other person. The information contained in this RFP is provided on the basis that it is non–binding on MMVD, any of its authorities or agencies, or any of their respective officers, employees, agents, or advisors. MMVD makes no representation or warranty and shall incur no liability under any law as to the accuracy, reliability or completeness of the information contained in the RFP document. Each Bidder should conduct its own investigations and analysis to check the accuracy, reliability and completeness of the information in this RFP Document, and where necessary, obtain independent advice from appropriate sources. Each Bidder is advised to consider the RFP document as per his understanding and capacity. The bidders are also advised to do appropriate examination, enquiry and scrutiny of all aspects mentioned in the RFP document before bidding. Bidders are encouraged to take professional help of experts on financial, legal, technical, taxation, and any other matters / sectors appearing in the document or specified work.

Bidders are also requested to go through the RFP document in detail and bring to notice of MMVD any kind of error, misprint, inaccuracies, or omission in the document. MMVD reserves the right not to proceed with the project, to alter the timetable reflected in this document, or to change the process or procedure to be applied. MMVD also reserves the right to decline to discuss the Project further with any party submitting a proposal.

No reimbursement of cost of any type shall be paid to persons, entities submitting a Proposal. The Bidder shall bear all costs arising from, associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, expenses associated with any demonstrations or presentations which may be required by MMVD or any other costs incurred in connection with or relating to its Bid.

Issue of this RFP does not imply that MMVD is bound to select and pre-qualify Bids for Bid Stage or to appoint the Agency for the project and MMVD reserves the right to reject all or any

of the Bids without assigning any reasons whatsoever. MMVD 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 information contained in this Request for Proposal ("RFP") Document or subsequently provided to Bidder, whether verbally or in documentary form by or on behalf of the MMVD or any of their employees is provided to the Bidder on the terms and conditions set out in this RFP Document and any other terms and conditions subject to which such information is provided.

The MMVD, their employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the RFP Document. The Government Representatives may in their absolute discretion, but without being under any obligation to do so, update, amend or supplement the information in this RFP Document.

Structure of the RFP

This RFP is meant to invite proposals from interested bidders capable of delivering the services described herein. This Request for Proposal document consists of following parts viz:

Part I:

Part IA: Instruction to Bidders
Part IA of this RFP details out clear instructions to the bidders for the bidding process requirements in addition to selection process and criteria for selection of Agency

Part IB: Scope of Work
This part gives detail requirements of the project including the scope, project activities and timelines, technical requirements and specifications with respect to Intelligent Traffic Management System.

This part also describes various phases of the project and roles and responsibilities of the Agency during the entire project duration including the implementation stage and the Operations and Maintenance stage.

Various administrative aspects including timelines are also described in this part.

Part II: Draft Agreements

This part of the RFP provides various Terms and conditions of the contract, Draft Agreements format such as Draft Non-Disclosure Agreement, Draft Master Service Agreement etc. which would be entered into between the MMVD and the Successful Bidder (Agency) at the start of the project.

This is the **Part I (Part IA and Part IB)** of the RFP document.

Table of Contents

Glossary

Terms	Meaning / Full form
AAA	Authentication, Authorization, And accounting
AC	Alternative Current
Agency	Selected Vendor / Successful Bidder
AMS	Asset and Inventory Management System
ANSI	American National Standards Institute
ARP	Address Resolution Protocol
AWS	Amazon Web services
B.E.	Bachelor of Engineering
B. Tech	Bachelor of Technology
BG	Bank Guarantee
BGP	Border Gateway Protocol
BIS	Bureau of Indian Standards
BLC	Backlight compensation
BMS	Building Management System
BoM	Bill of Material
BoQ	Bill of Quantity
BTU	British Thermal Unit
CAL	Client access license
CBR	Constant Bit Rate
CCTV	Close Circuit Television
CD	Compact Disc
CE	European Conformity
CFM	Cooling Fan Module
CGL	Commercial General Liability
CIFS	Common Internet File System
CLI	Command Line Interface
CMMI	Capability Maturity Model Integration
CMOS	Complementary Metal Oxide Semiconductor
COTS	Commercial Off-The-Shelf
CPU	Central Processing Unit
CS	Computer Science
CV	Curriculum Vitae
Db	Decibals
DC	Data Centre
DD	Demand Draft
DDNS	Dynamic Domain Name System
DDoS	Distributed Denial of Service
DDR	Double Data Rate
DG	Diesel Generator
DHCP	Dynamic Host Configuration Protocol
DIT	Department of Information Technology
DLP	Data loss prevention
DMZ	DeMilitarized Zone
DNR	Digital Noise Reduction

Terms	Meaning / Full form
DNS	Domain Name System
DoS	Denial of Service
DPI	Dots Per Inch
DR	Disaster Recovery
DSCP	Differentiated Services Code Point
DVD	Digital Versatile Disc
DVI-D	Digital Visual Interface-Digital
ECS	Electronic Credit System
EE	Electrical and Electronics
EER	Energy Efficiency Ratio
EIA	Environmental Impact Assessment
EMD	Earnest Money Deposit
EMS	Enterprise Management System
EN	European Standard
EPF	Employee Provident Fund
EPS	Events per Second
FAQs	Frequently Asked Questions
FAT	Final Acceptance Test
FC/FCC	Federal Communications Commission
FCoE	Fibre Channel over Ethernet
FIPS	Federal Information Processing Standards
Ft	Feet
FTP	File Transfer Protocol
GAD	General Administration Department
GB	Gigabytes
Gbps	Gigabites per second
GIS	Geographic Information System
GoM	Government of Maharashtra
GR	Government Resolution
GST	Goods and Service Tax
GUI	Graphic User Interface
HA	High Availability
HDD	Hard Disk Drive
HDMI	High-Definition Multimedia Interface
HLC	Highlight compensation
HR	Human Resource
ITMS	Intelligent Traffic Management System
HTTP	Hyper Text Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
Hz	Hertz
ICCC	Integrated Command and Control Centre
ICMP	Internet Control Message Protocol
ICR	Infrared Cutfilter Removal
ICT	Information and Communication Technology
IDC	Internet Data Center
IEEE	Institute of Electrical and Electronics Engineers

Terms	Meaning / Full form
IGBT	Insulated-Gate Bipolar Transistor
IGMP	Internet Group Management Protocol
INR	Indian Rupees
IP	International (or Ingress) Protection
IPS	In-plane switching
IPSec	Internet Protocol Security
IPv4/IPv6	Internet Protocol version 4/ Internet Protocol version 6
IR	Infra Red
IRDA	Insurance Regulatory and Development Authority
IRE	Institute of Radio Engineers
iSCSI	Internet Small Computer Systems Interface
ISI	Indian Standards Institute
ISMS	Information Security Management System
ISO/IEC	International Organization for Standardization/International Electro technical Commission
ISP	Internet Service Provider
IST	Indian Standard Time
IT	Information Technology
ITA	Information Technology Act
ITCC	Information Technology Coordination Center
ITES	Information Technology Enabled Services
ITSM	Information Technology service management
Kbps	Kilobits Per Second
KPI	Key Performance Indicator
KVA	Kilo Volt-Ampere
L2TP	Layer 2 Tunneling Protocol
LACP	Link Aggregation Control Protocol
LAN	Local Area Network
LDAP	Lightweight Directory Access
LED	Light Emitting Diode
LLP	Limited Liability Partnership
LOA	Letter of Acceptance
LOI	Letter of Intent
LUN	Logical Unit Number
M.Tech	Master of Technology
MAC	Media Access Control
MAF	Manufacturer Authorization Form
MBA	Master of Business Administration
Mbps	MegaBits Per Second
MCA	Master of Computer Applications
MCSE	Microsoft Certified Solutions Expert
MD5	Message Digest Algorithm 5
MeitY	Ministry of Electronics and Information Technology
MH DIT	Maharashtra Department of Information Technology
MMVD	Motor Vehicles Department, Maharashtra
MIS	Management Information System

Terms	Meaning / Full form
Mm	Millimeter
MMR	Mumbai Metropolitan Region
MP	Megapixel
MPEG	Moving Picture Experts Group
MPLS	Multiprotocol Label Switching
Mpps	Mega Packet Per Second
MSA	Master Service Agreement
MSME	Ministry of Micro, Small & Medium Enterprises
MSWAN	Maharashtra State Wide Area Network
NAS	Network-attached storage
NAT	Network Address Translation
NDA	Non-Disclosure Agreement
NDMP	Network Data Management Protocol
NEFT	National Electronic Funds Transfer
NFS	Network File System
NMR	Nagpur Metropolitan Region
NOC	Network Operation Center
NSIC	National Small Industries Corporation
NTP	Network Time Protocol
O & M	Operation and Maintenance
OEM	Original Equipment Manufacturer or OEM Authorized Vendor
OIR	On-line Insertion and Removal
ONVIF	Open Network Video Interface Forum
OS	Operating System
OSPF	Open Shortest Path First
OST	Offline Storage Table
PAN	Permanent Account Number
PBG / BG	Performance Bank Guarantee / Bank Guarantee
PC	Personal Computer
PDU	Power Distribution Unit
Ph	Phase
PMR	Pune Metropolitan Region
PMU	Program Managements Unit
PoE	Power over Ethernet
PPM	Page Per Minute
PPP	Point-to-Point Protocol
PPPOE	Point-to-Point Protocol over Ethernet
PSU	Public Sector Undertaking
PWM	Pulse Width Modulation
QB	Quarterly Bill
QoS	Quality of Service
RADIUS	Remote Authentication Dial-In User Service
RAID	Redundant Array of Independent Disks
RAM	Random Access Memory
RFP	Request for Proposal (Tender Document)
RHCE	Red Hat Certified Engineer

Terms	Meaning / Full form
RIP	Routing Information Protocol
RJ	Registered Jack
RMON	Remote Monitoring
RoHS	Restriction of Hazardous Substances
ROM	Read Only Memory
RPO	Recovery Point Objective
RSVP	Resource Reservation Protocol
RTGS	Real Time Gross Settlement
RTO	Recovery Time Objective
RTP	Real-time Transport Protocol
RTSP	Real Time Streaming Protocol
SAN	Storage Area Network
SAS	Serial Attached SCSI
SD	Secure Digital
SDK	Software Development Kit
SFP	Small Form-factor Pluggable
SLA	Service Level Agreement
SMF	Sealed Maintenance Free
SMPS	Switched-Mode Power Supply
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SOAP	Simple Object Access Protocol
SOP	Standard Operating Procedure
SOW	Scope of Work
SPOC	Single Point of Contact
SRS	System Requirement Specifications
SSD	Solid-State drive
SSH	Secure Shell
SSL	Secure Sockets Layer
STP	Shield Twisted Pair
STQC	Standardization Testing and Quality Certification
TACACS	Terminal Access Control System
TB	Terabytes
TCP	Transmission Control Protocol/Internet Protocol
TEC	Tender Evaluation Committee
TFTP	Trivial File Transfer Protocol
TIA	Telecommunications Industry Association
TOS	Type of Service
TPA	Third Party Auditing
UAT	User Acceptance Testing
UDP	User Datagram Protocol
UHE	Ultra-High Energy
UHP	Ultra-High Pressure
UL	Underwriters Laboratories
UOM	Unit of Measurement

Terms	Meaning / Full form
UPnP	Universal Plug and Play
UPS	Uninterruptible Power Supply
USB	Universal Serial Bus
V	Volts
VAPT	Vulnerability Assessment and Penetration Testing
VBR	Variable Bitrate
VESDA	Very Early Smoke Detection Apparatus
VGA	Video Graphics Array
VLAN	Virtual LAN
VPN	Virtual Private Network
VRLA	Valve-Regulated Lead-Acid
W	Watts
WAN	Wide Area Network
WDR	Wide Dynamic Range
Wi-Fi	Wireless Fidelity
WMS	Works Management System
XML	Extensible Markup Language

Project Background

In order to give effect to the provisions of Motor Vehicles Act, 1988 & Rules made there under, Motor Vehicles Department has been setup as per Section 213 of Motor Vehicle Act 1988 in the State of Maharashtra.

A. Vision

The Vision of the Department is to provide safe transportation of goods and passengers and enable prompt & citizen friendly services relating to motor vehicles.

B. Mission

- To aim for stricter compliance of provisions of Motor Vehicle Act & Rules there under
- To establish user-friendly front-end facilities for citizens
- To strengthen the Department by providing equipment, manpower & training
- To simplify the taxation of vehicles
- To create effective grievance redressal mechanism

C. Establishment

The Motor Vehicles Department's functions are monitored and controlled by the Transport Commissioner office, located in Mumbai. The State has 15 Regional Transport offices and 35 Deputy Regional Transport Offices.

The key services of issuance of driving license and vehicle registration are offered by the department through online system, SARATHI (Driving License) and VAHAN (Vehicle Registration). SARATHI & VAHAN have been developed by NIC and are web-based application enabling citizens to apply for various services related to Driving License and Vehicle Registration.

D. Enabling Legal Framework

The department operates under the aegis of the following legal framework
- The Motor Vehicles Act, 1988
- Central and Maharashtra Motor Vehicles (MMV) Rules
- Maharashtra Motor Vehicle Tax Act & Tax Rules

One of the Major role played by the Motor Vehicles Department is on-road enforcement. The MMVD has multiple ways to enforce traffic discipline on the road including Flying Squads, Interceptor Vehicles with Speed Guns, Border Check Posts as well as manual enforcement. The enforcement wing combined has jurisdiction in the entire state of Maharashtra for catching traffic violators. With advanced technologies such as Speed Guns, the enforcement has become less subjective, quick and more accurate.

However, there is a limitation on number of people the MMVD can deploy on the road. The state with large geographical area, it is almost impossible to cover entire grounds, even with increased manpower. Hence the MMVD decided to use advanced technology such as RADAR, Cloud Computing for the purpose of enforcement by deploying Intelligent Traffic Management System on some of the key Highways of the state.

MMVD has planned ITMS project for about 445+ km of the roads in the Nagpur Circle with high crashes and fatalities in the past, to ensure round the clock enforcement and eventually reduction in the fatalities. The estimated cost for the project is approximately Rs. 213.09 Crore (Inclusive of Applicable Taxes) for the entire contract period.

The below table indicatively details the Highways shortlisted for the ITMS project:

S. No.	From	To	Road number	KM	Type
1	Nagpur (Wadi junction) 21.15341, 79.00456	Akola 20.72526, 77.00450	NH53	238	2/4 lane divided
2	Nagpur 21.11078, 79.07022	Chandrapur 19.96866, 79.29095	NH930	147	2 lane divided
3	Nagpur (Jhampta junction ORR) 21.01820, 79.04788	Deoli (Check post) 21.43282, 79.28768	NH44	64	4 lane divided
Total Length				**449**	

INSTRUCTIONS TO BIDDERS
Part 1A

Instructions to Bidders

1. RFP Notice

This RFP Document is being published by the Motor Vehicles Department, Maharashtra, for the Project "Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years". The notice inviting tender is published by MMVD.

2. Submissions of Bids

a. A complete set of tender documents is available at www.mahatenders.gov.in for viewing and download. All the notification & details, terms and conditions regarding this tender notice hereafter will be published online on e-tendering website http://mahatenders.gov.in. The guidelines to download the tender documents and online submission of bids and procedure of tender opening can be downloaded from website https://mahatenders.gov.in. The bidders are advised to go through the manuals in detail to understand the bid submission process.

b. The bidder needs to submit their bids online on www.mahatenders.gov.in. The bidders are required to fill the tender online as per the timelines provided. The tender fee has to be paid online, Scanned copy of EMD (BG / DD) has to be submitted with technical bid and submit physical EMD as per timeline specified in the **Clause 12** under "Instruction to Bidders" without which tender will be considered as incomplete and shall be liable for rejection as per **Clause 15** under "Instructions to Bidders"

c. The bidders must make the payments towards tender fee by taking sufficient margin for time lags between the online payment and settlement / realization and other Banking Procedures in the pooling account and reflection of the same in the online tender system. The tender fee shall be non-refundable.

d. The Transport Commissioner, Maharashtra State, reserves the right to accept or reject any or all the tenders without assigning any reason whatsoever.

e. For MSME bidders claiming Tender Fee exemption, a certificate (which is valid as on date of submission of bid) of registration with NSIC to be uploaded as a part of Key Submission.

f. The bidders must possess compatible digital Signature Certificate of Class-II or Class-III to participate in the e-tendering process.

g. Bidder may contact helpline support numbers mentioned on the https://mahatenders.gov.in.

h. **Tender Fees:** INR 10,000/- to be paid online through e-tendering solution https://mahatenders.gov.in integrated with Payment Gateway

3. General Information and Guidelines

a. MMVD invites bids for this Request for Proposals (RFP) from eligible bidders as per the scope of work defined in the RFP.

b. Bids must be received not later than the time and date mentioned in the Notice Inviting Tender. Bidder shall not be able to submit bids post Last date (deadline) for submission of bids and hence their bids shall not be considered.

c. While every effort has been made to provide comprehensive and accurate background information and requirements and specifications, Bidders must perform their own research and survey, and form conclusions about solution needed to meet requirements.

d. MMVD reserves the right to amend, at any given time during the bid process, any terms and conditions in the RFP in larger public interest.

e. All information supplied by Bidders shall be treated as contractually binding on the Bidders, on successful award of the assignment by MMVD on the basis of this RFP.

f. No commitment of any kind, contractual or otherwise shall exist unless and until a formal written contract has been executed by or on behalf of MMVD. Any notification of preferred bidder status by MMVD shall not give rise to any enforceable rights by the Bidder. MMVD may cancel this tendering process at any time, prior to a formal written contract being executed by or on behalf of MMVD, without assigning any reasons.

g. Any contract that may result from this bidding process shall be effective from the date of Signing of Contract and shall, unless terminated earlier in accordance with its terms, continue for a period till completion of Contract.

h. MMVD reserves the right to amend at any given time during the contract period any terms and conditions in the Contract Agreement in larger public interest on mutually agreed terms and conditions between both the parties. MMVD's decision shall be final and binding upon the Successful Bidder (Agency).

i. All figures of costs, project values and others shall be mentioned in Indian Rupees only.

j. An identified sub-contractor participating with more than one (1) Bidder shall furnish an undertaking to the effect that there exists no conflict of interest and that any commercial arrangement by and between the concerned Bidders and the identified sub-contractor is purely contractual in nature and there is no undue influence, fraud or anti-competitive activity. MMVD bears no responsibility whatsoever, to any such fraudulent activities.

4. Completeness of the RFP response

Bidders are advised to study this RFP document carefully before submitting their bids. Submission of a bid in response to this RFP shall be deemed to have been done after careful study and examination of this RFP and a visit MMVD office to understand the process, present systems, civil conditions, expectations, current scenario and other necessary considerations, in order to assess the efforts required for the project. Failure to furnish all information required by the RFP or submission of a bid not substantially responsive to the RFP requirement in every respect will be at the bidder's risk and may result in rejection of its bids. For reference, Key documents to be submitted are mentioned in **Annexure Set IV - Annexure I,** which shall be submitted with proper indexing of all submissions with exact page number / file name.

5. Bid Preparation Cost

The bidder is responsible for all costs incurred in connection with participation in this process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings, discussions, presentations, demonstration, any lodging and boarding, preparation of bids, in providing any additional information required by MMVD to facilitate the evaluation process, and in negotiating a definitive Contract or all such activities related to the bid process. The MMVD will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process. This RFP does not commit the MMVD to award a contract or to engage in negotiations. No reimbursable cost may be incurred in anticipation of award. All materials submitted by Bidder shall become property of MMVD and may be returned at its sole discretion.

6. Pre Bid Meeting

a. MMVD will organize a Pre-Bid meeting with all interested Bidders to answer queries.

b. All the Bidders are requested to submit their list of queries / suggestions / clarifications if any, to the RFP and / or the Draft Contract Agreement only via email and in the format prescribed in **Annexure Set IV - Annexure 4** to both roadsafety.maharashtra@gmail.com & etendercomp.tpt-mh@gov.in, on or before date specified in "NOTICE INVITING TENDER" , **with clearly mentioning the RFP Ref No. in the subject of the mail**.

c. MMVD will not respond to the queries sent in any other format than prescribed as per **Annexure Set IV - Annexure 4** or queries sent after the stipulated date.

d. MMVD shall consider the queries submitted by prospective bidders and may or may not change the tender document / amend the tender document.

e. All such changes or amendments if any will be published online on tendering website and shall be treated as inherent part of the tender requirement.

7. Amendment to RFP document

At any time before the deadline for submission of bids, MMVD may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the RFP Document by an amendment. All the amendments made in the document would be made available on the e-Tender website (www.mahatenders.gov.in). The bidders are advised to visit this website on regular basis for checking necessary updates. The MMVD also reserves the rights to amend the dates mentioned in this RFP for bid process. In order to allow prospective Bidders reasonable time to take any such amendments into account in preparing their bids, MMVD may, at its discretion, extend the last date for the submission of Bids.

8. Site Visit

The Bidder may wish to visit proposed sites of the ITMS as well as the CCC and Porta Cabin Sites to understand the user expectations and obtain for itself, at its own cost, responsibility and risk, all information that may be necessary for preparing the bid and entering into the Contract. The assessment of actual costs including designing, engineering, financing, procurement, development, construction, equipment, manpower, software development and IT Infrastructure including hardware and software, services, operation and maintenance of the Project will have to be made by the Bidders. The Bidders are invited to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective Bids. The costs of visiting the Proposed site shall be at the Bidder's own expense. The MMVD will arrange for the Bidder and any of its personnel or agents to gain access to the relevant office of proposed site and information, provided that the Bidder gives the MMVD adequate notice of a proposed visit of Prior to at least Five (5) working days. No site visits shall be arranged or scheduled after the Last Date (deadline) for the submission of the Bids and prior to the award of Contract, unless specifically approved by MMVD.

9. Termination of RFP process

The MMVD may terminate the RFP process at any time in line with relevant provisions prevalent at that time. The MMVD makes no commitments, express or implied, that this process will result in a business transaction with anyone. This RFP does not constitute an offer by the MMVD. The bidder's participation in this process may result in MMVD selecting the bidder to engage towards execution of the contract. In the event of such termination of the RFP Process, EMD of all bidders shall be returned, without any interest.

10. Project Phases

Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years be bifurcated in two Phase:

Phase Name	Description	Period
Implementation Stage	Project Inception and Planning	1 month after Signing of Contract
	Project Implementation	12 months after Signing of Contract
	Project Go-Live / Commencement of Operations	At end of the 12th month and start of 13th month
Operations and Maintenance Stage	O&M of all stretches of ITMS as per requirements and Terms and Conditions.	For 120 Months from the date of Go-Live.

11. Engagement Model

The ITMS project is envisaged to be executed on the Public – Private Partnership basis. The MSI is required to design, build and implement the ITMS system, shall operate the entire system for the entire contract period and shall be responsible for repair, maintenance and all other allied services detailed in the RFP, as per terms, conditions, defined Service Levels and the scope of the RFP, on Build, Operate, and Transfer (BOT) Basis. The roads are constructed and maintained by respective road owning agencies. The Successful Bidder shall be solely responsible for obtaining necessary permissions from various Government agencies for erection of poles, solar panels, porta cabin setup, and other scope of the project, wherever required. The cost towards RoW permission and entire RI shall be sole responsibility of the MSI. MMVD will provide all necessary support for the required permissions. All the required civil, electrical, and other work, equipment, cameras, command, and control center etc. as detailed in this RFP document shall be responsibility of the Successful Bidder including the maintenance of the same for entire contract period.

The ITMS system built and operated by the MSI shall assist the authorities (MMVD, HSP etc.) to detect incidents and manage as well as identify and penalise the traffic violators on the Highways. **The MSI shall be paid total one-time sum of Rs. 23 Crore (all inclusive, including GST) as Viability Gap Funding (VGF)** as per payment schedule defined in Clause 4 under "Administrative Aspects". The GST will be paid additional as per prevailing rates after necessary deduction as per applicable guidelines. **The MSI shall also be paid quoted "Per Challan Rate" over and above the VGF provided by the MMVD during the tenure of the contract post Go-Live as per, for violations detected by the ITMS system and challan generated and approved by the MMVD official**. The "Per Challan Rate" shall be all inclusive and excluding GST. The GST will be paid additional as per prevailing rates after necessary deduction as per applicable guidelines. The penalty collection from the violators shall be as per SOP defined in RFP. MMVD reserves right to modify and finalise the SOP as per requirement from time to time.

MSI shall be required to raise invoice, as per milestone during implementation period and on quarterly basis during O&M period, claiming the number of challans which are issued as per terms and conditions defined in the RFP. Payment for which shall be subject to various terms, conditions, approvals, and SLA requirement etc. as defined in this RFP document.

The MMVD collects specified penalty with respect to the traffic violation from the citizens through the eChallan system. MMVD will continue to collect such penalty and MSI shall have no role in collection of penalty / any other charges from the citizens. **Bidder shall be deemed to be understood that MMVD gives no commitment on number of challans generated and approved.**

MSI shall submit the audited account statements of the revenue earned through ITMS Project as and when required by MMVD. Any deviations to the same may lead to termination of the contract and / or forfeiture of PBG. MMVD's decision in this regard shall be final and binding on the MSI. The above terms and conditions shall remain valid for the entire contract period unless explicitly changed by MMVD at its sole discretion. MMVD reserves the right to modify the engagement model at any given time as deemed fit as per mutually agreed terms and conditions between MSI and MMVD in the larger Public Interest. MMVD's decision shall be final and binding upon the MSI.

12. Earnest Money Deposit

a. Bidder (Lead Bidder in case of Consortium) shall submit an EMD of Rs. 2,00,00,000/- (Rs. Two Crore Only), along with the bids, which shall paid in the form of an irrevocable Bank Guarantee (BG) or Demand Draft (DD) drawn in favour of **"Transport Commissioner, Maharashtra State"** issued by nationalized or scheduled banks having head office in India, payable at Mumbai as per the format given in **Annexure Set I – Annexure 10.**

b. The Demand Draft / BG should bear the MICR and IFSC Code Number of the issuing bank

c. Bidder shall submit the beneficiary account details for EMD refund which shall remain active after award of contract for successful EMD refund. MMVD shall not be liable for delays caused in EMD refund due to incorrect/inactive beneficiary account details.

d. **Submission:** The scanned copy of the DD / BG towards EMD must be uploaded along with technical bids on the e-tendering website. The original DD or BG shall be sent to "**Deputy Transport Commissioner, Computers**" in a sealed envelope super scribing in bold letters the Tender Number. The bidder is requested to get a confirmed acknowledgement from the MMVD as a proof of submission of BG / DD towards EMD to avoid any discrepancy. Further non-receipt of the hardcopy DD/BG document as per below described schedule would also render the bid non-responsive and be rejected.

e. EMD exemption will be given to MSME Units registered with NSIC. For MSME bidder (Lead Bidder in case of Consortium) claiming EMD exemption, a certificate (which is valid as on date of submission of bid) of registration with NSIC to be uploaded (and photocopy submitted) in place of scanned copy of BG/DD for EMD.

f. **Time of submission:** The scanned copy of the EMD (BG / DD) has to be submitted along-with the technical bid documents on the e-tendering application. Further, the original EMD document has to be submitted during the period between **Online Submission End Date** and **Opening of Technical Bids** as described in the "NOTICE INVITING TENDER".
(**e.g.** Online Submission End Date is 2nd Jan 2023 5:00 PM and Opening of Technical Bid is 5th Jan 2023 11:00 AM, then the bidder needs to submit physical copy of EMD (BG / DD) any time AFTER 2nd Jan 2023 5:00 PM and BEFORE 5th Jan 2023, 11:00 AM, during working hours).

g. The details of the DD/BG instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise, the bid submitted will be rejected.

h. EMD of non-successful bidder will be discharged / returned as promptly as possible, but not later than 30 days after Signing of the Contract with the Successful Bidder. No interest shall be payable on the EMD whatsoever.

i. The EMD shall be kept valid through the Bid Validity Period.

j. Prior to expiry of the original EMD and Bid validity Period, MMVD may request the Bidders to extend the period of validity of both EMD and Bid for a specified additional period. The Bid of any Bidder refusing to extend validity as requested shall not be considered, and its EMD shall be returned within 30 (Thirty) days (with no interest). A bidder agreeing to the request will not be allowed to modify its bid but would be required to extend the validity of its Bid and the EMD, till the extended period and comply with all clauses of this document in all respects.

k. Successful Bidder shall extend the validity of the EMD till the submission of the PBG.

MMVD reserves right to forfeit the EMD as per any of the conditions as per clause 15 "**Rejection Criteria**" under "Instructions to Bidders". Decision of the MMVD regarding forfeiture of the EMD and rejection of bid shall be final.

13. Evaluation Criteria and Requirements

This tender is based on the Lowest Bid (L1) Based Selection for Technically Qualified Bidders. To participate in Commercial Evaluation Process, Bidder is required to secure at least 60 marks out of 100 in Technical Evaluation.

The MMVD shall appoint a Tender Evaluation Committee (TEC) to scrutinize and evaluate the financial and technical strengths and commercial bids received. The TEC will examine the Bids to determine whether they are complete, responsive and whether the Bid format conforms to the RFP requirements.

a. **Pre-Qualification Evaluation:** After opening of **Envelop A** (Pre-Qualifications Bids), the bidders will be evaluated against the Pre-Qualification criteria set out in the RFP. Technical evaluation of only such bidder will be undertaken that qualify in the pre-qualification criteria.

b. **Technical Evaluation**: After Pre-Qualification Evaluation, **Envelop B** (Technical Bids) will be evaluated against Technical Qualification Parameters explained in the RFP. Bidder securing at least 60 marks out of 100 marks and successfully demonstrating the system as per requirement shall only be eligible for Commercial bid opening.

c. **Commercial Evaluation:** Bidder shall submit their Commercial Bids in **Envelop C** as per format defined in **Annexure Set III**. Commercial bids of only technically qualified bidders securing minimum 60 marks out of 100 marks shall be opened. Of such qualified bidders, the bidder bidding lowest in the Commercial bid may be considered for award of contract.

13.1. Definitions for qualification criteria

#	Term	Definition
1	**Net-worth**	As defined in Companies Act 1956 / 2013 as amended from time to time.
2	**IT/ITeS**	As defined in Maharashtra's Information Technology/Information Technology Enabled Services (IT / ITES) Policy – 2015 as amended from time to time.
3	**"Similar Projects" or "ITMS"**	o CCTV surveillance system Project OR o Road or Highway Traffic enforcement / Management System OR o Controlling traffic signals and issuing challans with centralized software system OR o Intelligent Traffic Management System OR o IT/ITeS/ICT
4	**Last three financial years**	FY 2020-21, 2021-22 & 2022-23 Financial Year shall mean period between from 1st April of that year to 31st March of immediate next year.
5	**Last five years**	Last **five years** as on the last day (deadline) of the submission of Bid.
6	**Last seven years**	Last **seven years** as on the last day (deadline) of the submission of Bid.
7	**OEM**	Original Equipment Manufacturer or OEM Authorized Vendor

13.2.   Consortium

The Bidder for participation in the Selection Process, may be (a) a single entity or (b) a Consortium, coming together to execute the project. No member at any given point of time, may assign or delegate its rights, duties or obligations under the resultant Agreement except with prior written consent of the MMVD.

No bidder applying individually, or as a member of a Consortium, as the case may be, can be member of another consortia bidding for the project, unless the consortium partner is an OEM or Network Service Provider or Cloud Service Provider and has been part of consortium only as OEM or Network Service Provider or Cloud Service Provider.

In the event the Bidder is a Consortium, it shall, comply with the following additional requirements:

a. Number of members in a consortium **shall not exceed three (3) including the Lead Bidder**;
b. The Lead Bidder shall essentially be the Master System Integrator.
c. Members of the Consortium shall nominate one member as the Lead Member (the "Lead Bidder"); further, the members shall not be a part of more than one consortium.
d. The Lead Bidder shall remain responsible for successful delivery of the project at all times during the term of the resultant contract;
e. The Lead Bidder shall be authorized and shall be fully responsible for the accuracy and veracity of the representations and information submitted by the Members respectively from time to time in the response to this RFP.
f. Members of the Consortium shall enter into a binding Joint Bidding Agreement, for the purposes of making the Application and submitting a Bid and executing the project if declared as Successful Bidder as per Terms and Conditions of the RFP.
g. Subject to the provisions of sub-clause (f) above, the Joint Bidding Agreement shall contain the information required for each member of the Consortium and shall, inter alia:
    i. Undertake that each of the members of the Consortium shall have an independent, definite and separate scope of work which was allocated as per each member's field of expertise;
    ii. Commit to the profit and loss sharing ratio of each member;
    iii. Commit to the scope of work, rights, obligations and liabilities to be held by each member; specifically commit that the Lead Bidder shall be answerable on behalf of other members for the performance of obligations under the resultant Agreement, provide a brief description of the roles and responsibilities of individual members; and clearly define the proposed administrative arrangements (organization chart) for the management and execution.
    iv. Include a statement to the effect that all members of the Consortium shall be severally liable for all obligations in relation to the Assignment until the completion of the Assignment in accordance with the resultant Agreement; undertake that all Members shall comply with all lock-in requirements set forth in the RFP.
    v. **Undertake**;
        o That notwithstanding anything contrary contained in this RFP or the resultant Agreement, the Lead Bidder shall always be liable for obligations of all the consortium Members i.e. for both its own liability as well as the liability of other Members and all the members of the consortium shall always be liable for obligations limited to their scope of work. However, the members of the consortium shall be severally liable for the completion of the project.
        o That the Lead Bidder shall be liable for the entire scope of work and risks involved and further shall be liable and responsible for ensuring the individual and

collective commitment of each of the Members of the Consortium in discharging all of their respective general obligations under the resultant Agreement.

- o Each Member further undertakes to be individually liable for the performance of its part of the obligations without in any way limiting the scope of collective liability envisaged in the resultant Agreement.
- o That the Members of the Consortium shall alone be liable for all obligations of the identified sub-contractor and clearly indemnify the MMVD against any losses or third-party claims arising due to the sub-contractor / consortium's default.
- o That the Lead Bidder is liable to manage the complete assignment by taking responsibility of delivery as per scope and maintain transparency around monetary terms.

h. The technical and commercial capacity of the Members shall satisfy the conditions of eligibility as prescribed in this RFP;

i. The nomination of the Lead Bidder shall be supported by a Power of Attorney, as per the format in this RFP signed by the other members of the Consortium. The duties, responsibilities and powers of such Lead Bidder shall be specifically included in the resultant Agreement. It is expected that the Lead Bidder shall be authorized to incur liabilities and to receive instructions and payments for and on behalf of the Consortium. The MMVD expects that Lead Bidder shall have maximum responsibility pertaining to execution of project;

j. Change to the composition of the consortium is NOT permitted any time before the award of the contract. In case Consortium composition and / or a member is required to be changed, the same shall be done only after prior written approval of MMVD. The Successful Bidder (All members in case of consortium) cannot sell/ transfer the equity associated with this project without prior permission of MMVD. Before on-boarding the new consortium member, who is expected to possess comparable or better qualifications as the exiting member, the MSI shall take prior written approval of MMVD. The Lead Bidder is also responsible for incorporating relevant changes in the Joint Bidding Agreement. The Lead Bidder shall be responsible for the scope of work to be delivered by the exiting member, whether it does it itself or through a new member of the consortium.

k. The bidder shall not subcontract any part of the scope without prior written consent of MMVD. Bidders are allowed to subcontract only certain scope of work as defined in **clause 11** under "Administrative Aspects" of this RFP document.

l. Both during the process of award, and post award of contract, if there is a change in sub-contractors or the activities being sub-contracted, Successful Bidder shall obtain prior permission form MMVD. MMVD shall review the activities listed for sub-contracting and any suggestions by the MMVD shall be agreed upon and binding on the bidder. For any deviation from suggestions made by MMVD on Sub-Contracting, MMVD reserves the right to disqualify the bidder at any stage.

All members of consortium are required to follow the highest level of work ethics, if any member of the consortium has a Conflict of Interest or indulges in "Corrupt or Fraudulent Practices" as described in Clause 20 and 21 under "Instructions to Bidders" during the tendering process (Selection Process); the whole Consortium is liable to be disqualified.

13.3. Pre- Qualification Criteria

This invitation for bids is open to bidders who are eligible to do business in India under relevant Indian laws as is in force at the time of bidding as per the criteria mentioned in the RFP. The bidder shall submit all the documents as mentioned below and additionally other documents as necessary. Only bids qualifying the criteria below would be eligible for further technical evaluation.

Pre- Qualification Evaluation shall be done as per the parameters mentioned in the table below.

Sr.	Parameters	Requirement	Supporting Documents
1.	**Legal Entity**	**The Bidder (All members in case of Consortium) should be:** • A company registered under the Indian Companies Act, 1956 / 2013 OR LLP firm under LLP provisions 2008, both as amended from time to time. • Registered with GST Authorities in India **Bidder (All members, in case of Consortium)** should have been operating for the last **five years** in India (including name change / impact of mergers or acquisitions). **Maximum three companies are allowed in a consortium** including the Lead Bidder, subject to compliance to the **clause 13.2** under "Instructions to Bidder". **The Lead bidder s**hall essentially be the Master System Integrator, who will be jointly and severally responsible for complete scope, whereas consortium partners shall be severally responsible only for its respective scope.	**For Bidder (All members of consortium)** • Copy of Certificate of Incorporation Registration under Companies Act 1956 / 2013 OR Registered Limited Liability Partnership deed as applicable • The latest Income Tax returns along with the copy of PAN • Number of the bidder • Copy of PAN Number • Copy of Registration Certificates with the GST Authorities • Service Tax / Sales Tax Registration Certificates (of applicable years) • For Bidder (All Members in case of Consortium), documentary proof such as purchase orders or certified true copy of balance sheet and PL statements for last 5 years for operation in India as on the date of publishing of RFP notice. • Joint Bidding agreement clearly stating the roles and responsibilities of each member as per **Annexure Set I - Format 11**.
2.	**Financial:** **Turnover**	**Bidder (All members jointly, in case of Consortium)** should have an average annual turnover of at least **INR 64 Crores** in India during the last 3 financial years from IT / ITeS / ICT/ ITMS Projects.	• Certificate from the Statutory Auditor / Chartered Accountant. • Copy of Audited Financial Statements • Details mentioned in format as mentioned in **Annexure Set 1 - Format 4 (4.1).**

Sr.	Parameters	Requirement	Supporting Documents
			• In case Chartered Accountant certificate is submitted the said certificate also need to be counter signed by Company Secretary / authorized signatory of the bidder.
3.	**Financial:** **Net Worth**	Bidder (All members in case of consortium) should have **positive Net Worth** as per the audited consolidated financial statements as on 31st March 2023.	• Certificate from the Statutory Auditor / CA clearly specifying the net worth of the firm. • Audited and Certified Balance Sheet and Profit/Loss Account of last 3 Financial Years should be enclosed. • Details mentioned in format as mentioned in **Annexure Set 1 - Format 4 (4.1).** In case Chartered Accountant certificate is submitted the said certificate also need to be counter signed by Company Secretary / authorized signatory of the bidder.
4.	**Financial:** **Bank Solvency Certificate**	Bidder (Lead Bidder in case of Consortium) should submit a valid Bank Solvency Certificate of minimum **INR 1 Crore** issued **not more than six months** prior to the last date (deadline) of submission of bid.	• A Valid Solvency Certificate from the Bidder's bank
5.	**Technical:** **Similar Project experience**	**The Bidder (All members jointly, in case of consortium)** should have experience of minimum number of completed/ ongoing **"Similar Project" in India** with a minimum project value as per below table, during last 5 years. | Number of similar projects executed	Minimum Project Value per project, meeting the criteria (in INR)
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One Similar Project	171 Crore
OR	
Two Similar Projects	107 Crore
OR	
Three Similar Projects	86 Crore		• Copy of work order along with the copy of the contract agreement mentioning the relevant Scope of work and project value • Completion Certificate OR In case of on-going project, a partial completion certificate from the client on client's letter head with project completion cost matching the required criteria. • Details mentioned in format as mentioned in **Annexure Set 1 - Format 4 (4.2)**.

Sr.	Parameters	Requirement	Supporting Documents
6.	**Experienced Manpower**	**The Bidder (All members jointly, in case of Consortium)** as on date of submission of bid should minimum number of professionals on its roles in India as below • **Enforcement system design and deployment services**: Minimum 5 **OR** • **IT / ITeS / ICT services:** Minimum 25	• Declaration from the HR head of the Bidder on company letter head as per **Annexure Set I - Format 7.** • Detailed CV of at least 5 employees of either type of professionals defined in this clause as per format in **Annexure Set I– Format 7**.
7.	**Local Office in** Maharashtra.	**Bidder (any one member in case of consortium)** should have a local office in Maharashtra**.** If Bidder doesn't have local office in Maharashtra, it should open a local office within 30 days from date of Signing of the contract.	• Proof of the Local Office (Rental Agreement/Utility bill) in Maharashtra OR Undertaking from authorized signatory to open the local office in MH within 30 days from Date of Signing of contract.
8.	**Certifications**	**The Bidder (All members jointly, in case of consortium)** should possess the following Certifications which are valid at the time of bid submission: • ISO 9001:2008 • ISO 20000:2011 • ISO 27000:2013 • SEI CMMI- Level 5 for Software development and services (SVC)	• Valid Copy of valid certificates on the name of the Bidder or member of consortium • **The certifications shall need to be kept valid throughout the duration of the contract period.**
9.	**Blacklisting**	**The Bidder (all the members of Consortium)** should not have been blacklisted by any Central Government and Department / State Government and Department / Central or state Public Sector Unit / Defence / Govt. Boards in India as on last date of submission of bid	• Undertaking by the authorized signatory of bidder (All members in case of Consortium) as per format given in **Annexure Set I - Format 5**.
10.	**Payment and Acceptance**	• Screenshot of Tender Fees • EMD • Bid Submission Covering Letter	• All Online Payments and copy of EMD / NSIC Exemption Certificate in case of a registered MSME • Bid Submission Covering Letter as per **Annexure Set I - Format 1**
11.	**Additional requirement**	• Board Resolution authorizing a person from Bidder or Power of Attorney to sign / execute the bid as a binding document and also execute all relevant agreements forming part of bid. • Self-Declaration as per **Annexure Set I - Format 8.**	

Note:

1. Any bid failing to meet the above eligibility criteria shall be disqualified and shall not be considered for further Technical and Commercial Evaluation.
2. **Change in Eligibility Criteria**: If there is a change in the status of the bidder with reference to any of the eligibility criterion specified above, during the bid process till the award of the project, the bidder shall immediately bring the same to the notice of MMVD. MMVD reserves right to take necessary action as it deems fit in such cases.
3. The bidder shall be disqualified, and its bid shall be summarily rejected if any details related to Commercial Bid are provided in the Technical bid.
4. The project value for 'similar projects' as described above shall be considered inclusive of all applicable taxes.
5. The OEM can offer its Product / Services to multiple bidders. As part of the bid submission, the MSI shall submit Manufacturer's Authorization Form (MAF) declaring the OEM as its preferred partner for the project. It shall be responsibility of OEM to fully support MSI during the project period, failing which the MSI shall have option to replace OEM by another competent OEM under necessary written permission from MMVD. MSI shall ensure the technical qualification of the proposed OEM and proposed components of the new OEM, matches or exceeds the required technical specifications. OEM should have existing registered service / support centre or establish in Maharashtra within 30 days of Signing of Contract. The Bidder should submit an undertaking from the OEM to that effect.

13.4.   Technical Evaluation

1. Bidders who qualify in the Pre-Qualification Criteria shall be considered as qualified for Technical Evaluations. MMVD shall consider only documents submitted as part of **Envelope A and B** for Technical Evaluation. No other documents shall be considered for evaluation.
2. This is Lowest Bid based Selection of technically qualified bidders.
3. The Technical Evaluation of Bidders' proposals shall be based on:
   a. Technical Bid – Financial and Technical Experience
   b. Mandatory Demonstration from Bidders
4. The "**Technical Score**" shall be calculated out of 100 marks and shall be evaluated as below:

Section	Evaluation Criteria	Total Marks
A.	Bidder's Financial Experience	10
B.	Bidder Technical Experience	40
C.	Mandatory Demonstration from Bidders	50
	Overall Technical Score – Total	**100**
	Minimum Cut Off	**60**

13.4.1. Technical Qualification Parameters

The Technical Evaluation shall be done as per the parameters and marking system mentioned in the table below:

Sl.	Parameters	Point System			Max. Marks
A.	**Financial Criteria**				**10**
1.	**Bidder (All members jointly, in case of Consortium)** should have an average annual turnover of at least **INR 64 Crores** in India, during the last 3 financial years from IT / ITeS / ICT/ ITMS Projects.	**Aggregated Total Turnover of Bidder (All members jointly, in case of Consortium) (in INR)**	**Marks**		5
		< 64 Cr.	**Disqualified**		
		>=INR 64 Cr. <= INR 114 Cr.	**3 marks**		
		> INR 114 Cr. Above	**5 marks**		
2.	**Financial: Net Worth** Bidder (All members in case of consortium) should have **positive Net Worth** as per the audited consolidated financial statements as on 31st March 2023.	**Net Worth of Bidder (Lead Bidder in case of Consortium):**			5
		Net worth	Marks		
		<= INR 0	**Disqualified**		
		> INR 0 < INR 10 Cr.	**3 marks**		
		>= INR 10 Cr.	**5 marks**		
B.	**Technical Criteria**				**40**
3.	**The Bidder (All members jointly, in case of consortium)** should have experience of minimum number of completed/ ongoing **"Similar Project" in India** with a minimum project value as per below table, during last 5 years. 	Number of similar projects executed	Minimum Project Value per project, meeting the criteria
---	---
One Similar Project	171 Crore
OR	
Two Similar Projects	107 Crore
OR	
Three Similar Projects	86 Crore		**Total Project Value of maximum any three projects submitted meeting the Criteria:**			10
		Total Project Value	Marks		
		< 171 Crore	**Disqualified**		
		>= 171 Crore and < 271 Crore	**5 marks**		
		>= 271 Crore and < 371 Crore	**8 marks**		
		>= 371 Crore	**10 marks**		

Sl.	Parameters	Point System		Max. Marks
4.	**The OEM/s proposed for the project** should have experience of providing equipment in **"Similar Project" in India** with minimum 50 locations (completed/ongoing) for detecting Wrong Way / Lane Change / Unauthorized Parking / Speed Violation (Spot and Average Speed both) / ANPR systems **during last 5 years**	**Total number of projects submitted meeting the Criteria:**		15
		Number of similar projects for which equipment are provided	**Marks**	
		Zero Similar Project	**0 marks**	
		One Similar Project	**4 marks**	
		Two Similar Projects	**8 marks**	
		Three Similar Projects	**12 marks**	
		Four or more Similar Projects	**15 marks**	
5.	**The Bidder (All members jointly, in case of consortium)** should have experience of executing **"Similar Project"** (Completed/ Ongoing) in India using technologies as mentioned below during last 5 years: 1. Solar based Primary Power Supply 2. 4G/ 5G based Primary Network Connectivity	**Similar project/s using below technologies**	**Marks**	10
		None of Solar based Primary Power Supply **OR** 4G / 5G based Primary Network Connectivity	**0 Marks**	
		Either Solar based Primary Power Supply **OR** 4G / 5G based Primary Network Connectivity	**5 marks**	
		Both Solar based Primary Power Supply **and** 4G/ 5G based Primary Network Connectivity	**10 marks**	
6.	**The Bidder (All members jointly, in case of Consortium)** as on date of submission of bid should minimum number of professionals on its roles in India as below • **Enforcement system design and deployment services**: Minimum 5 **OR** • **IT / ITeS / ICT services:** Minimum 25	**Total Number of resources in Enforcement system design and deployment services on its payroll meeting the criteria:**		5
		Resources	**Marks**	
		< 5	Disqualified	
		>= 5 and < 10	2 Marks	
		>= 10 and < 20	3 Marks	
		>= 20	5 Marks	
		OR		

Sl.	Parameters	Point System		Max. Marks
		Total Number of IT / ITeS / ICT resources on its payroll meeting the criteria:		
		Resources	Marks	
		< 25	Disqualified	
		>= 25 and < 50	2 Marks	
		>= 50 and < 100	3 Marks	
		>= 100	5 Marks	
	Mandatory Demonstration from Bidders			**50**
7.	• The Bidders shall be required to submit a document with detailed Approach and Methodology, make and model of all components and software etc. before the Technical Evaluation of the System. • All the costs towards such Technical Evaluation including the preparation, demonstration, manpower, lodging and boarding, travelling, transportation etc. shall be sole responsibility of bidder. • Sample size for below tests shall be as directed by MMVD during Technical Evaluation of System until satisfaction of MMVD. • Marks for Technical Evaluation of the System shall be given based on the demonstration of the defined functionalities, and mandatory submission of corresponding document / photo / video evidence to be submitted by the bidder. • Any changes in operations, solutions, quality or SOP required by MMVD shall be incorporated by the Bidders. • In case of failure of Technical Evaluation during any process until satisfaction of MMVD, MMVD reserves right to reject bid. • Marks shall be allocated as per below for each criteria accurately captured, and Output demonstrated (percentage of total sample size considered). • **Bidders shall be required to do following demonstration on Solar Based Power Supply:**			50

Criteria Category	Technical Evaluation Criteria	Marks
Speed Detection Accuracy	**Speed Accuracy (Day and Night)** • <95% = Disqualified • $\geq$ 95% and < 97% = 3 marks • $\geq$ 97% = 5 marks	**05 Marks**
Two-Wheeler Helmet Detection Accuracy	**Two-Wheeler Helmet Detection Accuracy (Day and Night)** • <90% = Disqualified • $\geq$ 90% and < 95% = 3 marks • $\geq$ 95% = 5 marks	**05 Marks**

Sl.	Parameters		Point System	Max. Marks
	ANPR Accuracy	**ANPR Accuracy (Day)** • <90% = Disqualified • ≥ 90% and < 95% = 3 marks • ≥ 95% = 5 marks	**10 Marks**	
		ANPR Accuracy (Night) • <85% = Disqualified • ≥ 85% and < 90% = 3 marks • ≥ 90% = 5 marks		
	Lane Violation Detection Accuracy **(10 Marks)**	**Lane Violation Detection Accuracy (Day)** • <70% = Disqualified • ≥ 70% and < 80% = 3 marks • ≥ 80% = 5 marks	**10 Marks**	
		Lane Violation Detection Accuracy (Night) • <60% = Disqualified • ≥ 60% and < 70% = 3 marks • ≥ 70% = 5 marks		
	Red Light & Stop Line Violation Detection Accuracy	**Red Light and Stop Line Violation Detection Accuracy (Day)** • <95% = Disqualified • ≥ 95% and < 97% = 3 marks • ≥ 97% = 5 marks	**05 Marks**	
	Vehicle Classification Accuracy	**Vehicle Classification Accuracy (Day and Night)** • <90% = Disqualified • ≥ 90% and < 95% = 3 marks • ≥ 95% = 5 marks	**05 Marks**	
	Incident Detection and Management **(6 Marks)**	Detect various types of incidents such as accident, traffic snarls, unidentified objects etc.	3	
		Identify vehicles involved in incident (with ANPR). Ignore vehicles not involved in the incident.	1	
		Define incident SOP, execute incident SOP, Activate alarm, relevant message for the DMS.	2	
	Other Software Application Functionalities **(4 Marks)**	Define SOP for violation detection. Detect and display violation with necessary data, evidence etc. on a single screen	1	
		Configure speed limit as per requirements	1	
		Dashboard and Reports of the above Demo conducted.	2	

13.4.2. Proof of Concept from Bidders

- Transport Commissioner will set up a committee for demonstration on various technical parameters.
- All the qualified bidders as per the pre-qualification criteria shall be asked to demonstrate to this committee, the complete functioning of the system along with the software deliverables as described in this document (as amended from time to time) during the technical evaluation.
- The complete working system comprising of all minimum necessary hardware, software, network, accessories, PC / workstation etc. for capturing the output shall be asked to be demonstrated.
- All the hardware, software, components etc. shall be of the same make and model as per the technical proposal submitted by the bidder.
- The location of the demonstration shall be at one of the highway stretch as decided by the MMVD. Bidders shall be required to do the demonstration on Solar Based Power Supply. The bidder can use the existing Pole for the Demonstration if available. However, the entire responsibility for the same shall be of the respective bidder. Any additional pole, or any other arrangements required for the successful demonstration shall be sole responsibility of the respective bidders. All the permissions required will be bidder's responsibility, MMVD will provide required support upon requests from bidders.
- All the Bidders shall be given a period of around one week for preparation for the demonstration before the day the demo starts. The demonstration may run for one or more days until satisfaction of MMVD, to technically judge the systems. The indicative details are provided in the RFP document.
- The marks for the Demo shall be given based on the demonstration of the defined functionalities, and mandatory submission of corresponding document / photo / video evidence to be submitted by the bidder.
- Any changes in operations, solutions, quality or SOP required by MMVD shall be incorporated by the Bidders.
- All the costs towards demonstration including the preparation, demonstration, manpower, lodging and boarding, travelling, transportation etc. shall be sole responsibility of bidder.
- In case of failure of demo during any process until satisfaction of MMVD, MMVD reserves the right to reject the bid.

13.4.3. Proposed Team for the Project

Bidder may propose different people of different skill sets for different responsibilities. Following documentation is expected in this section:
- Overall Project Team for Project Implementation and for Operations and Maintenance stages as per requirement mentioned in the RFP.
- Escalation Chart for the entire Project Duration.
- Summary Table giving Qualification, Experiences, Certifications, Relevance
- Detailed CVs in the format attached for as per **Annexure Set II – Format 3.**
- Detailed CVs and the team deployment plan as a part of **Project Plan Document.**

13.4.4. Functional Specification Compliance

- The RFP has specified the benchmark / minimum specifications and functional requirements for various components, applications and systems. Bidders are required to raise any non-compliance explicitly for the components, systems and application proposed by them, as per Annexure Set II – Format 9, and alternative proposed.

- In the event, bidder is not complied with one or more specifications or requirements, and MMVD is not satisfied with alternative proposed, MMVD reserves right to take action such as disqualification of bid and / or forfeiture of EMD or any other action as it deems fit, after reasonable chance to bidder for clarifications. Bidders are expected to present the non-compliance, if any, during the Technical Presentation.
- Bid should be accompanied by OEM's product brochure / datasheet with complete make, model, part numbers and sub-part numbers for all equipment / software quoted and all other required and necessary details.
- For all the point for which non-compliance is not raised, it will be implied that the bidder has complied with all parts of the RFP requirements and shall be able to deliver as per the requirements defined in the RFP.

13.4.5. Technical Specification Compliance

- The RFP has specified the benchmark / minimum specifications for various components. Bidders are required to give a comprehensive compliance sheet for the components / application proposed by them, as per **Annexure Set II - Format 8**.
- Failure to which shall result in disqualification of the bid.
- If a bidder is not complied with one or more specifications or requirements, MMVD reserves right to act such as disqualification of bid and / or forfeiture of EMD or any other action as it deems fit, after reasonable chance to bidder for clarifications. Bidders are expected to submit the reason for non-compliance, if any.
- Technical Bid should be accompanied by OEM's product brochure / datasheet with complete make, model, version number for all system components, software and applications proposed and all other required and necessary details.

13.4.6. Technical Solution Proposed for the Project

Broad areas to be covered in the Technical Solution documentation are given below:
a. Bill of Quantity (un-priced commercial bid format): This document shall give indication of all the proposed cost components, without specifying the costs as specified in the RFP. **Please note that the bid shall get disqualified if bidder gives price details in the technical document (any Envelope A or B Document).**
b. Describe the proposed Technical Solution for each component such CCTV Camera, RADAR, etc. in a structured manner. Following shall be captured in the same:
    o Detailed description of the design and technical solution and various components and applications including make and model of equipment, sizing of infrastructure (including diagrams and calculations wherever applicable)
    o Sizing requirements, other requirements and calculations for the Cloud Hosting
    o Reasoning for selection of the proposed technology over other options
    o Extent of compliance to technical requirements specified in the scope of work
    o Technical Design and clear articulation of benefits to MMVD of various components of the solution vis-à-vis other options available
    o Strength of the Bidder to provide services including examples or case-studies of similar solutions deployed for other clients
c. Provide detailed Approach and Methodology for Civil Work, Implementation and Operation and Maintenance Phases.
d. Approach and Methodology for Management of SLA Requirements specified in the RFP. Bidder is required to clearly articulate how each SLA requirements shall be adhered to.
e. Detailed Project Plan with timelines, resource allocation, milestones etc. for supply, installation and commissioning of the physical, IT and Non-IT components.
f. Insights into best and latest Industry practices and standards.

13.4.7. Un-Priced Bill of Quantity

- The bidder shall submit an unpriced BOQ as part of Technical Qualification Bid (Envelop B). Bidders are required to give a quantity of the components / application proposed by them, as per **Annexure Set II - Format 2**.
- The Bill of Quantities provided by MMVD are high level estimates based on preliminary understanding by MMVD and have been provided for reference. The Bidders are encouraged to conduct their own detailed assessment to study and validate the BoQ.
- The Bidder shall add additional line items and / or modify the quantities of existing line items under BoQ format, in case its study reveals that modifications are required in the prescribed BOQ to meet MMVD's requirements and maintain SLAs.
- The Bidder shall provide detailed explanation as a part of bid justifying the changes made by Bidder in quantities and / or additional line items under BoQ format.
- Only MMVD approved additional line item (proposed by the bidder) during evaluation against qualification criteria shall be considered for the commercial evaluation.
- MMVD reserves the right to reject the bids that are submitted without providing such justification for changes or addition in line items.

All the "Qualified Bidders", qualifying as per qualification criteria and in compliance with all the above points shall be considered for commercial bid opening (Envelop B) and Commercial evaluation.

13.5.   Commercial Evaluation and Declaration of Successful Bidder

1. The Commercial Bids (**Envelop C**) of all the technically qualified bidders (bidders scoring minimum 60 marks and successful demonstration) as per Pre-Qualification Criteria and technical evaluation will be opened on the prescribed date. Bidders or their authorized representatives may choose to be present during the bid opening.
2. The Commercial Bid should be in format mentioned in **Annexure Set III - Format 2**. Any bid which does not conform to the formats prescribed shall be disqualified.
3. The Commercial Sheet consist of:
   - i.   **Priced BoQ** - of each line item and arrived total project cost.
   - ii.   **Commercial Bid**
     The total of Priced BoQ and the Commercial Bid as per Annexure Set III – Envelop C – Format 3 and Format 2 respectively, shall exactly match.
4. All the prices are to be entered in Indian Rupees ONLY.
5. The bid price should indicate all the applicable all the statutory government taxes and levies separately. **The evaluation shall be done on the "Commercial Bid Total" quoted inclusive of all taxes, levies and all other charges, excluding GST.** It is mandatory to provide breakup of all Taxes, Duties and Levies wherever asked for. MMVD reserves the right to direct the Bidder to submit proof of payment against any of the taxes, duties, levies indicated.
6. Any conditional bid is liable for rejection.
7. The Commercial Evaluation shall happen as per below table:

Sr.	Item Rate (All inclusive, excluding GST)	in INR (All inclusive, excluding GST) (Upto two decimal only)	
		In Figures	In Words
1	**Per Challan Rate**	Eg. XX.XX	

	(**Applicable for any type of violation detected through ITMS system subject to T&C of the RFP**)		
	Commercial Bid Total		

8. The Bidder needs to account for all Out of Pocket expenses like Boarding, Lodging etc. in the bid. No extra payment shall be made by MMVD apart from the quoted rates.

9. Bidders shall quote for the entire scope of contract on a "overall responsibility" basis such that the total bid price covers Bidder's all obligations mentioned in or to be reasonably inferred from the bidding documents in respect of providing the product/services.

10. Prices quoted by the Bidder shall remain constant during the entire contract period. **Any change in the applicable GST as per prevailing law, shall be appropriately considered.**

11. **Errors and Rectification:** If there is a discrepancy between words and figures, amount in words shall prevail.

12. Prices in any form or by any reason before opening the Commercial Bid shall not be revealed, failing which the bid shall be liable for rejection.

13. The selection is Lowest Bid based selection of technically qualified bidders.

14. The technically qualified bidder (securing minimum 60 marks and successfully demonstrating the system as per requirement) who quotes lowest "**Commercial Bid Total**" of Annexure Set III – Format 2 may be considered as L1 bidder and be preferred for award of contract.

15. The technically qualified bidders with subsequent lowest "**Commercial Bid Total**" will be considered as L2, L3 and so on.

16. In the event of two or more Bidders quoting exactly the same "**Commercial Bid Total**" and are considered for award of contract, then MMVD reserves the right to declare the bidder whose technical score is highest, among the bidders who have quoted exactly the same "**Commercial Bid Total**" as preferred bidder.

17. In event of two or more Bidders quoting exactly the same "**Commercial Bid Total**" as well as securing exactly same "**Technical Score**" and are considered for award of contract, MMVD reserves right to call for Re-Bid from only such bidders for only be for Commercial Bid. However, such revised quotes shall not be greater than the rate quoted earlier by the bidders in the Commercial Bid.

18. Within the bid validity period, if L1 bidder fails to perform the duty up to the satisfaction of the MMVD as mentioned in the RFP or is disqualified or not agreeing to undertake the project for any reason, L2 bidder may be offered to match L1 bidder's Commercial Bid. If L2 bidder fails to match the L1 commercial bid price, or gets rejected or disqualified, then the opportunity of matching may be given to next higher bidders in the order of sequence L3, L4, L5 and so on. Post which, MMVD reserves the right to take action as it deems fit.

19. On declaration of L1 bidder as Successful Bidder by MMVD, MMVD shall issue Letter of Acceptance (LoA) of bid to Successful Bidder.

20. Within 1 week from date of receipt of LoA from MMVD, Successful Bidder shall submit Security Deposit / Performance Bank Guarantee.

21. With next 2 working days from submission of Security Deposit, MMVD and the Successful Bidder will sign the contract and MMVD will issue Work Order to the Successful Bidder.

22. **No Alternate Proposal:** Bidder shall quote Unit of Measurement (UoM) and unit price for each line item, only from single OEM / Type for hardware, software etc. Any bids, which proposes multiple options in terms of quantity, Unit of Measurement (UoM), OEM / Type and unit price for each line item shall be summarily rejected.

23. The Bidder shall prepare the bid based on details provided in the tender documents. It must be clearly understood that the Scope of Work is intended to give the Bidder an idea about the order and magnitude of the work and is not in any way exhaustive and guaranteed by the MMVD.

24. If during the course of execution of the project any minor revisions to the work requirements like technical specifications, equipment sizing, etc. are to be made to meet the goals of the project, such changes shall be carried out within the proposed price.

25. Such rates quoted for each line item shall be in accordance with the prevailing market rates and comparable with rates of the other bidders. MMVD may verify the rates of each line item and if found to be unreasonable compare to prevailing market rates and rates quoted by other bidders, the MMVD reserves right to call for necessary clarifications and may take action as it deems fit, including rejection of bid / cancellation of the tender.

26. The bidder shall submit commercial details in as much detail as possible. All line items shall be clearly defined including manpower, maintenance and all the other costs and there shall be no miscellaneous expenses.

13.5.1. Challans Accounted

a. The Successful Bidder shall be paid **"Per Challan Rate"** as quoted by the bidder in the Commercial Bid format.

b. All bidders must note, the <u>Per Challan Rate</u> for only those violations shall be considered for payment to MSI, which has been;
   i.   Listed in the below table; and
   ii. Detected by the Proposed ITMS system; and
   iii. As and when the Challan is approved by the MMVD within the contract period.

c. Following types of violations are envisaged to be captured through proposed ITMS system.

Sr.	Type of Violation	Payment to MSI
1.	Speed Violation (Spot and Average)	Will be paid
2.	**Lane discipline Violation** Wrong side driving	Will be paid
3.	Red Light Violation	Will be paid
4.	Stop Line Violation	Will be paid
5.	Unauthorized parking	Will be paid
6.	Seat belt violation – driving without seat belt	Will be paid
7.	Mobile phone violation – using mobile phone while driving	Will be paid
8.	Wrong entry / Exit (No entry) and illegal U-Turn	Will be paid
9.	Two-Wheeler Violation: Not using Helmet on Two-Wheeler	Will be paid
10.	Two-Wheeler Violation: Triple seat riding on Two-Wheeler	Will be paid
11.	Non-Standard Number plate	Will be paid
12.	Over Dimensional Cargo (ODC) plying without permission	Will be paid
13.	Other Vehicle document related *(Vehicle Fitness, Tax Paid Upto, Permit Validity, Insurance and PUC, non-use and other any other such violation specified by MMVD)*	Will not be paid

The Bidder may propose any additional type of sensors, camera or any other system that may be required to capture one or more violations effectively. The definition of the challan and exemption, if any, shall be as per defined in the RFP and shall be binding on the MSI.

13.5.2. The MMVD's Rights to Accept / Reject any or all Bids

The MMVD reserves the right to accept or reject any bids, and to annul the bidding process and reject all Bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected bidder or bidders of the grounds for the MMVD's action. If bids received are deemed as exceptionally unreasonable as the prevailing market rates, MMVD may reject all the bids or annul the bidding process.

14. Bid Submission and Evaluation Process

14.1.   Tender Evaluation Committee

1. MMVD shall constitute a Tender Evaluation Committee (TEC) to evaluate the responses of the bidders.
2. The TEC constituted by the MMVD shall evaluate the responses to the RFP (technical and commercial bids – all the Envelops) and all supporting documents / documentary evidence. Inability to submit requisite supporting documents / documentary evidence, may lead to rejection.
3. The decision of the TEC in the evaluation of responses to the RFP shall be final. No correspondence shall be entertained outside the defined process with the Committee.
4. The TEC may seek clarifications on their proposals and may visit Bidder's client site at MMVD's own cost to validate the credentials / citations claimed by the bidder.
5. The TEC reserves the right to reject any or all proposals based on any deviations.
6. Each of responses shall be evaluated as per criterions and requirements specified in RFP.
7. The TEC would submit its decision to the competent authority whose decision shall be final and binding upon the bidders.

14.2.   Language of Bids

The Bids prepared by the Bidder and all correspondence and documents relating to the bids shall be written in the English language. In case of any printed literature is being submitted by the Bidder in any other language, it shall accompany an English translation of such document, and in such cases for purposes of interpretation of the bid, the English translation shall govern.

14.3.   Bid Submission Format

The Bid shall be strictly as per the format specified in this RFP document. Bids with deviation from format are liable for rejection and EMD may be forfeited at sole discretion of MMVD.
1. The bidder shall submit the bid online through Maharashtra state's e-tendering portal.
2. No physical / hard copy is required to be submitted unless explicitly asked by the MMVD.
3. All the details including Notice Inviting Tender, RFP Document and its supporting documents, are uploaded on e-tendering portal.
4. The bids submitted by the Bidder shall comprise of the following three envelopes:

   a. **Envelope A:** Tender Fees, EMD, Pre-Qualification Bid
   b. **Envelope B:** Technical bid
   c. **Envelope C**: Commercial bid.

#	Documents Type	Document Format
1.	Tender Fee	Online Payment
2.	EMD	Scanned copy of original EMD (DD or BG as per format)
3.	Pre-Qualification Criteria	The Eligibility Proposal shall be prepared in accordance with the requirements specified in the RFP and in the formats prescribed in relevant sections.
4.	Technical Bid.	The Technical Proposal shall be prepared in accordance with the requirements specified in this RFP and in the formats prescribed in relevant sections.
5.	Commercial Bid	The Commercial Proposal shall be prepared in accordance with the formats and requirements specified in this RFP and in the formats prescribed in relevant sections.

5. The bidder shall ensure that all the required documents, as mentioned in this RFP are submitted along with the bid and in the prescribed format only. MMVD may reject submission of any bid in any manner other than that specified in this RFP. Bid submitted in any other manner shall be treated as defective, invalid and rejected.

6. The Commercial Bid is to be submitted in **Envelope C** only. The Bidder shall be disqualified if the bidder gives price details in the Technical documents (**Envelope A and Envelope B**) that are submitted online.

7. Documents submitted for Envelope-A, Envelope-B and Envelop-C shall be properly indexed. Each page shall be numbered. In case of multiple documents for same envelope, numbering shall be continuous and not separate for all documents. Index shall be done accordingly.

8. All the documents, materials, evidence, manuals, technical sheets, data etc. submitted by the Bidders (and Successful Bidder post award of contact) shall be property of the MMVD. MMVD.

14.4.   Clarifications

1. To assist in the process of evaluation of Bids, the MMVD may, at its sole discretion, ask any Bidder for clarification on its Bids.
2. No change in the substance of the Bids would be permitted by way of such clarifications.
3. Any such correspondence shall be by email only to both etendercomp.tpt-mh@gov.in and roadsafety.maharashtra@gmail.com.
4. MMVD decision in this regard shall be final and binding on the bidders.

14.5.   Modification or Withdrawal of Bids

1. The Bidder may modify or withdraw its Bids before last date and time of bid submission on the e-tendering website. No Bids shall be modified or withdrawn by the Bidder after the last date and time of bid submission. Modification or withdrawal of Bids during the intervening period between the last date & time of bid submission date and expiration of the Bid Validity Period shall result in forfeiture of the EMD.
2. Prices quoted in the bid must be firm and final and shall not be subject to any upward modifications, on any account whatsoever, unless explicitly mentioned in the RFP.

14.6.   Tender Opening

1. All Bids (all envelops A, B and C) received within the prescribed closing date and time shall be opened in presence of bidder representatives (who choose to attend the opening of tender), on the date, time and at the address communicated in the **"Notice Inviting Tender"**
2. Representatives of the bidders shall be advised to carry the identity card and a letter of authority from tendering firms to identify their bonafide for attending opening of the bids.
3. Envelope C containing the Commercial Proposal of only Qualified Bidder shall be opened at a date which will be declared later the e-tendering portal.

14.7.   Bid Validity

1. The Commercial Bid submitted by the Bidders, and the EMD shall be valid for minimum period of 120 days from the date of opening of the Commercial Bid.
2. On completion of the validity period, unless the Bidder withdraws its bid in writing, bid validity shall be deemed to be extended until such time that the contract is awarded to Successful Bidder or bidder formally (in writing) withdraws its bid.

15. Bid Rejection Criteria

Rejection criteria are applicable during any stage including evaluation of bids, award of contract, or execution of contract etc. MMVD will determine whether each bid, bidder and the execution are as per requirements, terms and conditions of the RFP Document. MMVD reserves the right to take necessary action as per below

A. **Following are the criteria for which Bidder's bid shall be rejected and shall not be considered for further evaluation, and award of contract.**
   i. The Tender Fee is not paid.
   ii. Bid does not contain the information and documents as per formats specified in the RFP Document.
   iii. Failure to furnish all information required by the Tender Document or submission of a bid not as per the defined requirements as per the Tender Document in every respect;
   iv. Bids are not received within the prescribed time and date for receipt of bids.
   v. Bidders not complying with the Eligibility Criteria given in this RFP
   vi. There is multiple bidding.
   vii. Bids are not submitted with power of attorney / board resolution.
   viii. Bid does not provide the information in reasonable detail.
         Reasonable Detail means that, but for minor deviations, the information can be reviewed and evaluated by MMVD without communication with the Bidder. MMVD reserves the right to determine whether the information has been provided in reasonable detail.
   ix. There are inconsistencies between the Bids and the supporting documents & the Bidder fails to provide clarifications related thereto, when sought.
   x. Scanned copy of BG / DD towards EMD is not uploaded as a part of Key Submission and / or is physically not submitted within the timeline specified in the **clause 12** under "Instruction to Bidders as per timelines mentioned in the "NOTICE INVITING TENDER"
   xi. The details of the DD/BG instrument, physically sent, does not tally with the details available in the scanned copy and the data entered during bid submission time.
   xii. A Bid that has a material deviation or reservation. A material deviation or reservation is one:
         a. which affects in any substantial way, the scope, quality, performance of the Project, or
         b. which limits in any substantial way, MMVD's rights or the Bidder's obligations under the resultant Contract Agreement, or
         c. which is substantially inconsistent with the RFP Document, or;
         d. Which would affect unfairly the competitive position of other Bidders.

B. **Following are the criteria for which Bidder's bid shall be rejected and shall not be considered for further evaluation, and award of contract, as well as EMD may be forfeited at sole discretion of MMVD**
   i. Bids mentioning Bid validity less than 120 days.
   ii. If a Bidder withdraws their bid or increases their quoted prices during the period of bid validity or its extended period, if any; or If a bidder submits a non-responsive bid
   iii. In case of a Successful Bidder, if Bidder fails to sign the Contract or to furnish Performance Bank Guarantee within specified time and as per **Annexure set IV Annexure 2**
   iv. During the bid process, if a Bidder indulges in any such deliberate act as would jeopardize or unnecessarily delay the process of bid evaluation and finalization.
   v. During the bid process, if any information found wrong / manipulated / hidden / false / mala-fide in the bid.

vi.   During the bid process, if a Bidder indulges in any kind of corrupt or fraudulent practices as defined in clause 21 under "Instructions to Bidders" or any other coercive, undesirable or restrictive practice.

vii.   Bidder requesting for modification or withdrawal of bid post last date (deadline) of submission of bids or during the period of bid validity or its extended period, if any;

viii.   Bid is found to include commercials in the qualification bid (Envelop A) and / or Revelation of Prices in any form or by any reason before opening the Commercial Bid;

ix.   Bidders not quoting for the complete scope of Work as indicated in the Tender documents, addendum (if any) and any subsequent information given to the Bidder;

x.   Bidders not complying with the Technical and General Terms and conditions as stated in the Tender Documents;

xi.   Bidder's failure to Agree with the Terms and Conditions of the RFP

xii.   The Bidder not confirming unconditional acceptance of full responsibility of providing services in accordance with the Scope of work and Service Level Agreements of this RFP document

xiii.   Incomplete Price Bid and Bid not conform to the RFP commercial Bid format

xiv.   Total price quoted by the Bidder does not include all statutory taxes and levies applicable;

xv.   If bid costs are found to be unreasonable and / or unjustifiable by TEC.

xvi.   During the bid process, if any information found wrong / manipulated / hidden / false / mala fide in the bid.

xvii.   During the bid process, if a Bidder indulges in any such deliberate act as would jeopardize or unnecessarily delay the process of bid evaluation and finalization.

xviii. In case of a successful bidder, if Bidder fails to sign the Contract or to furnish Performance Bank Guarantee within specified time and as per **Annexure Set IV – Annexure 2.**

xix.   Successful Bidder has breached the "Breach Level" as per Service Level Agreement.

C. Following are the criteria for which Bidder's bid shall be rejected and shall not be considered for further evaluation, and award of contract, as well as EMD shall be forfeited.

i.   If the information provided by the Bidder is found to be incorrect / misleading / fraudulent at any stage / time during the RFP Process.

ii.   Bidder indulges in any kind of corrupt or fraudulent practices as defined in **clause 21** under "Instructions to Bidders" or any other coercive, undesirable or restrictive practice.

iii.   If it is found that the Demand Draft / BG as above submitted by the bidder as EMD or Performance Security is False / Forged.

iv.   Any effort on the part of a Bidder to influence the bid evaluation, bid comparison or contract award decisions.

v.   Is found to canvass, influence or attempt to influence in any manner for the qualification or selection process, including without limitation, by offering bribes or other illegal gratification as per **clause 21** under "Instructions to Bidders".

vi.   Has made misleading or false representations in the forms, statements and attachments submitted in proof of the eligibility requirements. In such case, EMD of bidder shall be forfeited.

vii.   Bids are found to be Conditional.

viii.   Failure of the Successful Bidder to furnish the Performance Guarantee or execute the Agreement within the prescribed time

Reject and Disqualification of bids or bidder and forfeiture of EMD due to above cited reasons will be at a sole discretion of MMVD. Decision of the MMVD shall be final and binding on the Bidder / Successful Bidder / Agency. The Bidder / Successful Bidder / Agency may approach the Additional Chief Secretary, Transport Dept. for appeal against any grievance.

16. Declaration of Successful Bidder and Award of Contract

16.1.   Declaration of Successful Bidder

- The technically qualified bidder with minimum technical score of 60 marks and successfully demonstrating, quoting the lowest **"Commercial Bid Total"** may be considered as L1 bidder and be preferred for award of contract.
- On declaration of L1 bidder as Successful Bidder by MMVD, MMVD shall issue Letter of Acceptance (LoA) of bid to Successful Bidder.
- Within 1 week from date of receipt of LoA from MMVD, Successful Bidder shall submit Security Deposit / Performance Bank Guarantee.
- With next 2 working days from submission of Security Deposit, MMVD and the Successful Bidder will sign the contract and MMVD will issue Work Order to the Successful Bidder.

16.2.   Signing of Contract

- Subsequent to the above, the MMVD and the Successful Bidder shall execute the Contract Agreement and other agreements.
- Signing of Contract shall include Contract Agreement, Non – Disclosure Agreement etc. as per the requirements of MMVD.
- Failure of the Successful Bidder to furnish the Performance Guarantee or execute the Agreement within the prescribed time shall cause the EMD of the Successful Bidder to be forfeited & the LoI to be withdrawn.
- The Successful Bidder shall be liable to indemnify MMVD for any additional cost or expense, incurred on account of failure of the Successful Bidder to execute the Agreement.
- Notwithstanding anything to the contrary mentioned above, MMVD at its sole discretion shall have the right to extend the timelines for execution of Agreement on the request of the Successful Bidder, provided the same is bona fide.

16.3.   Timelines for Award of Contract

#	Description	Timelines
1	Declaration of L_1 Bidder	T_0
2	Declaration of L_1 Bidder as Successful Bidder and Issue of Letter of Acceptance of bid by MMVD	T_1
3	Submission of Security Deposit by Successful Bidder	$T_2 = T_1 + 1$ week
4	Signing of Contract/s and Issuance of Work Order	$T_2 + 2$ working days

16.4.   Confidentiality and Non-disclosure Agreement

All the material / information shared with the Bidder during the course of tendering process as well as the subsequent resulting engagement following this process with the successful bidder (Agency), whether shared by MMVD or any other authority or generated during the project period, shall be treated as confidential and should not be disclosed in any manner to any unauthorized person under any circumstances. Every resource of the Successful Bidder (Agency) associated with this project will have to sign the Non-Disclosure Agreement with the Agency. The Agency shall in turn sign Non-Disclosure Agreement (NDA) with the MMVD, while Signing of Contract as per format mentioned in **Part II** of the Tender Document.

16.5.   Term of the Contract Agreement

- Contract term shall be a period of 132 months from the date of Signing of Contract including implementation period 12 Months) and O&M period (120 months from date of Go-Live).
- In the event of implementation period gets extended beyond 12 months, MMVD reserves the right to extend the term of the Agreement by corresponding period to allow validity of contract for 120 months from the date of successful Go-Live.
- In the event of such an extension, MMVD shall not reimburse the bidder for the any expenses incurred, unless explicitly agreed by MMVD in writing. MMVD's decision in this regard shall be final and binding on the Successful Bidder.
- MMVD may direct the Successful Bidder to extend the validity of the Security Deposit / Performance Bank Guarantee and Successful Bidder is bound to accept the same.

17. Taxes

1   MMVD shall be responsible for deducting / withholding taxes from the amounts due and payable to the Successful Bidder wherever applicable. The Successful Bidder shall pay for all other taxes in connection with the resultant MSA (including SLA, scope of work and any other engagement required to be undertaken as a part of the resultant MSA), including, but not limited to property, sales, excise, value-added, goods and services, consumption and other similar taxes or duties.

2   MMVD shall provide Successful Bidder with the original tax receipt of any deducting / withholding taxes paid by MMVD on payments under the resultant MSA. The Successful Bidder agrees to reimburse and hold the MMVD harmless from any deficiency including penalties and interest relating to taxes, which are Successful Bidder's responsibility. Such taxes shall include taxes incurred on transactions between and among the MMVD, the Successful Bidder and third-party subcontractors etc.

3   The rates quoted by the Successful Bidder ("Agency") shall remain constant throughout the contract period. Any change in any GST as per prevailing law, shall be appropriately considered.

4   Both Agency and MMVD shall cooperate to enable each other to accurately determine its own tax liability and to minimize such liability to the extent legally permissible. In connection therewith, both Agency and MMVD shall provide each other with the following:
   (i) Any resale certificates;
   (ii) Any relevant information regarding out-of-state or use of materials, equipment or services; and
   (iii) Any direct pay permits, exemption certificates or information reasonably requested by the other Party.

18. Limitation of Liability towards MMVD

The Successful Bidder's liability under the resultant Contract Agreement shall be determined as per the Law in force for the time being. The Successful Bidder shall be liable to the MMVD 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 and its employees, including loss caused to MMVD 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. However, such liability of Successful Bidder shall not exceed the total Revenue Generated for the MSI till the date of such losses, damages, defects or any other liability incidents + the Viability Gap Funding at any point in time.

19. Performance Security

a. Within Three (3) weeks of the receipt of Letter of Intent (LoI) from the MMVD, the PBG of Rs. Seven Crore (Rs. 7,00,00,000) shall be submitted in the form of an irrevocable Bank Guarantee issued by a Nationalised or Scheduled Bank in favour of "**Transport Commissioner, Maharashtra State**" - Mumbai, as per the format set out in as per the format in **Annexure Set IV - Annexure 2** by the **Bidder (Lead bidder in case of consortium).**

b. The PBG shall be from a Nationalized / Scheduled bank having Head Office in India.

c. The Performance Bank Guarantee should be valid for entire duration of contract and 6 months thereafter.

d. The Successful Bidder may be asked by the MMVD to extend the validity of PBG to ensure the Terms and Conditions of the Contract are met with and Successful Bidder is bound to accept the same.

e. The PBG shall be discharged to the Successful Bidder 6 months after successful completion of project after deducting penalties if any as applicable. The project will be considered completed when Successful Bidder has discharged of all obligations as per the contract and terms and conditions.

f. The Earnest Money Deposit submitted by the Bidder along with the bid, shall be returned to the Successful Bidder in exchange of Performance Bank Guarantee. No interest shall be payable on the Earnest Money Deposit so returned.

g. Prior to expiry of the PBG, within the contract period, MMVD may direct the Successful Bidders to extend the period of validity of PBG for a specified additional period. The Bidder shall be required to comply with such directions of MMVD.

h. No interest shall be payable on any PBG whatsoever.

i. **The Performance Bank Guarantee shall be forfeited and en-cashed either wholly or partly, inter alia, in the following cases:**

   i.   If the Successful Bidder withdraws from the project midway during the project term,

   ii. If during the project term, there is any incident of gross professional negligence resulting in delayed service, or adversely affecting the quality of the work.

   iii. Any act or acts of the successful bidder which render the project un-operational and MMVD establishes sufficient reasons to forfeit the Performance Bank Guarantee.

   iv. Successful Bidder defaults on any conditions(s) laid in this document, or breach SLAs as defined in the RFP or violated of any provision of the Contract Agreement.

   v.   Successful Bidder is found to have made misleading or false representation in the forms, statements and attachments submitted or attached to the bid, or,

   vi. The bidder is found indulging in corrupt or fraudulent practices as described in **Clause 21** under "Instructions to Bidders"

20. Conflict of Interest

   i. A **Bidder (all members in case of consortium)** shall not have a conflict of interest that may affect the Selection Process or the Implementation or Operations process for the entire process (the "Conflict of Interest").

  ii. Any Bidder / member found to have a Conflict of Interest shall be disqualified. In the event of disqualification, MMVD shall forfeit the EMD / Performance Security for damages payable to the MMVD for the time, cost and effort of the MMVD including consideration of such Bidder's Bids, without prejudice to any other right or remedy that may be available to the MMVD hereunder or otherwise.

 iii. MMVD requires that the Successful Bidder provides solutions which always hold MMVD's interest paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The Successful Bidder shall not accept or engage in any assignment that would 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 MMVD.

 iv. The Successful Bidder shall disclose to the MMVD in writing, all actual and potential conflicts of interest that exist, arise or may arise in due course of performing the Services as soon as it becomes aware of such a conflict. Successful Bidder shall hold MMVD's interest paramount, without any consideration for future work, and strictly avoid conflict of interest with other assignments

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

     i. the Bidder and any other Bidder or 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 a 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 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:

       • 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 considered 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

     ii. constituent of such Bidder is also a constituent of another Bidder; or

    iii. such Bidder or its Associate receives or has received any direct or indirect subsidy or grant from any other Bidder or its Associate; or

    iv. such Bidder has the same legal representative for purposes of this Application as any other Bidder; or

     v. such Bidder has a relationship with another Bidder, directly or through common third parties, that puts them in a position to have access to each other's information about, or to influence the Application of either or each of the other Bidder; or

    vi. There is a conflict among this and other solution and services assignments of the Bidder (including its personnel and other members, if any) and any subsidiaries or

entities controlled by such Bidder or having common controlling shareholders. The duties of the Successful Bidder shall depend on the circumstances of each case. While providing implementation and related solutions to the MMVD for this assignment, the Agency shall not take up any assignment that by its nature shall result in conflict with the present assignment; or

    vii.   A firm hired to provide solution and services for the implementation of a project, and its Members or Associates, shall be disqualified from subsequently providing goods or works or services related to the same project

vi.   A Bidder eventually appointed to implement the solutions for this Project, its Associates, affiliates and the Financial Expert, shall be disqualified from subsequently providing goods or works or services related to the implementation and operation of the same Project and any breach of this obligation shall be construed as Conflict of Interest; provided that the restriction herein shall not apply after a period of 12 months from the completion of the contract period; provided further that this restriction shall not apply to solutions delivered to MMVD in continuation of this systems implementation or to any subsequent systems implementation executed for the MMVD in accordance with the rules of the MMVD.

vii.   All the Bidders shall give an undertaking as per **Annexure Set I – Annexure 6** for not having any conflict of interest and shall also disclose to the MMVD in writing, all actual and potential conflicts of interest that exist, arise or may arise in due course of performing the Services as soon as it becomes aware of such a conflict.

21. Corrupt or Fraudulent Practices

The Bidders, Successful Bidder and their respective officers, employees, agents and advisers shall observe the highest standards of ethics during tender submission, evaluation, contract execution and project implementation, operations for the entire contract period. Notwithstanding anything to the contrary, contained in this RFP, the MMVD shall reject a Bid without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the "Prohibited Practices") in the Selection Process. For the purposes of this provision, the terms are defined as follows:

a. **"*corrupt practice*"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any person connected with the Selection Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the MMVD who is or has been associated in any manner, directly or indirectly with the Selection Process or the LOI or has dealt with matters concerning the Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the MMVD, shall be deemed to constitute influencing the actions of a person connected with the Selection Process); or (ii) save as provided herein, engaging in any manner whatsoever, whether during the Selection Process or after the issue of the Letter of Intent or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LoI or the Agreement, who at any time has been or is a legal, financial or technical consultant / adviser of the MMVD in relation to any matter concerning the Project;

b. **"*fraudulent practice*"** means a misrepresentation or omission of facts or disclosure of incomplete facts, in order to influence a procurement / selection process or an execution of a contract to the detriment of the MMVD, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-

competitive levels and to deprive the MMVD of the benefits of the free and open competition.

c. **"*Coercive practice*"** means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person, participation or action in the Selection Process;

d. **"*Undesirable practice*"** means (i) establishing contact with any person connected with or employed or engaged by MMVD with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or (ii) having a Conflict of Interest; and

e. **"*Restrictive practice*"** means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Selection Process.

The MMVD will reject a bid for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the said project. In such an event, the MMVD shall, without prejudice to its any other rights or remedies, forfeit and appropriate the Bid Security (EMD) or Performance Bank Guarantee as mutually agreed genuine pre-estimated compensation and damages payable to the MMVD for, inter alia, time, cost and effort of the MMVD, with regards to the RFP, including consideration and evaluation of such Bidders Bids.

Without prejudice to the rights of the MMVD under Clause above and the rights and remedies which the MMVD may have under the LOI or the Agreement, if an Bidder or Implementation Agency (Agency), as the case may be, is found by the MMVD to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Selection Process, or after the issue of the LOI or the execution of the Agreement or implementation of the project, such Bidder or Successful Bidder (Agency) may not be eligible to participate in any tender or RFP issued by the MMVD during a period of 2 (two) years from the date such Bidder or Successful Bidder (Agency), as the case may be, is found by the MMVD to have directly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.

SCOPE OF WORK
Part IB

Scope of Work

Motor Vehicles Department, Maharashtra (hereinafter referred to as "MMVD") is primarily established for the implementation and enforcement of the provisions of the Motor Vehicles Act, 1988. MMVD is also the parent department for the Maharashtra Lead Agency for Road Safety (MLARS). One of the key functions of MMVD is to ensure safe thoroughfare of vehicles on public roads. The road traffic crashes in Maharashtra have been declining at a steady pace in the last ten year. However, the road traffic fatalities have not decreased proportionately. The fatalities have largely remained constant with notable increments each year.

Road traffic crashes are of social concern, involving high human suffering and monetary costs in terms of untimely deaths, injuries, and loss of potential income. According to the WHO, road traffic injury is the 5th main cause of deaths in India, accounting for about 3% of the nation's GDP. An estimated 2/3rd of the actual number of crashes occurring on Indian roads are not recorded, and only a miniscule percentage are scientifically investigated. While a road traffic crash is a result of multiple factors, speeding, among others, features consistently s among the top factors leading to crashes and fatalities. This underscores the importance of a systemic enforcement strategy in addressing the speeding issues.

In this regard, the MMVD intends to establish Intelligent Traffic Management Systems (ITMS) on three key high-risk National Highway corridors in the Maharashtra State in this Nagpur Circle Project, spanning a total length of 445+ km - hereafter knows as "Project", through an agency that is selected ("Successful Bidder" / "MSI") as per terms and conditions meted in this RFP document.

The detail of the highway stretches in the state of Maharashtra is as mentioned below:

S. No.	From	To	Road number	KM	Type
1	Nagpur (Wadi junction) 21.15341, 79.00456	Akola 20.72526, 77.00450	NH53	238	2/4 lane divided
2	Nagpur 21.11078, 79.07022	Chandrapur 19.96866, 79.29095	NH930	147	2 lane divided
3	Nagpur (Jhampta junction ORR) 21.01820, 79.04788	Deoli (Check post) 21.43282, 79.28768	NH44	64	4 lane divided
Total Length				**449**	

Further details are mentioned in in *Annexure Set IV – Annexure 5.*

The MSI shall be required to conduct a survey on all the identified stretches of the highway and submit a report with proposed locations, identified solution and implementation and operations plan. The total minimum quantity of field components is indicatively defined in the RFP. MSI shall not restrict its offering to the total quantity / type of components / system. MSI shall ensure all the recommendations of the MMVD are incorporated and only after approval from the MMVD, shall commence the work. All the required and necessary civil work, infrastructure, cameras, sensors, network, etc. as detailed in this RFP, shall be the responsibility of the Successful Bidder.

The system shall be capable of detecting various traffic violations as defined in Clause 13.5.1 under "Instructions to Bidders"

The traffic enforcement challans are managed through the NIC's e-challan system. The Successful Bidder is expected to integrate the implemented ITMS systems with the existing framework of challaning systems. MMVD will explore all possible endeavours from time to time for penalty collection of the challans issued through the system.
The MSI shall provide necessary manpower, tools and accessories to maintain the system as per requirement of the RFP and to maintain the SLA throughout the contract period. MSI shall provide all the services related to hosting, power supply, internet connectivity, and security and ensure to clear all the third-party utility bills on time.

The RFP document details the scope of work for the MSI and the functional and non-functional requirements. However, these details are indicative and in no manner be treated exhaustive. The MSI shall be responsible for all the necessary equipment, accessories, components, software, hardware, manpower etc. required for the successful implementation of the project, irrespective of whether it is defined in this RFP document or not.

1. Brief scope of Work

The Successful Bidder shall be the Master System Integrator for the development, implementation, operation, and maintenance of the entire Project. All the required hardware and software solutions to keep the ITMS system secured and operational shall form part of the scope of the MSI. The MSI shall be responsible for Procurement, Installation, commissioning, operations, and maintenance of:

Type of Work	Indicative Scope for the MSI
Field Components, Network and Civil Infrastructure	• Conduct Field Surveys, installation of cameras, ANPR systems, sensors, internet connectivity, provisioning of solar power supply, UPS, junction box, required civil infrastructure like Poles, Cantilevers, Gantry, and other non-IT components including Porta Cabin etc. • The minimum indicative list of the components for the project are defined in the subsequent sections
Integrated Command and Control Center	• The entire ITMS system be integrated, managed, and monitored through Integrated CCC by hosting various applications. • Installation of all the equipment and components like video wall, workstations, joystick-based controller, network printers, CCTV surveillance, access-control, fire protection system, all networking and electrical requirements etc. • Setup required furniture such as table, chair, desk, Air conditioning etc. at CCC at specified locations. • Operationalizing various nodes of the system.
Software and Security	• Development, Installation, and commissioning of various applications including CCC Application, ITMS application, Asset Management, GIS, SLA Management, Security applications etc. with integration capabilities with 3rd party Apps. • Applications for data backup and recovery, access control, analytical tools, dashboards, data and network management tool etc. • Detailed and summary reports including usage of all systems, components, network, DC and DR, collection, authorized usage etc. • Designing mobile application for responders with feature to raise an incident, general information on violations, incidents etc.
Data Center and Data Recovery Centre	• The MSI will be responsible for hosting all the application and data in a hybrid model for hosting of the system and data, on the Cloud and on-premise. • MSI shall be responsible to ensure timely and adequate Backup, conduct DR Drill, Security of the data and applications hosted and other operational requirements w.r.t. DC-DR.
Repair, Maintenance and Upgrade	• MSI shall ensure that during the entire contract period all equipment are well maintained and are supported by OEM warranty support. Any equipment approaching end of life cycle as per its OEM's policy before contract period + 2 years, should be replaced with new equipment, at no extra cost to MMVD. Any technology upgrade, replacement of hardware, software etc. required for the same, shall be provided by MSI at no extra cost to MMVD. • Provide regular preventive maintenance and corrective maintenance of all the hardware, software, solutions, components, cables, security components, network components, solar components, civil and infrastructure etc. • Provide replacement of any component if not repairable and keeping stock of minimum number of spare components as described. • Necessary manpower and tools for repair and maintenance. • Add components, equipment and other ancillary hardware and integrate with the current system in case of system upgrade.
Manpower	• Deploy required manpower for implementation, operations, and maintenance etc. for installation, commissioning, and execution.

Type of Work	Indicative Scope for the MSI
	• Manpower indicatively includes operators for CCC, repair & maintenance staff at CCC and Porta Cabin, and facility management, including technical and managerial staff as detailed in the RFP document for the entire project period.
Capacity Building and KT	• Train the authorities and officials from time to time for effective usage of system, mobile app and various other solutions and applications. • To provide all manuals, data sheets, technical sheets, technical manuals, maintenance and repair manuals, spare part manuals etc. to the MMVD in soft and hard copies in English language. • To ensure complete knowledge transfer of operations, repair, and maintenance to the MMVD and its nominated agency from time to time and at the completion of the project.

1.1. Indicative Architecture of the ITMS System
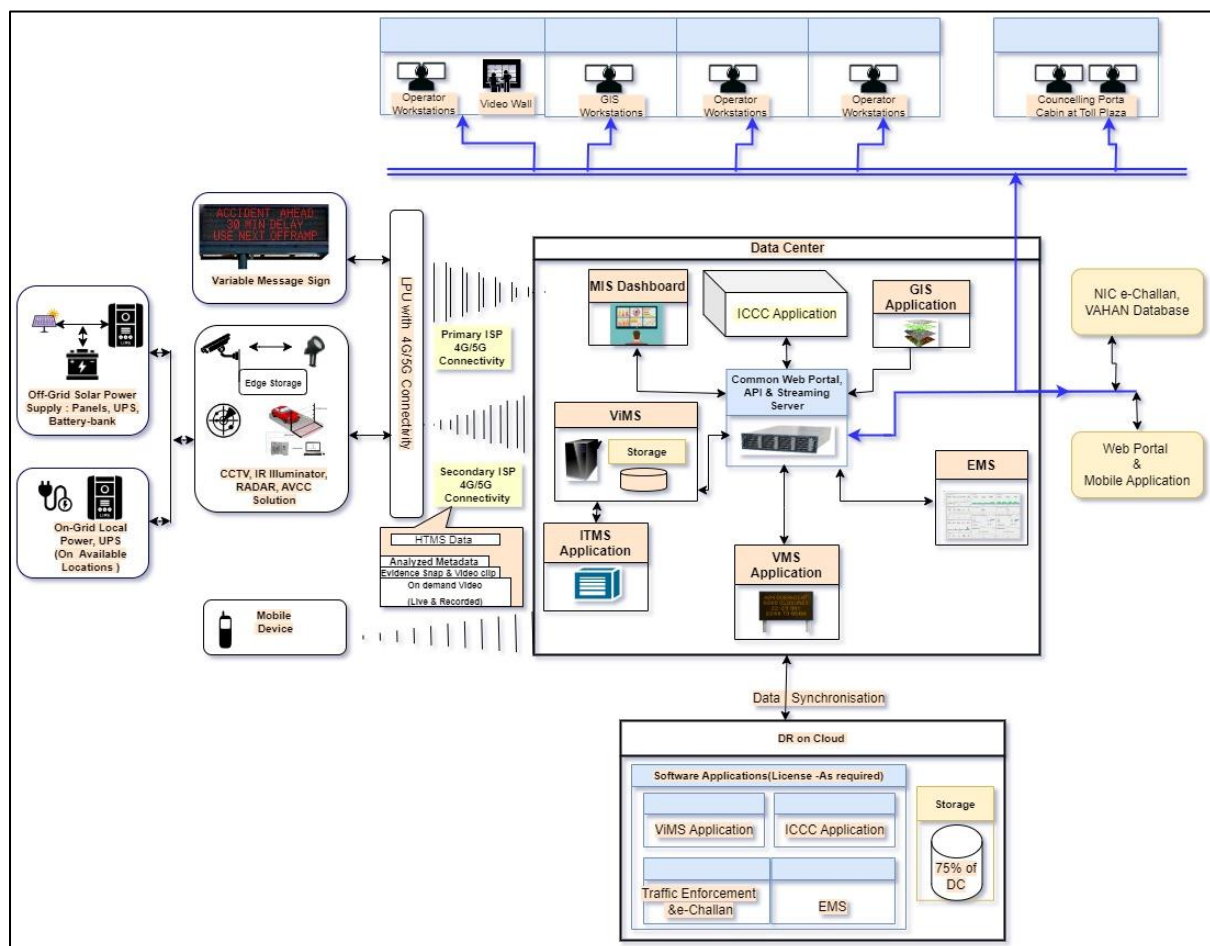
1.2. ITMS Project Lifecycle

Project Phase	Indicative Activity	Timelines
Project Inception	Plan for Survey	During 1st Month
	Conduct Detailed Survey on all Highways	
	Prepare overall solution	

	Submit Survey Report along with requisite documents	
	Prepare Implementation and Operations Plan	
Procurement	Procure requisite Hardware and Software	During next 8 Months
	Deliver to the corresponding site	
	Take sign off on quantity, specifications, version etc.	
Implemen-tation **(Installation and Setup)**	Civil Work (Pole, Cantilever pole, Gantry, Provision for Solar Power, Network Connectivity, Junction Box, Porta Cabin etc.)	
	Setting up of CCC	
	Hardware Installation (Camera, Sensors, Video Wall, Workstations etc.)	
	Software Installation (CCC Application, ITMS application, GIS Application, etc.) at data center, Cloud DR, workstations, and other systems	
	Software Integration (with 3rd Party Applications)	
Testing	System Testing, Integration Testing, Performance Testing, Security Testing etc.	Within 1-2 Month of Implementation completion
	Testing of each module and solution	
	Security Audit and Submission of Audit Completion Certificate	
Commission-ing	Deployment of Operations & Maintenance Manpower	Within 1 month of Testing
	Define Standard Operating Procedure	
	Capacity Building	
	User Acceptance Testing	
Stabilization Period	SLAs pertaining to system performance shall not be applicable during the stabilization period. All the issues reported, and corresponding changes shall be carried out during the stabilization period as directed by MMVD.	Period of 1 month from UAT
Go-Live	**Go-Live** The payment towards the services to the MSI shall start from the Date of Go-Live.	End of Stabilization period & start of 13th Month from Signing of Contract
Operation and Maintenance	MSI shall operate and maintain the entire ITMS system during the O&M period by deploying all the required manpower and other resources as per requirements.	For period of 10 years from date of Go-Live.
Successful Completion of Project	At the Successful Completion of the Project, MSI shall peacefully vacant the premises of MMVD, leave all the hardware, software, and other components in working state as is where is basis with all the licenses may be in the name of MSI and transferred in the name in name of MMVD at Successful Completion of Project or in case the project in terminated, free from any dues, and all the network connectivity, power supply and other utilities dues cleared as per terms and conditions defined in the RFP.	At the end of contract period, i.e. till end of 10 years from date of Go-Live.

1.3. Solution Scope

MSI shall be responsible to implement various components and solutions for ITMS Project. Following table indicates broad level Solution Requirements with respect to ITMS project.

Solution	Indicative Solutions / Components	Broad Level Solution Requirements
Incident and Emergency Management	• Incident Detection • Incident Verification • Incident Management and Dispatch • Traffic Management at the Incident Location • Clearance of incidents and Feedback to the System	• Automatic Detection of incidents with appropriate alarm at CCC and minimum false alarm. • Provision for verification of incident and manual incident logging. • Ability to define SOP and modules to work as per defined SOP. • Provision for notification to the portal of emergency vehicles such as '108', '112' '1033', etc. • Relevant messages to citizens through available Dynamic Messaging System and other mechanisms.
Traffic Violation Detection and Management	**Detection of various traffic violations as defined in Clause 13.5.1 under "Instructions to Bidders"**	• Ability to define various violations in the system with multiple parameters. • MSI must detect all such violations through technologies like RADAR, etc., and it should have manual intervention only for verification and approval. • Violation detection for various types of violations such as speed, lane discipline, seatbelt not worn, unauthorized stoppages etc. • Appropriate alarm at the CCC, responder's mobile app, message on DMS as required. • Ability to define SOP and take appropriate actions • Ability to gather evidence, issuance of challan and maintain records of violation and penalty etc.
Citizen Interaction	• Dynamic Messaging System (DMS)	• Deployment of DMS at strategic locations (including Black spots) Provide static and dynamic messages to the commuters based on any incidents, violation etc.
Penalty Collection	• NIC's eChallan system	• Ability to generate challans based on inputs from ITMS system along with necessary evidence.
Responders Interface	• Command and Control Center • Web-portal • Mobile App for Responders	• Ability to view on-demand video feeds on the Video Wall as well as Workstations and web-portal in various formats and combinations

Solution	Indicative Solutions / Components	Broad Level Solution Requirements
		• Ability to select a particular sensor or camera for detailed view from the list or from the GIS based map.
		• Define SOP for automatic violation detection, take actions as per the requirements.
		• Zoom into the video, control of cameras including PTZ cameras.
		• Ability to cut a video, perform operations on video and photos, automatic and manual save feature
		• Monitor all the assets, resources, system user logins, infrastructure including field components, network, DC-DR etc. for appropriate actions.
		• Monitor entire system for security aspects and take appropriate action.
		• Display web-based dashboard with various reports, MIS in tabular, graphical and multiple other manner, with ability to select parameters dynamically.
Supporting Infrastructure	• Hosting and Storage • Network and Bandwidth • Security Infrastructure and IT Audit • Solar based Power Supply Requirements • Poles and Gantries	• The MSI shall host the entire ITMS solution on-premise at Command and Control Center and DR on Cloud as per the system architecture prepared by MSI and approved by MMVD based on guidelines in the RFP.
		• All the timely payments, SLA requirements, sizing, hosting procedure, DR Drill, backup, security and all other operational aspects shall be responsibility of MSI.
		• MSI shall provide for entire network and bandwidth for the ITMS project including last mile connectivity for all the components, network at CCC, network for DC-DR connectivity etc.
		• All the security components for protecting entire ITMS system against any threats in the form of any software, hardware, regular updates and patches shall be responsibility of MSI.
		• All the scope related to provisioning for electricity (power) to all the devices, equipment, solar panel, UPS, wiring, cabling, earthing requirements for ITMS system shall be sole responsibility of MSI.
		• Provisioning for power backup for all field components through UPS, and CCC

Solution	Indicative Solutions / Components	Broad Level Solution Requirements
		• through UPS, DG Set etc. shall be sole responsibility of MSI. • Erection of all the poles, cantilever poles, gantries shall be responsibility of MSI.
External Integrations Capabilities	• NIC's eChallan • Vahan and Sarathi Integration • Integration with NHAI • Public Announcement System • SMS integration • Emergency Services	• ITMS system shall be integrated with eChallan application. Responsibility of integration shall be of MSI. • MSI shall provide capabilities to integrate with various other 3rd party applications such as Vahan and Sarathi system, PA system, SMS gateway etc. • MSI shall carry out such integration with any 3rd party app as and when directed by MMVD at no extra costs. • The scope of such integration shall be defined by MMVD on case to case basis.
Software Applications	• Command and Control Center Application • Geographic Information System (GIS) • ITMS application • Video Management Software (VMS) and Recording Server • Enterprise Management System including Alarm Management, Assets Management, SLA Management etc. • Network and Security Management • Server and Storage Management • Web Portal	• A Video Wall and operator terminals for centralized monitoring, controlling, and managing all ITMS project related activities in real time and taking various decisions during project execution. • Ability to view, record, perform operations like zoom, cut, save etc. on the video which is live, recorded or through other sources. • A centralized dashboard for depicting updates of ITMS project • A centralized interface for monitoring Network, Hosting (DC and DR) and Security aspects of the project. • A centralized interface for monitoring all applications and services for the ITMS. • A centralized interface for all project metric, trend analysis etc.
Citizens Counselling	• Porta Cabin • LCD Screen and furniture	• Setup Porta Cabin at MMVD specified locations with required furniture, concrete foundation, and other components.
MIS and Reports	• Tabular, Graphical, and various other formats • Static pre-defined as well as dynamic reports • Export options in various formats. • Reports of multiple parameters	• The MSI shall provide various Management Information System reports, pre-defined and dynamically generated reports as per requirements of MMVD from time to time. • Such reports shall be in various required format such as tabular, graphical etc. • Reports shall be about various parameters such as vehicle counts, violation count, ITMS project's assets and resources report, revenue, penalty,

Solution	Indicative Solutions / Components	Broad Level Solution Requirements
		and other reports as per requirements of MMVD from time to time. • Such reports shall be available on various platforms such as web portal, at CCC, mobile app for responders etc. as directed by MMVD from time to time.

2. Incident and Emergency Management

Incidents can be defined as crashes, breakdowns, and other random events that occur on the Highway, which essentially leads to more congestion, economic losses, air pollution, and human suffering. MMVD envisages to develop a quick response incident management system which shall ensure the incident is quickly reported to relevant authorities, recognizing the importance of transporting victims to trauma centers within the golden hour. ITMS system (including all field camera and sensors together affixed for any purpose) shall assist with coordination among operators, MMVD, Highway Safety Police, and emergency personnel, Trauma Care Centers etc. through CCC. Incident management system shall contain following components:

2.1. Incident Detection

a. The Incident Management System shall be able to detect and alert for various kinds of incidents within its viewing area, including
    i. Pedestrian and cattle crossing, or people overcrowding
    ii. Stationary vehicles which could be unauthorized stoppage or breakdown of vehicle
    iii. Lying objects on road
    iv. All minor or major accidents
    v. Unusual traffic snarls
    vi. Vehicle plying on a stretch of the road where it is not allowed (especially for Two-Wheeler and / or Heavy Vehicle.
    vii. Environmental factors such as low visibility due to fog, landslides etc.

b. The system shall have provision to define a new type of incident dynamically, directly from the CCC, anytime during the project period.
c. The field sensors and components shall have ability to automatically detect the incident, pre-defined or dynamically created, and data shall be sent to CCC.
d. The system shall also provide for user interface for recording an incident manually, received through call center or manual patrolling.
e. The mobile app of responders shall also have a provision to log an incident which will be directly reflected to the CCC.
f. In either case, automatic or manually, minimum details such as Type of incident, Date and Time, Location, Photo and video of the vehicle unit/s involved in the incident, Status of response to the incident etc. about the incident shall be captured in a standard format.
g. The system shall allow to update status of response to the incident by multiple authors with role associated permissions (read, write).
h. System shall support for multiple incidents with both segregated and/or overlapping management and response teams.

2.2. Incident Verification

a. In case the incident has been logged automatically by the system, an alert must be given to operators at the CCC. Audio-visual Annunciators shall be added to make sure no alert/alarm goes un-noticed.
b. On receiving the alert, operators shall have the provision to verify the authenticity of the alarm. MSI shall ensure minimum false alarm in the system.
c. Photo and video evidence of the incident detected by the ITMS system shall be displayed.
d. Operators shall be given an interface to cancel the incident in case it was a false alarm or add additional details to the incident, with appropriate audit logs.

2.3. Incident Management

a. The system shall have provisions for taking appropriate actions on the detected incidents. The action and viewing interface for the same shall be user access based.
b. The operators at the CCC shall be given an interface to define various action **Standard Operating Process (SOP)** based on type of the incident, and as per the incident priority, after due approvals from relevant authorities.
c. Such action SOP shall be pre-defined (to be defined by MMVD during implementation phase and from time to time) as well as dynamically created and amendable at the CCC.
d. Such action may include
   i. Send incident details to the External Emergency Services such as '108', '112', '1033', etc. including the GPS location, name of road, date and time, photo / video etc.
   ii. SMS and mobile app notification to the stakeholders (through mobile app for responders)
   iii. Display of message on the Dynamic Messaging System, Mobile App notification for citizens etc.
e. The Incident Management systems shall disperse information to the respective first responders such as the unified emergency response portal and the police control room.
f. ITMS system shall have ability to receive feedback from the emergency service system about any action being taken such as dispatch sent, incident addressed or ignored etc.
g. The CCC shall provide consolidated view during an incident management and include all the details of the incident like location, type, live video stream of cameras (30 seconds before and after the incident) covering the incident area, location of responders, the defined SOPs and live video stream from citizens and responders on site. All such information shall be created using automated processes and correlation mechanisms of the system.

2.4. Traffic management at the incident location

a. The system shall have provision for displaying dynamic message on one or more Dynamic Messaging System (DMS) displays. Such message can be defined dynamically or can be pre-defined such as "Slow Down", "Accident Ahead", "Traffic Ahead", "Low Visibility Ahead" etc.
b. The System shall allow customizable push notifications to Responders Mobile App.

2.5. Clearance of incidents and Feedback to the System

a. The system shall have provision to update the incident for all stages till the closure of the incident, and revert necessary actions taken.
b. The ITMS system shall be capable of performing trend analysis based on past incident data and identify high incident / accident prone zones. This study shall be useful in planning routes and other furniture along the highways and in identifying common reasons for incidents and accidents.
c. **The system should allow searching for vehicle/s involved in the incident, detected in other camera system on the route to study the behaviour**. Once identified, these video clips shall also form part of the incident evidence, if required by MMVD.
d. The system shall allow to export the case with all the details including the photo and video of the incident, with a **format that shall be acceptable in Indian court of Law.**

3. Traffic Violation Detection and Management

Functional Requirements	- All the violation Detection System shall be fully encrypted and nonintrusive. The system shall have appropriate certified technology with proper test reports, certificates. **The MSI shall clearly propose the system as a part of Technical Bid.** - System shall be able to detect violations as per rules defined by MMVD from time to time for each type of violation. Functional requirement defined in the RFP shall act as a base, however, MMVD may direct the MSI to change any rule as per prevailing Act for detection of violation - The system shall have provision at Command and Control Center to centrally define the criteria such as Lane violation criteria, minimum speed, maximum allowed speed etc. for alert on speeding which shall be configurable for all or specific set of systems. All vehicles passing through the control section at a speed greater than a determined speed limit, by a specified margin, shall be detected as violation. - The system shall allow speed limit / threshold configuration for different stretch of roads, lanes, different time of the day or any other parameter as per requirement of the MMVD. - The system shall have capability of capturing multiple infracting vehicles simultaneously, irrespective of class of vehicle. - System shall automatically detect the lane on which vehicle is driven. - System shall be able to classify between minimum 5 types of vehicles (Light Motor Vehicle - Car, Heavy Motor Vehicle - Truck, Light and Medium Vehicle Truck, Bus, Two-Wheeler etc.) - All the Violation Detection System along with its cameras etc. shall be able to maintain same accuracy of detection and evidence during the nighttime as daytime. For ANPR, accuracy during the nighttime shall be as defined in the RFP. All necessary IR, lighting requirement shall be sole responsibility of the MSI, at no additional cost to MMVD. - Violation Detection System shall be coupled with Automatic Number Plate Recognition System which shall help determine registration number of the vehicle for issuance of challan and any other purpose. - In case the ANPR fails to recognize the registration number, it must be possible to manually enter the registration number of the violating vehicle, validated by two matching images of registration plate. - The system shall capture, and process registration number of each vehicle identified for violation using ANPR system. System shall also be required to capture vehicle number of each passing vehicle for the purpose of Average Speed Detection. - The system should ensure maximum violation detection rate also for vehicles plates that are not readable with ANPR systems, for example broken plates, dirty plates, other languages, nonstandard plates. - The violation detection and accuracy should not vary on the basis of the type of plate, height of plate, nature of plate etc. The systems would have proper simulators to cross check the system during tests. **The system shall have image procession abilities to:** - match registration plates for all types of vehicles, independent of ANPR, and thus providing very high detection rate. - blur certain parts of the image for privacy reasons, such as the registration plate of any other vehicle. - ensure clear images including illumination of registration plate - capture the violation image under low light and low visibility conditions and night-time, irrespective of weather conditions, using IR illuminator and / or any other technology.

- The system should be equipped with a camera system to record a digitized image and video frames of the violation, covering the violating vehicle with its surrounding.
- System shall produce minimum two images relative to any vehicle in violation along with video evidence.
- Basic image viewing tools (Pan, zoom etc.) should be provided for the displayed image without edit options.
- The system shall be equipped with IR Illuminator and / or any other technology to ensure clear images including illumination of the registration plate and capture the violation image under low light and low visibility conditions and at nighttime. The system should perform in rain, bad weather & day and night conditions.
- Image should have a header and footer depicting the information about the site IP and violation details like date, time, equipment ID, location ID, GPS, Unique ID of each violation, lane number, Registration Number of violating vehicle and violation type of violating vehicle etc.
- Violation data, image proof, location and exact position should be encrypted and all data including photo & video should be watermarked.
- System shall also have provision to define SOP dynamically, for different CoVs, corridors or for any other parameter including providing exemption in certain cases.
- System will have provision for setting thresholds, exemptions for certain vehicles or type of road or at certain time of day for violations.
- Seamless integration with the NIC's eChallan Application for vehicle and driver info and challaning.
- As per the criteria, the system shall alert the CCC operators to validate and book a violation against a vehicle based on an approved SOP.
- Shall have provision to automatically, or if directed by MMVD, manually (after confirmation from official) confirm the violation and share details with NIC's eChallan App for further processing of challan.
- **While validating and approving the challan by MMVD officials, they should be able to see all the past approved and suspected violations of the concerned vehicle on the screen.**
- Ability to auto generate reports as per requirements.
- System will be synced using NTP/GPS time synchronization for accurate readings.
- Violation detection systems shall be in line with road safety standards complying with norms of road safety regulations and enforcement standards (which can stand in court of law in India).
- All test reports should be from laboratories / agencies who are authorized under CMVR u/r 126 to issue such reports for speed enforcement and acceptable for Certification of the system.
- Additionally, for imported systems, CE and homologation certificate from Ministry of Transport or equivalent department from respective country of origin, document authenticated by Indian Embassy (to authenticate those systems are legalized and tested for infractions to avoid legal issues) or Certificate from internationally accredited laboratories (approved for speed calibration and for India) is acceptable.
- System must be approved by relevant authorities such as traffic or infrastructure department and provided with proper test and calibration reports & certifications that can stand in the court of law in India.

3.1. Speed Violation Detection System

Business Requirements	• MMVD envisages to implement speed enforcement across the entire stretch of the identified highways as defined in Annexure Set IV – Annexure 5, spanning a total of ~449 km. The speed enforcement shall be a mix of spot speed and average speed detection systems to benefit from the advantages of both the systems. • When a speeding violation is detected at a particular location, the system should be able to calculate the average speed of the same vehicle along the entire stretch to verify the claim of the system. The same shall also form a part of the evidence for the violation. • All the Spot Speed Detection System shall also capture average speed of all the vehicles. • System must be approved by relevant authorities such as traffic or infrastructure department and provided with proper test and calibration reports & certifications of their systems that can stand in the Court of Law in India.

Functional Requirements	• The system should be equipped with a camera system to record digitized images and / or video frames of the violation, covering defined lanes on each approach arm at any point of time simultaneously with relevant data about the offence, the violating vehicle with its surrounding.
	• The system detection shall be possible even at speeds up to 180 kmph, under all light, weather, and other adverse conditions.
	• System shall produce minimum four images relative to any vehicle in violation including one for each detection point and the value of average speed detected.
	• Such wide-angle video shots spaced in time should be taken to prove that the vehicle was moving on the road.
	• The photograph acquired at two or more locations by the system only for over speeding vehicles shall be stitched together based on matched plates.
	• The Speed Detection System shall be coupled with Automatic Number Plate Recognition (ANPR) System which shall help determine registration number of the vehicle for issuance of challan and any other purpose.
	• Speed violation detection systems shall be designed to capture speed with same accuracy during day and night, irrespective of weather conditions.
	• System shall be fully encrypted and nonintrusive.
	• Seamless integration with the Violation Challaning App for vehicle and driver info and challaning.
	• **Spot Speed Detection**
	    o The Spot Speed Detection System shall be used to determine speed of a vehicle at a given spot.
	    o The system shall be able to detect an over-speeding or under-speeding vehicle and perform action as per the defined SOP.
	    o The system shall be able to detect speed of a vehicle which is over-speeding for vehicle changing lanes and shall be irrespective of class of vehicle, height of vehicle etc.
	    o All the spot speed detection system shall also be capable of capturing average speed of every vehicle.

	• **Average Speed Detection**
	    o All spot speed detection system shall also detect vehicles average speed, between two locations or for a stretch of the highway or for entire journey based on the requirement, NHAI Policy Circular No.11.53/2023, Dated :10 Oct. 2023 (as amended from time to time) and directions of MMVD
	    o The average speed detection system shall capture location, time, and registration plate **of each passing vehicle**. For each vehicle, the system shall capture average speed with multiple cameras throughout the journey of the vehicle. In case any violation is detected, appropriate alerts may be generated as per requirements and defined SOP at CCC. In case there is no violation detected for a particular vehicle till the end of the journey / or a particular defined stretch of highway, the data shall be deleted as per general and defined SOP.
	    o System shall be able to detect average speed of each vehicle, irrespective of class of vehicle, height, location, time etc.
	
	• **Spot Speed Detection System – Interceptor Vehicles**
	    o MMVD is operating Interceptor Vehicles across the states.
	    o The MSI shall be required to integrate these Interceptor Vehicles to the ITMS system as per requirement of MMVD.
	    o Any challans generated for violations captured through existing Interceptor vehicles shall not be paid for to the MSI.
	
	• If there are two or more vehicles committing a violation in the same instant or very close together, the system shall capture images of both the violation vehicles and separately store and process it.

Speed Display	• MSI shall be required to supply, install and commission Speed Display signboards **per lane** at all the Speed Violation Detection System, as per minimum specifications mentioned in the RFP. • Such system shall be able to display 3-digit whole number speed of the vehicles passing by, which should be legible and visible from a distance of 100 meters as well. • The system shall display higher speed in case of two or more vehicles approaching are detected simultaneously in the same Lane. • The Message Signs shall be based on Light Emitting Diode (LED) technology possessing a proven track record suitable for this application. The LED technology shall not require external or supplementary illumination. • The speed text must be readable even in broad daylight. The system should allow to set the brightness dynamically for day light or low light and low visibility conditions. • Auto dimming feature to adjust to ambient light level with brightness control for each DMS controlled from CCC. The displayed image shall not appear to flicker to the normal human eye.
Accuracy	• **Speed Violation Detection System Accuracy:** **180 KMPH $\pm$ 3%** for at least 95% vehicles passed through the system.

3.2. Vehicle Actuated Speed Sign

Business Requirements	• Vehicle activated Speed Sign devices will act as a safety sign to warn and remind drivers that they are exceeding the speed limit on the highway. • The system shall be capable of measuring the speed of the approaching vehicle at least from 100 meters away on any lane and immediately display the speed on connected small Variable Messaging Sign system. • The location of the same shall be decided during the survey, and the same is preferred to be in between and equidistant from two Speed Violation Detection Systems. • The speed such measured and displayed should be a whole number.
Functional Requirements	• Speed measurement shall be **by using non-intrusive technology** such as Radar / sensor / camera based or any other appropriate certified technology with proper test reports, certificates and shall be such that speed detection should not be dependent on vehicle type. • The MSI shall clearly propose the system as a part of Technical Bid. • The system shall have Variable Message Sign as per minimum technical specifications mentioned in the RFP document to display the speed of the vehicle, which should be legible and visible from a distance of 50 meters as well. • The system shall display higher speed in case of two or more vehicles approaching are detected simultaneously. • The system shall save the speed data and send it to central server for traffic and speed analysis. • The Message Signs shall be based on Light Emitting Diode (LED) technology possessing a proven track record suitable for this application. The LED technology shall not require external or supplementary illumination. • The message (text) on the DMS must be readable even in broad daylight. The system should allow to set the brightness dynamically for day light or low light and low visibility conditions. • Auto dimming feature to adjust to ambient light level with brightness control for each DMS controlled from CCC. The displayed image shall not appear to flicker to the normal human eye. • All test reports should be from laboratories / agencies who are authorized under CMVR u/r 126 to measure speed and acceptable for Certification of the system. • Additionally, for imported systems, CE and homologation certificate from Ministry of Transport or equivalent department from respective country of origin, document authenticated by Indian Embassy (to authenticate those systems are legalized and tested for infractions to avoid legal issues) or Certificate from internationally accredited laboratories (approved for speed calibration and for India) is acceptable.

3.3. Lane Discipline Violation Detection System

Business Requirements	• The MMVD envisages to setup a Lane Violation Detection System to detect any violation related to lanes as described in the RFP. • System shall be approved by some traffic or infrastructure department and provided with proper test reports & certifications of their systems that can stand in the court of law in India.

Functional Requirements	• The MSI shall give provision for defining lane rules in the system dynamically. The system shall be able to detect violations as per defined rules. • Automatically detect the lane on which a vehicle is driven. • Such rules can differ for different locations or stretch of the highway, and hence the rules shall be configurable for one or group of cameras / systems. • Cameras shall record a digitized image and video frames of the violation covering defined lanes on each approach arm at any point of time simultaneously with relevant data about the offence. • Photograph acquired at two or more locations by the system for lane discipline violation shall be stitched together based on matched plates.

3.4. Red Light Violation and Stop Line Violation Detection System

Business Requirements	• There are highway stretches which starts within the city limits and are equipped with Signals at important junctions. • These junctions are prone to Red Light Violation and Stop Line Violations. These violations are dangerous and fatal at times. • At some junctions, the traffic signals may not be automatic or adaptive. MSI shall ensure necessary integration with these signals to capture the red light while detecting the violations.
Functional Requirements	• System shall capture the violation when a vehicle has violated the stop line/zebra crossing or the Red-light signal. • System shall take necessary evidence of the offending vehicle along with photo and video of traffic light being red (colour evidence). • System may or may not be connected with traffic light and red-light status shall be detected with or without any physical connection to traffic light. • The MSI shall ensure the Red-Light Violation is also detected during the night time. Any integration required with the Signal Controller shall be responsibility of the MSI. • The MSI shall give provision for defining approach for a particular junction in the system dynamically. There would be different combinations of the junctions at different locations. The system shall have modular settings to allow such configuration. • Such rules can differ for different locations or highway stretch, and hence the rules shall be configurable for one or group of systems.
Accuracy	• **Red Light Violation Detection System Accuracy:** RLVD detection for at least 95% vehicles passing through the junction. • **Stop Line Violation Detection System Accuracy:** Stop Line detection for at least 95% vehicles passing through the junction.

3.5. Unauthorized Parking detection

Business Requirements	• It is not authorized to stop on some of the defined stretches of the Highway. However, there are still many vehicles stopping on the highway for various reasons. • The locations for installation of various ITMS components on the highway shall be designed in considerations with those specific spots where maximum unauthorized stoppages have been observed. Such locations may include near entry / exit approach and other interchanges and junction points. • ITMS system shall be able to capture illegal stoppages on the highway.
Functional Requirements	• System shall have provision to define parameters and stretch of the highway on which a vehicle can be tagged as unauthorized stopping and an alert be generated to CCC operator. System shall have provision to define type of unauthorized stoppage to appropriately challan the vehicle. • The CCC operator (and MMVD) shall be provided with an option to view on-demand video feeds of the camera which detected the violation. Operators shall check whether the vehicle has wilfully stopped illegally as per defined parameters or any other reason such as vehicle breakdown. • Any CCTV camera, including the ones for Speed and Lane Violation Detection, and Red Light Violation etc. shall be able to automatically detect unauthorized stoppages in their respective viewing range. • The system shall also capture the registration number automatically through ANPR. • In case of wilful vehicle stoppage is detected, same shall be considered as violation and shall be raised as suspected violation. • The system shall allow any other action as per pre-defined SOP.

3.6. Seat Belt and Mobile Phone violation

Business Requirements	• It is observed that one of the reasons for fatalities and major injuries in any accident is not observing Seat-Belt Discipline and use of mobile while driving. • It is mandatory for all the commuters to wear seat-belts, on the front seat, as well as the rear seat. • The ITMS system shall be capable of detecting commuters not wearing seat-belt, at least for the front-seat and using mobile phones.
Functional Requirements	• All the CCTV cameras shall be built with intelligence to automatically detect whether commuters are wearing seatbelt and / or using mobile phones. • In case a seat-belt violation or mobile phone violation is detected, CCC operator shall be (as per requirements) provided with photo evidence and an option to view on-demand video feeds of commuter zoomed to the inside of the vehicle and the vehicle registration number using ANPR shall be captured as evidence, along with other details such as time, location etc. • If the respective camera is coupled with ANPR system, the ITMS system shall also detect registration plate automatically. • Details shall be sent to CCC for further processing. • Seat belt violation detection systems shall be designed to capture violation during both day and night, irrespective of weather conditions.

3.7. Wrong Way Entry / Exits and illegal u-turn

Business Requirements	• On the highway, there are multiple entries and exits. There are some cases reported where vehicles tend to enter or exit from wrong way. • Also, there are vehicles taking U-turns at some gaps at median which are not meant for u-turn purpose. • The locations of ITMS system shall be proposed to place CCTV camera at some of these major entries and exits and illegal u-turn spots. • The system shall be able to detect such Wrong Way Entry / Exits and illegal u-turns.
Functional Requirements	• All the CCTV cameras and other sensors shall have capability to automatically detect the direction of a vehicle, including the ones setup for Speed Violation and Red Light Violations. • The system shall have provision to define parameters and stretch / spot of the highway on which a vehicle can be tagged as violating for illegal u-turn. • System shall allow defining usual and acceptable direction of a vehicle on that particular lane or viewing range of camera, from time to time. • In case any vehicle is observed plying in the opposite direction or taking illegal u-turn, the system shall alert the CCC operator as per requirements. • The system should automatically capture the vehicle registration number through ANPR. • The details shall be sent to the CCC system for further processing. • The ITMS system shall allow any other action as per pre-defined SOP.

3.8. Two-Wheeler Violations

Business Requirements	• Two-wheeler Riders (driver and pillion rider) are required to wear helmet. • Also, there must be maximum two people riding on a two-wheeler. • Any two-wheeler plying with more than two riders or without helmet, shall be captured and penalized.
Functional Requirements	• All the CCTV cameras and other sensors shall have capability to automatically detect helmet and violation of more than two riders for two wheeler vehicles. • The system shall allow defining parameters for such detection. • The system shall alert the CCC operator (and MMVD official) as per requirements for the detection possible violation along with photo and video evidence. • The system should automatically capture the vehicle registration number through ANPR. • The details shall be sent to the CCC system for further processing in case violation is confirmed. • The ITMS system shall allow any other action as per pre-defined SOP. • Two-Wheeler violation detection systems shall be designed to capture violation during both day and night, irrespective of weather conditions.

3.9. Non-Standard and Non-HSRP Number Plates

Business Requirements	• All the new vehicles registered in India from 1st April 2019 are required to be affixed with High Security Registration Plate (HSRP) • Vehicles registered before the said date are also required to affix HSRP, however provision for such mandate is not currently available in Maharashtra. Whenever MMVD makes such provision in future, the violation for non-affixation of HSRP for vehicles registered prior to 1st April 2019 shall be detected too, only after prior approval of MMVD. • Vehicles registered before the said date are also required to have a number plate in a particular defined and standard manner. • Various vehicles are plying on the road with non-standard number plate in different font and style which makes it difficult for the Inspectors as well as ANPR systems to recognize the number plate properly. • Any vehicle plying with non-standard number plate shall be detected and shall be captured by the system with necessary evidence.
Functional Requirements	• All the CCTV cameras shall have capability to automatically detect the non-standard number plate for all types of vehicles. • The system shall allow defining parameters for such detection. • The system shall alert the CCC operator (and MMVD official) as per requirements for the detection possible violation. • The accuracy of capturing such violation should not vary on the basis of the type of plate, height of plate, nature of plate, type of vehicle, plate colour, varying contrast, broken plate, Dirty/disfigured plate, language of plate, Double row plate etc. • Ability to provide illumination for night-time scenarios using IR illuminators or any other technologies for registration plate to be captured with very high accuracy. • The details shall be sent to the Violation Challaning App system for further processing in case violation is confirmed. • The ITMS system shall allow any other action as per pre-defined SOP.

3.10.   Over Dimensional Cargo – without permission

Business Requirements	• The ODC vehicles are required to apply for ODC permit with specific dates, route and type of cargo. • Any vehicle plying on the highway without valid ODC permit or violating the approved ODC permit in any manner shall be detected and shall be captured by the system with necessary evidence.
Functional Requirements	• All the AVCC shall have capability to automatically detect the vehicle dimensions and detect the vehicles which are over-dimensional. • The system shall allow defining parameters for such detection. • The system shall capture the photo and video evidence and vehicle registration number of the ODC using ANPR. • The system shall be integrated with Vahan's ODC system and shall be able to confirm for ODC permission issued to the vehicle along with its route. • In case of any violation, the system shall alert the CCC operator (and MMVD official) as per requirements for detection of possible violation. • The details shall be sent to the CCC system for further processing in case violation is confirmed. • The ITMS system shall allow any other action as per pre-defined SOP.

3.11.   Other Vehicle document related violation

Business Requirements	- Vahan system maintains records of Vehicle Fitness, Tax Paid Upto, Permit Validity, Insurance and PUC, non-use etc. - Any vehicle plying without valid Fitness Certificate, or have not paid tax or permit is expired, or existing permit doesn't allow to ply on the stretch of the highway, or if the vehicle plying is in non-use, the system shall be capable of checking such violations and capture the same with necessary evidence. - MMVD may reserve right to increase detection of any other type of violation wherein the details are fetched directly from Vahan portal, i.e. the violation is vehicle document related, anytime during the contract period, MSI shall incorporate necessary changes in the system to ensure the same.
Functional Requirements	- All the ANPR cameras shall have capability to automatically detect registration number plate of all the vehicles plying through the stretch of the highway. - The system shall allow defining parameters for such detection. - The system shall be integrated with Vahan system and shall be able to confirm for all the above parameters (and any other parameters as per MMVD's requirements from time to time) for any violation. - The system shall alert the CCC operator (and MMVD official) as per requirements for the detection of the violation. - It should automatically capture the evidence photo and video of the vehicle. - The details shall be sent to the Violation Challaning App system for further processing in case violation is confirmed. - The ITMS system shall allow any other action as per pre-defined SOP.

3.12.   Violation Detection System Accuracy

- Unless otherwise specified for a particular system component / violation detection system, the violation detection system shall have accuracy as defined below:

More than 90% vehicle detection accurately of the total vehicles violated (or passed) as applicable.

4. Citizen Interface

MMVD envisage to setup systems to communicate with the commuters on the highway. Such communication may be required for informing commuters about real-time traffic information, awareness, vehicle speed limits etc.

4.1. Dynamic Messaging System

Business Requirements	• Dynamic Messaging System (DMS) is one of the way to communicate with the citizens. The DMS system shall be used to denote the speed limit, providing various other information to the citizens. • The system shall be designed to set the message to be displayed dynamically from the CCC. There could be separate message on one or more of the DMS, which can be for a specific time. • DMS software application shall provide the CCC operator to publish predefined sets of messages (textual as well image). The application shall also provide an option to write in free-text mode. • The DMS can be proposed to be installed on an overhead cantilever or on a standalone pole as per locations defined in this document.
Functional Requirements	• The DMS shall consist of variable message signboard with local controller, and a power backup with UPS along with other power and network components. • A DMS application shall be provided to the CCC operators for message preparation, monitoring and control of the DMS through network. • The system shall have provision for setting pre-defined message or to set message in a free-text mode. • The system should be capable of displaying warnings, details of violating vehicles, traffic advice, route guidance and emergency messages etc. to commuters from the CCC in real time. • The Dynamic Message Signs shall be based on Light Emitting Diode (LED) technology possessing a proven track record suitable for this application. The LED technology shall not require external or supplementary illumination. • The message (text) on the DMS must be readable even in broad daylight. The system should allow to set the brightness dynamically for day light or low light and low visibility conditions. • Auto dimming feature to adjust to ambient light level with brightness control for each DMS controlled from CCC. The displayed image shall not appear to flicker to the normal human eye. • DMS software application shall allow an operator to seamlessly toggle between multiple DMS points at each workstation in order to send specific messages to specific locations, as well as sending common message to all DMS. Software should be GUI based, and capable to handle multiple DMS. • It shall be capable of setting an individual DMS or group of DMSs to display either one of the pre-set messages or symbols entered the computer via the control computer keyboard or by another means. • CCC Operator shall be provided with functionality to select desired location in GIS map, and this should enable user to see the live status of that specific DMS.

	• The system shall also give provision to set the way a message is displayed including more than one message for pre-defined time, in scroll fashion, or flashing etc. configurable at CCC. • The DMS should display text (multilingual – Marathi, Hindi & English) and graphic messages using Light Emitting Diode (LED) arrays. • The DMS controllers should continuously monitor the operation of the DMS via the provided communication network. • If the controller is unable to connect to the server for the next message, it shall not display the old message, which has passed its expiry time. Instead, it shall be programmed to display a default message. • The system shall maintain history of message archived for future reference and analysis. • The system should have a report generation facility for individual / group / all DMSs with date and time which includes summary of messages, dynamic changes, fault / repair report and system accessed logs, link breakage logs, down time reports or any other customized report. • The DMS shall support text animations such as scrolling, flashing, typing, top to bottom and bottom to top, replace left to right or vice versa etc. configurable for each location and / or each message as per MMVD requirement. • The system shall be able to integrate with any external DMS, existing or new. All the above functionalities shall also be possible for external DMS.

5. Responders Interface

5.1. Command and Control Center

a. In accordance with the MMVD's vision to implement Intelligent Traffic Management System, a centralized Command and Control Center (CCC) shall be required to monitor, manage, control, analyse, and communicate to and fro regarding operations and management, respond to daily scheduled activities, events and incidents.

b. Command and Control Center shall tentatively be setup at Nagpur East RTO for which shall be provided by MMVD free of cost and rent free for the project.

c. Tentative area for CCC to be provided would be around 1400 sq. ft. The bidders are expected to conduct site visit before bidding for the project.

d. The Command and Control shall be integrated with all the components of the Intelligent Traffic Management System such as cameras, message system etc. and enable the operators to carry out the coordinated response plan effectively.

e. The solution shall allow MMVD and CCC operator to view the on-demand video feeds from cameras as per requirements of MMVD and inputs from other sensors, dissect and disseminate information and make actionable recommendations.

f. The Command and Control Centre at the heart of the system will comprise of the Command and Control Center Application, which have important features such as the incident management and reporting system, Standard Operating Procedures (SOPs) for pre-defined events such as traffic violation and systems for interaction with citizens etc.

g. The CCC shall provide situational awareness of the incidents raised and violations captured across the highways. This shall enable the MMVD, other stakeholders and CCC operators to take coordinated and planned response actions.

h. The system shall provide configurable rules with tailored alerts, dashboard visualizations, intelligent role based workflow, response tools and situation collaboration.

i. CCC will comprise of various terminals dedicated for specific purposes and a centralized dashboard with all real-time data available on fingertips.

j. Command and Control Centre's key objective:

- o To serve as a unified monitoring and decision making hub
- o To monitor for any incident and its details and initiation of SOP
- o To monitor the highways for any traffic violation, its details and act as per defined SOP
- o To serve as a Centralized Operating Centre for monitoring all the sensors and camera health of all components, network etc.
- o To serve as central information, communication, incident management, and decision making hub including interface with other government and external agencies.
- o To provide real time information update to Police, Road owning agency like NHAI / PWD / MSRDC / Urban Local Body, Fire, Ambulance / Trauma Care units etc.
- o To facilitate decision making process by leveraging detailed view and analytics.
- o To be self-maintenance system and alert upon malfunctioning of any of the components
- o To be scalable and be future ready for external integration and scope upgradation.

5.1.1. CCC Components

The Video Wall and Operator Terminals shall be installed at the CCC and shall be used for viewing, reporting, monitoring, controlling and management of all events, incidents, alerts, and updates for ITMS Project. Following are the setup requirements:

a. MMVD shall provide a designated area for setting up the centralized CCC at the location as mentioned above, where

   i.   A Video Wall will be installed by MSI and shall be used as the centralized display wall for monitoring all CCC operations
  ii.   Multiple Operator Terminals (workstations) shall be used for centralized management of all CCC operations
 iii.   All the necessary networking and storage components, UPS and batteries, DG set, additional workstations, furniture, air conditioning as may be required shall be setup.
  iv.   **CCC Sample Layout**
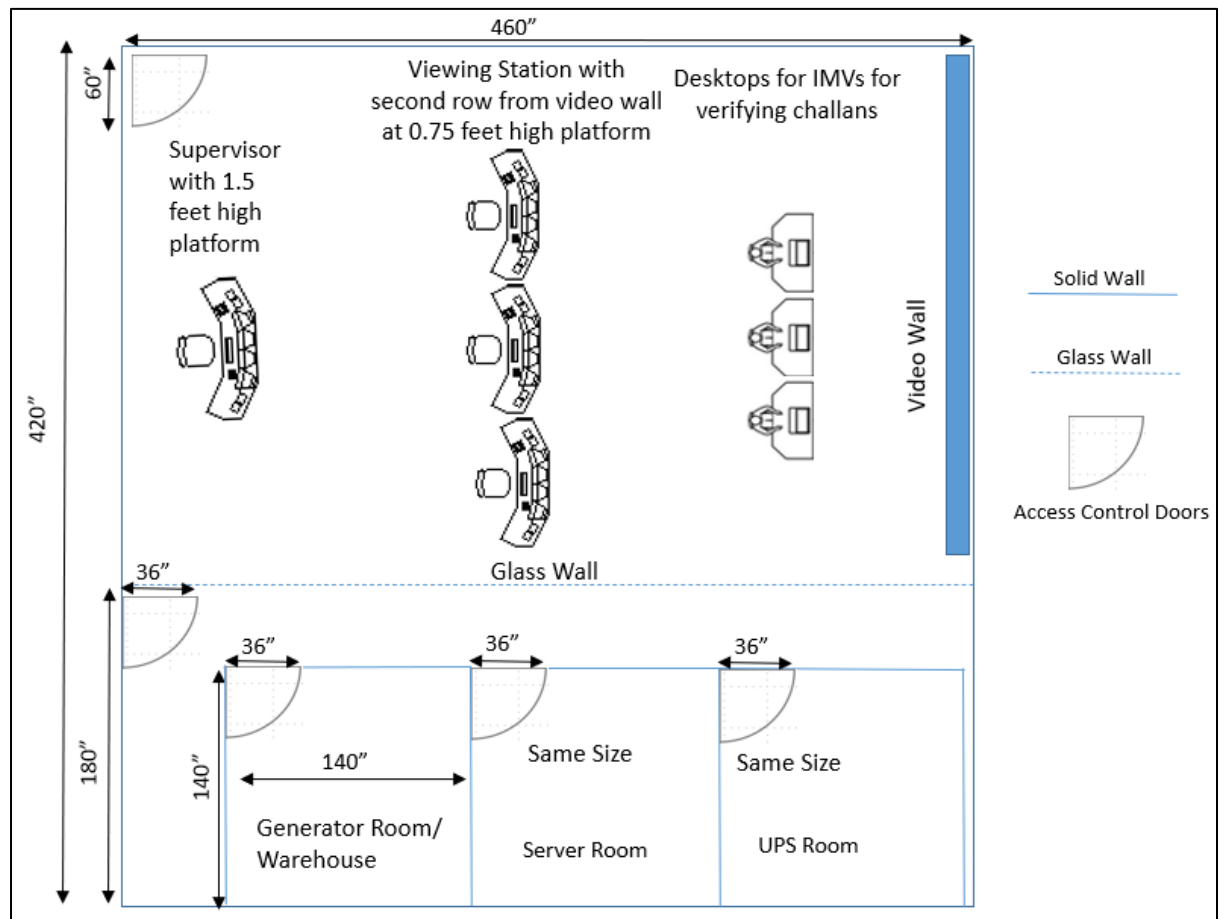
b. Detailed plan of the CCC setup shall be prepared by MSI after project initiation. MSI shall set up state of the art, well connected, secure, yet cost effective centralized CCC.
c. MSI shall be responsible for planning, procuring, commissioning, and setting up the CCC area including all the hardware, software, network, electrical, furniture etc., upon appropriate approvals from MMVD.
d. MSI shall ensure CCC area has rodent repellent provision with periodic pest control activity, fire proofing provisions, Fire Safety System with Alarm and smoke detection system (VESDA System – Very Early Smoke Detection Apparatus system) etc.
e. The entry of Rodents and other unwanted pests shall be controlled using non-chemical, non-toxic devices. Ultrasonic pest repellents shall be provided in the false flooring and ceiling to repel the pests without killing them.
f. All the infrastructural requirements and civil work, i.e. air conditioning requirement, seating arrangement, Office Workstations (Furniture and Fixtures), chairs, tables, flooring, false ceiling, painting, aesthetics, partitioning, electricity (power), electrical cabling and necessary illumination devices etc., needed to build the Command and Control area shall be responsibility of MSI as per the layout provided by the MSI based on approval by MMVD.
g. Electricity connection at the CCC is available, however MSI shall be required to install a separate meter and ensure the recurring charges are cleared regularly. In case of power failure, all the Workstations, Video wall etc. shall be coupled with UPS and battery backup

for minimum period, as described in the technical requirements, which shall be sole responsibility of the MSI. The MSI shall also setup automatic DG Set to provide for power backup for minimum period as described in the technical requirements. **The fuel for the DG set shall be responsibility of MSI.**

h. The Command-and-Control Center shall be manned 24 x 7 x 365 by the MSI, i.e. CCC operators. The CCC shall be supervised by the Motor Vehicles Inspectors (MVIs) of the MMVD, Highway Safety Police, and other MMVD officials.

i. The CCC shall have multiple components including but not limited to:

Sr.	Component	Indicative Requirements
1.	**Workstations**	• All workstations shall be used to view and control various applications, view and control cameras on-demand feeds (live and recorded both), define rules, control view of the video wall etc. • A **minimum** of six (5) Operator Terminals, including adequate number of Operator Terminals (not less than 3) for offence and incident validation purposes, each with three monitors each as per defined specifications in the RFP, CPU (Central Processing Unit), keyboard and mouse; for managing, controlling, monitoring, reporting the operations and taking appropriate actions. • All these display screens and operator terminals shall be of latest configurations. • Each workstation shall also be coupled with Network Printer.
2.	**Terminals for IMVs and Highway Police** **(Minimum 3)**	• A workstation for MMVD and Highway Police Inspectors to view and verify violations captured by the system, to view and approve / reject the violations and challans, verify the registration number captured by the ANPR system, violation evidence and other details, and manually override the entry in case of any issues using standard Web browsers. • Number of such terminals shall be adequate for ensure smooth operations for approving/ rejecting challans, and as per requirement of the MMVD. • All these display screens and operator terminals shall be of latest configurations.
3.	**Video wall with video controller** **(3 x 3 of minimum 55")**	• A video wall shall depict visualizations, real-time view, analytics, reports and flashing alerts to highlight where attention is required. • Video Wall shall of the minimum size as defined in the technical specifications mounted in a matrix arrangement as defined. • The Video Wall shall have LED displays with independent feeds and display for each screen. Each of these displays shall be configurable to display rotating dashboard views. • Video wall shall be used to display following combination of things o On-demand Live and recorded feeds of video cameras across the stretch of highways under the project as per list and GIS based maps. o Centralized dashboard for all the monitoring and management solutions including Asset Management, Cloud based DC/DR, Database Storage, for all project metric, trend analysis etc. • Other LAN components as required to integrated and connect the complete video wall and operator terminals shall be responsibility of the MSI.

4.	**Access Control set**	• The command and control centre shall be a restricted area with access only to authorized personnel. This is to avoid misuse of the system, data leakage etc.
		• There shall be Biometric, or proximity card authorized secure access devices installed at all the entries of CCC.
		• An Access Control system shall consist of required controllers, power supplies and all associated accessories to make a fully operational on line access control system.
		• The Access Control system shall be provided with electric locks, and shall operate on fail-safe principle. The lock shall remain unlocked in event of a fire alarm or in the event of a power failure.
		• The system shall monitor the status of the doors through magnetic reed contacts. The system should be designed and implemented to provide following functionality:
		  o Configurable system for user defined access policy for each access point.
		  o Record, report and archive each and every activity (permission granted and / or rejected) for each access point.
		  o User defined reporting and log formats
		  o Day, Date, Time and duration based access rights should be user configurable for each access point and for each user.

5.	**Network Components**	• All the components of the CCC shall be connected to the network to access all the allied components, field components, video feeds and other activities. • All active and passive Networking Components like Switches, Routers etc. required for CCC shall be responsibility of MSI.
6.	**VESDA and Fire suppression system**	• The MSI shall setup Fire Detection and Control mechanism including Smoke Detectors (VESDA) at the CCC. • The system shall be as per relevant industry standards and as per fire safety act in India. • All necessary components required for installation of fire detection & suppression needs to be taken care by MSI. • All the specifications and materials shall comply with respective BIS standards and shall carry ISI mark. It is essential that Fireproof material be used as far as possible. Appropriate Fire and Safety Audit are to be conducted and Certifications to be obtained before respective sign-offs.
7.	**CCTV camera**	• The CCC area shall be continuously monitored through CCTV cameras. The CCTV shall be installed to ensure entire CCC area is adequately covered. • MSI shall install Indoor Fixed Dome Cameras for Internal Surveillance as per requirements for security and monitoring of Command and Control Center area related to personnel safety, tampering, un-authorized access etc. • The feeds of the CCC CCTV camera shall be available on the internet along with all the other video feeds of the ITMS system on Web Portal to view anytime.

5.1.2. CCC Use Cases

a. CCC operators shall operate the controls of the Command and Control Center under supervision of the Motor Vehicle Inspectors (MVIs) of the MMVD, Highway Safety Police, Road owning agency, other MMVD officials and other stakeholders.

b. CCC operators shall not perform any action without consent of the MMVD.

c. This list is an indicative list and not exhaustive list. MSI shall be required to ensure to serve any other use cases that may be required from time to time.

d. Following use cases are expected to be operated at the CCC:

Sr.	Solution	Integration and operation brief
1.	Incident Detection and Management System	• All the video camera and other sensors shall be integrated with the CCC. All the field component systems combined shall be designed to detect any incident and alert to the CCC • In case of any incident or suspected incident detected, the same shall be alerted to the CCC Operator. • System shall provide interface for viewing details of the incident including the video feeds etc. • System shall be integrated with emergency response system such as Dial 112, 108, 1033, etc. • The system shall be capable of forwarding incidents to the emergency response systems, and accepting action taken status. • The CCC shall be integrated with DMS, Mobile App etc. for any information to be disseminated to the commuters and responders. • All the incidents, and the false alarms shall be recorded for generating appropriate reports.
2.	Violation Detection System	• Multiple Violation Detection System, including Speed Detection system, Lane violation detection system, Red Light Violation detection system, and other violation detection systems setup as part of this project shall be integrated with the CCC. • The system detects any vehicle violating the traffic laws as per defined parameter. • The system shall allow to define parameters for detection of violation • The system shall provide for interface for the operator to take appropriate action as per defined SOP. • The system shall allow defining of SOPs • The CCC shall be integrated with DMS, Mobile App etc. for any information to be disseminated to the commuters and responders • All the traffic violations and the false alarms shall be recorded for generating appropriate reports. • MMVD officials can view and verify violations captured by the system, verify the registration number captured by the ANPR system, violation evidence and other details, and manually override the entry in case of any issues using standard Web browsers. • An audit trail would be maintained to record such editing activities. • No deletion / addition without validation through authorized user.
3.	Mobile App	• CCC shall have Mobile App management for Responders. • Any update of the application shall be managed from CCC. • CCC shall have provision to update the content on the mobile app. • The CCC shall also have report for usage of the mobile app.
4.	Dynamic Messaging System	• CCC shall be integrated with Dynamic Messaging System to publish specific messages, general information and alerts to the commuters. • Such integration shall be for DMS installed as a part of ITMS system as well as external DMS existing or new, with same functionalities.

Sr.	Solution	Integration and operation brief
		• CCC operator shall be able to select and / or type the message and select the manner in which message is displayed. • Message can be for one or more DMS. Provision to select DMS from list or location wise or on GIS shall be made available.
5.	CCC Applications	• CCC operator shall be able to manage the entire project using software applications installed at the CCC including Command and Control Center Application, Video Management Software, Geographic Information System, Asset Management, Network Management, Storage and Server Management, System Security Management etc. and shall jointly perform required operations during incident detection and management, violation detection and management, citizen interactions etc. • All of these applications shall be able to integrate with each other for smooth flow of information. • The CCC operators, MVIs, other MMVD officials, Highway Safety Police, and all other stakeholders shall be given a common user interface to access all of these applications with minimum clicks. • All applications shall be hosted at hosting infrastructure created by the MSI for this project. • Such applications shall have user based restricted access with logins, single sign-on and other features as described. • Functional and Technical Requirements of all the applications shall be as defined in RFP. • Any other applications and functionality not explicitly mentioned in the RFP document but are required for the smooth and entire functioning of the ITMS project requirements, shall also be supplied by the MSI as per standards and requirements set out in the RFP. • The CCC shall also get integrated with the third party applications as described in the requirements.

5.2. Mobile App for Responders

Business Requirements	• MMVD envisage to develop a mobile app for responders, i.e., all the stakeholders like MVIs, other MMVD officials, Traffic Police, road owning agency etc. as a part of the ITMS system. The mobile app shall be Android as well as iOS based. The app shall be adaptive to screen of any size. • The MSI shall submit at least three designs for the functional flow, application GUI etc., and get it approved from MMVD. • All the rights for the mobile app shall be of MMVD.
Functional Requirements	• Enter vehicle registration number and check for any recorded violation, for the day as well as any past, paid or unpaid. In case of violation, video and photo-based evidence if available along with other details. • Alert on the mobile app as defined in the SOP, in case of any incident detected on the highway, along with location of incident for information to the field officers. • Option to view on-demand live feed of any of the camera by selecting the required camera from the list or from the GIS based map available on mobile app. • App shall also have feature of reporting an incident on the highway which will be directly monitored through CCC. Responders shall be given feature to record video or and upload photo of incident, which will be geo-tagged by mobile app as evidence and sent to the operators of CCC. • Mobile app for responders shall have feature to relay real-time information about time and location of responders to the CCC and web portal for monitoring by senior authorities against the pre-set parameters. • MMVD may direct MSI to develop more features over the period of contract, which MSI shall develop and deliver in time bound manner at no extra cost to MMVD.

Technical Requirements	• **Compatibility**
	  o The mobile app must be developed at least for two operating system, namely Android OS (Google Play Store) and Apple iOS (Apple App Store)
	  o The app must be compatible with all versions of OS released after Jan 2022 for all OS.
	  o The app must be responsive in nature, i.e. it should be compatible with any screen size and screen colour resolution with smart phones, phablets and Tablets, PDAs etc. Also the app must be orientation independent
	  o App must be compatible with all major brands of mobile phones in the market with above OS.
	  o All the above compatibility should be designed without changes to underlying business logic.
	
	• **Mobile App and Phone**
	  o The app must occupy as low as possible space in the mobile phone, maximum upto 50 MB after installation excluding maximum of 2 MB cache.
	  o The app must allowed to be installed on Memory Card (MMC) as well as on Phone Memory

- o The app must ask for permissions for only the necessary pre-installed applications of the phone (eg. GPS, Phone, Camera etc.) These permissions must be revocable from the mobile app.
  - o **Online and Offline Mode**: Few of the functional requirements shall be available for offline transactions and syncing with server whenever the connectivity is up as per design approved by MMVD at later date.
  - o **Power and Data**: The app must consume less power and should be on standby mode when not used. The data usage of the app should be minimum.
- **Mobile App and Backend System**
  - o The mobile app and backend system shall be able to share data with other components of the ITMS System. Hence standardization of data fields etc. has to be taken care along with development of APIs.
- **Security**
  - o **Commuters' Data:** Data of the citizens such as their personal information, photographs etc. must be tightly secured and by no means should be shared or leaked.
  - o **Data encryption:** All the data flowing in and out of the mobile and mobile app through whichever medium must be securely encrypted.
  - o **Unauthorized Access:** Permission based access to various applications and data of mobile such as camera, gallery, phone etc.
  - o All the guidelines / checklist for secure application development & secure IT Infrastructure of Government of India's Ministry of Communication, Department of Telecommunications, dated 25/July/2017 as amended from time to time shall be met.
  - o **System Modification:** No parameters of the system shall be modified without clear permission wherever necessary.
- Any additional security features such as session handling, authentication and authorization as per latest OWASP Top 10 vulnerabilities must be responsibility of MSI.

6. Penalty Collection / ITMS Application

Functional Requirements	- Violation detection systems shall capture all the violation automatically as defined in the RFP and as proposed by MSI and accepted by MMVD. - All the systems are required to capture all the details such as vehicle number, violation type, date, time, location, photo and video evidence and any other details as per requirement of MMVD. - The system shall alert the MSI's CCC operator about the suspected traffic violation, which operator will verify and push it further for validation by MMVD officials. - For this purpose, MMVD shall deploy their designated officials at the CCC, which shall be trained to operate the system by MSI from time to time. - The system shall be able to detect type of vehicle and its registration number. However, in case a vehicle registration number is not captured automatically, the system shall give provision to enter the vehicle number manually. - For both, the MSI's CCC operator and for MMVD official, the system shall make the violation details available in a seamless manner on a single window along with all the necessary details and evidence, which the operators and officials should be able to approve / reject or take necessary action seamlessly. - In case of violation against the driver, provision for entering Driving License number shall be provided. - The system shall have provision for extracting video and photo evidence of the violation along with other details if required. - Once a violation is approved by MMVD officials on the ITMS system, the violation details along with evidence shall be sent to integrated eChallan application for generating challans. - Present eChallan application will send an SMS to the traffic violator with the challan details and details of payment options and link etc. - Penalty collection is not in the scope of MSI, however, MSI shall assist the authorities for re-conciliation, accounting etc. and any other such activity as directed by MMVD from time to time. - eChallan application shall be integrated with the ITMS system to get the feedback from the eChallan system whether or any ITMS system generated challan has been paid for. - The MSI shall support MMVD in the recovery of pending challans by sending at least 2 SMS per month to the vehicle owners with pending payment of challans generated through ITMS system. MSI shall get the template of such SMS approved by MMVD during the submission of Project Plan Document, as defined in the RFP. The details of the SMS sent each month for the pending challan payment, shall be shared with MMVD on quarterly basis. The MSI shall also develop and provide smart analytics for capturing the repetitive offenders, category wise violation patterns and driver behavior. Eg., identifying drivers to whom the challan (generated by the ITMS system) is being issued repeatedly (for same or different category of challan), and still the driver is keeping on repeating violation or not making payment for earlier violations. Provision shall be provided to the MMVD officials to check the details last/ upcoming toll plazas in case such vehicle is currently plying, etc.

MMVD reserves right to modify and finalise the SOP as per requirement from time to time.

7. Counselling sessions for citizens

Business Requirements	• MMVD has planned for counselling sessions for the Traffic violators on the Highway, in a porta cabin, where violators will be guided by the MMVD officials and MSI resources to sit, view videos on Road Safety and Traffic Safety etc. for the time specified by MMVD from time to time. • For this purpose, MSI shall be required to setup Porta Cabin, its furniture including chairs, an LCD screen etc. as defined in the RFP. • The violators shall be intercepted and guided to the cabin by MMVD officials and MSI resources (under supervision of MMVD officials). • The interception of such violators shall be at the Toll Plaza, wherein the MSI shall install ANPR systems and raise an alert in case any violator is incoming and display its vehicle number on the Variable display system.
Functions Requirements: **Toll Plaza**	• The MSI shall be required to install ANPR cameras at each Toll Gates of all the Toll Plazas of the Highways under the project as per minimum specifications as per the RFP. • The MSI shall also install Signal (Red and Green) and Variable Display for displaying Registration Number plate of the vehicles. • The system shall be able to detect the Registration plate of the incoming vehicles, and raise an alert on the Signal (Red) in case the vehicle is a violator (for the day's journey), and also display the registration number of the vehicles on the display installed.
Functional Requirements: **Porta Cabin**	• The MSI shall be required to design, procure, install, maintain the porta cabin as per minimum specifications mentioned in the RFP. • While being light in weight, it shall possess a high structural strength. • The exact space and location will be finalized by MMVD during implementation stage. It will be placed near any identified Toll Plaza as per requirement of MMVD. MSI may be required to procure the Porta Cabin as per site requirement, may be of different shape and size. Any necessary permission for the Porta Cabin from NHAI or any other authority (and any cost related to the same) shall be responsibility of the MSI. MMVD will provide all necessary support for the same. • **All the civil work required including land levelling, hard surfacing, removal of any existing structure, concrete platform shall be sole responsibility of the MSI. MMVD will provide all necessary support for the same.** • MSI shall install chair for violators to sit and view Road Safety videos and attend any in-person counselling session arranged by MMVD. • The Porta Cabin will be equipped with a LCD Screen, Air conditioners, water purifier, Toilets/ Washrooms (as required), CCTV surveillance camera etc. • It shall be provided with appropriate fire detection, alarm, fire extinguishing systems. • Required power supply and network connectivity shall be sole responsibility of the MSI. • MSI shall be required to provide Road Safety videos (with audio) to MMVD as per requirement, minimum 3 different videos of 10 to 15 min each. The videos can be animated as per requirement.

Viewing Center at Porta Cabin	• MSI shall be required to provide at least one Workstation, required furniture for the MMVD officials to view the video feeds, act on the incidents and violations.
CCTV surveillance	• All the Porta Cabin shall be continuously monitored through CCTV cameras. The CCTV shall be installed to ensure entire area is adequately covered. • MSI shall install Indoor Fixed Dome Cameras for Internal Surveillance for security and monitoring of Porta Cabin related to personnel safety, tampering, un-authorized access etc. • The feeds of the CCTV camera shall be available on the internet along with all the other video feeds of the ITMS system on Web Portal to view anytime.

8. Additional Field Components of the ITMS System

8.1. Intelligent Traffic Sensor – RADAR

Business Requirements	• If for any of the above Traffic Violation Detection System, or otherwise, MSI has proposed Radar based system to be used, following additional requirements w.r.t. Radar shall be met by the MSI.
Functional Requirements	• A wide field and degree of view (for curved road), and good detection range, with 1 or more detectors as required. • Capability of detecting and classifying at least 100 objects at a time along with their position and speed covering at least the entire carriageway width (as per 3.5 mtr lane). • Based on position (x,y) elevation along with speed parameter in order to provide high-resolution capability in scenarios where many vehicles are closely spaced, i.e. in many lanes, dense traffic, traffic jams, stop and-go situations • Detect moving and stationary traffic. • Capable of detecting vehicle speed moving above 180 kmph along with other parameters. • Performance and functioning for all weather conditions (rain, smog, fog, low light, low visibility, night, dust, high temperature) at the same level of accuracy and should be low maintenance, i.e., it should not require frequent cleaning. MSI shall ensure proper and regular calibration of the system to ensure accurate readings. • Shall have minimum IP protection and the ability to work in extreme temperatures. • Possibility of installation of sensors on the roadside, at the corner of intersections, at the median of a road/highway or on a cantilever, with best results and without any risk of obstruction. • Provide information on incident, queue, wrong direction, counting, classification and traffic status with gap, headway at minimum for a particular stretch of at least 200 mtrs. • The sensor should also provide driving behaviour & speed changes which may indicate possibility for incidents. • Minimum refresh time for quick information processing and action. • The system shall negate any interference from the environment, other metal bodies or any other object for accurate reading.

8.2. Automatic Number Plate Recognition System

MMVD envisage to setup Automatic Number Plate Recognition system to read vehicle registration plates. ANPR system shall enable monitoring of vehicle flow at strategic locations on the highways, help identify vehicle in case of any incident, violation or otherwise.

Business Requirements	• ANPR system is required to identify a vehicle for any specific purpose. • System shall support real-time detection of registration plate of a vehicle at deployed locations and looking up database from the central server (ITMS database & Vahan Database) and triggering alerts based on SOP defined at very high speed as well, as defined in the SLAs. • ANPR system shall cover at least 1 lane having width of min 3.5 meters
Functional Requirements	• The automatic number plate recognition Software may be part of the supplied system, or can be provided separately as add on module to be integrated with other systems including violation detection.

	• Accuracy of ANPR for both day and night time, for standard and non-standard plates shall be as per technical specifications and the SLAs defined in the RFP. • The accuracy of ANPR should not vary on the basis of the type of plate, height of plate, nature of plate etc. • **The linking / matching of images** would not depend on ANPR data but would be based on plate matching so that all types of vehicles, irrespective of nature of plate captured and coupled without dependencies on plate type and colour, varying contrast, characters, number, broken plate, Dirty/disfigured registration plate, language of plate, Double row plate etc. • The system shall be robust to variation in registration plates in terms of font, size, contrast and colour and should work with good accuracy. • All ANPR system should be able to capture both "Retro reflective" and "Non-reflective" type of registration plates found commonly in India. • The ANPR system shall be able to capture the registration plate and convert them into alphanumeric text. • Registration plate of all vehicles irrespective of class of vehicle like cars, buses / HMVs etc. should be readable automatically by the software. Provide role-based UI for simultaneous manual authentication, correction & saving for MVIs & other MMVD officials. • ANPR system shall provide an option of searching registration plates almost matching with the specific number entered from the database. • Ability to provide illumination for night-time scenarios using IR illuminators or any other technologies for registration plate to be captured with very high accuracy. • Ability to input certain registration plates according to the black-listed categories like "Wanted", "Suspicious", "Stolen", "Retrieved" etc. by authorized personnel and generate automatic alert at the CCC for the operator for further action, in the event of detection of any such vehicle. • Ability to generate automatic alarm to alert the CCC on successful recognition of registration plates on the basis of pre-defined rules. • System shall capture all vehicles passing through the installed location. All vehicle images and numbers are kept in database for real time alerts / search for crime analysis. Vehicle images should be captured even if the registration plate is not automatically detected, (Eg.: damaged / unreadable registration plates or even absence of registration plates)
ANPR Accuracy	• It is the percentage of total number of vehicle registration plates automatically captured and recognized without any character errors by ANPR system (X), against the total number of vehicles passing (Y). • ANPR Accuracy = (X / Y) * 100 • ANPR accuracy should be maintained for English language, for standard and non-standard number plates, irrespective of vehicle registration plate's orientation & size, font type & font size, speed of the vehicle (within the defined requirements) • Minimum ANPR Accuracy: Day and Night Time: 95%+

8.3. Automatic Vehicle Counter and Classifier System

The system shall provide real-time data for the traffic flow on the highway with details like vehicle count and classification, queue length etc.

Business Requirements	• All the vehicles passing through the specified points are required to be counted and classified as per the type of the vehicle. • AVCC shall provide real time information of traffic to help in planning resource allocations based on traffic status and possible forecast. • The data should be collected and stored and should be available to authorities to compare them with present data or help in forecasting of traffic helping in better management of the Highway. • The system shall be able to detect height, width, length and number of axle of the vehicle along with other classification details.
Functional Requirements	• The AVCC shall be able to do the profiling of vehicles for counting, classification, traffic status, height of each vehicle, gap between the vehicles, headway etc. and even detect speed • System shall be able to define at least 5 different class of vehicle (Light Motor Vehicle – Car, Heavy Motor Vehicle Truck, Light and Medium Vehicle Truck, Bus, Two-Wheeler etc.) as per defined parameter. • The system should provide vehicle count, class and other information to be used for ITMS viz. Transit id, direction, classification, counting, height, occupation time, headway time, and average speed. • It is essential that the system provide classification based on Indian requirement and be able to differentiate between buses and trucks, and also classify nonstandard vehicles or new classes of vehicles which are allowed or not allowed to ply on a said stretch of highway as applicable. • Shall be able to detect over dimensional vehicle and count it separately. • The AVCC system shall also be able to provide over-height detection and Over Dimensional Cargo (ODC) with very high accuracy (more than 95%) in order to avoid infrastructure losses. • The AVCC system shall be able to provide classification with high accuracy and also provide information to be used by CCC for traffic planning and information management, viz. classification, counting, traffic status, gap, headway, height of each transit, etc.
AVCC Accuracy	• More than 95% vehicle class detection, counting and classification accurately for 100% of the total vehicles passed as applicable.

8.4. Infrared Illuminators

Business Requirements	• ITMS system shall be capable to capture video and images with high clarity even at the night-time and during low light & visibility condition • The ANPR system also shall be capable to clearly detect the registration plate of a vehicle with same accuracy even in the night-time, low light and low visibility conditions.
Functional Requirements	• The IR Illuminators shall be coupled with all the CCTV video cameras inbuilt or externally, for indoor and outdoor both to capture clear images of the vehicle, object, people etc. even during the night-time. • The system shall be capable of switching IR illuminators on / off automatically depending on the light conditions, as well as manually directly controlled from the CCC and even from the IR device itself. • It may be affixed with white LED flash of low intensity to influence the driver behaviour, however not to dazzle the driver. • The IR at certain location shall be required for longer range and the same shall be sole responsibility of MSI as directed by MMVD.

9. Supporting Infrastructure

9.1. Hosting and Storage

a. For the ITMS project on, the system is proposed to be hosted in hybrid mode.

b. **Data Center at CCC:** The DC may consist of Smart Racks with necessary power, power backup, air conditioning, network connectivity, access control etc. These Racks can equip network components, security components, servers and storage of appropriate capacity as per minimum specifications defined in the RFP. DC shall be equipped to capture, store and process necessary inputs from the field components and shall be connected to the CCC. It shall have necessary software license to analyze and store the required video feeds and other sensor output as per RFP requirement. Such information may include violation and / or incident data, and other on-demand video feeds as required by MMVD from time to time. The system shall be capable of providing necessary storage and compute to stream video feeds on demand basis from the field components for live view, and / or recorded view of videos tagged as incident and / or violation etc.

c. **Disaster Recovery Center S**hall be Cloud based and shall be connected to all the field components through the on-premise DC. The DR The MSI shall propose appropriate Hosting Architecture keeping in view the project requirement and optimum solution.

d. The Successful Bidder (MSI) shall be required to host all the data including all the applications, video feeds, security applications and all other data, including storage, processing etc. on the data center established on-premise at the CCC. The MSI shall also provide for DR with one of the MeitY Empaneled Cloud Service Providers whose services are STQC audited. The empanelment of such CSP should be valid throughout the contract period, else MSI shall be required to switch to another MeitY empaneled CSP at no extra cost to MMVD.

e. Payment to the Cloud Service Provider (CSP) shall be directly done by the MSI.

f. All the Bidders are required to estimate the sizing requirements for hosting in all respects for DC as well as Cloud DR.

g. The Bidder must consider the size of the application, quality of the video, number of days the video is required to be stored, data from other sensors and components, computing requirements for ANPR, video management along with all the other applications and systems while arriving at the sizing requirements. Bidders shall independently estimate calculation of the camera storage and bandwidth requirement and computing hardware requirement such as management servers, recording servers, enterprise servers etc., considering the analytics to be performed at Local / Edge level, or at DC level. Bidders shall submit their respective rationale, vetted by the camera and other respective OEMs, for the said calculations as a part of Technical Proposal. The bidder & the OEM shall justify the rationale in the "Technical Solution Proposed Document" as per clause 13.4.6 under "Instructions to Bidders".

h. The entire responsibility of hosting shall be with the MSI.

i. The Cloud Service Provider would be required to agree to additional terms and conditions, reporting requirements, SLAs etc. as may be required and defined in the tender document.

j. The MSI shall also ensure to adhere to the SLAs of the Project.

k. The MSI may be required to sign tripartite agreement between MMVD, the MSI and the Cloud Service Provider if directed by MMVD. However, MSI shall be the sole responsible agency for all claims arising from the liabilities statutory or otherwise, concerning the sub-contractors with respect to hosting, storage etc. The MSI shall be required to undertake to indemnify MMVD or its nominated agencies from any claims.

l. The storage, computing and network etc. needs to be scalable with a provision to add it on the fly. MSI shall submit usage details of all the components on quarterly basis to the MMVD.

m. The hardware and software components configured for the computing and data processing systems must support latest computing standards for security, multicore architecture, parallel processing, distributed computing, and fast real-time processing.

n. The proposed hosting solution must adhere to all regulatory and security standards with for hosting Government services as directed in the guidelines of Government of India (GoI) and Government of Maharashtra (GoM).

o. **All software licenses required for entire hosting infrastructure arrangements shall be perpetual and should be procured on the name of MMVD.** All software updates and patches shall be sole responsibility of the MSI.

9.1.1. Data Center and Data Recovery Center

a. The DR shall be in different seismic zone in India only.

b. Cloud services should be accessible via internet and MPLS at CCC as well as any other workstations outside CCC with valid login credentials.

c. Both DC and DR shall be dynamically scalable to deploy virtual servers, push configuration and monitoring policies, with no impact on existing data, applications, and storage.

d. The entire system shall have dynamic load balancing capability.

e. **All the hardware and configuration at DR site shall be at least 100% of the DC (all Highways combined) with respect to compute and minimum 75% with respect to storage**. However, the MSI shall ensure that all modules are up and ensure SLA compliance and RPO and RTO as per requirements.

f. The Hosting Infra shall be highly secure, have high availability hosting ITMS applications, data, and storage. DC shall have built-in redundancy mechanisms for high availability.

g. MMVD shall have secured and seamless access to data, applications, services, and storage.

h. MSI shall provide adequate backup mechanism (power, bandwidth, application, data) in DC and DR so as to maintain the defined SLAs.

i. The bandwidth at the DC and DR shall be scalable as per requirement of the ITMS project.

j. DR shall have separate fault line as DC, to ensure continuity of operations in event of primary DC failure.

k. The DR capabilities shall be sporadically and periodically validated during project implementation to ensure apt DC to DR interoperability.

l. **The project envisages to analyse all the videos at the local / edge level, and only replicate processed data along with meta data, evidence photo and video feeds as per requirement defined in the RFP for incident, violation and any other tagged data. The RFP does not envisage any replication of general video feeds unless it is specifically requested for on-demand by any operator or any other ITMS user.**

m. MSI shall ensure the incremental backups shall be taken daily and full back ups shall be taken weekly from DC to Cloud DR..

n. The Composite Service Availability shall be as per the defined SLAs. In case of disaster, when DR is operational, RTO shall be Maximum 1 hours and RPO shall be Maximum 15 minutes. MSI shall propose any change in the suggested RPO and RTO as a part of technical solution, to which MMVD may approve if found reasonable. The period for full backup shall be proposed by the MSI which shall be as approved by the MMVD. Retention Policy shall be as defined in the RFP document and may change from time to time as per requirement of the MMVD. MSI shall make the provisioning of replication of data from DC to DR.

o. The application environment shall be installed and ready for use. Database Storage shall be replicated on an ongoing basis and shall be available in full as per designed RTO / RPO and replication strategy.

p. All applications including Video Management, , CCC, SLA Management etc. shall be required to have standard availability in the DC as well as Cloud DR, in an active – passive arrangement. This is to ensure that all the applications are available as per SLA requirement.

q. If the separate licenses required for different Highways and for Data Center and Disaster Recovery Center for any applications so as to maintain the SLA requirements and smooth functioning of the project, it shall also be sole responsibility of the MSI at no extra cost to MMVD.

r. **The MSI shall be required to submit a detailed plan for hosting infrastructure to MMVD as part of Project Plan. The MSI shall ensure the proposed plan ensures that the project requirements are met and the SLA is also maintained. Any recommendations of MMVD shall be strictly adhered to, at no extra cost to MMVD.**

s. In event of a site failover or switchover:
   o The DR shall take over the active role, and all requests shall be routed through that site. Application data and application states shall be replicated between DC and DR so that when an outage occurs, failover to the surviving data centre can be accomplished within agreed RTO / RPO.
   o The installed application instance and the database shall be usable and the same SLAs as DC shall be considered.
   o Route traffic seamlessly to the redundant DC and DR.

t. **The MSI shall deploy solution to point out precise replication details such as which server and which volume has how much data changes in a day, week, month, year etc. and also how much bandwidth is being consumed.**

9.1.2. DR Drill

a. DR drill shall happen at the time of final Go-Live and shall be an acceptance criterion.

b. Post that a drill shall happen once every quarter, manageable from centralised location, preferably CCC. The report for the same shall be shared by MSI to MMVD.

c. Drill shall ensure that in case of a disaster, a smooth and proper transition happens from Primary to DR within RTO / RPO timelines.

d. **Following parameters shall be looked into & maintained during a Drill:**
   o The transition time between Primary to Redundant shift is maintained as per the RTO.
   o If DR is on low compute, it should be scaled to full compute within the RTO timelines.
   o The network connectivity and traffic re-routing is taken care with in the RTO timelines.
   o The data loss is within the define RPO.
   o Period of drill shall as per pre-decided time by MMVD, not less than 3 days.

e. MMVD may engage any 3rd party Audit firm for independent audit tests and security certifications at its own discretion. MSI shall ensure that reasonable access is provided to 3rd Party Auditor for conducting such audits/compliance on approval from MMVD.

9.1.3. Storage

Business Requirements	• The proposed Storage Management Solution shall enable the MSI and MMVD to manage all storage related activities, updates, alterations, dynamic allocations, backup, etc. virtually, from the CCC. • All the meta data at the DC shall be permanent for the entire project period. • The system shall store video feeds (before and after incident feeds) and data from all deployed cameras and other system as described below:		
	Sr	**Type of demand**	**Video Feeds at LPU / Edge**	**Video Feeds at DC**
	a)	General Surveillance Video – 24 x 7 video from all Cameras and systems	15 days	NA
	b)	All Incident feed (30 Seconds before and after incident)	30 days	Until deleted at DC / Permanent

		Tagged Incident feed (30 Seconds before and after incident)	30 days	Until deleted at DC / Permanent
	c)			
	d)	Violation evidence (30 Seconds before and after violation)	30 days	Until deleted at DC / Permanent
	e)	Tagged Violation evidence (30 Seconds before and after violation)	Until deleted at Central Hosting Infra	Until deleted at DC / Permanent
Functional Requirements	• Centralized monitoring and management of storage resources, storage status, configuration management, and performance reporting on a single centralized interface. • Vendor independent and industry recognized open data standards. • Highly scalable to dynamically accommodate storage requirements. • MSI shall ensure available racks at DC for scalability. • Ability to auto configure storage based on industry best practices. • Storage consumption reports and patterns, by various users, devices and subsystems, for capacity planning. • Ability to put constraints on storage limits for users and user groups • Logical Unit Number (LUN) management. • Detect & report configuration changes and threshold violations. • Auto archiving facility. • Provision for auto recovery of data in case there is a system failure.			

9.1.4. Server

a. The architecture shall accommodate requirements for State-of-the-art database & application workloads. Architectural design points shall emphasize server elements such as Reliability, Availability and Serviceability (RAS), virtualization of resources, scalability of resources, overall system and I/O performance and investment protection over the life cycle of the data and applications.

b. RAS capabilities, including redundancy (including power redundancy), fault isolation, online maintenance and upgrades, and the health monitoring, detection and self-healing of server failure conditions etc. shall be ensured.

c. The MSI shall design proper VLAN for physical or virtual server for different purpose such as authentication servers, database servers, file servers, DHCP servers, Video Management Server, Video Recording Server, Web Server, Log Server etc. as per requirements.

9.1.5. Backup Management

MSI shall install necessary infrastructure and required backup tool to take restorable backup of all the applications and data.

Backup services shall include but not limited to:
a. The installation, connection and configuration of the Backup infrastructure such as SAN and SAN Switch system, Tape Library & backup Software, Backup of operating system, database, and application as per requirements.
b. The development of a detailed Backup Build Specification and Test Procedures Plan
c. **MSI will be expected to work jointly with MMVD & its designated agency to:**
   i. Approve Business Continuity Plan (BCP) and backup plan, own storage of backup media and provide authorization of all activities in time.
   ii. Approve policy for configuration on Firewall (Rules creation, filtering and opening of required ports) and access rights for users at all levels.

d. Document, maintain, update and execute approved file and back-up and recovery procedures.

e. Monitoring and enhancement of the performance of scheduled backups, scheduled regular testing of backups and ensuring adherence to related retention policies.

f. Ensuring prompt execution of on-demand backups of volumes, files and database applications whenever required by MMVD or in case of upgrades and configuration changes to the system.

g. Real-time monitoring, log maintenance and reporting of backup status on a regular basis. Prompt problem resolution in case of failures in the backup processes.

h. The backup process should encrypt the backup and store them securely.

i. For every backup, a pre backup test should be used to ensure higher rate of success for the backup.

a. **The backup process should use incremental backup and a full back as per approved plan and policy ensuring faster backup & restoration without compromising on the availability of the backup data.**

b. Initiate and complete required data processing activities concerning data integrity of all processed files.

c. Conduct regular back-up and recovery procedures as agreed in the SOP document designed by MSI and approved by MMVD.

d. The backup software should support different types of backup such as full back up, incremental back up, differential back up, selective back up, point in time back up and progressive incremental back up and snapshots.

9.1.6. Database Administration and Management Services

a. Provisioning of the Data Administration and Management Services will serve as a central platform for all data related activities including data management, aggregation, normalization, and abstraction.

b. There shall be single Data Administration and Management Services even in case of hybrid setup of Hosting Infrastructure.

c. The system shall enable MSI for monitoring and reporting the performance of the database and recommend modifications to improve the database performance.

d. The MSI shall suggest, maintain and implement database backup procedures to recover from a database outage or corrupted databases within time frames specified in the Implementation and Operations Plan Document.

e. The MSI shall manage end-to-end database on an ongoing basis to ensure smooth functioning, including changes to database schema, disk space, storage, user roles.

f. MSI shall be responsible for conducting code and configuration reviews for tuning inputs in order to improve the application performance or resolve bottlenecks if any.

g. The MSI shall be responsible for performance monitoring and tuning of the databases on a regular basis including, preventive maintenance of the database as required. The system shall auto-detect database problems and auto fine tune them to ensure high performance.

h. MSI shall be responsible for management of database upgrade or patch upgrade within 15 days of availability from the OEM with minimal downtime. The MSI shall inform the MMVD about the same before updation.

i. MSI shall be responsible for implementing the database encryption solution in high availability mode in DC and Standalone mode in DR to ensure data security.

j. The data security shall be sole responsibility of the MSI.

k. **The system shall**
   o Optimize performance by identifying resource intensive procedures, generate alerts and take necessary action
   o Monitor key operational activities to identify and report any anomalous behaviour
   o Monitor and frequently generate reports for industry standard KPIs (throughput, CPU utilization, availability of database, daily workload, service fulfilment time)

- o Aggregate and store data from all the filed components, network components, and front end applications
- o Normalize data that is collected from various sources for utilization for computation
- o Abstract the data in a way that it can be leveraged simultaneously by multiple software integration components.
- o Be able to handle large volumes of data without resulting in undue delay
- o Be able to perform fact based and detailed analysis of various data elements based on historical trends.
- o Be able to generate dynamic reports based on pre-set queries and also be able to generate dynamic reports based on various user defined query parameters. Shall have a highly customizable, powerful reporting engine to create batches for large reports
- o Adhere to latest industry standards related to data privacy and maintain confidentiality of MMVD data as well as Commuters data.

9.1.7. Hosting Infrastructure Monitoring Dashboard

Business Requirements	- MSI shall provide a dashboard view of the entire hosting infrastructure for ITMS project for virtually monitoring and managing all the project related activities at DC and Cloud DR, inclusive of hardware, application, data, bandwidth, manage hosting services, storage etc., directly from the Command and Control Center. - There shall be single Hosting Infrastructure Monitoring Dashboard even in case of hybrid setup of Hosting Infrastructure. Any necessary integration shall be sole responsibility of the MSI. - System shall provide browser and OS independent console and web interface. - System shall provide stringent role-based security model to allow only authorized users to access and administer the system.
Functional Requirements	- Shall provide ability to monitor, manage, control and report performance of project servers and storage - Shall have single dashboard to track entire Hosting Infra and status of all the applications. The system shall be capable of reporting important health parameters like disk space, password changes, file addition/deletion etc. - Shall have storage consumption reports and patterns, by various users, devices and subsystems, for capacity planning. - Shall have virtual server dashboard to monitor and manage capacity of server, utilization, devices and services running on server - Shall allow for easy deployment of servers, operating systems, application and services for integrating and managing such components collectively. - Shall provide rack-view monitoring for power consumption, capacity, services deployed, servers up, down and in critical state - Shall automatically act on policy deployments, pre-configurations, and pre-defined SOPs - Shall provide root cause analysis in case of failures - Shall generate real-time alerts and automatically log incidents. **Should raise alerts whenever** - The RPO / RTO deviates - There is a failure in the DR process - Replication fails that stops replication

	• Shall be able to generate automatic and manual notifications, alerts and reports based on performance to the concerned operators/ individuals
	• The system shall also support reports for any additional servers, storage etc. being deployed at CCC or elsewhere as per requirement and directions from MMVD.
	• Any additional feature with respect to monitoring services that may be required during the project tenure shall be developed / deployed by the MSI as directed by MMVD from time to time at no extra cost.

9.2. Network and Bandwidth

a. The entire ITMS system shall be inter-connected through a communication network consisting of the Ethernet, Wi-Fi, Fiber, GPRS, high speed 4G / 5G or equivalent networks in combination as per requirements. The system shall be 5G ready and compatible with necessary 5G supported equipment for future integration.

b. The MSI shall provide for 5G enabled SDWAN at each project location with Primary and Redundant 4G / 5G connection through TRAI approved Internet service providers (ISPs) as per project requirement and to meet minimum specifications and the SLAs mentioned in the RFP.

c. MSI is expected to do the site surveys and estimate for the network requirement for each location, existing network provisions available and last mile infrastructure and propose suitable network design architecture and network service provider. MSI shall submit plan for the same as part of Technical Solution Proposed as per clause 13.4.6 under "Instructions to Bidders."

d. MSI may propose to use ILL / MPLS / Broadband connection at certain locations wherever reliable wired network is available, including that for Toll Plaza, Porta Cabin and CCC. The MSI shall submit the plan to MMVD, and commence the work in this regard only after written approval from MMVD.

e. Network with appropriate redundancy to maintain the SLA shall be sole responsibility of the MSI. It is upto MSI to select the service provider, and the network arrangements.

f. Recurring charges, if any, for the Network connectivity taken on lease or as a service or maintenance of such infrastructure shall be sole responsibility of the MSI throughout the duration of the project including O&M.

g. For laying any fibre cable wherever required on the highway, MSI shall be required to seek permission for RoW etc. from the MMVD (and NHAI as per requirement) and other relevant authorities. The MSI shall provide details regarding same based on the Survey as per format required by MMVD and NHAI. RI shall be sole responsibility of the MSI. The cost towards RoW permission and entire RI will be sole responsibility of MSI.

h. MSI shall prepare the network connectivity plan, bandwidth requirement plan, plan for deployment of network equipment at the various nodes.. The network architecture proposed should be scalable and in adherence to network security standards.

i. MSI shall have back-to-back arrangement with any service provider from where MSI may have taken the network on lease or as a service. MSI shall be solely responsible to maintain the SLAs with regards to the same.

Business Requirements	• The communications network shall be capable of handling the network traffic that would be produced by field devices including video cameras and other sensors, in a way that enables a seamless cooperation with the rest of the Intelligent Traffic Management Systems. • Networking requirements shall also include the LAN creation at CCC and on-premises Hosting infrastructure. • MSI shall carry out break fix maintenance of the LAN cabling, passive components, routers, switches including any civil work if required. • Network shall act as a backbone of the ITMS project, hence MSI shall ensure a guaranteed bandwidth / connectivity for the entire system which is secure, fast, robust, reliable and scalable network connectivity. • **MSI shall provide two connectivity service, Primary and Secondary (through 5G/ 4G GSM Technology) from two different Internet / Telecom Service Providers to ensure redundancy at each project site.** Each of the field component including all camera, other sensors and edge device, DC, CCC, Cloud DR and all other nodes shall be connected with two connectivity.

	• MSI shall ensure that the failover to the redundant network connectivity is undertaken immediately and seamlessly without any data loss. • As the information generated each moment is important, the packet loss should be minimum. The network system shall be with minimum latency, jitter and Packet Loss, with maximum performance. • MSI shall ensure that the network is available 24x7x365 as per SLAs. • The MSI support and maintain the overall network infrastructure service across all locations for the entire ITMS project. • The actual network and bandwidth requirement to cater the ITMS project and to meet SLAs would be calculated by the MSI and the same shall be clearly proposed in the technical bid with detailed calculations.
Functional Requirements	• The network shall be configured to support industry leading communication and open data standards and shall conform to latest industry standards for design, implementation, and connectivity. • The system shall be designed to create and modify VLAN, assignment of ports to appropriate applications, devices and segmentation of traffic between CCC, DC/DR and Field Components etc. • The network configuration platform shall be modular and scalable to allow multiple types of networks to be implemented on the same platform. The solution should also consider providing redundancy. The system shall be designed in a manner to allow change / upgrade the components of the ITMS without much required change in the existing network infrastructure. • The system shall enable monitoring of the network 24x7x365 to spot the problems immediately and alert the CCC so as to meet the desired SLAs. The MSI shall attend to and resolve network failures and snags. • System shall provide necessary protocols for traffic management. • The network system shall be scalable to accommodate future / advanced technological integration.**.** • The architecture should be capable of managing heterogeneous data which would be continuously communicated through numerous devices following different protocols. MSI shall use appropriate protocols in order to ensure that the flow of data between devices does not run into latency issues.

9.2.1. Bandwidth

a. All the field components, DC, Command and Control Center, Cloud DR and any other component, shall all be connected to the network irrespective of the geographic location. The bandwidth shall be designed by the MSI to meet the requirements as per the local requirements as well as central requirements.

b. The MSI shall consider output from all the cameras, sensors etc. as well as CCC, DC-DR etc. and video compression as per compression technology, edge based / LPU based video analytics, and live / recorded on-demand view of the video feeds as defined in the RFP for calculating the minimum traffic for bandwidth requirement calculations.

c.

d. **The actual bandwidth requirement to cater the above mentioned bandwidth parameters and to meet SLAs would be calculated by the MSI and the same shall be clearly proposed in the technical proposal with detail calculations.**

e. MSI shall be responsible to ensure monitoring and adherence to all SLAs for bandwidth services by the ISP / Telecom Service Provider as per defined service Level Agreements (SLAs) in this RFP. If any upward revision required in the bandwidth anytime during the project period, shall be sole responsibility of the MSI. MSI shall be adhere to directions from the MMVD from time to time.

9.2.2. Network and Security Management Solution (NSMS)

Business Requirements	• The NSMS shall address the complete network management of ITMS Project. It shall monitor and report, performance, utilization, status, vulnerabilities and failures in the network in real time. • It shall also monitor and manage network security, access control and policy, security breaches, detect and prevent any attacks on network. • The NSMS shall seamlessly integrate with and monitor network devices and field components deployed. • The NSMS shall be able to provide information on performance of Network segments, including capacity utilization and error statistics for the segment and the top-contributing hosts. • The NSMS comprises of network hardware and software components. • System shall cover entire network and all active ITMS components including Field Components, at Porta Cabin, DC, Cloud DC, CCC etc.
Functional Requirements	• Shall run continuously at a low overhead, to monitor all the network components and discover any new devices or components. • Support industry standard discovery and communication protocols. • Shall provide topology in a single view, preferably even on the GIS • Shall be able to work in a distributed environment. • Shall support application-based failover, over the network infrastructure by rerouting network traffic. • Shall have support for SNMPv3 and IPv6 or above, including dual stack IPv4 and IPv6 or above. • Shall have capacity for upward and downward compatibility. • Shall be able to provide performance monitoring of physical network and assets (devices, sensors and equipment of Field Layer) per upper and lower threshold values as defined by MSI to meet the SLAs. • Shall detect and report compliance violations, changes, failures arising from network hardware, software configuration changes. • Shall monitor and report network latency, packet drop, jitters etc. • Shall monitor all network device bandwidth, data transfer volume etc. • Shall monitor trace route of AP node and wired network etc. Shall have provision to take snapshots of trace route at set interval(s). • Shall support rollback of device configuration changes, software upgrades and point patches across all network devices. • Communication between NSMS and field level network infrastructure must be controlled, secure, based on standard communication protocols, and support acknowledgement from field level network infra • Shall immediately discover and determine the impact of any node, port, and device failure. • Shall be able to detect and prevent intrusions, security failures, rogue local hot-spot creation by device, unauthorized access • Shall perform self-diagnostic to identify any malware or Trojans injected in the network • Shall support dynamic provisioning of devices through virtualization. • Shall constantly monitor and report Quality of Service (QoS) (throughput, error rates, bandwidth, jitter, availability, etc.)

	• Shall provide highly customizable and dynamic reporting module for capturing and analysing data collected from the entire network. • Reports shall be generated to be viewed and mailed directly in .txt, .csv, or .pdf formats from the solution.

9.3. Security Infrastructure and IT Audit

a. The MSI shall design the entire system to ensure that the system, data, application, all hardware, software, database, network component and everything else that comprises the ITMS system, are secured from internal as well as external vulnerabilities.

b. MSI shall implement the latest, industry and Government of India (GOI) agencies like MeitY, ISO, IEEE, EAL and DIT approved standards, strong, reliable, state of the art, security software(s) that shall monitor and manage the security of the entire system.

c. The security system shall be able to detect, withstand, and prevent any strong attacks and threats to the ITMS system.

d. Systems like access management system, security of physical and digital assets, data and network security, backup and recovery etc. shall be implemented.

e. Data security, audit controls and integrity must be ensured across the data life cycle management from creation, accessed, viewed, updated and when deleted (or inactivated).

f. MSI shall also deploy solutions with self-healing and self-diagnostic capabilities. The system shall self-learn and update benchmarking configurations for security based upon historic reports on various parameters of attacks, health, performance, security.

g. The system shall be able to detect anomalies in functioning of system and immediately generate alerts.

h. The MSI shall build defenses against possible security vulnerabilities and threats, allowing errors to be corrected and system misuse to be minimized.

i. MSI shall ensure to have relevant systems and checks in place to protect data, application, network and all other components under this project against unauthorized access, denial of service (DDoS) and remediation, both intentional and accidental modification, rouge SSID / rouge code detection etc.

j. The following should be implemented including proper patches and rules for the ITMS Project including data center and DR:
   o Authentication modules, Web Single Sign-on, Centralized Identity and Access Management System.
   o Behavioral Analysis Systems for Anomaly Detection
   o Correlation Engine
   o Denial of Service Prevention System
   o Enterprise Firewall (Next Generation Firewall) and Web Application Firewalls to prevent threats related to Cross-Site Scripting (XSS) and (Structured Query Language) SQL injection.
   o Intrusion Detection & Intrusion Prevention Systems on the perimeter, key points of the network and host IDS to critical systems etc.
   o Advanced Persistent Threat notification mechanism,
   o Virus protection and vulnerability protection for all workstations and servers etc.
   o Encrypted communication channels, virtual tunneling
   o Malware detection and prevention capabilities,
   o Lockdown Capabilities: Isolate the security breaches and attacks, if any, from other system components and not let the threat spread in the system, independently handling resolution.
   o Content filtering and blocking to prevent threats from compromised websites to help identify and block potentially risky web pages.

9.3.1. IT System Security Requirements

While designing the ITMS system, the MSI shall take into consideration the following requirements of the IT Security System points:

Field Component Security Requirements	• Authentication of sensors and cameras should happen at the time of provisioning and adding them into the system. It should be based on physical characteristics of the sensors and cameras like MAC ID, Device ID etc. • Field Components and other sensors deployed in solutions to set up ITMS should be hardened devices with the ability to be upgraded remotely for firmware through encrypted image files with authentication mechanism. • System shall ensure that once recorded, video shall not be altered or tampered, ensuring that the audit trail is intact for evidential purposes.
Data Exchange Requirements	• Architecture of information Technology systems deployed ITMS project need to be open, interoperable and scalable. • All data communications taking place within the network need to be AES (128 bit) encrypted and SSL authenticated or higher, so that any unauthorized access to video data can be prevented. • The message exchange between various applications in the System should be fully encrypted and authenticated. Any external application should talk to the system only through predefined secured APIs. • Shall monitor, manage and authenticate every incoming and outgoing communication to and from the ITMS system. • Adequate security checks and mechanisms like authentication and encryption mechanism to be deployed for data exchange between various sensors, cameras, controllers and their management applications to protect data confidentiality breach and unauthorized access.
Network Security Requirements	• All information that flows on the network should be encrypted to ensure safety and privacy of confidential data. • The devices at each endpoint of the network should be authenticated (using mechanisms based on attributes like passwords etc.) • The authentication system so used on these endpoint devices should ensure that only authorized users are sending data over the network, and there is no rogue data that is sent to the control systems to generate false alarms or sabotage the systems. • All components deployed as part of ITMS systems should talk only to the authorized wired or wireless network, and do not hook on to rogue networks. MSI shall be responsible to configure any wireless network installed in the project. The wireless network or any hardware shall not be accessible to external network. AAA authentication is also required for all network hardware, in case of wireless network being used. • Wireless layer of the Network may be segmented by using Virtual Private Networks (VPNs), Secure Shell (SSH), forced https, DNSSEC, or separate networks in the wired core, wherever required. • All traffic from the sensors to the application servers should be encrypted Secure Socket Layer (SSL) and authenticated prior to sending any information. • Provisioning of necessary authentication and encryption should happen at edge device level or for group of devices as required.

Network Security of Field Components Requirements	• The security for field components network should include the protection of the data and network connections between the nodes such as protection of fair access to communication channels, concealing of physical location of the nodes, defense against malicious resource consumption, denial of service, node capturing and node injection etc.
	• MSI shall define and implement counter measures for various types of security issues such as Radio Jamming, Nodes Reporting Wrong Data, Data Aggregation Attacks and Battery Attacks etc.
	• The following guidelines need to be considered for security enhancement of field components and their networks:
	  o Use of IP-based network
	  o All the access control & hardware control shall have secure and encrypted password based access.
	  o Protection of field component nodes behind a firewall for carrying out SSL-based application data transfer and mechanism to avoid distributed DoS attacks.
	  o Public-key-based authentication of individual devices to the network and provisioning them for secure communications.
	  o Conformance of the security solution to the standards of IETF, IEC and IEEE to ensure maximum security and interoperability, with support for the following commonly used protocols at a minimum IPSec/IKE, SSH and SSL/TLS.

Hosting Infra Security Requirements	• Applications hosted in the Hosting Infra shall support multi-tenancy with adequate authentication and role based access control mechanism. • The Hosting Infra should be segmented into multiple zones with each zone having a dedicated functionality e.g. all cameras for one operational domain can connect to one zone, and the internet facing side should be in another zone. • The Internet facing part should have a Demilitarized zone where all the public application servers would be located. Only these servers can access the data from the actual utility application servers on predefined ports. • The public application servers should be accessed only by the web server that is hosted in a different zone of the data center. • Shall be capable of detecting denial of service (DDoS) and remediation.
Database Security Requirements	• Adequate data security mechanism shall be in place by the usage of the database encryption and secured data back-up practice. • Data shall be restored without compromising its fidelity or integrity. • Database design must incorporate data integrity requirements.

Application-Level Security Requirements	• Role based access, encryption of user credentials
	• Domain level rights and privileges management
	• Prevent Vulnerabilities such as
	  o SQL Injection for attack on database
	  o XSS Vulnerabilities
	  o Security Misconfiguration
	  o Insecure Cryptographic Storage
	  o Failure to Restrict URL Access
	  o Insufficient Protection Vulnerabilities (enable SSL for all sensitive pages, set the secure flag on all sensitive cookies and secure backend connections)
	  o Id Redirects and Forwards etc.

	• Validation checks to be incorporated into the application to detect any corruption of information through processing errors or deliberate acts.
	• Data output from an application should be validated ensuring processing of stored information is correct and appropriate to the circumstances
	• Should implement secure error handling practices in the application
	• Secure Authentication and Session Management control functionality shall be provided through a Centralize Authentication and Session Management Controls
	• MSI shall also be responsible for the creation & maintenance of the directory server integrated with security modules like Authentication, Authorization & Auditing capabilities, OTP management.
Other Security Requirements	• Controls against SQL injection, command injection, input validation, cross site scripting, directory traversal, buffer overflows, resource exhaustion attacks etc. shall be considered.
	• OWASP Top 25 standard should be mapped in the secure coding guidelines to cover all major vulnerabilities.
	• The entire information Technology (IT) infrastructure deployed as part of ITMS should follow standards like – ISO 27000, ISO 22301, for Wi-Fi access – PEAP (Protected Extensible Authentication Protocol), 3rd Generation Partnership Project (3GPP), etc. as appropriate.
	• APIs should be published and the IT systems be running on standard protocols like JSON / XML or REST etc.
	• Ensure vendor compliance to remove any backdoors, BOT, undocumented and hard cored accounts.
	• Root domain administration by setting the root level security policies such as AAA, authentication mechanisms (single/multi factor), password policies such as password length, password complexity, password expiry, account lockout policy, certificate policies, IPSec policies etc. shall be implemented.
	• MSI shall deploy necessary firewall and other software and hardware to ensure the ITMS system security as per requirements.

9.3.2. Anti-virus Software

Business Requirements	• MSI shall install an Anti-Virus at all the end-point nodes of the entire system, at Data Centre and DR and shall be configurable remotely.
Functional Requirements	• Scan through several types of compression formats, ZIP, RAR compressed files and TAR archive files etc.
	• Perform different scan actions based on the virus type (Trojan/Worm, Joke, Hoax, Virus, other)
	• Scan for HTML, VBScript Viruses, malicious applets and ActiveX controls etc. Scan at least HTTP, FTP traffic (sending & receiving) in real time and protect against viruses, worms & Trojan horse attacks and other malicious code.
	• Capable to use multiple scan engines during the scanning process.
	• Support in-memory scanning so as to minimize Disk IO, Multi-threaded scanning, scanning of nested compressed files, heuristic scanning to allow rule-based detection of unknown viruses.
	• Capable of providing multiple layers of defense.
	• Facility to clean, delete and quarantine the virus affected files.

9.3.3. User Security and Monitoring

Data exchange should take data privacy and data protection into consideration. The MSI shall design the system to ensure industry standard security architecture are deployed that protect confidentiality, integrity and availability of information and services for all the stakeholders.

A strong authentication mechanism should be considered to protect unauthorized access to the ITMS applications. IP restrictions mechanism shall be considered.

- **Levels of Authentication**
  - o Applications handling sensitive data: at least one factor authentication.
  - o Applications handling highly sensitive data: at least two factor authentication, password with strong complexity rules and OTP which varies for each session.
  - o For Single Sign on: At least two factor authentication.
- **Authorization**
  - o Authorization of system users and groups shall be enforced by access controls.
  - o The system shall keep track of the various functions accessed by any users.

9.3.4. Audit Trail & Audit Log

a. All the Audit trails or audit logs shall be properly stored & archived for future analysis and forensics whenever desired. Log information is critical in identifying and tracking threats and compromises to the environment.
b. All the devices and software should be logged which include hardware & software based firewalls, web servers, authentication servers, central/domain controllers, database servers, mail servers, file servers, routers, DHCP servers etc., as applicable.
c. Audit Capabilities: The system shall provide for a system-wide audit control mechanism that works in conjunction with the Database Management System.
d. Maintaining Date/Time Stamp and User Id: Every transaction, with a date and time and User ID and IP address, shall be captured. The system shall allow generating various audit reports for verification.
e. Following activities and events shall be logged at minimum.
   i. Create, read, update and delete of confidential information;
   ii. User authentication and authorization activities in the system, granting, modification or revoking of user access rights;
  iii. Network or service configuration changes;
   iv. Application process start up, shutdown or restart, abort, failure or abnormal terminations, failure of network services;
    v. Detection of suspicious activities such as from Intrusion Detection and Prevention system, anti-virus, anti-spyware systems etc.

9.3.5. Maintenance and Updates

a. Solution shall support multiple remote installations even for field components.
b. The MSI shall design the system to update for virus definitions, program updates, patches, fixes etc. (automatic periodically and in push-updates in case of outbreaks) without bringing server off-line, remotely over internet.
c. MSI shall ensure security policies is maintained and updates to the same are made regularly.
d. MSI shall protect all the IT assets to prevent any known & unknown attacks by maintaining an updated knowledge base of all the published security vulnerabilities and virus threats.
e. MSI shall define process to tune, update, and monitor IDS information.
f. MSI shall ensure patches for identified vulnerabilities are patched/blocked immediately.
g. MSI shall respond to security breaches or other security incidents and coordinate with respective OEM/service provider in case of a new threat is observed to ensure that patch is made available.
h. MSI shall ensure OS security through appropriate configuration and patch updates.
i. Updates shall be capable of being rolled back, if required.

j. MSI shall plan system maintenance only in accordance with schedule pre-defined and approved by MMVD.
k. MSI shall obtain permission from MMVD / other stakeholders before making any changes and / or updates to the production environment.

9.3.6. Security Management and Monitoring

a. Deploy technology to actively monitor and manage perimeter and internal information security of all components of ITMS system and network remotely from CCC.
b. The security system shall be monitored at the CCC with auto alerts in cases such as attempt to gain unauthorized access and provide a facility to virtually isolate the system / solution in case of the breach from other layers of the system.
c. Establish processes for viewing logs and alerts which are critical to identify and track threats and compromises to the environment. The granularity and level of logging must be configured to meet the security management requirements.
d. Provide real-time product Performance Monitor and Built-in Debug and Diagnostic tools and context – sensitive help.
e. Appropriate teams may be set up to monitor cyber incidents and mitigation of same.
f. All the information on incidents be shared regularly with Indian Computer Emergency Response Team (CERT-In) and NCIPC (National Critical Information Infrastructure Protection Centre) and take help to mitigate and recover from the incidents.
g. The Network Security system shall seamlessly integrate with, and be able to monitor and manage, networking devices, equipment, components provided by the OEM
h. MSI shall provide a dashboard view with all critical metrics of security in a single consolidated window.
i. System shall be capable of recognizing network and other vulnerabilities and immediately send alerts to the CCC and dynamically fix them and send intimations to the CCC
j. Shall support various types of reporting formats such as CSV, HTML and text files.

9.3.7. IT system Audit

a. The MSI shall be responsible to perform comprehensive Application Security, IT Infrastructure Audit and Vulnerability Audit including review of Security Controls for the complete ITMS Project from a Cert-In empaneled agency or STQC third party auditor.
b. In case of any major changes in the system, MMVD may direct MSI to get the audit done again of such application or all applications from CERT-In empaneled agencies. MSI is bound to accept the same.
c. All "applications" and "apps" will undergo static and dynamic security testing before deployment and be tested with respect to security on regular basis at least once in a year.
d. The Audit shall be performed for all critical project components but not limited to all the software application, hardware, Mobile app etc.
e. The cost towards all the above audit shall be responsibility of the MSI.
f. Upon successful completion of the Audit, MSI is required to share the Audit Completion Certificate with adequate validity along with copies of all communication, written or otherwise, issues list, bug report, etc. and corrective / compliance measures taken by MSI taken thereof on the Audit observations.
g. The Audit shall be done in following Phases
    o   Implementation Phase: Prior to Go-Live
    o   O and M Phase: At the End of every O and M Year
h. MMVD reserves right to get the audit done by any other third party agency as it deem fit. MSI shall provide all the necessary access to the auditor as directed by the MMVD.

9.4. Electricity Supply and Power back up Requirements

a. All the field components, Porta Cabin components, and other equipment deployed at Command and Control Center, data center and DR etc. as a part of ITMS project should be power efficient.

b. **MSI shall ensure to provide primary power supply for the entire for ITMS project including all the field components, Porta Cabin, CCC etc.** All the necessary approvals and support for obtaining electricity connection shall be provided by MMVD.

c. All the field components shall be primarily powered through Solar Technology. All the necessary Solar Panels, Solar UPS, Batteries, necessary box and storage mounting arrangements, cabling, connections etc. to provide continuous 24 x 7 power supply to all the field components and to meet the SLA in this regard shall be sole responsibility of the MSI.

d. The UPS and Battery shall be able to provide the required power backup in case of low / no ambient sun light.

e. The cost of last mile connectivity to each of the component including LPU, SDWAN router, Camera, IR etc. shall be sole responsibility of the MSI.

f. MSI may opt for wired electricity connection from the Power Distribution Company at its own cost, wherever available. In case MSI proposes to use this as Primary Power Supply, the MSI shall propose the same to the MMVD, and commence the work only upon written approval from MMVD. In such case, MSI shall be responsible to clear payment dues to the electricity service provider from time to time to ensure continuity in the supply, throughout the contract period.

g. MSI shall be required to use Primary electricity provided by the Power Distribution Companies at all the Porta Cabin and CCC. MMVD (Government) shall make available the Primary power supply to the nearest possible location on the highway for Porta Cabin, Toll Plaza and at CCC. All the cost towards Last Mile Connectivity to Porta Cabin, Toll Plaza and CCC shall be sole responsibility of the MSI. All the recurring charges for the Porta Cabin, Toll Plaza and CCC shall be provided by MMVD. MSI shall be required to install sub-meter for each Porta Cabin, Toll Plaza and CCC location.

h. Cabling, earthing and all the equipment related to power supply, including installation and commissioning for all the field components, Porta Cabin, Toll Plaza components, CCC etc. shall be sole responsibility of the MSI.

i. Apart from primary supply, power backup such as UPS, DG Set etc., as specified in the tender document and as necessary to maintain the SLA requirement shall also be responsibility of the MSI.

j. The MSI shall submit the Plan for laying of all the cables required for the Project "**Cable Plan**", which shall be approved by the MMVD.

k. The surge arrestor shall be provided to protect all electrical, digital and data devices from voltage spikes, and the proposed surge arrestor shall meet IEC 61643-1 standards.

l. In case of power failure, the system shall be capable of automatically resuming operations once power resumes including LPU, SDWAN, Solar UPS, Camera and other sensors etc.

9.4.1. Specific Solar Power Requirements

a. MSI shall ensure installation of Solar Panel at each location with the surface area sufficient to meet the power requirement of all the components for 24 x7 backup, including during the no / less ambient sun light.

b. Presently, at different locations, as per ITMS solution requirements, Pole or Cantilever Pole or Gantries are proposed. The MSI shall be required to mount the Solar Panels on the same Pole / Cantilever / Gantry. MSI may propose to install cantilever in place of Pole, or Gantry in place of Pole / Cantilever in case required to mount the Solar Panels, such upgradation shall be at no extra cost to the MMVD, and only after written approval from the MMVD.

c. MSI shall ensure installation of sturdy Pole / Cantilever / Gantry to carry the weight of the Solar Panels and battery as per bidder solution and site requirements.

d. MSI may propose to install solar panels on the ground. In such case the RoW shall be sole responsibility of the MSI.

e. In either case, the security, safety from the natural wear and tear, road accidents etc. shall also be sole responsibility of the MSI. Any additional structure required for the same (eg. Porta Cabin) may be proposed by MSI. The required RoW / space for the same shall be sole responsibility of the MSI and shall install only after written approval from the MMVD.

f. The solar unit shall be designed as per the power requirements of components.

g. The Solar unit shall comply to MNRE and ROHS certification

h. Monocrystalline solar plates should be preferred for low sunlight conditions.

i. The MSI shall provide for necessary tool to capture the Solar Power generated, utilized, power consumption, and battery life. **The data shall be available at CCC for review and monitoring on continuous basis.**

j. However, MSI shall ensure the SLA requirement of the RFP shall be strictly adhered to.

9.4.2. Online UPS

Business Requirements	• All the field components shall be coupled with sufficient capacity (minimum as defined in the RFP) of the power backup through Solar Uninterrupted Power Supply. • MSI shall also install UPS at Porta Cabin for the necessary back up. To ensure that the power uptime at porta cabin is required to be 100% (24x7) without an exception. For complying with the same, the MSI may choose to install DG set, wherever required. • UPS sets shall also be required for all the components at Porta Cabin, DC and Command and Control Center. • UPS shall be installed for each set of systems for proper protection against power surges and ensure power stabilization to the equipment.
Functional Requirements	**UPS shall Protect components against:** • Power Failure by providing immediate backup power when the input power source fails • Voltage spike or sustained overvoltage • Momentary or sustained reduction in input voltage • Voltage sag • Noise, Harmonic distortion • Instability of the mains frequency

9.4.3. DG Set

a. The CCC shall have additional power back up in the form of Diesel Generator Set (DG Set)

b. The MSI shall ensure the DG set is always ready including the fuelling requirements for any unforeseen power failures at CCC.

c. Fuelling and Re-fuelling of the DG Set throughout the contract period shall be sole responsibility of MSI.

d. The power uptime at CCC is required to be 100% (24x7) without an exception.

e. The Technical Specifications of the DG set shall be as per defined in the RFP.

9.4.4. Junction Box

Business Requirements	• The junction box shall be sized at least 25% more than the actual requirements considering scalability to accommodate future requirements. • Wherever Solar UPS is to be installed, necessary changes in the Junction Box shall be also proposed by the MSI to ensure sufficient space and ventilation for the same. • The junction box should be designed in a way that, separate compartment will be available for separate system (i.e. ITMS Controller, Mini server, Active component, etc.). Each compartment shall have lock & key facility. There should be provision made to integrate the systems if required. • In addition, the junction box design shall be modular, and each component shall be well organized and clamped inside to ensure components do not heat up or fall out on opening. • The quantity of the Junction box mentioned in the RFP document is indicative. MSI may propose higher number of Junction Box as per requirement of the project at its own cost.
Functional Requirements	• Junction box shall be protected from dust, environment and other external factors, lockable / sealable with rack, and shall be installed appropriately sized for housing the power supply, Energy meter, power cable, earthing cable with chemical earthing strips, UPS (including isolations) & required communication equipment. • The electrical & the data cabling at the field location shall be done as per the relevant ISO/IEC guidelines for outdoor cabling. • The aim will be to protect the cable from Mechanical damages, Rodents, moisture ingress & Electronic Magnetic Induction (EMI). • All outdoor field equipment shall be suitable for outdoor use under harsh environmental conditions (including heavy monsoons, 95% relative humidity & corrosive environment).
ELCB Junction Box	• The MSI shall also be responsible for required Junction Box for Power components. • It is preferred if MSI proposed separate Junction box for Power and ELCB etc.

9.4.5. Cabling Infrastructure

a. The MSI shall provide standardized cabling (for electric power and network) for all devices and subsystems in the field and CCC.

b. All work under passive cabling shall be governed by a set of standards that specify wiring electric, data or voice communications, using category 5 (CAT 5E) category 6 cable (CAT 6), category 6A (CAT 6A) and category 7 (CAT 7) and modular sockets. All material used shall be conforming to relevant standard as per ISO.

c. The proposed cables shall meet the valid directives and standards (including BIS).

d. MSI shall ensure the installation of all necessary cables and connectors between the field components, junction box, solar panel, solar UPS and other equipment of system.

e. The MSI shall ensure that the cable layouts are neat and distinguishable. The termination of cables needs to be planned for future expansion of scope.

f. For pole mounted field components, the cables shall be preferred to be routed down the inside of the pole and through underground duct to the outstation cabinet. MSI shall submit details about pole (and gantry as applicable) and the cabling plan.

g. All cables shall be clearly labelled with indelible indications that can clearly be identified by maintenance personnel.

h. All cabling shall be documented in a Cable Plan by the MSI.
i. The MSI is required to follow the industry standards for any PVC Conduits and Wiring work to be carried out under the scope of setting up the CCC. The PVC conduits shall comply with I.E.E regulations and all materials used shall conform to relevant standard as per BIS and shall carry ISI mark.
j. All electrical components shall be design manufactured and tested in accordance with relevant Indian Standard IECSs.
k. Electrical components shall be of minimum standard ANSI TIA 568 C for all structured cabling components. OEM Certification and Warranty of 10-15 years as per standards.

9.4.6. Earthing System

a. All electrical components are to be earthen by connecting two earth tapes from the frame of the component ring and will be connected via several earth electrodes.
b. The cable arm will be earthen through the cable glands. The entire applicable IT infrastructure i.e. field components or command centre shall have adequate earthing. Further, earthing should be done as per Local – state – national standard in relevance with IS standard.
c. Earthing should be done for the entire power system and provisioning should be there to earth UPS systems, Power distribution units, AC units, etc. so as to avoid a ground differential. Necessary space required to prepare the earthing pits shall be sole responsibility of the MSI. MMVD may provide the space at CCC, Portal Cabin and Toll Plaza, however, otherwise the same shall be sole responsibility of the MSI. The details for the same shall be submitted by MSI in the Cable Plan.
d. All metallic objects on the premises that are likely to be energized by electric currents should be effectively grounded.
e. There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data.
f. The earth connections shall be properly made.
g. A complete copper mesh earthing grid needs to be installed for the server farm area, every rack needs to be connected to this earthing grid. A separate earthing pit needs to be in place for this copper mesh.
h. Provide separate Earthing pits for Servers, & UPS as per the standards.
i. The MSI shall follow required earthing standards (e.g. IS-3043) carrying ISI mark and ensure that pole/gantry and the edge level components are protected against lightning.

9.4.7. Lightning-proof measures
a. MSI shall comply with lightning-protection and anti –interference measures for system structure, equipment type selection, equipment earthing, power, signal cables laying. MSI shall describe planned lightning-protection and anti –interference measures Plan.
b. Corresponding lightning arrester shall be erected for the entrance cables of power line, video line, data transmission cables. All crates shall have firm, durable shell. Shell shall have dustproof, antifouling, waterproof function & should capable to bear certain mechanical external force. Signal separation of low and high frequency; equipment's protective field shall be connected with its own public equal power bodies; small size/equipment signal lightning arrester shall be erected before the earthling.
c. The Internal Surge Protection Device for Data Line Protection shall be selected as per zone of protection described in IEC 62305, 61643-11/12/21, 60364-4/5.
d. Data line protection shall be used for security system, server data path and other communication equipment.
e. Data line protection shall be installed as per zone defined in IEC 62305.

9.5. Pole, Cantilever and Gantry

a. All the field components of the ITMS project are required to be erected on the field on various stretches of the Highway.

b. Poles, Cantilever and Gantries have been proposed at multiple locations for erection of sensors and camera-based system on the highway. These field components are to be erected at certain height for optimum results.

c. MSI may propose to use Cantilever instead of Pole or Gantry instead of Cantilever or pole as per site requirement or for Solar Panel installation. MSI is advised to build the cost of the same during the Commercial Bid submission itself. MMVD shall not be making any additional payment for such change of Erection infrastructure.

d. In case of 6 lane Gantry, for LHS and RHS, as per site condition it may be necessary to split the same into 3 lane gantries separately for LHS & RHS and shift the same few meters as per site requirement. In such case, the same shall only be implemented after approval from MMVD and the distance should not be preferably more than 500 mtrs.

e. The cantilevers may be proposed at minimum locations if at all required. Any requirement of closing the lanes during the installation and Maintenance of the field components shall be avoided. Hence it is preferred to use Pole and Serviceable Gantry wherever possible.

f. MMVD will provide support for acquiring necessary permissions for erection of such infrastructure.

g. The poles, cantilever and gantries are required to be sturdy enough to withstand the extreme environment conditions and high wind speeds (as per **IS 875-Part 3**), and still carry the weight of Solar Panel without any damage or danger on the highway and protect the field components as well against the same for entire project period.

h. The MSI has to provide structural safety certificate from qualified structural engineers approved / certified by Govt. Agency.

i. Such structure shall be painted with one coat of primer and two coats of PU paint. MSI shall apply paints at least once each year as part of the maintenance, for the entire contract period.

j. Gantry (if proposed) erection should consider digging and other civil work, foundation, erection and refurbishing of the area. Gantry (if proposed) should be equipped with stairs for ease of maintenance without disrupting traffic.

k. The equipment including poles, mountings should have an aesthetic feel keeping in mind the standards road Infrastructure (e.g. Poles, Navigation boards etc.) currently installed at these locations. The equipment should look "one" with the surroundings of the location and not look out of place.

l. The RFP does not specifically mention mounting equipment for cameras inside the tunnel or under the bridge or other specific type of locations. However, wherever solutions are proposed at such locations, the MSI shall consider all the necessary accessories for the same and detail it in the Survey report and plan.

m. The MSI shall be required to submit a detailed **Implementation and Operations Plan Document** and get it approved from MMVD.

n. The MSI shall also submit a detailed installation report post installation of all equipment at approved locations. The report shall be utilized during the acceptance testing period of project to verify actual quantity of equipment supplied and commissioned under the project.

o. The MMVD may direct MSI to allow re-use infrastructure of project for other purposes.

10. Indicative Field Components Details

a. The following is a summary of the geographical extent of the project. The detailed location details along with the technical solution is as per **Annexure Set IV – Annexure 4**.
b. MSI shall conduct a survey on the field to study the proposed locations and shall suggest for any updates or changes considering any practical challenges for implementation. The updates, if any in the proposed location and technical solution shall be submitted and approved by MMVD along with other **Implementation and Operations Plan Document**, post which the MSI shall implement the solution.
c. The upward variation in the total proposed locations and total proposed technical solution and its updates shall be allowed with prior approval and at no extra cost to MMVD.
d. The quantity of the components can be referred from Format 3 under **Annexure Set III.**

Note: All location shall implicitly have required mounting accessories, junction box, electric and networking components, cabling, civil components necessary for sturdy erection of the poles, gantries and components on the poles and gantries etc.

10.1.   Change of Location

a. MMVD shall reserve the right to direct the MSI to change the location of the field components as per ground requirement anytime during the contract period.
b. Any change in location directed by MMVD prior to the installation of the field component shall be immediately adhered to.
c. The dismantling, logistics, and re-installation of the field components and all the required activities, materials, manpower etc. shall be sole responsibility of the MSI, at its own cost.
d. MSI shall take sufficient precautions and ensure no damage to the components which are shifted.

11. User Management

The system shall give users, user specific, role-based, and secure access to all the applications, services and information with a full-fledged Role Based Access Control (RBAC) model. User shall also be configurable as per jurisdiction.

11.1.   User Requirements

a. The system shall have provision to organize users by business-defined categories such as enforcement officials, jurisdiction wise such as Highway Authority wise, RTO wise, etc. Each stakeholder department can inherit or define its own permissions, group and manage roles for the various applications it chooses to include.
b. System users include all the authorised employees of the MMVD and other stakeholders.
c. These users would be accessing the system based on the roles and responsibilities. These set of users are based on current assessment and can be further extended / modified. Based on the type and role of user the system will provide the proper accessibility level.
d. System shall grant suitable viewing / data editing rights to various users through Active Directory, LDAP, or other security source

11.2.   Guest Users / Citizens

a. Guest users shall not be required to login and shall not be allowed to modify any system data. All the information stored in the system shall not be available to the Guests users. The information in the public domain will be restricted and the fields that will be visible to the public shall be finalised by MMVD during the SRS stage.
b. The modules and functionalities to be made available to public users shall be decided later by MMVD which shall form part of Project Plan Document and SRS Document.

11.3.   Admin User

a. The system shall provide for minimum one admin user for the entire proposed system for the MMVD, which shall manage the user logins, passwords, sessions, role assignment, hierarchy etc. for entire ITMS system.
b. Shall allow admin to monitor and provide access to other stakeholders such as MMVD officials, NHAI officials, MSI personnel, consultant personnel, etc. who would be undertaking projects on behalf of Departments MMVD.

11.4.   User Registration and Access Control Management

Identity, Access management, Single-Sign-On (SSO) and Role based access would be achieved through the identity assertion, credential management and directory services components.

Single Sign on: The system should enable single-sign-on so that any user once authenticated and authorized by system is not required to be re-authorized for completing any of the services in the same session. MSI shall provide browser-based application accessed on the internet, through single-sign-on mechanism, will provide access to all the services of the system, based on their pre-defined roles and responsibilities.

Master Data Manager: System shall create few "Master Data Manager" users and allow only such users to modify the master data in the database directly in case of any correction required at the later date.

Hierarchy: The role and the hierarchy of the user groups which are allowed to use the system functions, modify the data, manage other users, responsible for attaining to complaint, incident etc. shall be as per requirement of MMVD which shall be finalise during the SRS stage.

The system shall

a. Support Authorization, Authentication and Auditing of users
b. Provide default password on email, renewal, expiry, security and authentication as required.
c. Allow a valid user to store his preferred email ID and mobile number in the system securely for receiving alerts.
d. System shall support Single-Sign-On, security on all levels of entry / exit / access to systems without the inconvenience of re-prompting users.
e. Enforce the password restrictions, which include the criteria and limitations that can be placed on passwords to increase security including features such as minimum password length, periodic forced changes, not reusable, hard to guess, mixed characters, etc.
f. Password shall be changed at a pre-defined frequency.
g. Use the technologies like captcha, OTP for increased security.
h. Lock the session after a specified number of authentication failures.
i. Not allow concurrent sessions for the same user
j. Support common authentication mechanism and standards
k. Confidential information like passwords and other user information shall be stored and transmitted in a secure and encrypted manner
l. Log the successful / unsuccessful user login requests and other user activities for investigative purposes in case of a security breach.
m. Be capable of secure, tamper proof auditing and logging

n. Provide the Security & User administration GUI for system admin to enable management of access rights and privileges of users.
o. Have ability to define access to specific menus, specific data, specific files etc. set by user groups
p. Should provide support for X.500 naming standards
q. Should support that user account creation/deletion rights within a group or groups can be delegated to any nominated user.
r. Should support directory services integrated DNS zones for ease of management and administration/replication.
s. Provide the ability to map and link together two sources of user information. For eg. LDAP for static data about users and RDBMS for Dynamic data.
t. Have the ability to send e-mail, SMS notifications to the MMVD and NHAI official/s (case to case or bulk as per requirements) responsible for a given activity or assigned work and send reminder alerts at pre-defined interval and based on deadlines / timelines for taking action and any other reminder set up by the user. Maintain log of SMS Alerts, Email sent to the users.

12. External Integrations Capabilities

12.1.   Vahan and Sarathi Integration

a. The entire ITMS system is proposed to be integrated with two core application of the Transport Department, Vahan and Sarathi.
b. Both the applications are developed by National Informatics Center. Vahan application essentially maintains vehicle records whereas Sarathi maintains Driver's records.
c. MMVD shall support MSI for study of both the applications and the integration. MSI is expected to design ITMS system to pull and push relevant data to and fro the system.
d. The integration may be for various use cases such as fetching details of the fitness and tax validity of the vehicle identified. Such use cases shall be defined by MMVD at the later date and MSI shall ensure to be in compliance with the requirements as directed by MMVD.
e. The existing systems are updated from time to time. In case of any modifications which are required to be made in the APIs, it shall be sole responsibility of the MSI.

12.2.   Integration with NIC's eChallan

a. MSI shall be required to integrate with NIC's eChallan System used in Maharashtra state.
b. The integration shall enable these systems to generate challans and send to the respective vehicle owner.
c. ITMS system shall be capable of sending respective office id, vehicle number, date, time, location, photo / video evidence and other challan & violation details to eChallan system.
d. The offense id shall be as per requirement of existing systems, and hence necessary configuration shall be made in the ITMS system.
e. The system shall also have backward integration of details of challans with action taken, such as challan generated, challan paid, unpaid, challan sent to court etc.
f. Multiple offences on the same vehicle shall be separated automatically and each one is given an additional unique number by the system.
g. The existing systems are updated from time to time. In case of any modifications which are required to be made in the APIs, it shall be sole responsibility of the MSI.
h. Reporting requirements
    o The ITMS system shall provide comprehensive MIS of the challan and their status. The system shall also allow viewing of these challans for all the stakeholders.
    o The system shall be able to generate dynamic reports as per the user's requirement fields as well as MIS Reports, statistical report.
    o The system shall allow automatic creation and printing of records of unpaid challans for further action at specified periods, (weekly or bi-weekly, etc.)
    o System should be capable of generating various reports as desired by the authorities.
    o The system should have the additional functionality to send Day end reports to all the authorities via SMS and email.
    o **Day end report**
        ▪ Total number of challans
        ▪ Total number of cases
        ▪ Total fine amount collected
        ▪ Different type of challans generated and its total number
    o **Dashboard:** Dashboard for authorities should reflect data as per their jurisdiction. The dashboard should contain the following information
        ▪ Challans generated
        ▪ Type of challans generated
        ▪ Total cash collected
        ▪ Top offences
        ▪ Top ITMS system performers (camera locations)

- Least ITMS system performers (camera locations)
  - o **Proactive Analytics:** The system should be able to analyses the challan data over a period of time and help the authorities with the following information
    - Repeat offenders area
    - High violation detecting areas
    - Least violation detecting areas
    - Comparison of vehicular population and violation detection
  - o Automatic creation and printing of records of unpaid challans for further action at specified periods, (weekly or bi-weekly etc.)
  - o **Other Reports**
    - Historical cases report, Repeat offenders
    - Area wise, Station wise, RTO wise report
    - Offence details report, Consolidated collection
    - System wise report
  - o Login report

12.3.   SMS integration

a. MSI shall integrate with industry leading External Gateways related Shared Services to send bulk and customized SMSs and emails automatically or manually for system notifications, incident notifications, failure notifications, transaction notifications, etc. to system admin, system operators, commuters through ITMS applications.
b. The detail use cases and events to send SMS shall be shared with MSI at later date.
c. MSI shall ensure to clear payment dues to the SMS service provider to ensure continuity of the service, throughout the contract period.

12.4.   Integration with NHAI

Integration with NHAI on various parameters such as:
- Sharing Traffic Flow data for each road and toll gates (to compare against Toll payment received)
- Sharing of incident details in real-time along with action taken updates on incident (should be part of Incident SOP)
- **Rajmarg Yatra mobile app:** MSI shall be required to integrate with NHAI's Rajmarg Yatra mobile app which is used by citizens for obtaining various information about the highway, journey, challan, incident details etc. Citizen shall be able to raise any particular incident by using "Report Issue" which may be in the scope of MSI and / or MMVD to respond. Such use cases shall be finalized during the Implementation Stage.
- Challan and any other data as directed by MMVD.

MSI shall be required to liaison with NHAI to understand their existing systems, design required APIs and share necessary details as per requirement of NHAI and MMVD.

12.5.   Emergency Services

Emergency response in Maharashtra is provided by Government Services like 108 and 112. Each of these operates their own control center, help line and despatch services. The ITMS project envisages to integrate this existing infrastructure of emergency responders under a unified portal system. The scope for such integration is as defined in Clause 2 under "Scope of Work". MMVD may also direct the MSI to integrate ITMS system with the proposed VLTD system as and when the system is ready anytime during the contract period. The same shall be binding on the MSI. The exact requirement of VLTD integration will be finalised by MMVD at later date.

12.6.   Data exchange with external systems

a. The entire ITMS system as whole, shall be designed and built on open standards.
b. The ITMS system shall be able to accept data from external systems and shall be able to push data to the third party systems. Such data may include meta data, video, images or any other kind of data.
c. MSI shall integrate with such external system using standard formats.
d. The MSI shall be responsible for developing any APIs, web services or any other integration requirement as directed by MMVD from time to time.
e. While exchanging data, the MSI shall adhere to all the guidelines and the requirements of the system and ensure no security compromise while doing so.
f. MSI may also be required to let external system utilise the data, only after due approvals from the MMVD.
g. The development time for such integration shall be mutually decided and as agreed between the third party, MMVD and MSI. However, MSI shall keep the interest of MMVD paramount while integrating with third party systems.

12.7.   Integration with other ITMS systems in the state of Maharashtra

MSI shall be required to integrate with other ITMS systems implemented in the state of Maharashtra as on date of Implementation and even in future anytime during the contract period.
Such integration shall include (but not limited to):
a. Central monitoring of Incidents, violations etc.
b. Exchange of MIS and Reports

13. Software Applications

It is necessary for complete ITMS system to have a wide range of software technologies across platforms and systems, capable of working together to deliver complex systems and solutions.

Consequently, ITMS needs robust and resilient software technologies that:

1. Facilitate heterogeneous ICT-systems of different make and model to work together
2. Allow for greater automation to enable the core function to be delivered reliably and transparently.
3. Facilitate instrumentation through the use of multiple types of devices for sensing, capturing, storing, and utilizing data from multiple sources, fixed as well as mobile.
4. Make data exchange fluid and rapid between different types of devices, applications and network topology using different types of communication and transmission.
5. Facilitate the use and aggregation of data by systems and services even if generated by other systems.
6. Allow for data to be presented in a variety of formats, depending on the context and the person or the technical system needing it, allowing it to be analysed, visualized, accessed, and acted upon more easily.

The implementation also envisions adhering to guidelines and standards set by guiding government bodies of Government of Maharashtra and Government of India. The requirements are designed to ensure adequate availability & sustainability of the software application during the contract period and beyond the contract period.

a. The software for the system shall be designed and developed for adequate scalability of existing system functionality, addition of new functionality and easy maintainability.
b. Software development methodology used shall ensure the development of modular software.
c. The MSI shall ensure that the development and testing environment is adequately maintained during the contract period to ensure adequate support for the maintenance of the software under use and further additions / modifications to its functionality as may be required.
d. All documentation, diagrams (including software schematics or automated tool output) and specifications, shall be produced to recognize standards, shall use conventions, symbols and terminology defined as per international standards.
e. The MSI shall hold at least two sets of all operational programs including, wherever appropriate, site-specific data and programs held in appropriate media.
f. All programs being deployed shall be clearly identified and include appropriate issue details and date, and license to use submitted to MMVD for all such applications.
g. The documentation copy shall be submitted to the MMVD by MSI as a part of **Project Implementation Plan and documentation**. It shall be annotated with issue number, date and section reference including:
    i. A concise description of the overall function of the software.
    ii. Compliance and challenges against the RFP requirements.
    iii. Details of the computer hardware of the system, on which the software is installed and any proprietary software products used, including databases, OS and their version/issue, License details etc.
    iv. A complete list of all modules with their functional description and cross interactions.
    v. Clear operating instructions.
h. All the software systems must have built-in fault tolerance, load balancing and high availability & must be certified by the OEM.
i. All the software system shall be network and protocol agonistic and provide option to connect legacy system through API's, and be able to integrate with any type of sensor platform being used irrespective of the technology used.
j. All the software system must provide a comprehensive API (Application Program Interface) or SDK (Software Development's Kit) to allow interfacing and integration with existing systems, and future application and sensors which will be deployed on the field.

13.1. Command and Control Center Application

Business Requirements	• The application shall provide the CCC operator a unified user interface for various sub-systems such as the Video Management System, ITMS application, Incident Detection and Management, Violation Detection and Management, Asset monitoring, etc.
	• The CCC application shall allow to define standard Operating Procedures (SoPs) with an option to modify and define the unlimited SOPs dynamically.
	• The application shall support the UTF-8 encoding standard, which adds multi-lingual capabilities to the user interface. Standard Operating Procedures (SoPs) shall be presented in vernacular languages for the operator to understand the actions to be taken in case of an emergency.
	• The user interface shall include a cutting-edge UI and UX. The architecture, internal layouts and menu operations shall supply fast and intuitive UI for quick and efficient incident and violation management and other features of the ITMS system, offering operators one-click access to flows / tools that help them complete tasks faster and more efficiently.
	• Various users should be able to access the system using single sign on and should be role based. Different roles which could be defined (from time to time) could be Administrator, Supervisor, Officer, Operator, etc.
Functional Requirements	• The user interface (UI) to present customized information in various preconfigured views in common formats. All information to be displayed through easy-to-use dashboards.
	• Command & Control Center should be able to correlate two or more events coming from different subsystems (incoming sensors) based on time, place, custom attribute and provide correlation notifications to the operators based on predefined business and operational rules in the configurable and customizable rule engine.
	• The system shall provide supervisors with a KPI driven dashboard that measures the quality of service of the control centre. The dashboard shall include counters and graphs displaying number of alarms and incidents as well as graphical representation on a map.
	• It should also provide the authorized users to view key performance indicators, standard operating procedures, notifications, and reports, spatial-temporal data on a geospatial map, or view specific details that represent a highway or stretch of it, any infrastructure, or an area either on a location map, or in a list view.
	• The system shall include an advanced rule engine layer in order to correlate and match information from different data sources, sensors, analyse them for detection of pre-defined activities, suspicious & unusual activities etc. and produce smarter and more accurate alerts for the operators and other concerned dynamically.
	• Data sources and parameters that can be defined in a rule shall include correlation with historical data retained in the system, external data sources, events from physical devices connected to the system, distance between events, time between the events.
	• The rule engine automatically creates incidents that may be automatically executed and managed by the system to save time and increase efficiency. The rule engine shall be able to send the relevant alarms to the 3rd party systems. For example, send the alarm to the DMS

	to pop up the relevant message or send mobile notification to responders, display relevant on-demand video on the video wall etc.
	• The Command and Control Center Application shall be able to integrate with all the other systems, field components, third party applications etc.
	• Command and Control Center Application shall comprise of a comprehensive view of the incident or a group of related incidents as on a specific date and time which should include but not be limited to the following:
	o Tasks assignment and their status
	o Responders involved
	o Resources deployed
	o Incident status across relevant parameters of the incident e.g. traffic condition due to an incident
	o Timeline view of the situation suggested actions from the system with their status

13.2. Geographic Information System (GIS)

Business Requirements	• The MSI shall implement Geographical Information System (GIS) to map physical location of all the field components, location of incidents, violations, locating site of faulty nodes and devices and corresponding geographic analysis etc. of the ITMS system.
	• The MSI shall undertake detail assessment for integration of the ITMS system with the GIS system. MSI shall leverage industry leading Maps and GIS related Shared Services for integration with ITMS system.
	• MSI shall check the source and reliability, position, accuracy, attribute, authenticity and methods have to be advised to reduce the error to carry out the seamless integration to ensure ease of use of GIS in Command Control Centres by CCC operators, MMVD and other stake holders.
	• It should also help higher management of MMVD, Highway Safety Police etc. to analyse the events on a spatial perspective.
	• The GIS system, Satellite Imagery (if required), vector data, base map etc. shall be sole responsibility of the MSI.
	• The base map shall also include rivers, water bodies, contour, slope, land use, land cover, Transport network (Rail and Road), Administrative boundaries (districts, taluka) and any other base which may be required for better understanding of the system on GIS as per MMVD's requirement for each stretch of the highway under this project.
	• MSI is required to update GIS maps (including the additional layers of data as required for proposed solution) from time to time.
	• Use of GIS tool which allows easy map editing for wide area monitoring.
	• The system shall allow to define user and user groups and corresponding permissions.
	• The System shall provide an interface to the system admin for system configuration and day-to-day administration of the system.
	• The System shall support different logs related to the ITMS system.
Functional Requirements	• The MSI shall geo-reference the resources, objects, sensors and elements etc. on the map.

- The GIS application shall be integrated with VMS to support the Command and Control Centre and CCC operator to navigate on the map and use it for better spatial understanding.
- All the CCTV camera, and other sensors locations shall be mapped on to the geospatial map of the highway as a separate GIS layer under the Command and Control Center application.
- Operator shall be able to see the on-demand video feed and other output from specific camera(s) / sensors by clicking on the camera icon on the geospatial map of CCC client interface.
- The system shall have provision to visually display an alarming sensor on map and visually differentiate sensor alarm severities on map through different colour and icon identifiers.
- The CCC operator shall have provision to view alarm details (including description, video, etc.) and investigate the alarm from the map
- The system shall have provision view sensor and related name from the displayed map. The operator shall be able to choose sensors from map to view on-demand live video and the data and it should allow to redirect to respective application for further operations such as take live video image snapshot and save to file, play, pause, stop, fast-forward, rewind, and play recorded video from pre-set time, take recorded video image snapshot and save to file or print from any live or recorded video.
- When the video stream for any ITMS system component is clicked and pulled up, it should be possible to "Create an Event". This would automatically capture the photo from the stream, location and allow to choose type of incident detected if manual.
- The system shall allow map information to be displayed / hidden on the map including but not limited to
  o Sensors type and name
  o Sensor range (e.g. camera – orientation, range, field of view angle)
  o Locations and zones
  o Perimeter ranges
  o Resource tracks
  o Allow Authorized user to zoom in/out on different regions of map graphic
- The system shall have provision to have multiple layers on the map including but not limited to
  o Sensors, Cameras, DMS etc.
  o Power and Network cabling
  o Black Spots and accident-prone zones
  o Incident intensity maps on the stretch of the highway
  o Filters for incidents by type, date, time, reason etc. on the Map
  o Filters for violations by type, date, time etc. on the Map
  o Major Buildings / Structures / Roads / intersections
  o Traffic Flow (using different colours)
- Such layers are indicative and MMVD may direct the MSI to add / edit one or more layers anytime during the project period, which MSI shall implement as per the requirements.
- Should support Geo Spatial Standards like GML & KML/KMZ etc.
- MMVD may also direct the MSI to incorporate other information available with the MMVD to map it on the GIS map, such as mapping of all the road infrastructure, inventories on the road, entire Right of Way etc.

13.3.   Video Management Software (VMS) and Recording Server

Video Management System shall constitute of a platform which will be designed for viewing, recording and replaying on-demand video as part of overall project solution. This platform will be based on the Internet Protocol (IP) open platform concept. Major functionalities are as under:

Business Requirements	• VMS shall be used for management of all field camera devices, video servers and client users. • The MSI may be required to procure licenses for VMS for DC and Cloud DR as per project requirements. • VMS shall support inbuilt mechanism for high availability and failover. • VMS shall be supported for fully distributed solution for monitoring and control function, designed for limitless multi-site and multiple server installations with support for devices from different vendors. • The proposed solution shall allow to on-demand monitor the area under surveillance locally and centrally from a remote location over internet, securely using IP based Cameras in a bandwidth efficient manner. • All CCTV camera video signal inputs to the system shall be provided to Command Control Center and Viewing Centres etc., and the transmission medium used shall best suit the relative camera deployments and access to the CCTV Network for on-demand viewing of the video feeds from the respective camera. • VMS shall be enabled for any standard storage technologies to store and view on-demand live or recorded videos from one or more camera and video wall system integration. • The solution shall also enable on-demand viewing of camera feeds on any device such as desktops, video walls, smart phones etc. to limited access-controlled login as may be required. Shall have client / viewer that runs on any PC, tablet and mobile. • The solution shall allow play, fast-forward, rewind, pause, and specify time to play recorded video • It is envisaged that the respective camera shall make continuous recording of all video feeds 24 x7, and the same shall be available for on-demand viewing at CCC or any other interface. The video feeds shall be stored for the number of days as defined in the RFP, at the specified resolution. (Shall be site configurable per camera for lesser or more days also). • Apart from videos, system shall also store meta-data of all the vehicles with vehicle number, vehicle classification, and violation details if any for the number of days as decided. • The solution design for the VMS shall provide flexible video signal compression, display, storage and retrieval. • The MSI is also required to prepare the guideline document to be followed by the MMVD or Highway Safety Police or MSI personnel for the retrieval of Video / images from the CCTV System so as to maintain integrity of the evidence. Such a guideline document should include methods of retrieval of data, checklist to be followed and flowchart of the entire process to be followed. • VMS shall have an administrator interface to set system parameters, manage codecs, manage permissions and manage storage. • VMS shall provide an administrator interface for day to day control of cameras and monitoring on client workstations.

	• The VMS shall have ability to allow the administrator to distribute camera load across multiple recorders and shift from one recorder to another. • The VMS system should ensure video evidence of any incident and / or violation and / or any tagged video that once recorded, the video, images and any other information cannot be altered, ensuring the audit trail is intact for evidential purposes. • The module shall include flexible access rights and allow each user to be assigned several roles where each shall define access rights to cameras.
Functional Requirements	• The proposed system shall be flexible, open video, over IP architecture built on accepted industry standards that facilitate integration with IT infrastructure / applications / systems. • Shall have the facility of collaborative monitoring, ability to import videos, export and save video files, access videos from 3rd party app like mobile app etc. • The VMS shall support field sensor settings. Each channel configured in the VMS shall have an individual setup for the following settings, the specific settings shall be determined according to the encoding device: The VMS shall support the following operations: o Adding / Updating / removing an IP device o Updating basic device parameters o Adding / Updating / Removing / enabling / disabling an IP channel o Refreshing an IP device (in case of firmware upgrade) o Multicast at multiple aggregation points • Shall have provisions for a flexible rule-based system for time / schedule-based recording, continuous 24-hour recording, event triggered recording (i.e. motion detection triggered recording), manual recording, etc. • It shall be capable of displaying videos in up to three (3) monitors simultaneously. • All CCTV cameras' locations shall be overlaid in graphical map in the Graphical User Interface (GUI). The cameras selection for viewing shall be possible via clicking on the camera location on the graphical map. The graphical map shall be of high-resolution enabling operator to zoom-in for specific location while selecting a camera for viewing. • VMS shall show a dashboard with on-demand video feeds from all cameras, or in any combination as selected, give other facilities such as zoom, crop, focus etc. from the software, on live and on recorded video or from media storage, for PTZ and for all other cameras and save them in a separate file. • The solution shall rotate through multiple video views based on predefined video camera sequence and duration. • The VMS shall have a facility to create CDs or other storage media for submission to Judiciary, which can be treated evidence for legal matters. Such storage media creation should be tamper proof and MSI to provide appropriate technology so that integrity and quality of evidence is maintained as per requirements of the judiciary. • The VMS shall support bookmarking the videos. Thus, allowing the users to mark incidents on live and/or playback video streams. • VMS shall have provision for video replay on the GUI for general review and also for pre-and post-alarm recording display, even in case of false alarm.

- The VMS shall be capable of supporting dual streaming of live or recorded video to all the locations in different resolutions or frame rates or any and other related parameters to ensure bandwidth optimization as well as meeting the requirements. The same shall be configurable by the administrator in order to provide for network constraints.
- The VMS shall also support failover recording. **The failover recorder would act as a hot standby**, ready to take over the functions of a primary recorder. No action from the user should be required.
- VMS shall support manual failover for maintenance purpose.
- The VMS shall also support dual recording and redundant recording which covers continuous recording during a recorder server failure (and access to recorded video) and/or recording in two different locations to address a catastrophic event by providing a simultaneous recording by two recorders, with independent (non-shared) video storage, including the SD card of the edge device.
- The VMS would prevent the loss of video during network/recorder breakdown by retrieving video from the camera edge storage (SD card) along with the following functionalities:
  o Automatic gap detection of missing video
  o Automatic retrieval of the missing video from the camera edge storage upon reconnection between the camera and the recorder
  o Retrieved video transferred and saved on the recorder using the recorder original file format
  o Seamless playback of retrieved video, without extra retrieval time upon query
  o Network/Recorder management to avoid congestion or video overflow into the recorder
  o Shall work in conjunction with Recorder Failover mechanism.
- The VMS shall have independent (non-shared) video storage Enterprise Storage Manager (ESM) for supporting long-term or off-site storage.
- The VMS ESM shall be designed to dynamically delete (groom) extraneous video from hard drives to make space for newer incoming video in a FIFO manner, based on specific pre-defined retention parameters, while recognizing and preserving video clips marked by the system as important, such as evidence for violation, incident video etc.
- The VMS ESM shall move files based on schedule and classification of video files (event video vs. all video)
- The VMS shall be capable of seamlessly locating any requested video stored on recorders' disks or ESM servers, from any workstation.
- The VMS shall intelligently manage videos and store them in order of priority as per defined rules, perform simultaneous tasks such as digitizing and compressing video, writing video to files on local hard disks / server and maintaining an accurate index of the stored video files, deleting older video files as needed, transferring recorded video to long-term storage media.
- Violation retrieval could be sorted by date, time, location and vehicle registration number. MSI shall ensure proper indexing for the same.
- A strong adaptive remote viewing capability shall also form part of the VMS solution, including:
  o Support logon using the user name and password credentials.
  o On-demand viewing of live and recorded videos
  o Concurrent playback for user of multiple recorded videos with date, alert sequence or time searching.

	o Dynamic transcoding mechanism o Server side scaling and zooming o Bandwidth priorities o Predefined video quality (frame rate and resolution), compromise based on available bandwidth o Efficient H.264 or better transcoding • The VMS shall support multiple video formats such as AVI, M-JPEG, MPEG- 4, MP4 Export or Latest etc. • System shall ensure that once recorded, the video, images and any other information cannot be altered, ensuring the audit trail is intact for evidential purposes. • VMS shall support integration with the ANPR application. • VMS shall be able to accept alerts from video analytics built into the cameras, LPU, other third party systems, sensors etc.
Technical Requirements	• The bidder shall clearly list in their proposal the make and models that can be integrated with the VMS, additionally all the offered VMS and cameras must have Open Network Video Interface Forum (ONVIF) compliance. • The VMS shall be built on the open standards and shall be compatible with products from all industry leading ONVIF complaint internet protocol (IP) cameras manufacturers. VMS to be ONVIF compliant. • The recorders shall be capable of supporting the attachment of external storage devices via SAN, NAS, SAS, iSCSI or Fiber Channel etc. • The VMS Enterprise Storage Manager shall support any central disk storage device, including disk arrays with iSCSI connectivity and Storage Area Network (SAN) devices.

13.4.   Alarm Management System (Separate or part of EMS)

Business Requirements	• The alarm management system shall allow for continuous monitoring of the operational status and event-triggered alarms from various system servers, cameras, and other devices. • The alarm management system shall provide a real-time overview of alarm status or technical problems while allowing for immediate visual verification and troubleshooting. • The alarm management system shall provide interface and navigational tools including; o Graphical overview of the operational status and alarms from servers, network cameras and external devices including access control systems. o Intuitive navigation using a map-based, hierarchical structure with hyperlinks to other maps, servers and devices or through a tree-view format.
Functional Requirements	• Accept third party generated events / triggers. • Display alarm condition through visual display and audible tone. • The alarms may be triggered by the following events: o Text data string o Digital input signal from an external device o Missing camera signal (resulting for example from sabotage) o Custom event from 3rd party application. o Video Content Analytics (VCA) event from inbuilt.

	• Simultaneously handle multiple alarms from multiple workstations.
	• Automatically prioritize and display multiple alarms and status conditions according to pre-defined parameters such as alarm type, location, sensor, severity, etc.
	• Alarm Filtering Option will be there. It will possible to "silence" alarms for a desired time period Ranging from 5 Minutes till 24 Hours or more. This is useful if alarms are unintentionally active all the time, e.g., due to adverse environmental conditions such as heavy wind, rain or snowfall
	• Alarm management will support the following automatic responses:
	o Pre- and post-recording up to 60 minutes of video and audio
	o Opening an alarm camera window or audio window (real-time or playback) on the workstation screen
	o Displaying the alarm on the alarm list
	o Activating a digital output
	o Sending an alarm e-mail message
	o The alarm management will be able to acknowledge alarm automatically or manually
	• Alarm management will support the following alarm viewing features:
	o Display the highest priority alarm and associated data / video in the queue as default, regardless of the arrival sequence
	o It would allow pass the specific arms to specified users rather than sending all alarms to every user.
	o Users in same user group would see and be able to manage received alarms assigned for the same user group. All users would see the alarm status in real time.
	o System would have single alarm stack for entire ITMS System
	• View historical alarms details even after the alarm has been acknowledged or closed.
	• Sort alarms according to date/time, severity, type, and sensor ID or location.
	• Generate an alarm incident package including the full incident report and exported sensor data from the incident in a specific folder location.
	• Apply any alarm policy to one or more monitoring area(s) or zone(s) or Field Component(s) without having to reapplying the policy multiple times.
	• Create batch-wise rules and process them
	• Assign specific actions for each alarm
	• Activate or deactivate alarms as required
	• Ability to create exceptions
	• Should have details of alarm including
	o Severity, time/date, description and location
	o Captured video image snapshots
	o Relevant sensor data
	o Response instructions
	o Alarm activities (audit trail)
	• Support creation of rules and responses based on digital or contact closure input events from external devices, such as Critical infrastructure-related events, network connection failures, fatal errors, hard disk failures, software service down, video encoder failures, security-related events, digital input pin change, video loss and onscreen alarms etc.

13.5. Assets Management System (AMS) (Separate or part of EMS)

Business Requirements	• The MSI shall establish an Asset Management System (AMS) which would act as Enterprise Management System (EMS) and undertake proactive monitoring and management of all the IT assets like all the hardware, sensors, software applications, mobile app across the project • The system shall enable proactive monitoring and reporting of any and every issue faced with any asset of the project. • The AMS system shall be able to record and report all the SLAs as defined in Service Level Agreement. • All access controls shall be provided to designate MMVD and nominated officials.
Functional Requirements	• The AMS system shall monitor parameters like uptime, downtime, health of IT assets, any vandalism or tempering act reported, in case of breakdown / downtime, identify the probable location and issue. • The system shall provide the ability to monitor and manage servers; including temperature, fans, power supply, disks, swap space, CPU utilization, memory capacity, and file systems and generate log reports of the DC and cloud-based DR and any other servers. Any such reporting dashboard of the Cloud Service Provider shall be integrated with the AMS and the SLA monitoring tool for centralised monitoring. • The system shall provide ability to monitor and diagnose OS and application behaviour in real-time on production systems from the kernel level, process level and individual thread level; and be tuned in the exact same environment in which they are running in production. • Shall be able to set customizable thresholds (lower and upper) for all system parameters, compare performance with threshold, and send notifications and appropriate alarms, if the system parameters either exceed the upper limit or fall below the lower limit of the threshold • Shall monitor applications and processes for detecting issues, bugs, abnormal trends, threshold breaches and respond as per user defined SOPs and provide early warning to reduce or mitigate the impact • Shall monitor end-to-end transaction and performance of resource heavy applications, failed transactions, database errors etc., and automatically generate respective reports. • The system shall also monitor any tampering with the field components and other components of ITMS system. • The operator at the CCC should be able to get an alarm of any possible fault(s) at the camera site (outstand) (e.g. equipment failure, camera failure, failure of linkage with DC-DR and CCC, connectivity failure, tampering) • System shall also maintain count & monitor the spare IT project assets. • The system shall communicate with the IT assets using Simple Network Management Protocol (SNMP) or equivalent technology and shall be required to be setup in a high availability mode. • The system shall detect, track, monitor, manage, and control all IT (IP based), active non-IP based, protocol based, and critical non-IT assets as described in scope of ITMS project. • Provide a GIS based system showing location and health of all assets etc. The system shall have provision to view all assets implemented by MSI for execution of the ITMS Project. The above solution shall be operated from CCC.

	• Shall enable the management of IT assets in terms of their physical, financial and contractual aspects (commissioning, lifetime etc.), thereby ensuring optimum utilization of assets and reducing compliance risks.
	• Shall automatically detect and manage inventory of all IP based assets like Wi-Fi Access Points, Sensors, etc. in a centralized asset repository
	• Shall have provision to add non-IP based devices and sensors to the centralized asset repository
	• Shall have the ability to create and store asset information including, ID, serial number, version, status, license, user or user group etc.
	• Shall perform periodic checking of inventory and generate reports/alerts comparing current status and original inventory stock.
	• Shall manage inventory for individual or bulk items, set priority based reordering levels, price of each asset, transaction history, Maintenance history, Warranty, expiry date etc.
	• Shall keep details of components internal to the asset like RAM, CPU, disk, chassis, switch types, warranty etc.
	• Shall manage license for all hardware and software assets. Shall report license recovery when a hardware is removed or discarded, or a software is uninstalled.
	• Shall provide information on all software packages with respect to version changes and upgrade.
	• Shall be able to track user rights towards using hardware or software licenses.
	• Shall assess the vulnerability of critical assets i.e. the expected likelihood and consequences of specific types of attacks on specific assets.

13.6.   SLA Management System (Separate of part of EMS)

The SLA Management System should enable MMVD to capture all the System based SLAs defined in this Tender and then calculate penalty automatically.

Measuring service performance requires incorporation of a wide variety of data sources of the project. The SLA Management System should support the collection data from various sources in order to calculate Uptime / Performance / Security SLAs.

Business Requirements	• The SLA Management System should enable to capture all the System based SLAs defined in the RFP and any other parameters as directed by MMVD from time to time, and calculate penalty automatically.
	• Should support the collection data from various sources in order to calculate Uptime / Performance / Security SLAs.
	• The system shall be capable of monitoring functional SLAs as well as technical SLAs
	• The system shall have provision to define various SLA parameters and their respective penalties as defined in the SLA in this document.
	• The system shall work in conjunction with the Asset Management System and ensure capturing all the details of the asset to calculate SLA
	• The system shall also be integrated with VDS to check the count of suspected violations approved by MSI operators and rejected by MMVD.
	• The system must support technical audit of the complete IT system
Functional Requirements	• Must centrally monitor all IT assets (including field components, cloud servers, network equipment etc.)

	• Shall have role-based security model to provide access to only authenticated users

• Shall have role-based security model to provide access to only authenticated users
• Should accept Data from a variety of formats; provide pre-configured connectors and adapters.
• Must support Service Level Agreements & Lifecycle Management including Version Control, Status Control, Effectively and audit Trail to ensure accountability for the project.
• Must have the ability to define and calculate key performance indicators from an End-to-End Service delivery perspective.
• Should support requirements of the auditors requiring technical audit of the whole system.
• Shall show real-time status of all events, incidents, issues lodged
• Should support SLA alerts escalation process.
• Shall capture, monitor and track all the system-based SLAs from all components and systems and calculate penalties accordingly
• Support for defining and calculating payment due and penalty based as per defined SLAs.
• Must follow governance, compliance and content validations to improve standardization of service level contracts.
• Shall have an integrated, highly customizable single-view dashboard listing and co-relating all contract parties, service type, SLA performance, violations, penalties incurred etc.
• Shall support root cause analysis to clearly define the type and severity of SLA failure
• Must have integrated dashboard providing view of non-performing components and assets / issues with related to service on any active components.
• Must have facility to display all the SLAs being triggered in case of multiple SLAs, and select event that triggered the delay to drive the penalty calculations.
• Should be pre-configured so as to allow the users to generate timely reports (daily, weekly, monthly, quarterly etc.) on the SLAs on various parameters.
• Shall be able to generate web based SLP reports highlighting violations, penalty, action taken, frequency of occurrence etc.
• Reports (Indicative but not limited to)
  o Ability to generate reports on payment due and penalty, to check on non-compliance of SLAs for the project.
  o Monetary penalties to be levied for non-compliance of SLA, thus the system must provide Service Level Performance Report over time, contract, service and more.
  o Historical and concurrent service level reports for the project in order to ensure accountability of the MSI's performance.
  o Automatic Report creation, execution and Scheduling, must support variety of export formats including Spreadsheet, Word/Docs, Adobe PDF etc.
  o Templates for report generation, Report Filtering and Consolidation and Context sensitive Drill-down on specific report data to drive standardisation and governance of the project
  o Drill-down capabilities in dashboard reports ensuring visibility for only relevant personnel of the project.

Incident Ticketing System Requirements	• The MSI is required to supply and commission an automated tool which shall be able to automatically track SLAs of all ITMS project components and automatically generate logs as per predefined events and corresponding norms for SLA tracking. • This automated mechanism of triggering SLA and reporting shall be configured in tool as automated ticket logging, the time of occurrence of such an event shall be considered as the time of incident logging, and time required for resolution shall be considered as SLA closure. • In case there are events that cannot be logged automatically, provision shall be given to CCC operators, MMVD officials for raising the ticket. • The calculations of response time and resolution time shall be counted from the time of call logging and shall be pre-configured in the tool as per the SLAs defined in the RFP under the section of Service Level Agreements.

13.7.   Web Portal

Business Requirements	• The MMVD envisage to have a web based portal with all the information about the project, all reports, and ability to dynamically generate reports as per RFP requirements etc. on the web portal.
	• The MSI shall develop the web portal to view any and all the on-demand video feeds, incidents, traffic violations, corresponding reports etc. and shall also allow viewing of SOPs and corresponding action taken. The web portal shall also be alerted in case of any violation and / incident etc.
	• **Additionally, the Web Portal shall also display information like**
	   o Information on Motor Vehicle Acts
	   o Type of offences and its fine amount
	   o Pending offences for a Vehicle/Licensee
	   o Link for payment of pending challans and information on other locations for payment of challans
	• Should have a robust user management and security management features including password policies, user reminder settings and complete login security procedures, and facility to assign role based rights.
	• The web portal shall also have an open interface for citizens and 3rd party viewers with basic information and access to restricted reports and MIS. Such restriction shall be defined by MMVD at later date.
	• Provide a Portal, Content Management System (CMS), Workflow Engine and Document Management System (DMS) as a single unified system.
	• The domain of the web portal shall also be responsibility of MSI, however the domain name shall be selected by MMVD.

Functional Requirements	• The Platform should have fully featured CMS abilities such as content authoring and publishing, dynamic content targeting for different audiences, personalization and site management.
	• The web portal shall give remote access to various users of MMVD to access at least the following information
	   o On-demand Video feeds from all the cameras
	   o Sensor data
	   o Video and Data analysis performed by the system
	   o Details of violations and incidents and their corresponding details

		• The system shall provide all such details in a report format which can be drilled down to the last level.
		• The system shall also provide ability to search for a particular incident or violation by any of the parameters of the available meta-data.
		• Provision to organize users by business-defined categories such as geographies or offices, as well as by cross-departmental teams and workgroups. Each department and site can inherit or define its own permissions and administer user, group and role management for the various applications it chooses to include. For eg., MMVD staff tagged to a particular office shall be able to video all the video feeds, and other data from the respective jurisdiction. System shall have ability to assign access rights accordingly.
		The Portal Platform's capability
		• Support integration with all the systems proposed under ITMS project.
		• Shall provide facility to define custom triggers like Emails, Word template or launching executable etc. on predefined conditions.
		• Should be natively integrated with Document Management System for storing all the underlying documents required in process.

		• **The DMS**
		  o Should be able to address both structured and unstructured sources of data like email, scanned images, portal & mobile.
		  o Should have facility for viewing documents from the platform.

		• Should have visual components that integrate directly with the development environments for Android and iOS.
		• Support for push notifications to mobile apps with Portal Platform.
		• MSI shall develop and maintain the web portal, update the contents, include any newly developed reports and MIS, and make changes as directed by MMVD from time to time.

13.8. Other Software Applications

The Command-and-Control Center shall have multiple applications running for smooth operations of the project, including but not limited to:

Sr.	Solution	Integration and operation brief
1	Network Management (To be read with 10.2.2)	• The CCC shall have a Network Management Module to track network uptime, downtime, speed, package loss & other parameters. • The CCC shall have an interface for managing network activities as well as view various kinds of reports.
2	System Security Management (To be read with 10.3.6)	• The CCC shall have a dedicate module for system security. • The CCC operator shall be able to monitor and manage system security parameter, install updates to the definitions, schedule scan, manage quarantine files, debug the system etc. • The CCC shall also generate relevant reports
3	Hosting Infrastructure Monitoring To be Read with 10.1.7	• The CCC shall have a Storage and Server Management Module to track server downtime, capacity utilization and other parameters. • The CCC shall have an interface for managing storage and server activities as well as view various kinds of reports.
4	Manpower Management	• The CCC shall also have a manpower management module to manage day to day activities, scheduling of resources, attendance and other parameters related to the manpower • Such details shall be pulled from Access Control Software, HRMS of MSI or any such system deployed by the MSI.

14. MIS and Reports

a. The entire ITMS system on the highway will generate a lot of data every moment. It is hence imperative to have a strong, well-designed reporting system which will auto generate reports as per pre-defined parameters and allows user to derive desired customized reports based upon the selection of any available parameters from the system through web portal.

b. To effectively analyse various information related to ITMS project, commuters, vehicles, assets, systems etc., MSI shall utilize web-based Analytics services and provide dashboard views at the Command and Control Center and on the web-portal to the authorized users.

c. These analytics services shall help perform various types of predictive analysis and assessments like vehicle trend analysis, incident and incident trend analysis, violations and violation trend analysis, utilization analysis, peak and off-peak load analysis, revenue projections, seasonal escalations and downfalls etc.

Business Requirements	• Dashboard based reports, using different visual elements including tables, charts, maps, calendars, gauges, images, visual and textual lists. • Such reports shall be screen friendly irrespective of size of the screen and shall have ability to convert into printer friendly reports. • Display information in an easy to understand format and use intuitive and interactive visualization to enable users like CCC operators, MMVD, Highway Safety Police etc. to quickly navigate, understand, and investigate data elements to make informed decisions. • Run mathematical, statistical, and analytical operations on available data and allow multiple visual elements to be laid out on same display. • All the reports shall be made available online, accessible at the CCC, through a web portal and mobile app with restricted access. • MMVD may also ask to allow public access to a few reports on the website as may be required. • Indicative list of required report is provided, however MSI shall develop reports for any additional requirements from time to time throughout the contract period, as directed by MMVD at no extra cost.
Functional Requirements	• Display a huge amount of data in a clear and organized view • Ability to define multiple day types for the entire calendar year or a specified period for weekdays, Public Holidays, festival season, vacation, Saturdays, Sundays and any other combination of days (like 2nd Saturday) etc. • Ability to set other parameters and constants through data entry such as targets, past data before the ITMS project as benchmarking etc. • Have view-management tools, allowing user to move, reorder, enlarge, shrink, open, and close visual elements with intuitive interaction. • Have zero-programming mashup capability that allows the user to configure queries and data mashups visually through drag-and drop functionality. • Have provision to drill down and search through the large amounts of data easily and quickly by time periods and other search criteria defined by the user. • Support security for drill-down capabilities in dashboard reports, ensuring visibility for only authorized users. • Have provision for intuitive visual filtering, focusing, and selection of the displayed data and information.

	• Have provision to search, filter and sort the presented data based on a number of multiple attributes simultaneously including the time period or on multiple attributes simultaneously. • Shall allow conditional formatting, based on thresholds or data ranges, for any cell/object in the report • Have provisions to hide or show parts of the data • Have provision to search through visual elements that display numerous data entries such as tables and lists. • Understand different types of structured data including numbers, percentages, fractions, general text, coordinates, and objects • Provide historical and concurrent reports for various systems. • Compute trends and projections from data based on available historical data and based on data from external systems to enable informed decision-making • Have Provision to graphically define complex queries that contain multiple parameters and span different data sources. • **Have provision to save the current queries, filters, and selection parameters and to save custom reports for subsequent use.** • Have the ability to allow the user to create, load, modify, delete, and save report templates graphically. • Ability to display the list of available report templates, saved reports, and recently used report templates when the user logs in. • Have data-pivoting capabilities • **The System shall enable MMVD to configure the grouping, filtering, and delivery of the system generated reports to predetermine email addresses, network file directory, ftp sites, and/or printers.** • The system shall allow reports to be generated and published on an ad-hoc or scheduled basis with the ability to predefine type of reports, parameters and a list of recipients, schedule etc. through a GUI. • Support real-time reports (like at-a-glance status) as well as Historical analysis reports (like Trend, Top 10 etc.) • Shall have provision to extract reports in various formats such as PDF / HTML / XML / CSV / MS-Word / MS-Excel etc. • The system shall have the ability to Configure KPIs for user, operation, sub-system etc. and display single dashboard view of the results against the KPIs with different colour coding.
Indicative Types of Reports	• **Vehicle flow Reports:** Report of vehicle flow, and for the selected categories at each of the installed locations for Last Day, Last Week and Last Month. Traffic Flow reports like Normal Traffic, Dense Traffic, Delayed, Congestion, Stop and Go, Lane Occupancy, Headway (Average time interval between two vehicles), Average Speed, Level of Service, Space Occupancy etc. • **Violation Reports:** Absolute numbers, percentage, corresponding revenue and percentage contribution, class of vehicle wise, location, date or time wise, type of violation wise etc. • **Challan approved and rejected Reports:** Total challans rejected and approved by MSI, approved and rejected by MMVD etc. • **Fine Collection Report:** Total violations, expected and realised challan revenue, pending payment, court memos, payment mode etc.

- **Incident Reports:** Total incidents, types of incidents, date and time wise, location wise, action taken wise, time taken for action, reason and severity of incident etc.
- **Location Setup Reports:** Number of violations and incidents detected through that sensor / camera, at respective location, date and time wise, accuracy of violation and incident alarms, false alarms, fine collection corresponding to the location etc.
- **Asset Reports**: Asset mapping location wise, type of asset, make – model wise, date of installation, repair and maintenance reports, health of asset reports etc.
- **Maintenance and Repair Reports:** Issue log reports**,** type of issue, date and time, resolution type, time taken for resolution, scheduled maintenance date and time reports, issue reported and corrected reports, spare parts or spare component replacement reports etc.
- **System Transaction Reports:** Transaction-level reports such as system logs of changes in the parameters, security scanning and action reports etc.
- **Network Reports:** Utilization, uptime and downtime, primary and redundant line reports, location wise network traffic report, date and time wise network report.
- **Server and Storage Reports:** Server and storage capacity utilization report, uptime and downtime reports, DR drill reports, DC failure and RTO and RPO reports, system wise utilization details etc.
- **Manpower Reports:** MSI manpower attendance reports including operators, repair and maintenance staff etc.
- Trend analysis of the data over a period of time for all of the above reports.

15. Requirements for the ITMS Project

The MSI shall strictly adhere to the standards set by the MMVD. The MSI shall ensure that he is solely implementing the project and shall not franchise / sublet / subcontract it to any third party under any circumstances without prior written consent of MMVD.

i. MSI shall be responsible for procurement all required hardware, software, network infrastructure and all other components as defined in the BoQ sheet. The MSI shall be responsible for end-to-end implementation and shall consider and provide / supply any items not included in the BoQ but required for commissioning of the ITMS project and meet the requirements of the proposed ITMS System. MSI shall submit the same as a part of technical proposal. MMVD shall not pay for any of the equipment not part of BoQ but are required for successful completion of the project. However, the same has to be supplied by the MSI without any additional cost to MMVD.

ii. Each such component shall meet or exceed the minimum technical specifications defined in the RFP document in the Annexure Set II – Format 8, and shall exactly meet the Technical Specifications, make and model proposed by the MSI while bidding and agreed by the MMVD. In case of deviation, a detailed explanation from the bidder shall be expected, one which written approval from the MMVD may be given as MMVD deems fit. MSI shall adhere to the same.

iii. The MSI would be required to install and configure / integrate every component and subsystem component, required for functioning of the ITMS System.

iv. All hardware procured for the project shall be as per the latest industry standards and brand new with warranty as per defined specifications in the RFP, replacement, software assurance and end-of-life only after expiry of contract period.

v. The proposed software, solutions, and applications shall not be proprietary, support open data standards, be secure, bug free, crash resistant, modular, and provide interfaces for various shared services. Overall and individual solutions proposed by the MSI shall have open data standards for interoperability and 3rd party integrations and shall not get limited due to proprietary issues.

vi. Database structure (including of the bespoke solution) should be according to open standards.

vii. Architecture of the systems deployed for the project need to be open, interoperable and scalable. Data interoperability shall be ensured.

viii. All the software licenses shall be non-exclusive, perpetual, fully paid up and irrevocable, valid throughout Maharashtra, with required technical support from the OEM for the project period and shall have software assurance and in the name of MMVD, in case software is in the name of MSI, the same shall be transferred before the project Go-Live in the name of MMVD

ix. MSI shall procure all hardware, software etc. free from any financial obligations etc.

x. Any customized application / module developed for MMVD, the source code for the same shall be shared with MMVD and the said application / module shall be property of the MMVD with absolute Intellectual Property Rights (IPR). Codebase ownership should be transferred to the MMVD. All components should be in code level and not in binded form like a DLL or exe. Software assets along with codebase like – sliced html, GUI assets, etc. should be a part of the handover.

xi. Also, such customized application / module shall be developed without use of any external services support, and in case if external services are used, the said application / module shall be available perpetually independent of such external services irrespective of external services support availability. No COTS component should be a part of bespoke solution.

xii. MSI shall remotely update and upgrade all the software applications as and when updates are available (or developed as a part of requirements). Such updates shall be only after due approvals from MMVD. MSI shall maintain version control for any and all such updates and upgrades.

xiii.   The MSI shall be responsible for any copyright infringement. MMVD bears no responsibility towards the same or towards any consequence resulting from non-conformance or non-compliance.

xiv.   **No Vendor lock-in and Replaceability:** Specific OEM products may only be used when necessary to achieve scale, performance and reliability. Every such OEM component/service/product/framework/SI pre-existing product or work must be wrapped in a vendor neutral API so that at any time the OEM product can be replaced without affecting rest of the system. In addition, there must be at least 2 independent OEM products available using same standard before it can be used to ensure system is not locked in to single vendor implementation. Any deviation to the same, MSI shall be required to take approval from MMVD in writing.

xv.   Since the applications and its data generated and being dealt with is sensitive in nature, the MSI shall provide robust network and system security features. All the data created / captured under this project shall also be the property of the MMVD only. MSI, under no circumstances shall use, distribute, sell, and extract the data.

xvi.   The system shall give users, user specific, role-based, and secure access to all the applications, services and information with a full-fledged Role Based Access Control (RBAC) model. System shall grant suitable viewing / data editing rights to various users through Active Directory, LDAP, or other security source using single sign on.

xvii.   All devices, components, hardware, software, equipment etc. shall be synced to a common time – Network Time Protocol (NTP).

xviii.   The system architecture should be built on sound architectural principles enabling fault-tolerance, high-performance, availability and scalability both on the software and hardware levels through load balancing and "fail-over" mechanisms.

xix.   The system shall be able to independently test the signal to simulate self test measurements such as camera calibration, power supply to all connected equipment etc.

xx.   The proposed system (infrastructure, hardware, software, communication, network, equipment etc.) shall not be exposed due to any single point of failure. In case of any failure have redundancy built into the system to bring the overall system back up in the minimum amount of time.

xxi.   MSI shall be fully responsible for maintaining these components as per the Warranty and AMC Clauses and shall be fully accountable for the same for entire project period. The MSI must pass on the standard OEM's warranty which comes bundled with proposed or purchased OEM solutions. In addition, MSI has to provide documentary evidence for back-to back support agreement with proposed OEM, as applicable.

xxii.   MSI shall ensure all components are duly covered with IRDA approved Insurance Company for entire duration of contract period as detailed in the RFP.

xxiii.   MSI shall supply all the installation material / accessories / consumables (e.g. screws, clamps, fasteners, ties anchors, supports, grounding strips, wires etc.) and proper casing and mounting, necessary for the installation and operation of all the hardware, components, NOC hardware, and network components etc. forming part of the Project.

xxiv.   All the hardware, software, and network components may have adequate spare during entire project duration to maintain the SLA.

xxv.   All the components of the Technical Architecture which should comply with the published eGovernance standards, frameworks, policies and guidelines available on http://egovstandards.gov.in, MeITY guidelines for state data center and leading industry standards.

xxvi.   In addition to above, the proposed solution should comply with industry standards (their latest versions as on date) wherever applicable. Listed below is for reference and is not to be treated as exhaustive.

- Guidelines for Indian Government Website https://web.guidelines.gov.in/
- Guidelines from http:// www.cert-in.org.in
- W3C specifications

- Information access/transfer protocols SOAP, HTTP/HTTPS
- MeitY, GoI guidelines on Application Development.
- Latest HTML standards
- Information Security to be ISO 27001 compliant

xxvii.   Any manufacturer and product name mentioned in the RFP should not be treated as a recommendation of the manufacturer / product.

xxviii. The MSI shall design the entire system considering various guiding principles as described below:

Scalability	Important technical components of the architecture must support scalability to provide continuous growth. The system should also support vertical and horizontal scalability so that depending on changing requirements from time to time, the system may be scaled upwards. There must not be any system-imposed restrictions on the upward scalability in number of cameras. Main technological components requiring scalability are Storage, Bandwidth, Computing Performance (IT Infrastructure), Software / Application performance and advancement in camera features. **There is also a possibility of integration of other ITMS systems in future to the system proposed by the MSI.**
Availability	Components of the architecture must provide redundancy and ensure that are no single point of failures in the key project components. Considering the high sensitivity of the system, design should be in such a way as to be resilient to technological sabotage. To take care of remote failure, the systems need to be configured to mask and recover with minimum outage. MSI shall make provision for high availability for all the system services.
Security	The architecture must adopt an end-to-end security model that protects data and the infrastructure from malicious attacks, theft, natural disasters etc. MSI must make provisions for security of field equipment as well as protection of the software system from hackers and other threats. Using Firewalls and Intrusion detection systems such attacks and theft should be controlled and well supported (and implemented) with the security policy. The virus and worms attacks should be well defended with Gateway level Anti-virus system, along with Servers / Workstation/ Desktop level Anti-virus mechanism. There should also be an endeavor to make use of the SSL / VPN technologies to have secured communication between Applications and its end users. Furthermore, all the system logs should be properly stored & archived for future analysis and forensics whenever desired by the MMVD.
Manageability	Ease of configuration, ongoing health monitoring, and failure detection are vital to the goals of scalability, availability, and security and must be able to match the growth of the environment.
Interoperability Standards	Keeping in view the evolving needs of interoperability, especially the possibility that the solution shall become the focal point of delivery of services, and may also involve cross-functionality with the e-Government projects of other departments in future, the solution should be built preferably on Open Standards. The MSI shall ensure that the application developed is easily integrated with the other Application. The code should not build a dependency on any proprietary application, particularly, through the use of proprietary stored procedures' belonging to a specific database product. The system should have capability to give cameras feeds, database feeds to any other system outside ITMS System, without any additional cost. In relation to the server architecture and IT life cycle costs associated to the applications, data, operational management, people skills etc., MSI

	shall be required to ensure compatibility of applications across OS releases and generations of system technology and upgrades. OEM shall be required to ensure for binary compatibility / interoperability of applications across release of the operating system and architectural generations of CPU and system platforms; today and in the future at least till upto the end of the project
Data Integrity	• The MSI has to ensure and comply with Data integrity compliance through the entire contract.
	• Data integrity is a fundamental component of information security. In its broadest use, "data integrity" refers to the accuracy and consistency of data stored in a database, data warehouse, data mart or other construct. The term – Data Integrity – is used to describe a state, a process or a function – and is used as a proxy for "data quality". Data with "integrity" is said to have a complete or whole structure. Data values are standardized according to a data model and/or data type. All characteristics of data must be correct include business rules, relations, dates, definitions & lineage – for data to be compile & process.
	• Data integrity is imposed within a database when it is designed and is authenticated through the ongoing use of error checking and validation routines. As a simple example, to maintain data integrity numeric columns/cells should not accept alphabetic data.
	• As a process, data integrity verifies that data has remained unaltered in transit from creation to reception.
	• As a state or condition, Data Integrity is a measure of the validity and fidelity of a data object.
	• As a function related to security, a data integrity service maintains information exactly as it was inputted, and is auditable to affirm its reliability.
	• Data undergoes any number of operations in support of decision-making, such as capture, storage, retrieval, update and transfer.
	• Data integrity can also be a performance measure during these operations based on the detected error rate.
	• The MSI has to ensure that the Data must be kept free from corruption, modification or unauthorized disclosure to drive any number of mission-critical business processes with accuracy. Inaccuracies should not occur either accidentally (e.g .through programming errors), or maliciously (e.g. through breaches or hacks).

	• The MSI has to ensure Database security and data integrity, including:
	  o Data encryption, which locks data by cipher
	  o Data backup, which stores a copy of data in an alternate location
	  o Access controls, including assignment of read/write privileges
	  o Input validation, to prevent incorrect data entry
	  o Data validation, to certify uncorrupted transmission

Open Standards	System should use open standards and protocols to the extent possible
Other principles	Robustness, reliability, resilience, portability, statutory, interoperability, extensibility, compliance, fault-tolerance, & regulatory adherence etc.

MMVD at its discretion, may also engage independent auditors to audit any/some/all standards/processes. The MSI shall support all such audits as per calendar agreed in advance. The result of the audit shall be shared with the MSI who has to provide an effective action plan for mitigations of observations/non-compliances, if any.

Project Activities
1. Inception Phase

1.1. Survey and Implementation Plan by MSI

a. The tender document details various stretches of the highway for setting up of Intelligent Traffic Management System. The tender document also covers requirement at each site. **However, the requirements and the quantity are indicative.**

b. The MSI shall carry out an independent and detailed survey of all the sites to prepare the overall solution. The actual deployment of hardware and software components and the civil work shall be based on the comprehensive field survey to be conducted by the MSI and approved by MMVD.

c. The field survey shall include study of black spots, accident prone areas and most probable locations for various violations. The survey shall also include study of space requirement for Solar Panels and Online UPS with batteries, required space / RoW for the same, availability of electricity supply and 4G / 5G network availability, ILL / MPLS network availability at the location, optimized number of solutions, exact location for mounting of pole, cantilever, and gantries etc.

d. The survey would also include traffic and challan volume on the highway, present site conditions, solution design and any other specific requirement etc.

e. The MSI shall identify need for site preparation activities like erection of poles, cantilevers and gantries, mounting and directions of Solar Panels, cabling for power and network, location and direction for installation of camera and other sensors, Porta Cabin, Command and Control Center etc.

f. Survey of the sites shall be conducted on prior approval from the MMVD along with the concerned MMVD officials as directed by MVMD for scheduled date, time & other details.

g. All maps, drawings, graphs, information, any other documents, including Solar Panel installation drawing, component drawing shall be submitted along with the Survey Report by the MSI to validate the solution proposed.

h. The solutions proposed in this RFP are only for suggestive understanding. MSI should not limit its offerings to the functionalities proposed in this RFP and is suggested to propose any functionality over and above what has already been given in this tender document.

i. Anything proposed over and above the requirements shall be submitted as a part of the implementation plan. MMVD may review, only upon approval, MSI shall implement

j. There could be additional variation in the given indicative list as per approvals from MMVD and no extra costs to MMVD.

1.2. Submission of Project Implementation and Operation Plan Document

The MSI shall plan the project implementation in detail and should provide a micro level view of the tasks and activities that they are going to undertake in consultation with the MMVD. The MSI shall submit the specifications of the hardware and furniture proposed etc. and a Detailed Technical Architecture as a part of Project Planning document within the timelines specified in the RFP. Any change in the proposed hardware, software or any other component / solutions shall be submitted by the MSI along with reasonable justification. This may be considered by the MMVD as it deems fit. Any directions from MMVD in this regard shall be adhered to by the MSI. An indicative list of planning related documentation that the MSI should make is as described below. Any changes recommended by MMVD in the project planning and management document shall be incorporated and adhered to throughout the contract period.

a. The MSI shall submit a detailed Survey Report within the timelines specified in the RFP.

b. MSI shall also submit a detailed report on the Implementation Plan and Operations & Maintenance Plan for the project.

c. **The Implementation Plan shall be comprehensive including, but not limited to:**
   i.   Infrastructure requirement analysis

   ii.   Civil work schedule chart and detailed plan

  iii.   Physical infrastructure design for devices on the field.

  iv.   Hardware installation and commissioning plan including the Cable Plan and other permission as may be required. Detail requirement and process of civil work.

   v.   Process, methodology, Make, Model, version of hardware, software etc. along with its license details, to be used in the Project (exactly as submitted by the Bidder during Technical Evaluation).

  vi.   Corresponding documents of hardware and software, user manuals, SOPs, repair and maintenance manuals, including details of the Equipment Vendor / OEM.

 vii.   Detailed description of the technology to be used for evaluation of the driving ability of the applicant (exactly as submitted by the Bidder during Technical Evaluation).

viii.   Manpower, tools, resources, and raw materials to be used for installation of various components. Qualification and experience of the manpower deployed along with Escalation Chart.

  ix.   Installation and Commissioning Plan, while ensuring minimum disturbance to the existing setup of the site.

   x.   Submission of FRS, SRS including Solution Architecture. Application Design Documents (HLD and LLD) of the proposed system

  xi.   Screen Layout, functionalities, wire frames, user interface etc.

 xii.   Test Procedure, FAT Certificate, UAT Test Cases

xiii.   Logical and physical database design, Data dictionary and data definitions, ER diagrams etc. data modelling documents.

xiv.   Backup SOP document, Business Continuity Plan (BCP) and other details for backup, DC-DR etc. designed by MSI and approved by MMVD.

 xv.   Application flows and logic, GUI design (screen design, navigation, etc.), Database architecture, including defining data structure, data dictionary as per standards laid down by Government of India / Govt. of Maharashtra.

xvi.   Risks anticipated and mitigation plans.

xvii.   Sizing for hosting infrastructure, storage, any other requirements with respect to hosting and other details about the OEM / vendor and setup, meeting the requirements.

xviii.   Data Centre Architecture, Network Architecture and Security architecture.

xix.   Bandwidth requirement calculation, primary and secondary network availability plan.

 xx.   Power Backup sizing for each component / site including and UPS and DG set details accordingly.

xxi.   Capacity Building Material, Content and Plan.

xxii.   Third Party Applications and System integration plan including integration with Vahan, Sarathi., eChallan and One State One Challan applications.

xxiii.   Timelines for implementation.

xxiv.   Insurance as per requirement of RFP

  d.   **The MSI shall submit Operations and Maintenance Plan including, but not limited to**:

   i.   Final SOP for MSI operational staff, MSI maintenance staff and MMVD officials.

  ii.   Resource deployment plan with qualification, experience and Escalation Chart.

  iii.   Risk management plan

  iv.   Repair and Maintenance plan, Plan for spare Components and parts

   v.   Consumables procurement plan

  vi.   IT system Security plan, Information Security and Business Continuity

 vii.   Data Backup Plan and Data Recovery architecture with RPO and RTO details.

viii.   SLA adherence plan

  e.   MSI shall submit any other details and plans as described in the Tender and / or as required by MMVD from time to time during the project period, including for the new requirements.

  f.   All solutions and architecture proposed by the MSI shall be highly scalable to accommodate future requirements. Detailed plan for the same shall also form part of this document.

  g.   The implementation plan for each site must be discussed in detail with MMVD and subsequently executed as per final approval by MMVD.

h. MSI shall also submit names of the Project Team members, their roles & responsibilities and contact details and escalation matrix.

i. The Technical Architecture Document shall take into consideration various guiding principles defined in the RFP.

2. Deployment of Manpower

1. The MSI shall deploy required and adequate manpower for various purpose such for operating, management and maintenance of all IT and Non-IT Components., minimum as per requirement defined in below Clause 2.3 under Project Phases below.

2. The MSI shall ensure that the resource availability shall be maintained as per requirements defined in the SLA during the entire contract period. MSI may plan alternate trained resource/s to ensure the SLAs are maintained. In case of failure to comply, MSI shall be liable for penalty as defined in the SLA in this document.

3. For all the staff deployed as a part of the project, the MSI shall be responsible to pay the deployed staff and shall meet or exceed the minimum wages as per Minimum Wages Act and comply with labour laws of Govt. of Maharashtra. The MSI shall also be responsible for ensuring compliance to the provisions of other applicable labour laws, EPF laws and other relevant laws.

4. MSI shall ensure appropriate provisions for safety and security measures of all the personnel deployed on the project. In case of any eventualities (including disability, death etc.) anytime during the contract period including any incidents, accidents with the personnel deployed by the MSI for the project, MSI shall ensure appropriate measure to control the damage, if any and to do good to the personnel or its family as applicable. MSI shall hold MMVD indemnified for any claim may be arising out of the same.

5. MSI should at all times indemnify, defend and hold MMVD, its officers, employees, agents, consultants, etc. harmless against all claims, liabilities, loss, expenses, damages or compensation under the provisions of Payment of Wages Act; Minimum Wages Act; Employer's Liability Act; The Employees Compensation Act; Industrial Disputes Act; Maternity Benefit Act; or any modification thereof or any other Labour laws relating thereto, and rules made hereunder from time to time. MMVD will not own any responsibility in this regard.

6. The MSI shall ensure that the salary of deployed manpower shall be credited directly through online banking mechanisms like ECS / NEFT / RTGS etc. A record of the payments made in this regard should be maintained by the MSI.

7. Manpower is required to be deployed at the CCC and other manpower (may be floating) for the purpose of maintenance of all the hardware, software, and other components and equipment throughout the contract period as per requirements defined in the RFP. However, MMVD officials may have special requirements at times, and MSI and its manpower resources shall ensure to meet the requirements as per directions of the MMVD.

8. The MSI shall track the attendance of the Manpower deployed at the site and shall also submit log report of the same, on quarterly basis to the MMVD.

9. The MSI is required to comply with labour law for weekly off and other benefits. It is advised that MSI shall keep adequate stand-by resources all the time over and above minimum requirements to adhere to the SLAs at no extra costs to MMVD.

10. MSI shall submit escalation chart for the entire duration of the contract with details like contact details, designation, role for the project etc. of all the concerned persons.

2.1. Replacement of Resources

1. MMVD can ask the MSI to replace any of its resources on the ground of non-performance anytime during the project period, and MSI shall replace the resource with an equivalent or better resume within two weeks, on approval of MMVD.
2. MSI shall provide replacement resource of equal or better qualification and experience. If MMVD objects to the appointment, MSI shall not assign the individual to that position and shall seek an alternative candidate.
3. The MSI may request any replacement of resource in writing and replace a resource only upon written approval from MMVD.
4. MSI all ensure proper handover of at least one week (considering replacement time period of maximum two weeks) at no extra cost to MMVD and shall not make further replacement within minimum six months.
5. MSI shall ensure role of any resource is not vacant at any point during the contract period.
6. MSI may plan adequate extra resources for manning the project as contingency.

2.2. Premise behavior of the project team

1. Manpower resources deployed by the MSI shall not divulge or disclose to any person, any details of office, operational processes, technical know-how, security arrangements and administrative / organizational matters as most are of confidential / secret nature. Each manpower deployed shall be required to sign an NDA with the MSI to this effect.
2. Manpower resources deployed shall be polite, cordial, positive and efficient, while handling the assigned work so that their actions promote. Be it private or public areas, MSI deployed manpower resources shall be liable to be frisked / checked by the security personnel at MMVD premises at any time during performance of their duties.
3. MSI personnel shall wear ID card all the time while in CCC premises.
4. MSI shall ensure proper conduct of his personnel in office premises, and enforce strict prohibition of consumption of alcoholic drinks, paan, gutkha, tobacco, smoking, loitering.
5. MMVD shall not be liable for any loss, damage, theft, burglary or robbery of any personal belongings, equipment or vehicles of the manpower resources deployed by the MSI.
6. The manpower resources deployed by MSI under this RFP shall not claim nor shall be entitled for any perks and other facilities admissible to regular / confirmed employees of the MMVD during or after contractual period. These manpower resources shall not have right to demand for any type of permanent employment with MMVD or its allied Offices. These manpower resources shall not claim any benefit / compensation / absorption / regularization of services with MMVD. All the resources deployed under this project anytime during the contract period shall be sole responsibility of MSI and MMVD shall not be responsible for providing employment of such resources.
7. Manpower can be sub-contracted by MSI if required, only after prior approval of MMVD. However, overall responsibility of the project delivery and entire liability including that of sub-contracted staff shall be of the MSI. The MSI shall indemnify MMVD from any claims, litigation or disputes from the deployed manpower (own or sub-contracted).
8. MSI shall deploy required manpower with necessary expertise, experience and tools to carry out state of the art installation of the entire ITMS project.
9. Manpower shall include the managerial staff for monitoring the implementation, civil work, installation etc. and report in case of any issues, challenges etc. to the MMVD.
10. The MSI shall ensure to deploy adequate manpower on a continuous basis so as to meet the timelines for service delivery, else penalties as per Annexure Set IV – Annexure 3 shall be applicable. The below indicated Manpower is bare minimum, which can be increased as per requirement and the MSI shall be liable to provide the additional manpower for smooth operation of track.

2.3. Project Team

Sr.	Designation	Resources	Qualification	Indicative Responsibility
1	Project Manager For Entire duration of the contract	1	• Minimum Education: MCA / MBA / M. Tech / B. Tech / B.E • Total experience: At least 10 yrs. • Languages known (Read, Write and Speak): Marathi, Hindi and English • Prior project management experience of at least 7 years of handling large and complex projects, with at least one large scale project with Project Cost of minimum INR 15 crores. • Excellent writing, communication, time management and multi-tasking skills • Project Experience of managing components of Smart City, ITMS	• A Project Manager shall be deployed at the Command-and-Control Center. • The project manager shall be responsible for overall coordination with respect to the execution and day to day operations with the MMVD, Highway Safety Police and other on-field officers. • Responsible for managing any issues or bugs reported, any security threat reported, any new requirements etc. • Managing other manpower, supporting with stationery and other consumables, attendance and access management etc. • Responsible for coordination with various 3rd party agencies like National Informatics Center for integration of eChallan, Vahan, Sarathi etc. • Shall also be responsible for keeping record of various activities at all locations of the project.

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Implementation Phase

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Core Delivery Team for Implementation Phase:

2	• Functional Lead and Technical Lead, along with Subject Matter Expert such as Hardware Experts, Team from OEMs, Security experts, Civil Works expert, Networking Expert, Electricity / Solar Power experts, DC-DR Expert etc. shall be deployed as per requirements. • Such Leads and experts, as well as working staff shall be of adequate experience and qualification to ensure start-of-the-art implementation of the project ensuring timely completion as per Timelines to meet the SLAs. • Shall be responsible for the entire design, development, installation, testing and commissioning of the project.

Sr.	Designation	Resources	Qualification	Indicative Responsibility
Operations and Maintenance Phase
Core Delivery Team for Operations and Maintenance Phase:
3	Lead Command and Control Operator	Minimum 1 for daily shift of 8 hours per day as per requirement of MMVD As and when required by MMVD officials in certain cases	• Minimum Education: B. Tech / M. Tech / B.E / M.E / BCA / MCA / BSc. / MSc. Or Diploma with specialization in computers / I.T. • Total experience: At least 8 yrs. • Languages known (Read, Write and Speak): Marathi, Hindi and English • Prior Command and Control Center management experience of at least 5 years. • Project Experience of managing components of Smart City, ITMS	• Lead Command and Control Operator shall be responsible for manning the CCC and perform all the functions of the Command-and-Control Center Operator as defined below. • Additionally, the Lead CCC operator shall be responsible for managing the entire other team deployed on the project, day to day activities, attendance, leave management of the staff etc. • Lead CCC operator shall work under supervision of the Project Manager.
4	Technical Manager	Minimum 1 for daily shift of 8 hours per day as per requirement of MMVD As and when required by MMVD officials in certain cases	• Minimum Education: B. Tech / M. Tech / B.E / M.E / BCA / MCA / BSc. / MSc. Or Diploma with specialization in computers / I.T. • Total experience: At least 7 yrs. • Languages known (Read, Write and Speak): Marathi, Hindi and English • Prior Command and Control Center technical management experience of at least 5 years. • Project Experience of managing components of Database, hosting, applications, cloud, etc.	• Technical Manager shall be responsible for managing the entire technical part at CCC and perform all the functions of associated with the same. • Additionally, the Technical Manager shall be responsible for managing the entire database, DC- Cloud DR hosting, managing multiple applications and other technical components in CCC. • Technical Manager shall work under supervision of the Program Manager and Lead CCC operator.
5	Command and Control Center Operators	5 operators each in 2 shifts from 6	• Minimum Education: B. Tech / M. Tech / B.E / M.E / BCA / MCA / BSc. / MSc. Or Diploma with specialization in computers / I.T.	• The operators shall be responsible to assist the MMVD to continuously monitor the Highway stretches

Sr.	Designation	Resources	Qualification	Indicative Responsibility
	including GIS operators Available 24 x 7	AM to 10 PM. 2 operators in one shift from 10 PM to 6 AM As and when required by MMVD officials in certain cases	• Total experience: At least 6 yrs. • Languages known (Read, Write and Speak): Marathi, Hindi and English • Prior Command and Control Center management experience of at least 3 years. • Project Experience of managing components of Smart City, ITMS	• Operators shall man the workstations and shall be responsible for following the standard operating procedures (SOPs), and coordinate with the authorities in case of any unusual activities, incidents etc. is detected or predicted. • The operators shall assist authorities to define SOPs, manage videos, cameras, other sensors, network, storage and all other components and solutions of the ITMS system.
6	Repair and Maintenance Staff	For 3 NH (2 resources in each of 2 shifts on every road) As per requirement MSI shall maintain SLA at all highways	• BCA / MCA / BSc. / MSc. Or Diploma with specialization in computers / I.T. • Minimum 3 years of experience • Effective verbal communication (English & Hindi) • Shall be well-trained from reputed institutes and/or from OEM of the component.	• Repair and maintenance of the system and components including CCC, Counselling Centres, field components, network or power components, etc. • Trained for any eventualities, technical assistance and coordination with the cloud operators, OEMs etc. • Equipped with necessary tools and spares.
7	Security and Facility Management Staff at Porta Cabins Available 24 x 7	1 person each in 2 shifts for each Porta cabin.	• Minimum 1 years of experience • Effective verbal communication skills (Marathi and Hindi)	• Assist MMVD in intercepting traffic violators and guide them. • Assist them in watching Road Safety videos and other videos. • Assist MMVD during in-person counselling • Guard the Porta Cabin

Sr.	Designation	Resources	Qualification	Indicative Responsibility
8	CCC Support Staff	Minimum 2 1 each in 2 shifts for at least 16 hrs per day.	• MCA / BE / B. Tech / MSc. Or Diploma with specialization in computers / I.T. • Total experience: At least 6 yrs. • Minimum three-year experience in either of Security Administration, Database Administration, network administration, server administration, Systems / Software Quality Assurance • Experience in large and complex IT/ITES/Smart City/ITMS/Telecom projects • Shall have relevant industry certifications and OEM certifications. • Shall have knowledge of leading testing tools • Effective verbal communication (English & Hindi)	• Timely backup of the data and feeds, deployment of regular application patches, regular updates of anti-virus and other security applications, any customization required by the authorities and any other changes required in the rules, SOP etc. and any other activity that may come up from time to time. • Devising and establishing a project's quality procedures, standards and specifications, increasing operational efficiency, setting up and maintaining controls and standard operating procedures, creating performance matrix and monitoring performance by gathering relevant data and producing statistical reports, etc. • Responsible for maintaining and regular updating the mobile app for various features from time to time.
9	Housekeeping staff at CCC Available during business hours	Minimum 1 As per requirement	• Minimum 1 years of experience • Effective verbal communication skills (Marathi and Hindi)	• Supporting and Housekeeping Menial jobs
10	Security Guard at CCC Available 24 x 7	Minimum 3 1 per shift of 8 hrs each		• MSI to deploy security personnel for safety and security of all the hardware, components, and premises of the CCC as per requirements

Note: The resources deployed by the MSI shall be responsible for various activities as defined in the RFP document. The resources deployed shall strictly work under the supervision of the MMVD officials and their role and responsibility may change from time to time as per requirements of MMVD. MSI may propose additional manpower to meet the SLA and to ensure smooth implementation, O&M of the project at no extra cost to the MMVD.

3. Implementation Phase

a. The MSI shall be solely responsible for entire design, development, construction, procurement, supply, delivery, installation, integration, testing, commissioning, Operation and Maintenance of entire system including all the components, both IT and Non-IT hardware, networking components, and other components at control room, installation of applications, integration of 3rd party applications etc.

b. This would also include necessary junction box, UPS, network components, power requirements, poles, any other civil work on ground including re-furbishing, installation computer console / workstations at control room, indoor CCTV, furniture, accessories, other components for control room etc.

c. The MSI shall ensure that the execution shall be strictly as per the MMVD approved Implementation Plan. If there is any deviation, MSI shall bring it to the notice of MMVD and shall continue execution only upon written approval from MMVD.

d. MSI shall be required to ensure that all civil work, systems, network, software applications, hosting infrastructure etc. are working in completeness as required and the system is able to function as desired. During implementation period, in case any camera or any other sensor, any other component is damaged by a vehicular / other accident and needs repair or replacement, then the MSI shall repair / replace with new component within 15 days of the incident. Damages are to be borne by MSI in such cases through proper insurance.

3.1. Civil Works

a. Ensure that the pole, gantry and cantilever implementation is vibration resistant.

b. MSI shall ensure to withstand high wind speeds, and extreme weather conditions, physical damage due to tampering, vandalism, vehicle accidents or other incidents. Any additional protection required to the cameras, sensor, pole or gantry shall be responsibility of the MSI.

c. The MSI has to provide structural safety certificate for structural safety from qualified structural engineers approved / certified by Govt. Agency.

d. MSI shall supply all of the necessary equipment for the operations including poles, gantries, sensor housings and mountings poles and shall make final connections to junction box.

e. MSI shall obtain clearance for RoW and RI from the respective road owning agency before performing any civil work. The cost towards RoW permission and entire RI shall be sole responsibility of the MSI. MMVD will provide all necessary approvals and support for the required permissions.

f. Ensure minimum hindrance to the on-going traffic on the Highway.

g. Ensure safety of implementing manpower as per norms as directed by MMVD, including but not limited to visible jackets, cones from 50 meters ahead of work area etc.

h. The MSI shall be required to abide to the norms of for any civil work to be carried out under the scope of ITMS Project. MMVD may direct the MSI to use the material of pole, cantilever, concrete etc. as per their norms which shall be binding on the MSI. Such activities include (but not limited to) Digging, Pole & cantilever Erection, Wirings, laying of Cables, Fencing, Barricading, Markings, Displays, Billboards etc. MSI has to restore the site with M20 Grade (or better) or as per the standards of the MMVD.

i. MSI shall be responsible for excavating for Foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50m beyond the site area & stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. (Lift upto 1.5 m) by manual means complete as per directions from MMVD.

j. Providing & Laying in situ cement concrete M-20 (or better) of trap / granite / quartizite / gneiss metal of RCC work in foundations, or bedding work, grillage and footings of RCC columns and steel stachions etc. including bailing out water, formwork, cover blocks compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) complete, with fully automatic SCADA enabled reversible drum time mixer, with natural sand as per directions from MMVD.

3.1.1. Signboards

a. MSI shall be required to place various signboards for proper guidance of the citizens such as "You are under CCTV Surveillance", "Don't overspeed", "Accident Spot Ahead" etc.
b. Such sign boards shall be mounted at all locations on the poles, especially near the Blackspot locations and other hotspot locations.
c. The size, design, colour etc. shall be finalized in consultation with the MMVD.

3.1.2. Safety Requirements

The MSI shall abide by the job safety measures prevalent in India and will free the MMVD from all demands or responsibilities arising from accidents or loss of life, the cause of which is the MSI's negligence. MSI must ensure fitment and regular maintenance of safety equipment and measures like fire extinguishers, emergency exits, and any other such safety measures recommended at the facility. The MSI shall pay all indemnities arising from such incidents and will not hold the MMVD responsible or obligated.

MSI shall ensure safety precautions when excavating or working in excavations close to electric cables, working in Public Street and along railway lines, danger from falling material, care when working in Excavations, danger of cave in, protection of Excavations etc.

3.1.3. Completion of Civil Works

On Completion of the Works, the MSI shall clear away and remove from the Project Sites all equipment's, surplus materials, rubbish and temporary works of every kind and leave the whole of the Project Sites and the Works clean and in a workmanship condition, tidy and in an aesthetically pleasing appearance to the satisfaction of MMVD. The MSI shall, unless otherwise instructed in writing by MMVD, remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary works, stockpiles of excess or waste materials and other vestiges of construction prior to the issue of the Completion Certificate.

3.2. Procurement and Installation of Hardware

The MSI shall be required to procure and install all the required and necessary IT infrastructure including CCTV cameras, sensors, Dynamic Messaging Sign, Solar Panels, Batteries, AVCC, workstations, servers, storage units and any other equipment along with its accessories for recording and monitoring, storage, retrieval and analysis of video feeds & other inputs and provide requisite systems to monitor and enforce the traffic violations and incidents on the highways through the CCC. All the cabling, accessories, installation, and commissioning of the hardware at all the sites as per requirement of the project shall be sole responsibility of the MSI.

The MSI shall be responsible for the various activities including but not limited to:

a. Procure all the required hardware including field components, Command and Control center etc.
b. Ensure appropriate casing / housing is provided to protect camera and other sensors from the on-field challenges including extreme weather conditions and manual physical damage and vehicle accidents.
c. Ensure project objectives are met while positioning the cameras, creating the required field of view, finalizing the height at which any sensor is installed etc.

d. Ensure project objectives are met while positioning the Solar Panel, creating maximum surface area exposed to ambient sunlight. MSI may propose system for automated positioning of Solar Panels for most optimized angle as per Sun's position.

e. Carry out proper adjustments to have the best possible image and sensor readings.

f. MSI shall undertake due diligence for selection and placement of cameras and sensors to ensure optimized coverage of the strategic field of view accuracy of information captured.

g. Prepare and submit a delivery report for all sites including details of components supplied. The delivery report may be validated by the MMVD authorized person at each site. All the solution / hardware procured, delivered and installed at the respective site shall be of exactly same make and model and as per specifications (as per format defined in Annexure Set II – Annexure 8) as proposed and submitted by the bidder during the technical evaluation (or later as change) and as accepted by the MMVD.

h. Making final connections to the junction box and necessary equipment with proper connectivity of the on-field components with the control room components and other components to ensure smooth monitoring of the feeds.

i. All hardware procured for this project shall be as per the latest industry standards and brand new with warranty, comprehensive AMC, replacement, and software assurance and end of life only after end of project period.

j. Manufacturing month of offered component should not be greater than 12 Month at the time of signing of contract.

k. MSI shall place orders on various OEMs or OEM Authorized Vendor directly and not through any sub-contractor / partner.

l. The MSI shall be responsible for any copyright infringement. MMVD bears no responsibility towards the same or towards any consequence resulting from non-conformance or non-compliance thereof.

m. MSI shall be fully responsible for maintaining these assets as per the Warranty and AMC Clauses and shall be fully accountable for the same for entire project period.

n. MSI shall cover all components with IRDA approved Insurance Company for entire duration of MSI contract period as detailed in the RFP (Read with Clause 9 under "Administrative Aspects")

o. All the hardware and network components shall have adequate spare during entire project duration to maintain the SLA.

p. All hardware devices shall be compatible with all weather conditions relevant to the project site.

q. All filed components shall be coupled with suitable lighting arrester.

3.3. Procurement and Installation of Software

The MSI shall be required to procure and install all the required and necessary software applications for recording and monitoring, video analytics, ITMS system, storage & retrieval of video feeds and provide requisite systems to monitor and enforce the traffic violations on the highways through. All ancillary software and security applications necessary shall be sole responsibility of the MSI.

a. MSI shall procure and install all the required software application with necessary number of licenses as applicable on the hosting infra (DR and Cloud DR, as well all any required software at client machine level (such as in the workstation).

b. All such applications shall be integrated with each other as per requirement as applicable for smooth exchange of data and information between various systems.

c. MSI shall ensure the system is well integrated with all the 3rd party applications including integration with NIC's eChallan and Vahan. MSI shall also make available SDKs, APIs, other tools for collaboration with 3rd party apps.

d. MSI shall be required to ensure all the components are up and running and video feeds, analytics, data from other sensors etc. are received in the desired format and are processed as per requirements.

e. MSI shall ensure all the required functionalities as mentioned in the RFP and agreed upon during the Implementation and Operations Plan stage are working as expected.

f. MSI shall be responsible for development, testing and commissioning of all the applications including security applications.

g. MSI shall create role based login of all the system users including MSI staff, MMVD staff or any other stakeholder as directed by MMVD.

3.4. Procurement and Installation of Network and Power

a. MSI shall be responsible for procurement and installation of network and power cables, wiring, switches, routers, SDWAN, Modem, 5G / 4G terminals, Solar Panels, Solar UPS, and all other equipment, components etc. as required.

b. MSI shall ensure to get sufficient power supply for all the field components and other device in the ITMS system, install the DG set as well as UPS for the entire project as per defined requirements. MSI shall also be responsible for earthing requirement of the project.

c. MSI shall ensure the network and power are working as per the requirements to ensure smooth running of the ITMS system.

4. Testing and UAT

MSI shall demonstrate the following mentioned acceptance criteria prior to acceptance of the proposed solution as well as during project operations phase. The Acceptance criteria parameters may get revised and finalized with mutual agreement, however, the decision of MMVD would be final and binding in this regard.

a. MSI shall log and track the testing results, upload & maintain the test cases and log and track issues / bugs identified through required tools.
b. MSI to prepare test plan and test cases and may be required to share the test cases and results with MMVD as per MMVD requirements.
c. Should be performed through manual as well as automated methods. MSI needs to provide the details of the testing strategy and approach including details of intended tools/environment to be used by MSI for testing in its technical proposal.
d. Automation testing tools to be provided by MSI. MMVD doesn't intend to own these tools.
e. Testing and UAT to be carried out in the exact same environment / architecture that would be set up for production.
f. It should be noted that MSI has to arrange all the necessary equipment / tools / other resources / manpower / power etc., which are required for carrying out such testing of the ITMS. Cost of such shall be borne by the MSI itself.
g. MMVD if required, could involve third party auditors (TPA) to monitor/validate various testing parameters. Cost for such audits to be paid by MMVD. However, the cost of any rectification of noncompliance shall be borne by the MSI.

h. **The following kind of testing is envisaged for the project:**

- **Automated Testing**: Tests conducted with the use of software tools which complete a series of pre-defined, automated tests.
- **Manual Testing**: Tests conducted through manual steps & scripts (human intervention)
- **Functional Testing**: To validate operational functional and features specifications.
- **Compatibility Testing**: To validate compatibility with other existing systems.
- **Integration Testing**: To test individual components to determine whether they function as a unit (i.e. share data).
- **Performance Testing**: Performance testing is a non-functional software technique that determines how the stability, speed, scalability, and responsiveness of an application holds up under a given workload.
- **Load Test**: Load testing shall be performed to determine a system's behaviour under both normal and anticipated peak load conditions. It helps to identify the maximum operating capacity of an application as well as any bottlenecks and determine which element is causing degradation.
- **Stress Test**: Stress testing (sometimes called torture testing) shall be performed as deliberately intense or thorough testing to determine the stability of a given system, critical infrastructure or entity. It shall involve testing beyond normal operational capacity, to a breaking point and results shall be observed.
  MSI shall validate compliance with performance requirements and specifications.
- **Regression Testing:** Retest a particular system after changes have been made to verify that problems have been solved, and to ensure that there are no new problems.
- **Conformance Testing**: Validate whether a particular system conforms to documented requirements and specifications.
- **Workflow Testing**: Validate deliverables functionality and viability using actual end-user workflows (real-world procedures and circumstances) as a basis for testing.
- **Ad-Hoc Testing**: Validate deliverables functionality and viability using random, unscripted testing by end-users (i.e. to try to uncover the unexpected).

- **User acceptance testing:** MSI shall prepare test cases for User Acceptance Testing (UAT) in consultation with MMVD. MSI shall facilitate the team from MMVD to conduct this test after successful completion of performance testing. MSI will close all observations, bugs, etc. identified during the UAT. This process of UAT will continue in an iterative manner till zero defects are shown by the MSI for the test cases developed. The MSI also needs to ensure that errors / defects detected in previous round of tests do not get repeated in successive tests.

i. The MSI will submit a testing report along with test cases, tests results, etc. at the end of each testing exercise. The MSI should get a sign-off on the UAT report from MMVD. However, MSI shall be required to make any and all the necessary changes in the system as per requirement of MMVD from time to time throughout the contract period.

j. The MSI shall work in a manner to satisfy all the testing requirements and adhere to the testing strategy outlined. The MSI shall perform the testing of the solution based on the approved test plan, document the results and shall fix the bugs found during the testing. It is the responsibility of MSI to ensure that the end-solution delivered by the MSI meets all the requirements specified in the RFP. The MSI shall take remedial action based on outcome of the tests at no cost to the MMVD. Changes in the system as an outcome of UAT shall not be considered as Change Request.

k. The MSI shall arrange for environments and tools for testing and for training as envisaged. Post Go-Live; the production environment should not be used for testing and training purpose. Detailed process in this regard including security requirement should be provided by the MSI in its technical proposal. The process will be finalized with the MSI.

l. If required, MMVD may appoint any TPA directly at its cost. MSI needs to prepare and provide all requisite information/documents/support to third party auditor. The cost of rectification of non-compliances shall be borne by the MSI.

5. IT Security Audit

a. The Security Audit of ITMS System is mandatory before commencement / Go-Live.

b. The MSI shall be responsible to perform comprehensive Application Security, IT Infrastructure Audit and Vulnerability Audit including review of Security Controls for the complete ITMS Project from a Cert-In empanelled agency.

c. CERT (https://www.cert-in.org.in/) have empanelled a number of security audit agencies to conduct the security audit of applications. The MSI shall coordinate with such agencies (excluding itself if applicable) and provide full access to the system for testing.

d. If there is any major change / addition in the Application's functionality anytime during the contract period (including the O&M period), then MSI will have to obtain the Certification for the changes / additions. MMVD's decision shall be final and binding in this regard.

e. **The Audit shall be done in following Phases**
   o Implementation Phase: Prior to Commissioning of the ITMS Project
   o O and M Phase: At the End of every O and M Year (10 years Post Commissioning)
   i.e. minimum of 1 (during commencement) + 5 (end of each O&M year) = 6 security audits.

f. All the expenses towards security audit to be incurred by the MSI.

g. Any changes recommended by the Auditor (or as directed by MMVD) shall be sole responsibility of the MSI at no extra cost to MMVD. The MSI has to submit a report within an agreed upon stipulated time, about the changes done as per requirement of the Auditor.

h. Upon successful completion of the Audit, MSI is required to share the Audit Completion Certificate with adequate validity along with copies of all communication, written or otherwise, issues list, bug report, etc. and corrective / compliance measures taken by MSI taken thereof on the Audit observations.

i. MMVD reserves right to get the audit done by any other third-party agency as it deems fit. MSI shall provide all the necessary access to the auditor as directed by the MMVD.

6. Training and Capacity Building

a. MSI shall conduct a proper Training Needs Analysis of all the concerned staff and draw up a systematic training plan in line with the overall project plan.

b. MSI shall provide training to officials of MMVD, other stakeholders and users before UAT and Go-Live of the ITMS Project for the operation and maintenance of all the equipment and ancillary components.

c. Training shall be designed to familiarize the MSI's own Operations & Maintenance personnel and MMVD's representatives with the design, installation, operation and maintenance of the equipment, CCC etc.

d. To provide training to officers and staff of the MMVD, Highway Safety Police, Road Owning Agency, and any other stakeholder from time to time, for effective usage of the system and various applications.

e. The training shall also cover functionality, theory of operation, calibration, testing, performance and operating parameters.

f. Training should also cover do's & don'ts for the usage of the system.

g. Training shall be role based. Details for the same shall be shared with MSI at later date.

h. A single organized training shall be conducted by MSI at a location decided by MMVD.

i. The MSI shall ensure all of its resources are adequately trained and equipped to operate and maintain the ITMS Project. Any resource replaced, must also be trained by the MSI.

j. The deployed resources will also be responsible to ensure smooth functioning of the entire project. The MSI shall ensure that the deployed resources are also trained to operate MMVD Systems by the OEM / Application developers or its authorized representative for troubleshooting.

k. MSI shall prepare necessary documentation and aids required for successful trainings. For all these training programs the MSI has to provide necessary course material and reference manuals (user / maintenance / administration).

l. The MSI shall also conduct training for MMVD and its designated officers after installation and commissioning has been completed. The detailed scope of the training program would be decided by MMVD at later date. All the training material will be provided by the MSI. The training shall cover both IT and Non-IT components involved in the project. However, the training should include:
   o Guidelines and other backend processes
   o Basic functionalities of Application
   o Overview of all IT and Non – IT components installed for the ITMS project
   o Process to review, extract the traffic violations
   o Do's & Don'ts for the usage
   o Practical training on the system including for operations of ITMS.
   o SLA Monitoring
   o Basic troubleshooting activities in case of problems.

m. The training materials shall be provided in English & Marathi by the MSI.

n. One copy on digital format and three copies in hard prints are to be provided, including all manuals, data sheets, technical sheets, technical manuals, maintenance and repair manuals, spare part manuals etc. to the MMVD in English language.

o. Training room shall be provided by MMVD.

p. Trainings shall be provided to any new officials as and when required by the MMVD.

q. The MSI shall ensure complete knowledge transfer of operations, repair and maintenance to the MMVD and to any other party that may be appointed by the corporation from time to time and at the completion of the project. A system hand-over, explaining the configuration of the storage & Backup Infrastructure as documented in the relevant Build Specification, to the appropriate staff before project completion.

r. MSI shall submit training completion report to the MMVD once the training is completed as per schedule.

7. Documentation

Documentation should follow the ITIL/ISO 2000 (Information Technology Infrastructure Library/ITSM) standards. This documentation should be submitted as the project undergoes various stages of implementation. Indicative list of documents includes:

a. **Project Commencement**: Project Plan giving out micro level activities with milestones & deadlines.
b. **Delivery of Material**: Original Manuals and Datasheets from OEMs.
c. **Training**: Training Material will be provided which will include the presentations used for trainings and also the required relevant documents for the topics being covered.
d. **Process documentation:** The MSI shall be responsible for preparing process documentation related to the operation and maintenance of each and every component of the ITMS Project. The prepared process document shall be formally signed off by MMVD before completion of final acceptance test. The MSI shall document all the installation and commissioning procedures and provide the same to the MMVD within one week of the commissioning.
e. MSI shall submit a complete set of project drawings including cabling system layout (as installed), cable routing, Solar Panel installation drawing etc. The layout shall detail locations of all components and indicate all wiring pathways. Manuals for configuring of various component shall be provided by the MSI.

8. Final Acceptance Test and Commencement of Operations

a. Final Acceptance Test Certificate (FAT) shall be issued by the MMVD to the MSI.

b. **Prerequisite for Carrying out FAT activity**
   o Detailed test plan shall be defined by the MSI in consultation with MMVD. This shall be submitted by MSI before FAT activity to be carried out.
   o All documentation related to ITMS along with all relevant acceptance test document (including IT Components, Non-IT Components etc.) should be completed & submitted before the final acceptance test to MMVD.
   o MSI shall submit report of components, furniture etc. installed at each center in the format as specified by MMVD. Indicative format is mentioned below:

Sr.	ITMS Highway Stretch Name	Item Name	Item Description	Item ID	MAC IDs (if applicable)	Total Qty required as per RFP / Final Survey Report	Total qty supplied	OEM / Make	Model	Delivery date	Installation and Commissioning date
1											
2											
.											

   o The training requirements as mentioned should be completed before the final acceptance test.
   o Successful hosting and testing of all the applications.
   o The MSI shall submit the details of both IT & Non-IT equipment / software manuals / brochures / Data Sheets / CD / DVD / media for all the ITMS supplied components.
   o All user logins are created and given to the respective users.

c. **The FAT shall include the following**

   o Site preparation, supply and installation of the required components (hardware, software, network etc.) at ITMS center are completed as per the requirement.
   o The MSI shall be required to demonstrate all the features / facilities / functionalities as mentioned in the RFP.
   o MSI shall conduct all the necessary testing, any required modifications as a result of testing, and Security Audit Testing is completed.
   o All required activities as defined in the RFP including all changes agreed by MMVD and delivered by the MSI and accepted by MMVD.
   o All requirement defined in the SRS document including all changes agreed by MMVD and delivered by the MSI and accepted by MMVD.
   o Commissioning of all hardware, network, non-IT components etc. as per the design and that all the detailed procedures of operating them have been carried out by the MSI in the presence of MMVD officials.
   o All required documentation as defined in this document including all changes agreed by MMVD and delivered by the MSI and accepted by MMVD.
   o All required training as defined in this document including all changes agreed by MMVD and delivered by the MSI and accepted by MMVD.
   o All identified shortcomings / defects in the systems have been addressed to MMVD complete satisfaction.
   o Deployment of all manpower as per requirements mentioned in the RFP.
   o MSI shall be required to provide any and all additional services and products not identified and accounted within the bid as may be necessary to correct all problems which are preventing the Final Acceptance, at no extra cost to MMVD.
d. On successful completion of the above defined activities and all other required activities as defined in the RFP document, to the satisfaction of the MMVD, MMVD shall issue Final Acceptance Testing Completion Certificate.
e. MMVD (or any third party hired by the MMVD) reserves right to visit and inspect the ITMS project facility before the commencement of the project and anytime during the entire project without any prior intimation to the MSI.
f. The quality and standard of ITMS equipment, Hardware and Software infrastructure, Non-IT infrastructure shall remain constant during the entire contract period and shall also be checked periodically. In case of any deviation to the expected and directed scope found, the MSI shall be liable for penalties as defined in Annexure Set IV – Annexure 3 including termination of contract and forfeiture of PBG.

9. Stabilization Period

a. The stabilization period shall be in force for a period of 1 (one) month succeeding the Final Acceptance, during which the entire ITMS system shall be operational in all aspects.
b. Any minor defects in the system identified by the MMVD and / or the MMVD's nominated representative or by MSI during the testing or during stabilization period shall be recorded shall be rectified during the Stabilization Period.
c. Suitable tests for confirming the rectification of defects shall be performed by the MSI to the satisfaction of the MMVD and / or the MMVD's nominated representative.
d. No SLAs penalty shall be applicable with respect to performance, however MSI shall ensure the system is up and running to adhere to the SLA requirements.
e. MSI shall not be paid during the Stabilization Period of 1 month.
f. At the successful completion of one month Stabilization Period, MMVD shall issue Go-Live Certificate. The date of this certificate shall be considered as "Date of Commissioning" / "Go-Live Date".

10. Operations

The MSI has to adhere to the operating policies and procedures, as directed by Government of Maharashtra (GoM) and MMVD, for managing and operating the ITMS Centres. This includes (but not limited to) activities related to manpower, vendor management, security, services, repair and maintenance and other primary functions, training programs to staff, deliverables, administrative policies and procedures etc. for entire ITMS project.

a. The MSI shall be responsible for assisting MMVD officials and HSP at Command and Control Center and Porta Cabin on continuous basis for various operations on the ITMS systems such as defining parameters for violations on dynamic basis, defining SOPs for violation and incident, set messages for the DMS, coordination for the incident management, manually detecting violations, manually identify vehicle and recognize registration plates in case of ANPR fails, extracting reports for the authorities etc. and other use case as defined in the RFP document.

b. MSI shall be responsible for the following activities
   i. Deploy required resources for appropriate up-keeping, maintenance, and operation of all network, hardware, and software components, and ensure smooth functioning of the ITMS System during the entire O and M period.
   ii. MSI shall deploy manpower for the entire operations period for various functions as defined in the RFP including the operators at CCC, repair and maintenance staff at various locations, other manpower for day-to-day activities, including managerial and technical staff.
   iii. Monitor and manage utilities like network, electricity, etc.
   iv. Ensure regular payment dues to Cloud, Network, SMS Service provider etc. as applicable.
   v. Re-fuel the DG set and keep it ready for use all time.
   vi. Provide product upgrades, virus definition updates, OS updates and other updates of any COTS applications, whenever they are available. Any downtime caused due to upgrading of patches shall be to the account of the MSI and it shall not be considered as 'Planned Service Down-Time'.
   vii. Keep a watch on the health of the system to ensure minimum downtime of each of the components and system as whole.
   viii. Maintain the database, server, cloud storage and perform regular backup as per stipulated policies and test them on regular basis.
   ix. Maintain a log of the performance monitoring of hosting infrastructure including but not limited to monitoring CPU, disk space, memory and I/O utilization, etc.
   x. Identification, diagnosis and resolution of problem areas pertaining to the Hosting Infrastructure, application and maintenance of assured SLA levels.
   xi. Security and safety arrangements for safe custody of the backup data shall also be the responsibility of MSI.
   xii. Maintain system audit logs.
   xiii. Recording of any system failure and report the same to concerned person for immediate action so as to ensure smooth operations as per defined SLAs.

c. MSI shall be responsible to report any issues, bugs, threats, attacks, loopholes, system failures, warnings etc. to the concerned person and coordinate for necessary action.

d. MSI shall also be responsible for regular monitoring of entire system, all equipment, proactively perform warranty checks, and generate SLA reports from SLA monitoring tool.

e. MSI shall manage and coordinate with 3rd party vendors for any requirements, integration, technical issues etc.; escalate to MMVD in case of any problems in such management.

f. MSI shall ensure that safety and security of all users of the premises is maintained at all times related to the MSI's scope of work.

11. Maintenance Services

MSI shall be responsible to deploy required resources for appropriate up-keeping, maintenance, and operation of entire ITMS Project and ensure smooth functioning of the ITMS System during the entire O and M period.

MSI shall perform minimum following activities with regards to the Maintenance:

a. Civil and Electrical
   o Undertaking routine maintenance including prompt repairs of poles, gantries, cantilevers, road signs, furniture and fixtures, Porta Cabin etc.;
   o Undertaking routine maintenance including prompt repairs / replacement of all electrical works / services and electronic equipment.

b. IT – Hardware and spare parts
   o Provide comprehensive onsite warranty for all the hardware items and all peripherals.
   o Undertaking routine maintenance including prompt repairs / replacement of all software, hardware and networking works etc.
   o Provide comprehensive Repair and Maintenance for all CCTV cameras, Dynamic Messaging Sign, workstations, servers, network components, various other active and passive components supplied for the project. This involves comprehensive maintenance of all components covered under the contract, including configuration of the components, repair, replacement of parts, providing spare parts etc.
   o MSI shall provide replacement of any component if not repairable, in order to keep the system up and running at all times to maintain the defined SLA standards, and storing the minimum number of spare components as required. The MSI 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.
   o Whenever a component has to be replaced because of technical, functional, manufacturing or any other problem, it shall be replaced with a component of the same make and configuration. If it's not available, the replacement shall conform to open standards and shall be of a higher configuration as directed and approved by MMVD.

c. IT – Software and upgrades
   o Manage the usernames, roles and passwords of all the relevant subsystems, including, but not limited to servers, applications, devices, etc.
   o Implementation and maintenance of standard operating procedures for maintenance of the infrastructure based on the pre-defined I.T. policies, mutually defined in consultation with MMVD.
   o All patches and updates to any software and hardware devices shall be provided by the MSI without any additional costs during the period of the contract.
   o Manage of necessary upgrade or patch upgrade within 15 days of availability from the respective OEM with minimal downtime. The MSI shall inform the MMVD about the same before update.
   o Conduct penetration testing and vulnerability assessment at least on yearly basis.
   o Rectification of system software problems due to crashing or malfunctioning of the OS, database or user interface within the time limits to meet the SLAs.

d. IT – Security
- o Update for virus definitions, program updates, patches, fixes etc. (automatic periodically and in push-updates in case of outbreaks) without bringing server off-line, remotely over internet.
- o Ensure security policies is maintained and updates to the same are made regularly.
- o Protect all the IT assets to prevent any known & unknown attacks by maintaining an updated knowledge base of all the published security vulnerabilities and virus threats.
- o Define process to tune, update, and monitor IDS information.
- o Ensure patches for identified vulnerabilities are patched/blocked immediately.
- o Respond to all security incidents and coordinate with respective OEM/service provider in case of a new threat is observed to ensure that patch is made available.
- o Ensure OS security through appropriate configuration and patch updates.
- o Updates shall be capable of being rolled back, if required.

e. MSI may cover all components and hardware under comprehensive maintenance contract with respective OEM, however entire responsibility of same shall be of MSI. The MMVD reserves right to seek details about the service level agreement signed with the respective OEMs by the MSI.

f. MSI shall ensure all the required calibrations to the system are done as per schedule (minimum quarterly). Any default of the MSI in the calibration shall attract penalty as defined in the SLA.

g. MMVD reserves the right to ask for replacement of any hardware, software and network components etc. anytime during the contract period, if it is not from a reputed brand and does not conform to all the requirements specified in the RFP document.

h. MMVD also reserves the right to ask for replacement of any manpower deployed on the Project.

i. MSI shall ensure all the components and entire system is insured as per the value defined to ensure any unforeseen events such as vandalism, theft, fire and lightening etc. are covered for the entire duration of the contract against. Safety and security of all the hardware, equipment, manpower etc. deployed by MSI as part of the project shall be sole responsibility of the MSI. MSI shall hold MMVD indemnified from any claims arising for the same.

j. MSI shall ensure that the instruction manuals, technical manuals and user manuals supplied by OEMs are referred, referenced, always reviewed & maintained up-to-date.

k. The MSI shall provide Remote Support / Off-Site support wherever possible. MSI shall also depute adequate manpower as full time dedicated onsite Repair and Maintenance team.

l. MSI shall ensure that the Repair and Maintenance team has the relevant skillsets.

m. MSI shall keep necessary tools, equipment etc. required for carrying out repair and maintenance services.

n. MSI shall maintain records of all maintenance of the system, operational downtime of the one or more systems etc. and shall maintain a logbook on-site, as well as reports in the system that may be inspected by the MMVD at any time.

o. MSI shall plan for the Changes by drawing up a task list, decide on responsibilities, coordinate with all the affected parties, establish and maintain communication between parties to identify and mitigate risks, manage the schedule for minimum impact on day to day operations, execute the change, plan for rollback in case of failure and maintain version control, ensure and manage the post Maintenance Process tests and documentation.

p. MSI shall plan system maintenance in accordance with pre-defined and approved schedule and make any changes and / or updates to the production environment only after written approvals by MMVD. For any Maintenance Process, MSI must prepare detailed documentation including proposed changes, impact to the system in terms of outcomes/additional features added to the system etc.

q. The cost for repair, replacement and maintenance shall be borne by the MSI.

r. All planned, or emergency Maintenance Process shall be approved from MMVD.

Maintenance is of two types, namely;

Preventive Maintenance Services
a. Shall be carried out at least once every 90 days (or any other period as may be directed by MMVD from time to time) in addition to the normal maintenance for entire ITMS system.
b. Check for any loose contacts in the cables & connections, concealed and piped cabling
c. Calibrate the CCTV camera and other components of the ITMS system on regular basis.
d. Extract the log reports, study, draw logical conclusions, do fixes and submit the final report.
e. Conduct activities such as inspection, testing, satisfactory execution, diagnostics and necessary repairing of the equipment, including hardware, software existing devices etc.
f. Cleaning / removal of dust and dirt from the interior and exterior of the equipment, Cameras lens, Solar Panels, Desktop, Workstation, sensors if any used, etc.
g. A 10 days prior intimation to the MMVD shall be given before all preventive maintenance.

Corrective Maintenance Services
a. Troubleshooting of hardware problem of all supplied equipment and rectification of the same within the time of issue logged as per timelines of the SLA.
b. Troubleshooting of OS, database and all application and patch updating.
c. Documentation of problems, isolation, cause and rectification procedures for building knowledge base for the known problems.
d. Component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame indicated in the Service Level Agreement (SLA). In case the MSI fails to meet the above standards of maintenance, there will be a penalty as specified in the SLA.
e. Any cost towards repair and replacement of any equipment or work under this project shall be sole responsibility of the MSI.
f. Any component that is reported to be faulty / non-functional on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame agreed upon in the Service Level Agreement (SLA).

Monitoring and Management Services:
MSI shall be responsible for Monitoring, Administration and Management of the entire ITMS infrastructure, including the hosting infrastructure. The entire stack of monitoring and management services shall include but is not limited to the following:
a. Server and VM Monitoring, Administration, Configuration & Management Services
b. Database Administration & Management Services, Management of changes to database schema, disk space, storage, user roles.
c. Storage Administration & Management Services and Backup & Restore Services
d. Network Monitoring Services and Security Administration Services
e. Management of users, processes, resource contention, preventive maintenance
f. Management of updates & patches to ensure that the system is properly updated.

Urgent Repairs
If, by reason of any accident or failure or an emergency or other event occurring to, in or in connection with the Project or any part thereof during the period of the Contract, any repair shall, in the opinion of MMVD, be urgently necessary and the MSI is unable or unwilling or not available at once to do such repair, MMVD may by its own or other workmen do such repair as MMVD may consider necessary. If the repair so done by MMVD is work which, in the opinion of the MMVD, the MSI was liable to do at its own expense under the Contract, all costs and charges properly incurred by MMVD in so doing shall within 14 days from the date of receipt of the claim be paid by the MSI to MMVD or their authorized representative or may without prejudice to any other method of recovery, be deducted by MMVD from any monies due or which may become due to the MSI or may be recovered as a debt.

12. Regular Reporting to MMVD

In addition to the MIS and Reports which shall be extracted from the system itself, MSI shall submit quarterly project report to MMVD including (not limited to following):

a. Attendance Report of deployed manpower, along with compliance to labour law and other requirement.
b. Clearance report of all the utility charges including network, power etc.
c. Tax clearance certificate for all applicable taxes
d. Violation detected, missed, false alarm, penalty collection, incident detected, weather reports, trend analysis of traffic, and other SLA parameters.
e. Repair and maintenance activities, count of spare kept.
f. Uptime of the system, network, Hosting Infrastructure etc.
g. Audit report for Network, Server and Application (frequency as applicable)
h. Challenges and Risk and their mitigation.
i. Any other report demanded by MMVD from time to time.

Administrative Aspects

1. Roles and Responsibilities of Stakeholders of the project

The roles of the stakeholders shall change over a period of time as the project will evolve from design to implementation to the operations phase. With this background, stakeholders' responsibilities, illustrative organizational structure for the design & implementation phase, operational phase is given below:

The MSI shall identify resources who will be available on-site at CCC and one for entire project at state level who shall act as Single Point of Contact (SPOC) for all the issues, incidents and service requests with regards to ITMS Project.

Below mentioned Table 1 summarizes the roles and responsibilities of stakeholders involved in the project.

Stakeholder	Role
MMVD	- Oversee and review overall ITMS Project Activities - Strategic and Policy level decision taking, Tactical decisions taking - High level guidance, management and decision making - Interface with external, public, enforcement and other strategic bodies - Handle dispute resolution, governance and risk related issues of the project. - Setting up Project Monitoring Unit (PMU): A PMU will be formed by the MMVD which shall be responsible for keeping track of the progress during the implementation phase and O&M phase of the project. Such PMU may comprise of officials from MMVD and other authorities, experts, consultants or advisors etc. - Appointing nodal person to address issues raised by the MSI during the project execution. - To provide necessary permissions and approvals for installation of equipment, electricity, network etc. and other scope under the project. - To review and monitor civil works at field and CCC etc. - Providing the necessary space for CCC (free of cost and rent free) - Providing necessary permissions for space / RoW for Gantry, Pole, Cantilever, Solar Panel installation, and other infrastructure to be setup / erected. - Providing RoW for Porta Cabin (free of cost and rent free) - Approving of "Proposed Physical Layout Plan" for CCC. - Reviewing and approving all the deliverables of the MSI including SRS document, Project Plan Document etc. - Providing necessary permissions to MSI and Cloud Service Provider for hosting and other services related to Hosting Infrastructure. - Providing necessary permissions for obtaining electricity connection for all equipment of the ITMS system, including the CCC. - Coordination with NIC for integration (like sharing APIs) - Providing necessary permissions and support for integration with other 3rd party applications such as SMS gateways, email etc. - Providing necessary knowledge and guidance about the Act, Rule, Laws, SOPs and other domain knowledge necessary for the project. - Finalising all the format required as input and output from the system with MSI

Stakeholder	Role
	• Reviewing and approving all the formats, MIS, reports etc. from time to time.
	• Permission and necessary directions for training MMVD staff.
	• Testing, quality check, recommendations, monitoring the progress, development, UAT, finalising aesthetics of the ITMS and CCC and systems and issuing Final Acceptance Letter.
	• Carrying out periodic quality checks of the system, the output of sensors, quality of video feeds etc.
	• Continuous Monitoring of the project, services, applications, hardware, security, deployed manpower, Service Levels and other benchmarks etc.
	• Risk monitoring and management (time-cost overruns, project issue redressal and resolution, scope changes, contract deviations etc.)
	• Monitor, review and approve overall timelines, SLAs and calculation of penalties, Liquidated Damages accordingly.
	• Supporting for coordination with 3rd party institution.
	• Issuing permissions, certificates, acceptance letters, approvals, serving notices, conducting surprise audits etc.
	• Reviewing and approving the payments to the MSI as per SLAs and timely payment to MSI.
	• To create internal capacity for execution of the project after takeover from the MSI.
MMVD along with Highway Safety Police (HSP)	• Penalising and Challaning Authority • Oversee ground level violation and penalty related cases • Responders in case of any incident • Defining rules for the violation detection. • Defining the parameters for considering the violation • Defining Standard Operating Procedures (SOPs) in case of violation detection or incident detection. • Directing MSI to deploy additional manpower for Penalty Collection, if required.
Road Owning Agency/s	• To provide necessary permissions and approvals for installation of equipment, Solar Panels, electricity, network, Porta Cabin, ANPR and other apparatus at Toll Plaza and other scope under the project on the National Highways • Support for Integration with Rajmarg Yatra App and other applications of NHAI.
National Informatics Center (NIC)	• Developing and Maintaining body for applications like eChallan, Vahan and Sarathi. • MSI shall be required to coordinate with NIC for integration with the eChallan and other system as per requirement of MMVD.
Project Management Consultants	• Project conceptualization • Responsible for Project Management activities of ITMS Project • Support MSI during Implementation and SRS phase on behalf of the MMVD. • Vendor evaluation and tracking of vendor performance • Monitoring Project Implementation as per contract terms • SLA Monitoring and related activities
MSI	• Responsible for overall Project Implementation, operations, maintenance, deployment of manpower and reporting to MMVD as per scope defined in the RFP.

Note: Based on the above, typical responsibility matrix will need to be finalized by MMVD depending upon the functions from time to time. All the decisions, approvals, and status updates related to this project shall be routed through MMVD's key designated officials only. MMVD's decision shall be final and binding on the MSI.

2. Violation Definition

Sr. No.	Name of Violation to be included	Description	Definition as per ACT and description	Offender who is liable to pay	Fine / Penalty	Exemption / variation allowed
1.	**Speed Violation (Spot and Average)**	• The Speed limit for all types of vehicle for the different highways shall be as per prevailing rules • The speed limit may change from time to time. • MSI shall set the parameters in the system for detecting violation of the vehicles depending on such prevailing rules.	**u/r 112 MVA 183 MVA** (u/r 112 MVA – The motor vehicle shall not be driven at a speed exceeding the maximum speed limit notify by the authority)	(i) Person driving the vehicle (ii) Employer causing employee to drive	a) For two or three-wheeler Rs.1,000 b) For tractor (Agri or goods) Rs.1,500 c) For LMV Rs.2,000 d) Other Vehicles Rs.4,000	• MMVD may also direct MSI to given exemption to vehicles violating speed limit within certain range (e.g., +X%) • MMVD may give exemption to vehicles violating speed limits for some reasons (due to unexpected object / vehicle / pedestrian / cattle etc., due to traffic conditions, to emergency service vehicles etc.). • The final call to declare detected speed violation as "Violation" shall be on the MMVD and HSP. • All such changes during the implementation phase as well as operation and maintenance phase shall be as directed by MMVD and binding on the MSI. Over speeding vehicles shall be levied penalty only once between 2 consecutive ITMS locations. However, between 2 consecutive ITMS locations, speed violation shall be levied only once, either for spot or average speed, and not for both.

Sr. No.	Name of Violation to be included	Description	Definition as per ACT and description	Offender who is liable to pay	Fine / Penalty	Exemption / variation allowed
2.	**Lane Discipline Violation** (Wrong side driving)	• Highways in the State has set certain Lane Discipline Rules, such as dedicated overtaking lane, adequate use of the indicator while changing lane etc. Lane Violation includes lane cutting, over taking from left side, over taking a vehicle which is over taking another vehicle, zig zag driving, driving in wrong lane etc. • System shall detect lane cutting as per definition, which may change from time to time as per prevailing rules. MSI shall set the parameters as per prevailing rules and definition. All such changes during the implementation phase as well as O&M phase shall be as directed by MMVD and binding on the MSI.	**u/r 118 MVA: Driving Regulations**	Whoever Commits the offence.	Non-Compoundable (Sent to Court)	• The final call to declare detected lane violation as "Violation" shall be on the MMVD and HSP. • All such changes during the implementation phase as well as operation and maintenance phase shall be as directed by MMVD and binding on the MSI. Lane violating vehicles shall be levied penalty every time it is detected.
3.	**Lane Discipline Violation**	• Highways in the State has set certain Lane Discipline Rules, such as dedicated overtaking lane, adequate use of the indicator while changing lane etc. Lane Violation includes lane cutting, over taking from left side, over taking a vehicle which is over taking another vehicle, zig zag driving, driving in wrong lane etc.	**u/r 118 MVA: Driving Regulations**	Whoever Commits the offence.	Non-Compoundable (Sent to Court)	• MMVD may also direct MSI to give exemption to vehicles violating lane discipline (Eg.. Such as emergency service vehicles, to avoid a collision etc.), and may not want to penalise them. • The final call to declare detected Lane Discipline violation as "Violation" shall be on the Highway Safety Police, RTO, MMVD or any

Sr. No.	Name of Violation to be included	Description	Definition as per ACT and description	Offender who is liable to pay	Fine / Penalty	Exemption / variation allowed
		• System shall detect lane cutting as per definition, which may change from time to time as per prevailing rules. MSI shall set the parameters as per prevailing rules and definition. • All such changes during the implementation phase as well as O&M phase shall be as directed by MMVD and binding on the MSI.				other authority and shall be binding on the MSI. • Lane violation to be considered, if: **1. For 2+2 Lanes:** a. If vehicle found plying on wrong lane in 2 consecutive locations. (Applicable for LMV and HMV) **2. For 3+3 Lanes:** a. If vehicle found plying on middle lane in 2 consecutive locations (applicable for only HMV). b. If vehicle found plying on extreme right lane, whenever detected. • Lane Discipline Violation on same vehicle will be levied penalty every time it is detected.
4.	**Red Light Violation**		**u/r 118 MVA: Driving Regulations**	Whoever Commits the offence.	Non-Compoundable (Sent to Court)	• Red Light Violation on same vehicle will be levied penalty every time it is detected.
6.	**Stop Line violation**		**u/r 118 MVA: Driving Regulations**	Whoever Commits the offence.	Non-Compoundable (Sent to Court)	• Stop Line Violation on same vehicle will be levied penalty every time it is detected.
6.	**Un-Authorized Parking**		**u/r 118 MVA: Driving Regulations**	Whoever Commits the offence.	Non-Compoundable (Sent to Court)	• Unauthorized Parking Violation on same vehicle will

Sr. No.	Name of Violation to be included	Description	Definition as per ACT and description	Offender who is liable to pay	Fine / Penalty	Exemption / variation allowed
						be levied penalty every time it is detected. • MMVD may give exemption to vehicles stopped on the highway for some reason such as breakdown etc. • Final decision in this regard shall be taken by MMVD and shall be binding on MSI.
7.	**Mobile Phone Violation – using mobile phone while driving**		**u/r 250(A) MMVR 184 MVA** (u/s 250(A)MMVR – No driver while driving or riding a motor vehicle (including two wheelers) shall use a mobile phone. 2) If no other person, other than the driver, is sitting in or on the motor vehicle, the mobile phone if any, shall be switched off during the journey)	Whoever Commits the offence.	(i) Rs.5,000 (for first offence) (ii) Rs.10,000 (for second or Subsequent offence)	•
8.	**Seat belt violation – driving without seat belt**	• Front & Rear	**Section 194 B (1) & (2) MVA** – Use of Safety Belt	Whoever Commits the offence.	Rs. 200	• Seat belt violation on same vehicle will be levied penalty once in a span of 24 hours.
9.	**Wrong Entry/ Exit (No entry) and illegal U-Turn**		**u/r 118 MVA: Driving Regulations**	Whoever Commits the offence.	Non-Compoundable (Sent to Court)	• MMVD may give exemption to emergency vehicles etc. • Final decision in this regard shall be taken by MMVD and shall be binding on MSI.

Sr. No.	Name of Violation to be included	Description	Definition as per ACT and description	Offender who is liable to pay	Fine / Penalty	Exemption / variation allowed
10.	**Two-Wheeler Violation:** Not using Helmet on Two-Wheeler		**Section 194 D MVA**		Fine of Rs. 500 to the driver who is registered owner of the vehicle. Otherwise, Fine of Rs. 1,000 to the driver who is not registered owner of the vehicle.	• This Two-Wheeler violation on same vehicle will be levied penalty once in a span of 24 hours.
11.	**Two-Wheeler Violation:** Triple seat riding on two-wheeler		**Section 177 MVA**		(i) Rs.500 (for first offence) (ii) Rs.1,500 (for second or Subsequent offence)	• This Two-Wheeler violation on same vehicle will be levied penalty once in a span of 24 hours.
12.	**Non-Standard Number plate**		**u/r 51 CMVR 177 MVA** (u/r 51 CMVR – The dimension of letters and figures of the registration mark and the space between different letters and numerals should be as per rule 51.	Whoever Commits the offence.	a) to display Registration plate of vehicle other than prescribed e.g., DADA, BABA, MAMA etc Fine of Rs.1,000	• The Non-Standard Number plate violation on same vehicle will be levied penalty once in a span of 24 hours. •
13.	**Over Dimensional Cargo (ODC) plying without permission**	• ODC protrudes outside the loading deck of the vehicle transporting the cargo.	**u/r 229 MMVR 194 (1A) MVA** Nothing shall be placed or carried upon the		Rs. 20,000/-	• The ODC violation on same vehicle will be levied penalty once in a trip.

Sr. No.	Name of Violation to be included	Description	Definition as per ACT and description	Offender who is liable to pay	Fine / Penalty	Exemption / variation allowed
			outside of the roof of a double-decked service vehicle (height or width or length) unless supported by permission through T.O.D.A. application.			
14.	**Other Vehicle document related**	• (Vehicle Fitness, Tax Paid up to, Permit Validity, Insurance and PUC, non-use and other any other such violation specified by MMVD)			Enforcement Officer to verify the documents or online VAHAN data	•
15.					• **Multiple violation of same type:** Multiple violation count of the same type of violation can be taken once the penalty is levied and commuter is informed of the violation. However, the final call shall be taken in this regard by MMVD and HSP and shall be binding on the MSI. • **Whitelisting of numbers:** MMVD may direct MSI to whitelist certain vehicles from consideration in violation detection (Ex. Emergency Vehicles, VIP vehicles etc.). MSI shall have provision to whitelist vehicles in the ITMS system. All such changes during the implementation phase as well as operation and maintenance phase shall be as directed by MMVD and binding on MSI. • **Any additional type of violations**: MMVD may direct MSI to configure ITMS system to include any additional type of violation to be detected through the ITMS system. All the rules, parameters, SOPs, guidelines shall be shared by MMVD and MSI shall include them in the ITMS system, at no extra cost to the MMVD. • MMVD / HSP may exempt violator any other reasons if so desired for any exceptional reasons. The same shall be binding on the MSI. • The penalty collection SOP shall be defined at later date by MMVD, HSP and other authorities, and shall be final and binding on the MSI. The SOP may also be updated as per convenience and requirements of the authorities from time to time.	

3. Project Timelines, Project Deliverables

The tentative list of main deliverables that are expected during the implementation of the proposed system from the MSI at various stages of the project are given in this section along with the proposed timelines. The list shall be finalized at the time of approval of Project Plan submitted by the MSI and can be updated as per requirements of MMVD from time to time.

Phase	Responsibility / Deliverables	Maximum Timeline	Total Project Time	Payment Phases
Project Inception Stage – 1 month				
Signing of Contract	• Contract Agreement/s • Submission of Performance Security	$T_0 = 0$ month	0 month	NA
Project Inception	• Requirements Gathering • Preparation and submission of Project Plan / Project Implementation and O&M Plan Document • Details of proposed RoW and RI, any support required from MMVD for the permissions.	$T_0 + 0.5$ month	0.5 month	NA
Approval	• Letter of Approval for Project Plan Document from MMVD	$T_1 = T_0 + 1$ month	1 month	NA
Allocation of space	• Letter for allocation of space for setting up CCC and Porta Cabins.			NA
Project Implementation Stage – 10 months				
Implementation	• Site Preparation (including Civil Work, cabling for electricity, installation of Solar Panels, network etc.) • Seeking necessary permissions. • Procurement, installation, Development, configuration, integration, testing and commissioning of I.T. and Non I.T. infra, applications etc.	$T_1 + 8$ months	9 months	**50% of agreed VGF** MMVD may make payment in maximum 4 phases as per percentage progress achieved
Command and Control Center Setup	• Delivery & installation of all hardware, software, networking components, power backup etc. • Integration with all required third party application.			
Setting up of Porta Cabin	• Setting up of Switches, Servers, Storage units, racks, UPS, etc. • Software Licenses details			
Testing Report	**Test Report** • Change Request and Compliance Report (if any)	$T_1 + 9$ months	10 months	NA
Documentation	• Technical Manuals (Operational Procedures, Hardware, Network manuals etc.)			
User Customization and UAT	• UAT Test Cases and other details to be provided by MSI. • Getting the system ready for UAT	$T_1 + 9$ month	10 months	NA
	• UAT by MMVD officials, PMU & other stakeholders including on-field UAT. • UAT certificate from the MMVD.	$T_2 = T_1 + 9$ months	10 months	**25% of agreed VGF**

Phase	Responsibility / Deliverables	Maximum Timeline	Total Project Time	Payment Phases
Security Audit	• Submission of the Report of Security Audit including VAPT by CERT-In emplaned auditing agency.	$T_2 + 1$ **month**	**11 months**	**NA**
Training and Capacity Building	• Training by MSI to MMVD officials and other stakeholders at each Location. • Training by MSI to its resources • Learning Materials (User Manual, Administrator Manual, SOP etc.) • Training Completion Report by MSI	$T_2 + 1$ **month**	**11 months**	**NA**
Deployment of Resources	• Deployment of MSI resources. • Submission of CVs, contact details, escalation matrix etc.	$T_2 + 1$ **month**	**11 months**	**NA**
Stabilization Period – 1 month				
Stabilization Period	• Report on all the issues, Bugs, etc. Changes committed in the System due to issues or functional changes requirements etc.	$T_3 = T_2 + 1$ **month**	**12 months**	**5% of agreed VGF**
Commissioning	**Commencement of Operations**	$T_3 = T_2 + 1$ **month**	**Start of 13th Month**	**NA**
Operations and Maintenance Stage – 10 Years / (120 months)				
Ongoing Status Reports	Project Risks and Mitigation	Quarterly		Quarterly payment of O&M quoted and accepted subject to SLAs + 5% of agreed VGF in each quarter in the first year (Total 20%)
	Report on Manpower Deployed including attendance and leave report along with compliance to labor law and other requirements			
	Standard MIS reports as required by MMVD such as Total violations detected, highway stretch wise, violation wise etc.			
	Quality, Maintenance and change Metrics Issue Log and Resolutions and Corrective actions			
	Clearance report of all the utility charges including network, power etc.			
	SLA Metrics, Utilization Report			
	Other issues and outstanding problems; proposed actions to be taken			
	Tax clearance certificate for all applicable taxes			
	Repair and maintenance activities			

Note: In case of delay due to reasons not attributable to MSI, MMVD may consider extending the timelines proportionately for the entire project or respective Highway stretch. Go-Live and O&M payment for such Highway Stretch shall be considered accordingly.

4. Payment

1. The MSI shall be paid total one-time sum of **Rs. 23 Crore (all inclusive, including GST)** as Viability Gap Funding as per payment schedule defined in Clause 3 under "**Administrative Aspects**" during the implementation phase.
2. All the penalty that is collected from the Commuters shall be collected by the MMVD.
3. The MSI shall be paid as per quoted "Per Challan Rate", for the violation detected by or through the ITMS system only, once the challan is approved by MMVD officials, as per the quote submitted by the MSI in the Commercial Bid in format of Annexure Set III – Format 2. **GST will be paid as per prevailing rates at the time of payment.**
4. Payment shall be released against actual number of violations detected by ITMS system and corresponding challan is approved, on quarterly basis after deduction of applicable penalties as per SLA parameters.
5. Payment to the MSI shall commence from date of Go-Live. For clarity of doubt, any challans issued by the system during the Implementation Phase, including the Stabilization Period, shall not be accounted and MMVD shall pay no per challan charges to the MSI for that period.
6. No interest shall be paid by MMVD to MSI on any pending payment, whatsoever. However, it will be responsibility of MMVD for timely payment to MSI.
7. The MSI shall be solely responsible to make any payments to its sub- contractors.

The MMVD shall have the right to deduct the calculated liquidated damages, penalties as per SLA from the payments due to the MSI. Apart from penalties and Liquidated damages, the MMVD has the right to deduct any other amount deemed fit from payment to the MSI.

The payment to the MSI shall be made only on the "Per Challan Rate" (including GST) for the challans generated by ITMS system and approved by the MMVD official and other terms of the RFP, subject to the following conditions:
1. MMVD does not guarantee on the minimum number of violations and / or minimum number of challans approved and / or amount of revenue earnings to the MSI.
2. A cap of 24% Internal Rate of Return (IRR) will be imposed on the quarter wise total cashflow of the MSI, while making payment to the MSI by MMVD as per quoted "Per Challan Rate", including GST. The calculations for arriving at IRR will be done quarterly, basis the estimated project cost by MMVD as mentioned in the table given in **Annexure 5 of Annexure Set IV**. If the invoices submitted by MSI exceeds the 24% IRR cap upto the end of the respective quarter, the MSI will be paid the amount as per 24% IRR only and the balance amount will be kept reserved. In case the invoices submitted by MSI are less than the 24% IRR cap at the end of the respective quarter, MSI will be paid the amount as per invoice submitted along with the balance of the previous quarter, if any which was kept reserved, subject to the amount equal to the upper cap of 24% IRR upto that respective quarter.
3. In case, any reserved balance is leftover at the end of the project due to the IRR cap of 24%, the same shall not be paid to the MSI.
4. For the purpose of IRR calculations, following will be followed:
   a. Actual challans approved by MMVD, meeting the other terms of RFP upto that respective quarter will be considered.
   b. CapEx estimation of the MMVD minus the VGF amount shall be considered, both all inclusive, including GST.
   c. OpEx estimation of the MMVD (yearly OpEx divided in 4 equal parts) shall be considered, all inclusive, including GST.

    d. Depreciation, Finance Cost, Discounting Rate etc. shall be considered as defined in **Annexure 5 of Annexure Set IV.**

    e. Corporate Tax will be considered as per prevailing tax on the last date of the respective quarter.

5. The final amount to be paid to the MSI shall be subject to SLA penalties, which will be deducted post the 24% IRR cap calculation as per above.

6. Payment to the MSI shall be calculated basis the table given in Annexure 5 of Annexure Set IV.

5. Change Request Management

The cost pertaining to new hardware or hardware to be upgraded to meet SLA requirements over and above minimum specifications specified in the RFP shall be borne by MSI at no additional cost to MMVD anytime during the contract period, and the same shall not be consider under change management. Any additional components required during the implementation phase and / or during O&M phase which is not explicitly defined but is required to provide the complete solution as envisaged in the RFP shall be sole responsibility of the MSI, and the same shall not be considered under the Change Request. Any change requests coming in during UAT, Stabilization period and within the three months from date of Commissioning, shall be delivered by the MSI without any additional cost to the project.

The MMVD may at any time, give written order to the MSI to scale up the one or more stretch of highway with additional systems as per requirement of MMVD. MSI shall ensure accommodation of additional requirements of the MMVD, if any, which is specifically required, but not falling within the general scope of this document. The change order / management procedure will follow the following steps:

- In such case, the MSI must add / upgrade / replace the current infrastructure in order to meet the new requirements. The cost for any new additional components / service in such case shall be borne by the MMVD. However, the MSI shall note that no additional implementation, operation and maintenance charge or charges for security audit etc. will be provided for this change. MMVD will provide only one-time cost of any additional component or service as per the rate defined in the BoQ submitted by the MSI (Successful Bidder) while bidding for the project and duly accepted by the MMVD. The new component / solution shall be part of SLA calculation as well under the relevant category.
- MSI shall provide necessary manpower for managing the Change Requests.

- **The change order/management procedure will follow the following steps:**

Any change request proposed by the MSI shall be considered by MMVD only when the efforts involved are greater than 5% and less than 25% of the total work order value / total value of corresponding stage and / or total value of corresponding Highway Stretch as applicable. Efforts lesser than 5% shall not be considered under change request management and the MSI shall be required to do the required changes at no extra cost to the MMVD. Total change request cost shall not exceed 25% of the total work order value in the entire duration of the contract.

    o **Identification and documentation of the requirement for the change:** The information related to the initiator, initiation date, priority of the change will be documented by MMVD.

    o **Analysis and evaluation of the Change Request:** The impact of the change in terms of the estimated effort, changed schedule, cost based on the financial Bid and the items impacted will be analysed and documented by the MSI.

- o **Approval or Disapproval of the change request:** MMVD shall approve or disapprove the change requested after discussion with bidder on the impact of the change.
- o **Implementation of the change:** The change will be implemented in accordance to the agreed cost, effort, and schedule.
- o **Verification of the change:** The change will be verified by MMVD on the implementation of the change request.

MSI shall ensure all the necessary configuration, calibration, testing, UAT, Audits, certification etc. is completed as per requirements with no extra cost the to MMVD. Within maximum of 7 working days of the receipt of such written order, MSI shall communicate in writing to the MMVD the changes if any which may be caused to the delivery schedule, costs, technology, etc. and the parties shall mutually agree on the same before giving effect to such changes, if the changes requested are outside the scope of MSI agreed to herein. If the efforts are greater than 25% (totally anytime during the contract period), MMVD reserves the right to either approve the request or go to market for price discovery and award.

All changes which may have likely financial implications in terms of the overall cost / time of the project shall be undertaken by the MSI only after securing the express consent of MMVD. In the event the consent of MMVD is not received within a period of 3 months from the date of communication of MSI, then the change will NOT be carried out and same shall be communicated to MMVD. The impact of the change in terms of the cost and schedule will be re-estimated and such approval on the new cost and schedule will be taken, if the change is approved after the 3 months.

If any of such change causes an increase or decrease in cost of or the time required for MSI's performance of any provisions under the resultant Agreement, equitable adjustments shall be made in the Agreement Price or Delivery Schedule, or both and the resultant Agreement shall accordingly be amended. Any claims by MSI for adjustment under this must be asserted within 1 month from the date of MSI receiving the MMVD change order.

Any changes in the scope of work shall be finalized with the MMVD's approval. The MSI shall detail out and discuss specific changes in the scope of work with the MMVD before incorporating them in the plan of action. Any deviations from the scope of work shall be highlighted at the earliest. The MSI shall be required to integrate with other ITMS systems implemented in the state of Maharashtra other than the ones envisaged under this project. Such integration shall be including (but not limited to) combined reports to be extracted from the system. Any specific type of report and APIs to be built for this purpose shall be at no additional cost to the MMVD.

6. Successful Completion of the Project

At the successful completion of the project, following activities including but not limited to below points shall be in force:
1. MSI shall peacefully vacate all the premises of MMVD and all the components of ITMS system as it is, leave all the hardware, furniture and any other equipment setup, all the software applications, data, network arrangements etc. deployed as a part of the Project by the MSI on as-is where-is basis.
2. All the utility charges like Internet, power etc., or any other recurring charges such as hosting infrastructure, SMS etc. if responsibility of the MSI, must be cleared by the MSI and lines be transferred to the name of MMVD (if not in the name of MMVD already).
3. Transfer all hardware, software license, after clearing all liens and liabilities on any financial institute, if any. All documents regarding the discharge of such lien and liabilities shall be furnished to the MMVD.

4. MSI shall ensure, all the login, access to any system of the project to any of the MSI's personnel shall be revoked, and logical access to the database, applications or any other system has been revoked.

5. Any on-going auditing, maintenance activities etc. shall be planned in such a way to ensure all such activities are completed on or before last day of the contract.

6. MSI shall train MMVD or its nominated agencies for running the entire operations including repair, maintenance etc.

7. All the payment due till midnight of the last day of the Project (or extended project period) to the MSI shall be paid as per terms and conditions of the RFP, subject to SLA.

7. Term of Contract Post Contract Period

1. Post the term defined above, MMVD reserves the right to extend the contract to the existing MSI based on mutual agreement between MMVD and MSI.

2. At the end of tenth year from date of Commissioning, the MSI may submit a proposal expressing its interest in continuing the Contract for a further period of at least 1 year up to two (2) years maximum, and MSI may submit a fresh proposal for Operation and Maintenance of the ITMS system.

3. MMVD may consider this proposal after satisfying itself about the technological and commercial soundness of the proposal. Based on the satisfaction of MMVD, it may enter into negotiations with the MSI for renewal of this Contract.

4. Upon successful conclusion of negotiations, the MSI shall upgrade the systems / technology, as required, and operate the same for a further period of at least 1 year up to maximum two (2) years as agreed between the MSI and MMVD.

5. Extension term shall have substantially same terms and conditions and payment as the original contract.

6. The MSI shall submit fresh Performance Security of for the new period and execute agreements as directed by MMVD.

7. Such extension shall be completed Six (6) months prior to expiry of current agreement date.

8. Change of Applicable Law

1. **Applicable Law**: Laws and any other instruments / subordinate legislation having the force of law having been published in India. For the avoidance of doubt, Applicable Law shall include any applicable statute, ordinance, decree, regulation, or by-law or any rule, circular, directive or any licenses, consent, permit, authorization, concession or other approval issued by any authority which has appropriate jurisdiction.

2. **Change of Law**: Any change in the Applicable Law; or any applicable judgment of a relevant court of law which changes the interpretation of the Applicable Law and is a binding precedent which directly and adversely affects the MSI performance / obligations under the Contract in a material way, coming into effect after the date of signing of resultant Contract entered by the MSI or after the bid submission date.

3. **Effect of Change of Law during tendering process**: The provisions of this RFP are governed by applicable laws, sub-ordinate legislation, statute, rules, or regulations prevalent at the time of floating of this tender. In the event of any change in such applicable laws, sub-ordinate legislation, statute, rules, or regulations which necessitate modification in any of the provisions of this RFP, the MMVD reserves right and discretion to modify the provisions or terminate the tendering process altogether, without any obligations whatsoever.

4. **Effect of Change of Law during contract period**: In event of any change in applicable law, laws, sub-ordinate legislation, statute, rules, or regulations leading to change in requirements, processes w.r.t to the scope of this RFP, necessitating either change in terms and conditions, payment terms, and scope of work or termination of the contract, the

MMVD may do so by giving one month notice to the MSI from the date of such change of applicable laws, sub-ordinate legislation, statutes, rules, or regulations coming in to effect. Any change required in the scope of MSI due to change of law shall be binding on the MSI and at no extra cost to the MMVD.

9. Insurance

1. Utmost care must be taken while implementing the system at any point to make sure that no damage occurs to the any asset of the MMVD.
2. Any damage shall be complete liability of the MSI. Such damages can be claimed by the MMVD and MSI is liable to pay for such damages and / or do good for the same.
3. Any damage to the infrastructure, equipment which is part of the Project shall also be sole responsibility of the MSI.
4. MSI shall have insurance with IRDA approved Insurance Company, valid for entire project period so as to protect itself and MMVD from any damages. The same shall be submitted to MMVD within 15 days from the date of Signing of Contract.
5. The MSI shall be required to procure and maintain valid and enforceable insurance coverage for the entire Agreement Period, at its sole cost and expense, upto such maximum sums as may be required under and in accordance with applicable laws and such insurance as may be considered necessary in accordance with Good Industry Practice, including 3rd party insurance, as approved by MMVD.
6. The following types of insurance from an insurance company acceptable to MMVD (or meeting alternative insurance specifications as MMVD may from time to time reasonably require):
    i) Public liability insurance for an insured amount equivalent to the value of resultant contract per occurrence and not less than the total contract value in aggregate;
    ii) Either professional indemnity or errors and omissions insurance for an insured amount equivalent to the value of resultant contract per occurrence and not less than the total contract value in aggregate;
    iii) Product liability for an insured amount equivalent to the value of resultant contract per occurrence and not less than the total contract value in aggregate;
    iv) Theft and Damage Liability for all assets provided by the MSI for Project not less than the total contract value in aggregate;
    v) Commercial General Liability (CGL) Insurance covering the Agency as a named insured in the amount equivalent to the total value of the contract in aggregate and per occurrence, and naming MMVD, its officers, agents and employees also as additional insured thereunder, and endorsed to cover liabilities for financial loss resulting or arising from acts, errors, or omissions in connection with the services provided under the resultant contract.
    vi) Employer's liability and Worker's Compensation insurance in respect of the Personnel of the MSI as well as with respect to such personnel, health, life, accident, travel or other insurance as may be deemed appropriate by the relevant laws in effect or MMVD;
    vii) Any other insurance as required by law and directed by MMVD from time to time.

7. All insurance as listed above shall be primarily with respect to MSI's activities and MMVD's insurance policies shall be non-contributing. Such policies shall contain a provision waiving the insurer's right of subrogation against MMVD.
8. Prior to the commencement of any services, MSI shall furnish MMVD with certificates of insurance which evidence the minimum levels of insurance set forth above. MMVD shall be notified in writing at least thirty (30) days prior to cancellation of or any change in the policy.

9. All such insurance shall meet the applicable laws of India. MSI shall at all times comply with the terms of such insurance policies and all requirements of the insurer under any such insurance policies. The limits of coverage under each insurance policy maintained by the MSI shall not be interpreted as limiting or expanding the MSI's liability and obligations under the resultant contract.

10. Within 15 days of the execution of the resultant contract, MSI must, on request by the MMVD, provide current relevant confirmation of insurance documentation from its insurance brokers certifying that it has insurance as required by this Clause.

11. MSI shall replace any coverage prior to the date of expiry/cancellation. MSI must notify the MMVD immediately of any material adverse change in insurance coverage, including, but not limited to, changes in limits, coverage, or status of the policy with a 30 days prior written notice.

12. MMVD may terminate the resultant contract upon the failure of MSI, or notification of such failure, to maintain the required insurance coverage. Inadequate insurance coverage for any reason shall not relieve MSI of its obligations under the resultant contract.

13. Within 15 (fifteen) days of obtaining any insurance cover, the MSI shall furnish to the MMVD, notarized true copies of the certificate(s) of insurance, copies of insurance policies and premium payment receipts in respect of such insurance, providing current relevant confirmation of insurance documentation from its insurance brokers certifying that it has insurance as required as per the RFP and the Agreement conditions.

14. No such insurance shall be cancelled, modified, or allowed to expire or lapse until the expiration of at least 30 (thirty) days after notice of such proposed cancellation, modification or nonrenewal has been delivered by the MSI to the MMVD.

The MSI shall be liable for, and shall indemnify, defend and hold the MMVD, its officers, agents, and employees harmless from, any and all claims or damages to persons, data, or property by any reason.

10. Service Level Agreement

1. This RFP document, Master Service Agreement, NDA and any other resultant contract agreements resulting out of this RFP, shall be governed by Service Level Agreement (hereinafter referred to as SLA).

2. The purpose of SLA is to clearly define the performance levels for the MSI for the duration of the project. The MSI must comply with Service Levels requirements to ensure adherence to project timelines, quality and availability of services, throughout the period of the contract i.e. during implementation stage and Operations and Maintenance stage.

3. Each of the service parameters has an associate level of performance, expected to be met by the MSI. There is also an associated penalty mentioned for not meeting the performance level.

4. Detailed Service Level Parameters and required performance level are as **Annexure Set IV – Annexure 3** of this Document.

5. The MSI shall develop, supply appropriate software / automated tools including the SLA Management System to monitor the performance indicators and all the SLAs Parameters as per requirements of the RFP document.

6. Auditing agency shall verify the accuracy and completeness of the information captured by the SLA monitoring system implemented by the MSI and shall certify the same.

7. The application deployed for the project, based on SLAs, shall be configured by the MSI to calculate the applicable penalties and payment due after deducting the penalties.

8. Power to impose penalties shall be at sole discretion of MMVD and bounding on the MSI.

9. Service levels shall include but not limited to:
   o Uptime of entire system
   o Uptime of individual components

     o   Time taken for bug fixing / repair / replacement after call logged

10. Service levels shall be defined along with the penalty based on the business loss due to not meeting the service level and considering the cost of operations. Service levels shall also include breach levels beyond which the agreement is liable for termination.

11. Sub-Contracting

1. The MSI shall not sub-contract / sub- lease any part of the scope of the project to any external service provider, without prior written approval of MMVD, MSI may be allowed to subcontract following works:
   a. Civil Work
   b. Electrical work
   c. Network / Internet
   d. Cloud / Hosting
   e. Facility Management
   f. Manpower (except for Project Manager, Lead CCC Operator)
2. MMVD may approve, at its own discretion, sub-contracting of any scope or services, which may include civil work, network and bandwidth, electricity etc. MMVD's decision shall be final and binding on the MSI.
3. In case MMVD approves subcontracting, the MSI is encouraged to include Medium and Small and Medium Enterprises (MSMEs) in the delivery of the project by Subcontracting or Outsourcing part of the scope as per RFP Terms and Conditions. The MSME partner shall be registered under the Micro Small Medium Enterprise Act, 2006 or later.
4. The MSI shall submit all the details of sub-contractors (shall be in India only) to MMVD as a part of **Project Plan Document** and specify the activities that the MSI's plans to sub-contract. MMVD shall review the same and any suggestions by MMVD shall be agreed upon.
5. Anytime during the process of award, Implementation Stage or Operations and Maintenance stage, if there is a change in sub-contractors or the activities being sub-contracted, MSI shall obtain prior permission form MMVD. MMVD shall review the activities listed for sub-contracting and any suggestions by the MMVD shall be agreed upon and binding on the MSI. For any deviation from suggestions made by MMVD on Sub-Contracting, MMVD reserves the right to initiate action as it deems fit at any stage.
6. **However, the entire responsibility of the project delivery, operations, maintenance etc. shall be of the MSI. MSI shall be sole responsible agency for any non-compliance anytime during the contract period.**
7. MSI shall ensure to maintain the smooth operations of the project and maintain the SLA requirements.

Annexure Set I – Envelope A

1. Format 1: Bid Submission Covering Letter

<< To be printed on Bidder (Lead Bidder in case of consortium) Company's Letter Head and Signed by Authorised Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Dear Sir,

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years- Bid Submission Covering Letter

Ref: RFP No.: _____ Dated _____

We, the undersigned bidders, having read and examined in detail all the bidding documents for Tender "Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years", do hereby propose to provide our services as specified in the RFP.

We confirm that we have made all the necessary inquires and assessment and have conducted investigations and analysis to check the accuracy, reliability and completeness of the information in this RFP Document, and wherever necessary, we have obtained independent advice from appropriate sources with regards to the project and the MMVD's requirements and have not solely rely on the information contained in this RFP.

We attach hereto our responses to the requirements and technical and commercial proposals as required by the RFP. We confirm that the information contained in these responses or any part thereof, including the exhibits, and other documents and instruments delivered or to be delivered to MMVD are true, accurate, verifiable and complete. This response includes all information necessary to ensure that the statements therein do not in whole or in part mislead the MMVD in its shortlisting process.

We fully understand and agree to comply that on verification, if any of the information provided here is found to be misleading the selection process, we are liable to be disqualified from the selection process or termination of the contract during the project, if selected to do so. We also understand, this may lead to forfeiture of the EMD / Performance Security as applicable.

We agree for unconditional acceptance of all the terms and conditions set out in the RFP document and also agree to abide by this tender response being valid for a period of 120 days from the date fixed for commercial bid opening. We hereby declare that in case the contract is awarded to us, we shall submit the Performance Security in the form prescribed the RFP.

We agree that you are not bound to accept any tender response you may receive. We also agree that you reserve the right in absolute sense to reject all or any of the products / services specified in the tender response.

It is hereby confirmed that I/We are entitled to act on behalf of our company / corporation / firm / organization and empowered to sign this document as well as such other documents, which may be required in this connection.

Dated this _____ Day of _____   20–

Thanking you,
Yours faithfully

(Signature of the Authorized signatory of the Bidder)
(In the capacity of)

(Name)

Duly authorized to sign the Tender Response for and on behalf of:

(Name and Address of Company) Seal/Stamp of bidder

Witness Signature: Witness Signature:
Witness Name: Witness Name:
Witness Address: Witness Address:

(along with Power of Attorney)

2. Format 2: Bidder Information Format

<< To be printed on Bidder (all members, in case of consortium) Company's Letter Head and Signed by Authorised Signatory>>

TO WHOMSOEVER IT MAY CONCERN
Bidder Information Format

Please find below the details of Bidder for participating **"Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years"**

Particulars	Details
Name of the Organization	
Type of Organization (Pvt. Ltd/ Public Ltd/ LLP)	
Address of Registered Office in India (or in Maharashtra)	
Company Registration Details	
Date of Registration	
Details of **CMMI level 5 – for Development and Services** **ISO 9001:2008 or above** **ISO 20000:2011 or above** **ISO 27001:2013 or above**	
PAN / Equivalent	
TIN / Equivalent	
GST	
Number of years of Operation in India (including name change / impact of mergers or acquisitions)	
Number of Employees in India (as on date of submission of bid): • **enforcement system design and deployment services**: Minimum 5 OR • **IT / ITeS / ICT services**: Minimum 25 (required as per Qualification Parameters defined in the RFP)	
Authorized Signatory Name	
Authorized Signatory Designation	
Authorized Signatory Contact Details	

Thanking you,
Yours faithfully

(Signature of the Authorized signatory of the Bidder)
Name:
Designation:
Seal:
Date:
Place:
Business Address:

3. Format 3: Power of Attorney

Format 3A: Format for Power of Attorney to appoint and authorized Attorney

(To be submitted on a Stamp Paper of relevant value)

Power of Attorney

Know all men by these presents, we _____ _____ (name and address of the registered office) do hereby constitute, appoint and authorize Mr. / Ms. _____(name and residential address) who is presently employed with us and holding the position of _____ as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid for the Project envisaging "**Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years**", (the "Project") including signing and submission of all documents and providing information / responses to Motor Vehicles Department, Maharashtra State (MMVD) representing us in all matters before MMVD, and generally dealing with MMVD in all matters in connection with our bid for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by 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.

For _____

(Signature) (Name, Title and Address)

Accepted

(Signature)

(Name, Title and Address of the Attorney)

Note:
- 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.
- In case the Application is signed by a Partner / authorised Director of the Applicant, a certified copy of the appropriate resolution / document conveying such authority may be enclosed in lieu of the Power of Attorney.

Format 3B: Format for Power of Attorney to authorized Lead Member of Consortium

(To be submitted on a Stamp Paper of relevant value)

Power of Attorney

Whereas the Motor Vehicles Department, Maharashtra State (MMVD) has invited applications from eligible bidders for "**Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years**", (the "Project")

Whereas, _____ and _____ (collectively the "Consortium") being Members of the Consortium are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal (RFP) and other connected documents in respect of the Project,

AND

Whereas, it is necessary for the Members of the Consortium to designate one of them as 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 and its execution.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS

We, M/s. _____ having our registered office at _____,

And M/s._____ having our registered office at _____, (Hereinafter collectively referred to as the "Principals") do hereby irrevocably designate, nominate, constitute, appoint and authorize M/s. _____ having its registered office at _____ _____,

being one of the Members of the Consortium, as the **Lead Bidder** and true and lawful attorney of the Consortium (hereinafter referred to as the "Attorney").

We hereby irrevocably authorize the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Consortium and any one of us during the bidding process and, in the event the Consortium is awarded the contract, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Consortium, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification of the Consortium and submission of its bid for the Project, including but not limited to signing and submission of all applications, bids and other documents and writings, participate in bidders and other conferences, respond to queries, submit information / documents, sign and execute contracts and undertakings consequent to acceptance of the bid of the Consortium and generally to represent the Consortium in all its dealings with the MMVD, and / or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Consortium's bid for the Project and / or upon award thereof till the Master Service Agreement is entered into with the MMVD.

AND

hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said 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 Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us / Consortium.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED

THIS POWER OF ATTORNEY ON THIS _____ DAY OF _____, 20_____.

For _____
(Signature)
Name & Title _____

For _____
(Signature)
Name & Title _____

Witnesses:
1.
2.

(Executants)
(To be executed by all the Members of the Consortium)

Notes:
1. The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, lay 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.

Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder

4. Format 4: Format for Financials and Technical qualification criteria

4.1 Format for Financials from Statutory Auditors of the bidder

<On a letter head of Statutory Auditors of the **bidder (all members in case of consortium)**>

This is to certify that <u><Bidder name></u> having its registered office at _____ have average turnover and Net worth required as per **clause 13.3** under "Instructions to Bidders" of Tender Number _____ dated _____, as under:

Financial Year	Total Turnover from IT/ITeS / ICT / ITMS	Net Worth As defined in Companies Act 1956 / 2013 as amended from time to time
		Rupees in Crore
2020-2021 (Audited) As on 31st March 2021		NA
2021-22 (Audited) As on 31st March 2022		NA
2022-23 (Audited) As on 31st March 2023		As on 31st March 2023
Average for last three financial years		NA

Supporting Document Reference for the above is as follows: _____<u><Page number, file name></u>_____

I understand, the term of "IT/ ITeS/ ICT/ ITMS" refers to the definition as defined in Clause 13.1 under "Instructions to Bidders" of the Part 1A of the RFP number_____dt._____.

Authorized Signatory:
Name:
Designation:
Membership Number:
Place:
Date:
Stamp:

4.2. Format for Technical Qualification Criteria

(To be executed on **Non-judicial stamp paper** of relevant value by **Bidder (All members (as applicable) in case of Consortium and / OR OEM as applicable**))

M/s_____ (name and registered office address of Bidder) acting through _____ (name and address of the authorized representative of the Bidder), do hereby solemnly affirm and undertake as under;

That the below table represents the list of projects matching the definition as per clause 13.1 for "**Similar Projects**"

#	Project Name / Client Name	Name of authorized person from Client	Email ID and Contact Number of Authorized persons	Project Start Date (Operations start date)	Project End Date	Total Project value of the "Similar Project"	Type and number of locations of Violation Detection Systems implemented
E.g.	ABC ITMS Project	Mr. Abc Xyz	abc@xyz.com 022 XXXXX +91 XXXXX	15th Jan 2016	On – going 14th Jan 2023	INR 120 Crore	RLVD – 23 SVDD – 12 No Helmet – 23
1							
2							

Supporting Document Reference for the above is as follows: _____<Page number, File name>_____

I / We declare that all the above information is correct and best of my / our knowledge. I / We understand that the MMVD may cross verify any and all information provided above and any false representation, or false information provided may be liable for action as deem fit to the MMVD under relevant act / rules, or as per RFP Terms and Conditions, including but not limited to disqualification of Bid / withdrawal of LoI and forfeiture of EMD or Termination of contract and Performance Security forfeited, whichever is applicable.

SEAL, SIGNATURE & STAMP OF BIDDER / AUTHORISED SIGNATORY
Dated:
Place:

5. Format 5: Undertaking – Non-Blacklisting

<< To be printed on Bidder (all members in case of consortium)'s Letter Head and Signed by Authorized Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Sub: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years –Non-Blacklisting Undertaking.

Ref: RFP No.: _____ Dated _____

Dear Sir / Madam,

We, the undersigned, hereby declare that:
1. We are not convicted for any of the following offenses under the Prevention of Corruption Act, 1988; Or
2. We have not been convicted under any Indian Penal Code or any law in force, for creating public injury or loss of life to person or property or risk to public health as a part of execution of public procurement contract;
3. We have not been blacklisted / banned / debarred by any Government (State / Central / UT) or its Department, Central or State Public Sector Unit / Govt. Boards / Corporations in India or under a declaration of ineligibility / banned or convicted of economic offence for any reason in India as on last date of submission of bid.
4. We have not violated the code of integrity in last 2 years;
5. Our Security Deposit or EMD or Performance Security deposit or any other deposit was not withheld (fully or partly) by the MMVD during any procurement process or contract execution undertaken by MMVD in last 2 years;
6. We have not withdrawn our bids post submission of the same. (maximum incidents are limited to 3)
7. If Owner / Partner / Director / Trustee of the organization is Owner / Partner / Director / Trustee of any other organization
    We hereby declare that Our Owner / Partner / Director / Trustee are not Owner / Partner / Director / Trustee of any other organization which is presently blacklisted / Banned / Suspended by the Government / Semi-Government / PSUs, and any other organization to which the provisions of GoM GR dated 01.12.2016 are applicable.
8. We declare that we comply with all clauses mentioned under section 5.8.5 of Government of Maharashtra Government Resolution dated 01.12.2016.
9. We accept that in case of any irregularity, lapses, non-compliances, MMVD decision shall be final and binding on us.
Sincerely,
Seal and Signature of the Authorized signatory of the Bidder)
Name and Designation:
Date and Place:

6. Format 6: Undertaking of "No Conflict of interest"

<< To be printed on Bidder (All members in case of consortium) Company's Letter Head and Signed by Authorized Signatory>>

Tender No.   Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – Non-Conflict of Interest Undertaking.

Ref: RFP No.: _____ Dated _____

We do hereby confirm that we, our consortium partners, OEMs, ISPs, sub-contractors are not involved in any actual or perceived conflict of interest situation with one or more parties in this bidding process, including but not limited to:

1. receive or have received any direct or indirect subsidy from any of them; or
2. have common controlling shareholders; or have the same legal representative for purposes of this Bid; or have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on Bid of another Bidder, or influence the decisions of MMVD regarding this bidding process; or
3. Bidder participates in more than one bid in this bidding process. Participation in more than one Bid shall result in the disqualification of all Bids in which the bidder is involved. However, this does not limit the inclusion of the same product (commercially available hardware, software or network product manufactured or produced by the firm), as well as purely incidental services such as installation, configuration, routine training and ongoing maintenance / support, in more than one bid; or
4. Bidder participated as a consultant in the preparation of the design or technical specifications of the goods and services that are the subject of the bid. Bidder gets associated as Consultant / Advisor / Third party independent evaluating agency with any of the agencies taking part in the bid process; or
5. Have an existing contract with the MMVD
6. Have a clear and certain possibility that the services executed / delivered by the bidder as part of the scope of work would lead to outcomes wherein the bidder can have vested business interests / benefits
7. Have a position in a business or personal interest that could improperly influence the judgment in the exercise of bidder's duties.
8. Is not privy to information from the MMVD which is not available to other bidders.
9. Has not recently worked for the MMVD overseeing the project in a role which is even perceived as "influential role" for drafting of SOW and evaluation criterion
10. Have an ownership interest or a continuing business interest or an on-going relationship with an existing Consultant working with the MMVD and interacting with the same officials of the MMVD.

We also confirm to disclose to the MMVD in writing, all actual and potential conflicts of interest that exist, arise or may arise in due course of performing the Services as soon as it becomes aware of such a conflict.

Sincerely,

(Signature of the Authorized signatory of the Bidder)
Name:
Designation:
Seal:
Date:
Place:
Business Address:

7. Format 7: Declaration from the HR head of the Bidder for Experienced Manpower

<< To be printed on Bidder (all members in case of consortium) Company's Letter Head and Signed by Authorized Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – Experienced Manpower Declaration.

Ref: RFP No.: _____ Dated _____

We confirm that our Company <Name of Bidder / consortium member> as on date of submission of the proposal for, **Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years** has following number of professionals on our payroll in India meeting the criteria requested in the RFP, as on date of submission of bid.

Sr.	Type of professional	Number of professionals
1	enforcement system design and deployment services	
2	IT / ITeS/ ICT services	

Sincerely,

(Signature of the Authorized signatory of the Bidder)
Name:
Designation:
Seal:
Date:
Place:
Business Address:

8. Format 8: Self Declaration

(To be executed on Non-judicial stamp paper of relevant value)

M/s_____ (name and registered office address of the company) acting through _____ (name and address of the authorized representative of the Bidder), do hereby solemnly affirm and undertake as under;

Ref: RFP No.: _____ Dated _____

1. That I / we have read through the entire Tender document number _____, regarding _____<Name of the Tender>_____, and agree that we have read each and every page and clause mentioned in the said tender document including all the parts of RFP, any corrigendum, pre-bid responses, amendments etc.
2. That the infrastructure required and necessary for carrying out the work as prescribed under the scope of the RFP document shall be made operational within the period stipulated in the RFP document.
3. That I / We shall appoint the requisite manpower with necessary qualifications and experience as stipulated in the RFP.
4. That I, shall implement the project myself and shall not franchise / sublet / subcontract it, if awarded to me, without prior written consent of the MMVD.
5. That I / We shall comply with, and always observe, the terms and conditions of the RFP document and with the direction and orders issued by the MMVD from time to time.
6. That I / We hereby certify that the proposal submitted by us is non-conditional and is without any deviation from the RFP requirements.
7. That all the statements, submissions made by me / us and the documents submitted by me / us are genuine to the best of my / our knowledge and that the same reflects the facts as on the date.
8. That I / We shall ensure that the key staff deployed (as identified by MMVD at the start of project execution) for the Project shall formally sign the Non-disclosure Agreement in the format specified by MMVD and further shall comply with all the requirements of Information Technology Act 2000 (ITA-2000) of Government of India, IT (Amendment) Act 2008 and any such amendments and requirements from time to time.
9. I / We shall ensure that all the software, application licenses provided and deployed by us for the project shall be as described in the RFP document.

I / We understand that failure to do so may result in forfeiture of EMD and / or withdrawal of LOI.

SEAL, SIGNATURE & STAMP OF BIDDER / AUTHORISED SIGNATORY

Date:
Place:

9. Format 9: Format for Anti-Collusion Certificate

(To be submitted on the Letter Head of the Bidder (Lead Bidder in case of consortium), duly signed by the Authorized Signatory)

Anti-Collusion Certificate

Ref: RFP No.: _____ Dated _____

We hereby certify and confirm that in the preparation and submission of this Proposal for RFP "**Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years**", we have not acted in concert or in collusion with any other Bidder or other person/s and also not done any act, deed or thing which is or could be regarded as anti-competitive.

We further confirm that we have not offered nor will offer any illegal gratification in cash or kind to any person or agency in connection with the instant Proposal.

Dated this _____ Day of _____, 202___

Name of the Bidder _____

Signature of the Authorized Person _____

Name of the Authorized Person _____

10. Format 10: Earnest Money Deposit as Bank Guarantee Format

Tender. No.	**:**
Date	**:**
Bank Guarantee No.	**:**

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001

For bidding for the tender bearing number _____ dated _____ for the project "**Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years**" (hereinafter referred as 'RFP') for, _____ a company registered under Indian Companies Act, 1956 / 2013 (hereinafter called the "Bidder" (Lead Bidder in case of Consortium)), we at the request of the Bidder, certify that, we, _____ Bank having one of the branches at _____(hereinafter called the "Bank") are holding in trust in favour of Motor Vehicles Department, Maharashtra State (hereinafter referred as 'MMVD'), the amount of Rs. _____ (write the sum here in words) to indemnify and keep indemnified the MMVD against any loss or damage that may be caused to or suffered by the MMVD by reason of any breach by the Bidder of any of the terms and conditions of the RFP and the bidding process as described in the RFP.

We agree that the decision of MMVD, whether any breach of any of the terms and conditions of the RFP and/or in the performance thereof has been committed by the Bidder and the amount of loss or damage that has been caused or suffered by MMVD shall be final and binding on us and the amount of the said loss or damage shall be paid by us forthwith on demand and without demur to MMVD.

We _____ Bank, further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for satisfactory performance and fulfilment in all respects of the RFP and bidding process by the Bidder i.e. till _____(write a date which is at least **120 days** from the Last date (deadline) for uploading of bids on the e-Tendering website in response to RFP notice- hereinafter called the **said date**) and that if any claim accrues or arises against us _____ Bank, by virtue of this guarantee before the said date, the same shall be enforceable against us _____ Bank, notwithstanding the fact that the notice of any such claim is given to us _____ Bank, by MMVD before the **said date**.

Payment under this letter of guarantee shall be made promptly, within two week of our receipt of notice to that effect from MMVD.

It is fully understood that this guarantee is effective from the last date (deadline) for uploading of bids in response to RFP notice and that we _____ Bank, undertake not to revoke this guarantee during its currency without the consent in writing of MMVD.

We undertake to pay to MMVD any money so demanded notwithstanding any dispute or disputes raised by the Bidder in any suit or proceeding pending before any court or Tribunal relating thereto our liability under this present guarantee being absolute and unequivocal

without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment there under.

We _____ Bank, further agree that MMVD shall have the fullest liberty, without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said RFP or to extend time of performance by the Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by MMVD against the said Bidder and to forebear or enforce any of the terms and conditions relating to the said RFP and we, _____ Bank, shall not be released from liability of MMVD under this guarantee by reason of any such variation or extension being granted to the said Bidder or for any forbearance by MMVD to the said Bidder or for any forbearance and or omission on the part of MMVD or any other matter or thing whatsoever, which under the law relating to sureties, would, but for this provision have the effect of so releasing us from our liability under this guarantee.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Bidder or any absorption, merger or amalgamation of the Bank or the Bidder with any other person.

Our liability under this Bank Guarantee shall not exceed and is restricted to Rs. _____ (Rupees _____ only).

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

Signature of Authorized Signatory (with official seal)

Date	:
Place	:
Name	:
Designation	:
Address	:
Telephone & Fax	:
E-mail address	:

_____   _____
Signature of Witness 1   Signature of Witness 2
Name: _____   Name: _____

(Bank's common seal)

Bank details of MMVD:

a) Name of Account Holder: A.O.T.C (M.S), Mumbai
b) Bank Name: State Bank of India
c) Branch Name: Mumbai Main Branch (Branch Code: 00300)
d) Account No.: 39282067215
e) IFSC Code: SBIN0000300

11. Format 11: Joint Bidding Agreement

[To be stamped / franked for Rs. 100 / Rs. 500 non-judicial]

JOINT BIDDING UNDERTAKING

This Joint Bidding Undertaking is entered into on this the _____ day of _____ 202__, ("**Undertaking**")

AMONGST

1. _____ Limited, a company incorporated under the Companies Act, 1956 / 2013 and having its registered office / office at _____ hereinafter referred to as the "**First Part**" which expression shall, unless repugnant to the context include its successors and permitted assigns);

   [Note: Party selected by Bidding Consortium as Lead Bidder should be party of the 'First Part'.]

2. _____ Limited, a company incorporated under the Companies Act, 1956 / 2013 and having its registered office / office at _____ hereinafter referred to as the "**Second Part**" which expression shall, unless repugnant to the context include its successors and permitted assigns);

AND

3. _____ Limited, a company incorporated under the Companies Act, 1956 / 2013 and having its registered office / office at _____ hereinafter referred to as the "**Third Part**" which expression shall, unless repugnant to the context include its successors and permitted assigns);

The above-mentioned parties of the FIRST, SECOND and THIRD PARTS are collectively referred to as the "**Parties**" and each is individually referred to as a "**Party**".

Note: All members of the Bidding Consortium are required to execute the Joint Bidding Undertaking.

IN FAVOR OF:

The **Transport Commissioner, Maharashtra State** and having its principal offices at_____, (hereinafter referred to as the "Authority" which expression shall, unless repugnant to the context include the successors and assigns).

WHEREAS

A. The Authority has invited Bids from the Bidders by its Request for Proposal No. _____ dated _____ (the "RFP") for selection of a Master System Integrator (MSI) for the Project on terms specified in the RFP (the "Proposals").
B. The Parties are interested in jointly bidding for the Project in accordance with the terms and conditions of the RFP, as members of a Consortium.
C. It is a condition to participation in the RFP that all members of the Consortium furnish a Joint Bidding Undertaking to the Authority as below.

Now therefore, the Parties hereby agree with and undertake to, the Authority as follows:

1. Definitions and Interpretations

In this Undertaking, the capitalized terms shall, unless the context otherwise requires, have the meanings ascribed to them in the RFP Document.

2. Consortium

2.1. The Parties do hereby irrevocably constitute a Consortium in accordance with the terms of the RFP for the purposes of jointly participating in the RFP process.

2.2. The Parties hereby undertake to participate in the bidding process only through this Consortium comprising of the Parties (the "Bidding Consortium") and each Party agrees and undertakes that it shall not, whether directly or indirectly (including through one or more of its Affiliates), participate as, or otherwise be interested in the Bid of, any other Bidder, whether as a member of another Consortium, or a partner, director, shareholder of another Bidder or member of another Consortium or otherwise, except otherwise provided in the RFP explicitly.

"**Affiliate**" means, with respect to any person, any other person that directly or indirectly, controls, is controlled by, or is under common control with, the first mentioned person, where
"**control**" means the ability to control the management and policies of a person, whether directly or indirectly, through the ownership of voting securities or the power to appoint a majority of the members of the board of directors or equivalent governing body of such person, or through contract or otherwise. The term Affiliate includes without limitation subsidiary companies, holding companies, and subsidiaries of the holding companies, of a person.

The roles and responsibilities of each consortium member along with reference to **financial, technical and O&M obligations** is mentioned as below:

Sr. No.	Name of Party	Roles and Responsibility
1.		Lead Bidder :
2.		Consortium Member 1 :
3.		Consortium Member 2 :

We hereby agree and undertake to obey the roles and responsibilities mentioned above in all respect throughout the contractual period.

3. Role of the Parties

3.1. The Parties hereby undertake and agree that _____ [insert name of party], Party of the First Part shall be the Lead Entity of the Bidding Consortium and the Parties represent and warrant that the Party specified as the Lead Entity of the Bidding Consortium in the preceding sentence has the power of attorney from all other Parties for conducting all business for and on behalf of the Bidding Consortium during the bidding process and for the entire duration of the contract.

3.2. The Parties undertake that there shall be no change in composition of the Bidder during the entire contract period without written consent of MMVD, in accordance with **Clause 13.2** under "Instructions to Bidders" of the RFP.

4. Representation of the Parties

Each Party represents and warrants as of the date of this undertaking that:

4.1. Such party is duly organized, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Undertaking;

4.2. The execution, delivery and performance by such Party of this Undertaking has been authorized by all necessary and appropriate corporate or governmental action and a copy of the extract of the charter documents and board resolution / power of attorney in favour of the person executing this Undertaking for the delegation of power and authority to execute this Undertaking on behalf of the Parties is **annexed** to this Undertaking, and shall not, to the best of its knowledge:

   i. require any consent or approval not already obtained;

   ii. violate any Applicable Law presently in effect and having applicability to it;

   iii. violate the memorandum and articles of association, by-laws or other applicable organizational documents thereof;

   iv. violate any clearance, permit, concession, grant, license or other governmental authorization, approval, judgment, order or decree or any mortgage agreement, indenture or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or

   v. create or impose any liens, mortgages, pledges, claims, security interests, charges or Encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Undertaking;

4.3. this Undertaking is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and

4.4. there is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Affiliates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfilment of its obligations under this Undertaking.

5. Termination

This Undertaking shall be effective from the date hereof and shall, (i) in case the Bidding Consortium is declared the Successful Bidder, continue in full force and effect from the date hereof until the end of the Contract Period (ii) in case the Bidding Consortium is not declared the Successful Bidder, continue in full force and effect from the date hereof until the date of return of the Earnest Money Deposit by the MMVD to the Bidder.

6. Joint and Several Liabilities

6.1. The Parties hereby undertake that they shall be jointly and severally responsible and liable for compliance with the terms and conditions of the RFP and the representations, warranties, covenants, undertakings and obligations of the Bidding Consortium or any of its members, pursuant to the RFP, including without limitation the Bidding Consortium's Proposal and this Undertaking.

6.2. Without prejudice to the generality of the foregoing, the Bidding Consortium agrees to the forfeiture of the EMD / PBG under the circumstances set forth in the RFP which shall include without limitation any breach of any term by any Party to this Undertaking.

6.3. The Parties hereby undertake that in the event the Bidding Consortium is the Successful Bidder, they shall be jointly and severally liable for ensuring the due and timely performance and compliance by the Bidder of the terms and conditions of the Contract Agreement including without limitation in respect of its representations, warranties, covenants, undertakings and obligations hereunder.

6.4. The Parties hereby undertake that they shall be jointly and severally liable for ensuring that all the conditions set out in the RFP document is complied with, including number of proposals, management restrictions etc., failing which they will be liable for penalty as per SLAs defined in the RFP or withdrawal of LOI and forfeiting of EMD or termination of contract and forfeiting PBG as applicable.

7. Miscellaneous

7.1. This Undertaking shall be governed by laws of India. Courts of Mumbai shall have exclusive jurisdiction in respect of this Undertaking.

7.2. The Parties acknowledge and accept that this Undertaking shall not be amended by the Parties without the prior written consent of the MMVD.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS UNDERTAKING IN FAVOR OF THE MMVD AS OF THE DATE FIRST ABOVE WRITTEN.

For and on behalf of	for and on behalf of	For and on behalf of
Party of the FIRST PART by:	Party of the SECOND PART by:	Party of the THIRD PART by:
Signature, Name, Designation and Address	Signature, Name, Designation and Address	Signature, Name, Designation and Address

In the presence of:
1.
2.

[**Note:** The mode of the execution of the Joint Bidding Undertaking 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.]

<Attach applicable Annexures to the Jt. Bidding Agreement including Power of Attorney>

12. Format 12: Joint Undertaking from Lead Bidder and ISPs for Bandwidth requirements

<< To be printed on Lead Bidder's Letter Head and Signed by Chief Executive Officer/ CMD/ Head of Marketing along with the authorized signatory of both ISPs>>

(not applicable if the bidder proposes to lay a dedicated fibre for the project)

Tender No.   Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Dear Sir,

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years– Undertaking from Lead Bidder for Using Services of ISP for bandwidth requirements

Ref: RFP No.: _____ Dated _____

We, having read and examined in detail all the bidding documents for **Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years**, do hereby propose to provide our services as specified in the RFP.

We, the following ISPs and Lead Bidder hereby declare to provide bandwidth services for MMVD's ITMS project in Nagpur Circle.

<<< Name of Primary ISP>>>_____
<< Name of Secondary ISP>>>_____
<< Name of Lead Bidder>>

We agree to abide by the following conditions during the entire duration of the project:

i. We confirm that we have read, examined and reviewed all of the Tender Documents in their entirety, including all annexes, exhibits, appendices, volumes and other attachments relevant to us and consent to all of the terms and conditions set forth therein.
ii. We confirm that we have understood the contents of such Tender Documents in their entirety, and they are fully familiar with all the provisions thereof.
iii. We confirm that the bandwidth services offered us (ISPs) are in conformance with DoT Guidelines, TRAI regulations and other regulatory norms, as applicable, and amended from time to time.
iv. We confirm to meet the SLAs related to performance of bandwidth services as per the RFP and agree to sign back-to-back arrangement with the MSI as per defined SLAs.
v. We agree to sign a Tripartite Agreement with MMVD after successful award of contract to the Lead Bidder, if directed by MMVD.

vi.   We also agree that MSI shall pay bandwidth charges to us and MMVD has no responsibility for the same.

vii.   We agree that, in the event of Govt. of India requiring MMVD to place direct purchase order on ISPs, MMVD can do so, at bandwidth prices as per the financial quote submitted by MSI and agreed for this ITMS Project.

viii.   We confirm that, MMVD has right to negotiate the prices of bandwidth, at any stage of the contract, if found unreasonable. We confirm that the prices shall be proportionately reduced in case these is a reduction in TRAI rates.

ix.   We (ISPs) confirm to the prices offered by the Lead Bidder as part of the Commercial Bid submitted for this RFP. The prices are in conformance with the relevant GoI guidelines.

Thanking you,

Details of Lead Bidder
Signature: << Authorized Signatory>>
Name:
Designation:
Seal:
Date:
Place:
Business Address:

Details of Primary ISP (on field)	Details of Secondary ISP (on field)
Signature: << Authorized Signatory>>	Signature: << Authorized Signatory>>
Name:	Name:
Designation:	Designation:
Seal:	Seal:
Date:	Date:
Place:	Place:
Business Address:	Business Address:

Details of Primary ISP (At CCC)	Details of Secondary ISP (At CCC)
Signature: << Authorized Signatory>>	Signature: << Authorized Signatory>>
Name:	Name:
Designation:	Designation:
Seal:	Seal:
Date:	Date:
Place:	Place:
Business Address:	Business Address:

<u>Annexure Set II – Envelope B</u>

1. Format 1: Technical Proposal Covering Letter

<< To be printed on Bidder (Lead Bidder in case of consortium) Company's Letter Head and Signed by Authorised Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Dear Sir,

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – <u>Technical Proposal Covering Letter</u>

Ref: RFP No.: _____ Dated _____

Having examined the RFP, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to provide the professional services as required and outlined in the RFP for the aforementioned Project.

We attach hereto our response Technical Proposal as required by the RFP.

We confirm that the information contained in this response or any part thereof, including its exhibits, and other documents and instruments delivered or to be delivered to MMVD is true, accurate, verifiable and complete. This Proposal includes all information necessary to ensure that the statements therein do not in whole or in part mislead MMVD in its evaluation and selection process.

We fully understand and agree to comply that on verification, if any of the information provided here is found to be misleading the evaluation and selection process, we are liable to be disqualified from the selection process or be terminated during the Contract, if selected to sign and execute the Contract.

We agree for unconditional acceptance of all the terms and conditions set out in the RFP document but for the suggestions provided by us along with our Proposal and also agree to abide by this Bid for a period of 120 days from the date of opening of Bids at MMVD.

We understand that, the suggestions provided by us are subject to review by MMVD during the proposal review stage and MMVD reserves the right to reject the suggestions made.

We hereby declare that in case the Contract is awarded to us, we shall submit the Performance Security the format prescribed in the RFP within the specified time as per the RFP Terms.

We agree that you are not bound to accept any Bid you may receive. We also agree that you reserve the right in absolute sense to reject all or any of the products/ services specified in the Bid.

It is hereby confirmed that I/We are entitled to act on behalf of our company/ corporation/ firm/ organization and empowered to sign this document as well as such other documents, which shall be required in this connection.

Technical Proposal, as per format provided in the RFP, is enclosed.

Dated this _____ Day of _____   20–

Thanking you,
Yours faithfully

(Signature of the Authorized signatory of the Bidder)
(In the capacity of)

(Name)

Duly authorized to sign the Tender Response for and on behalf of:

(Name and Address of Company) Seal/Stamp of bidder

2. Format 2: Un-priced Bill of Material

<< To be printed on the Bidder (Lead Bidder in case of Consortium)'s Letter Head and shall be signed by Authorized Signatory>>

TO WHOMSOEVER IT MAY CONCERN
Un-priced Bill of Material

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years

Ref: RFP No.: _____ Dated _____

Please find attached detailed Un-priced Bill of Material for the project.

Sr.	Item	Unit of Measurement	Quantity	Make	Model, Version Details (if applicable)	Manufacturer Authorization Form Submitted (Yes / No)	Compliance Submitted (Yes / No)
Additional line items, if any							
Sr.	Item	Unit of Measurement	Quantity	Make	Model, Version Details (if applicable)	Manufacturer Authorization Form Submitted (Yes / No)	Remarks (Reason for additional line item)

Note: For detailed reasoning for additional line item, Bidder may attach additional sheets and give reference in the above table.

We confirm that there is no Alternate Proposal for any line items, we understand and accept the clause "The bidder shall mention only one quantity and Unit of Measurement (UOM) for each line item, only from single OEM/ Type software etc., as part of this un-priced bill of material. Any bids, which propose multiple options in terms of quantity, UOM and OEM/ Type for each line item shall be summarily rejected. For example, in case of videowall, the bidder submitting two options of videowalls with different options for quantity, UOM and OEM/ Type shall be summarily rejected."

Thanking you,
Yours faithfully

(Signature of the Authorized signatory of the Bidder)
Name:
Designation:
Seal:
Date:
Place:
Business Address:

3. Format 3: Profile of Proposed Project Team

<< To be printed on Bidder (Lead Bidder in case of consortium) Company's Letter Head and Signed by Authorized Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – <u>Team Deployment Undertaking</u>

Ref: RFP No.: _____ Dated _____

Dear Sir,

We, having read and examined in detail all the bidding documents for **Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years** do hereby propose to provide our services as specified in the RFP.

In order to submit the bids and execute the project, it is understood that we are required to give details of the team being deployed as part of this initiative. Accordingly, we are providing the details of the team, and also the CVs, as per the format prescribed in the RFP are attached.

In this regard, we understand and comply with the following:
  i)   Officials belong to our company or to our sub-contractors (if allowed in writing by MMVD)
  ii) We are solely responsible for the supervision and control of the personnel deployed in the Project and for payment of such personnel's compensation, including salary, withholding of income taxes and social security taxes, worker's compensation, employee and disability benefits and the like and shall be responsible for all obligations of an employer subject to Applicable Law and Terms and Conditions of the RFP.

The same team shall be deployed, in the event of signing of the contract, and the members of the team shall not be replaced, without prior approval of MMVD.

Please find below, details of Project Team proposed to be deployed for executing of this project.

List of Key Personnel

Sr.	Name of Key Personnel	Area of Expertise	Position/Task assigned for this job	Qualification	Years of Experience	Certification	Relevance	Compliance Check (Yes / No)
1.			Project Manager					
2.			Other manpower as defined					

Compliance to Manpower Qualifications

Sr. No.	Manpower Designation	Minimum Qualifications	Compliance Check (Yes/no)
1.	Project Manager		

NOTE:
1 Names of only the Key Personnel shall be mentioned in the table above. If more than one Key Personnel is provided for a particular role, all the names shall be mentioned in separate rows.
2 One Key Personnel can be assigned more than one role.
3 The compliance to manpower qualifications of Key Personnel shall be mentioned as per formats below.

Curriculum Vitae (CV) of Key Personnel

	Proposed Position				
	Name of Staff				
	Current Job Title/ Designation				
	Date of Birth				
	Nationality				
	Education	S. No	Degree Obtained	University/ Institute	Dates
	Certifications				
	Employment Record				
	Membership of Professional Associations				
	Other Training				
	Countries of Work Experience				
	Languages	S. No	Language	Read	Write	Speak
	Detailed Tasks Assigned				

Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned

Name of the Assignment/Job or project	
Year	
Location	
Employer	
Main Project Features	
Position Held	
Activities Performed	

*Bidder must insert additional tables as per requirement

Certification:
I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful miss-statement described herein shall lead to my disqualification or dismissal, if engaged.
Date:
Place:

NOTE: For Key Personnel, it is mandatory to provide name of proposed resource along with details desired as per format given above. **Also, CV for every resource is to be submitted in this format only.**

Escalation Chart for the entire Project Duration

{Bidder to insert Escalation Chart here}

Thanking you,

 (Signature, Name and Designation of the Authorized signatory of the Bidder)
Name:
Designation:
Seal:
Date:
Place:
Business Address:

4.   Format 4: Details of Solution Partners

<< To be printed on Bidder (Lead Bidder in case of Consortium) Company's Letter Head and Signed by Authorized Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – Details of Solutions Partners

Ref: RFP No.: _____ Dated _____

Dear Sir,

Please find below the list of all the Key Solution Partners of <<<Bidder Name>>> for the project "Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years"

Sr. No.	Name of Solution Partner	List of Services and Solutions by each partner
1.	<<Bidder>>	1. 2.
2.	Consortium Member	1. 2.
OEMs		
1.		1. 2.
2.		1.
Sub-Contractors (subject to clause 11 under "Administrative Aspects")		
1.		1. 2.
2.		1.

Thanking you,

Signature: << Authorized Signatory>>
Name:
Designation:
Seal:
Date:
Place:
Business Address:

5. Format 5: Undertaking – Technical Support Arrangement with OEM

<< To be printed on Bidder (Lead Bidder in case of Consortium) Company's Letter Head, signed by Authorized Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – Technical Support Arrangement with OEM

Ref: RFP No.: _____ Dated _____

Dear Sir,

We, the undersigned, having read and examined the requirements of the project, have licensed all our products / COTS that shall complement the solution in the best possible way and that all the requirements shall be fulfilled either by the products / COTS or through customizations.

We have/shall enter(ed) into requisite arrangements with the OEMs for the following:

- **Professional Services and Technical Support:** We confirm that we have chosen the products from OEMs who have professional support services in India (or through their authorized channel partners) as per requirements of the RFP. These professionals shall be made available physically as and when required for supporting all technical aspects of project implementation, solution maintenance and support during entire period of Project including extended period if any as stated in RFP.
- **Vetting of solution**: We confirm that OEM's support shall be taken for vetting of the technical solution as proposed and implemented.

It is hereby confirmed that I/We are entitled to act on behalf of our company and empowered to sign this document as well as such other documents, which shall be required in this connection.

Summary of Arrangement with OEMs for implementation and operations support

S. No.	OEM Name and Registered Office	Product	Arrangement for Technical Support

(Signature of the Authorized signatory of the Bidder)
Name and Designation:
Seal:
Date:
Place:
Business Address:

6. Format 6: Manufacturer Authorization Form (MAF) from OEM

<< To be printed on OEM's Letter Head and Signed by Authorized Signatory>>

Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001

Dear Sir,

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – Manufacturer Authorization Form (MAF) from OEM

Ref: RFP No.: _____ Dated _____

We, who are established and reputed developers / producers of _____ having development facilities at (*address of factory / facility*) do hereby authorize M/s _____ *(Name and address of Bidder)* to submit a Bid, and sign the contract with you against the above Bid Invitation.

Sr.	Name of OEM / Solution Partner	Name of Software / Hardware / other components	Name of Make (OEM)	Model	Version	Remarks
1.						
2.						
3.						

- We hereby extend our full guarantee and warranty for the Solution, Products and services offered by the above firm against this Bid Invitation.
- We undertake to provide OEM Warranty for the offered product(s), as mentioned above, for minimum ten Years from the date Go-Live of the project by (Name of the Lead Bidder)
- We hereby confirm that we have read and understood the said RFP and the functional and technical requirements and the offered product(s), as mentioned above, is complying with the respective requirements mentioned in said RFP.
- We hereby confirm that the offered product(s) is not likely to be declared as End-of-sale within next 24 months from the date of bid submission and End-of-Life / Support within next ten years from the date of Go-Live of the said project by (Name of the Lead Bidder).
- We hereby confirm that the support including spares, patches, upgrades for the quoted products shall be available for the period of the Project.
- We also confirm that we have an existing registered service / support centre in India at

_____
_____
OR

We also conform we shall establish registered service / support centre in India within 30 days of award of contract to the Bidder __\<Name of the Lead Bidder\>__.

- We also undertake to provide any or all of the following materials, notifications, and information pertaining to the Products manufactured or distributed:

-
    1. Such Products as MMVD may opt to purchase from OEM, provided, that this option shall not relieve OEM of any warranty obligations under the Contract; and
    2. in the event of termination of production of such Products:
        a. advance notification to MMVD of the pending termination, in sufficient time to permit MMVD to procure needed requirements; and
        b. Following such termination, furnishing at no cost to MMVD, the blueprints, design documents, operations manuals, standards, source codes and specifications of the Products, if requested.

- We duly authorize the said firm to act on our behalf in fulfilling all installations, Technical support and maintenance obligations required by the contract.

Yours faithfully,
For and on behalf of M/s _____ (Name of the manufacturer)

Signature   :
Name   :
Designation   :
Address   :
Date   :

Company Seal

Thanking you,

(Signature, Name and Designation of the Authorized signatory of the Bidder)

List of Products for which MAF shall be mandatorily submitted:

Sr.	Product	MAF mandatory	OEM installation support and Pilot certification mandatory – for each unique product (Yes / No)
1.	Local Processing Unit	Yes	No
2.	Speed Radar	Yes	Yes
3.	**All type of Camera** (including Vehicle Detector Camera, ANPR Camera, Evidence Camera etc.)	Yes	Yes
4.	Lane wise Speed Display Unit	Yes	No
5.	AVCC with Over height detection, Vehicle profiling	Yes	Yes
6.	Variable Messaging Signages	Yes	Yes
7.	Dynamic Registration number display	Yes	No
8.	Solar Panel	Yes	Yes
9.	Pole, Cantilever Pole	Yes	Yes
10.	All UPS with batteries (field, TMC etc.)	Yes	No
11.	Video Wall Set	Yes	Yes
12.	Workstations	Yes	No
13.	Network Colour Multifunctional Device (Printer, Scanner, Copier)	Yes	No
14.	DG Set	Yes	Yes
15.	Servers, Storage, WAF, Racks, Switches	Yes	Yes
16.	All network switches (DC, TMC, Field), SDWAN, 5G Router)	Yes	Yes
17.	Rack and PDU (DC)	Yes	No
18.	KVM Switch (DC)	Yes	No
19.	ICCC application (along with all integrations) (for TMC)	Yes	Yes
20.	GIS (if separate)	Yes	Yes
21.	Video Management System (VMS)	Yes	Yes
22.	Enterprise Management System	Yes	Yes
23.	Cloud Service Provider (DR)	Yes	No
24.	Application Availability, Security and Performance (DR)	Yes	No

Any other product / component for which MAF may be mandated by MMVD during Technical Bid Evaluation shall be provided by Bidders.

7. Format 7: Sub-contractor Scope

<< To be printed on Bidder (Lead Bidder in case of Consortium) Company's Letter Head and Signed by Authorized Signatory>>

TO WHOMSOEVER IT MAY CONCERN

Sub-contractor Scope

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – Sub-contractor scope

Ref: RFP No.: _____ Dated _____

Please find below, details of sub-contractor details and portion of scope that is being sub-contracted.

Sr.	Portion of Scope being Subcontracted	Details of the Sub-contractor	Capabilities of the sub-contractor	Citation for Involvement Sub-contractor in similar projects
1				
2				
3				
4				

We agree to terms and mentioned in Clause 11 under "Administrative Aspects" in this RFP and any other terms and conditions mentioned in the RFP in this regard.

NOTE: Bidders are requested to note that if they intend to sub-contract a portion of scope, they must sub-contract it to Indian agencies only. Sub-contracting to foreign agencies is not permitted. Also, the sub-contracted party shall have enough experience in handling such assignments.

Thanking you,

 (Signature, Name and Designation of the Authorized signatory of the Bidder)
Name:
Designation:
Seal:
Date:
Place:
Business Address:

8. Format 8: Detailed Technical Specifications and Compliance Matrix

<< To be printed on Bidder (Lead Bidder in case of Consortium) Company's Letter Head and Signed by Authorized Signatory>>

TO WHOMSOEVER IT MAY CONCERN

Technical Specification Compliance Matrix

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – **Technical Specifications and Compliance Matrix**

Ref: RFP No.: _____ Dated _____

Please find below, duly filled Technical Compliance Matrix. We understand, the following are the minimum technical specifications and the make and model proposed for the project shall ensure to meet all the requirements and the quality as described in the RFP. We have also submitted datasheet, certification and other Product Documentation for each and every product.

All these components are with OEM Warranty / support from MSI for entire contract period, i.e. 10 years from Go-Live. We agree that, wherever required, we will replace the product with same or better make and model as per directions of MMVD.

All the specifications are in compliance with NHAI / Policy Guidelines / Standard Documents / 2023 Policy Circular No. 11. 55 / 2023 dt. 10th Oct 2023, with subject Implementation of Advance Traffic Management System (ATMS) on National Highways and Expressways – Standard ATMS provisions – reg.

If there is any deviation to the Minimum specifications, we have highlighted the same with appropriate remarks for consideration of the MMVD. We understand MMVD may or may not agree to the deviation, and we agree to provide other product as per directions of MMVD to meet or exceed the minimum specifications.

8.1. Civil / Non – IT Specification

i.   **Road Marking** with Hot Applied Thermoplastic Compound with Reflectorizing Glass Beads on Bituminous Surface (Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorizing glass beads @ 250 gms. per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes.)

ii. **Signboard**

#	Parameter	Minimum Specifications	Compliance (Yes / No)
1.	Size	Board Width = 12" / 18"	
2.	Plate Material	Corrosion resistant Aluminum Alloy as per IRC 67:2001 (Code of Practice for Road signs) or latest specification	
3.	Plate Thickness	Minimum 1.5 mm	
4.	Retro-Reflective sheeting for sign-plate	Weather-resistant, having colour fastness	
5.	Other Specifications	As per IRC 67:2001 (Code of Practice for Road signs)	
6.	Mounting	Can be mounted on wall or pole *(Appropriate mounting brackets to be provided)*	

#	Parameter	Minimum Specifications	Compliance (Yes / No)
7.	Design	Yellow Rectangular or circular plate with message as directed by MMVD Eg. "You are under CCTV Surveillance"	
8.	Message Language	As per the requirement the message can be in English or Marathi	

iii.   **Pole**

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Pole Type & Pole Dimensions	Hot Dip Galvanized after Fabrication with Silver coating of 86-micron standard (IS 2713 (1980), IS :2629) 7-10 mtrs 2'/3' MS Poles with concrete foundation	
2.	Height	7-10 mtrs (as per site requirement)	
3.	Pole Bottom OD	150 - 180 mm	
4.	Pole Top OD	60- 75 mm	
5.	Pole Thickness	10 mm	
6.	Pole Shape	Round / Octagonal as per site requirement	
7.	Breakway Base Required	Yes	
8.	Pole Base Bolt Dimensions	180 mm	
9.	Pole Base Depth	1000 mm	
10.	Pole Number of Arms	1	
11.	Pole Wing Load in Wind velocity KMPH	Minimum 60 KMPH	
12.	Material	Rustproof Materials to be used for Harsh weather in outdoor use.	
13.	Provisions	For Electrical Ground For Cable Routing	
14.	Mounting facilities	To mount Cameras	
15.	Pole Pit	600 X 900 X 1500	
16.	Bottom Base Plate	Minimum base plate size: 30 x 30 x 1.5 cm	
17.	Base Foundation	Concrete base foundation to be used	
18.	Camera Stand	Required in accordance with the Pole specs and similar rustproof material	
19.	Junction Box	Each Pole will have junction box IP 65 rated, installed at 3-meter height.	
20.	Foundation	Ensure vibration free erection (basic aim is to ensure that video feed quality is not impacted due to winds in different climatic conditions).	
21.	Protection	Lightning arrestors with proper grounding. Protect pole from any vehicle hit.	
22.	Sign Board	A sign board describing words such as "This area under surveillance" and with serial number of the pole.	
23.	Certifications	BS EN ISO 1461/y IS: 875/1987	

iv.   **Cantilever**

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
	All specifications of the Pole in the above point iii, and additionally below points		
1.	Galvanization thickness for the cantilever structure should be avg 85 microns.		
2.	Should be cantilever mounted and shall have minimum 9 Mtrs. height with appropriate vertical clearance (minimum 6) under the system from the Road surface to ensure no obstruction to vehicular traffic.		
3.	300 NB vertical post of circular shape overhead cantilever structure with hot dip galvanizing along with suitable foundation bolt sets made up of High Tensile sheet confirming to BSEN 100025, S-Grade, and IS or equivalent.		
4.	It should be capable to withstand high wind speeds and for structural safety, the successful bidder has to provide structural safety certificate from qualified structural engineers approved/ certified by Govt. Agency.		
5.	Suitable for mounting of overhead Traffic Signal aspects along with Junction Box / Controller Box.		
6.	Based on the location requirement suitable size cantilevers to be considered.		

v.   **Ladder Specification for the maintenance of Field Components**

Quantity as required

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
1.	Tower Ladders manufactured from high tensile aluminium alloy. Extending section adjusts intermediately reinforced with special M.S. railing to enable safe and easy climbing.		
2.	Equipped with solid rubber tyre wheel fixed platform high cage.		
3.	Features of Trolley Telescopic Tower Ladder: Light weight, Convenient & Safe, Fire Proof, Rust Proof, Dust Proof, Robust construction, Durable		
4.	Closed 16 Ft & Extended 29 ft. / 30 Ft.		
5.	Safe Load 120 kg minimum		
6.	Accessories: Safety Belt		
7.	Safety Standards Certifications		
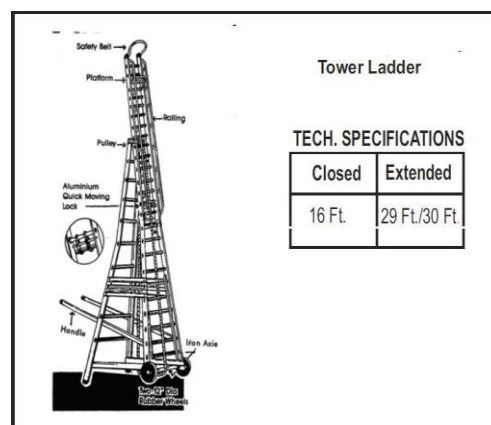
vi.   **Junction Box**

Sr.	Minimum Specifications	Compliance (Yes / No)
	Make:	
	Model:	
1.	• IP65 or better junction box • Junction Box design should ensure to keep the temperature within suitable operating range for equipment's and should also avoid intentional water splash and dust intake and dust intake • Minimum JB size 900 cm x 900 cm x 600 cm suitable for outdoor application, suitable for use in extreme weather conditions. • **Material Thickness**: Min 1.2mm • Pole mounted type having all the mounting accessories with Compact LIU - 12 Core fully loaded with Splice box, Tray, Adaptor, Pigtail -6 Nos, Patch cord-3 Nos and Cable spool, Splicing, I/c termination etc. complete as required for connectivity to single mode fiber cable Surge protection device along with other necessary protection & isolation switchgears to be provided.	
2.	The box shall have customized locking mechanism.	
3.	The box shall have wire management (including OFC, power, Ethernet Loop).	
4.	The box shall fit all the field equipment (Media Converter / Switch, Power Supply, LIU, PoE injector, Patch Panels etc.) with proper mounting arrangements. MSI may proposed bigger junction box for storing UPS, Inverter, batteries , etc.	
5.	The door shall be surface mounted with 130° opening. It shall have concealed removable hinges with captive pin. Hinges can be mounted to allow left- or right-hand opening.	
6.	Sealing shall be ensured by an injected one-piece polyurethane gasket or better.	
7.	Size, as per site requirement - shall accommodate all the equipment installed on the field for any location.	
8.	The junction box shall be of SS construction complete with SS mounting arrangements, accessories, bolts, nuts, washers, screws, etc.	
9.	JB shall have power isolation provisions using Double pole MCB for incomers & outgoings in addition to RCCB's.	
10.	JB shall have terminal blocks (WAGO) for power wiring & for connection of communication wires (part of OFC cable), properly segregated.	
11.	All individual components in the Junction Box shall be provided with clear & legible printed acrylic labels indicating the component type.	
12.	The junction box shall also have a drawing pocket complete with all as-built drawings for the relevant Junction Box.	
13.	All cable entries shall be through double compression SS cable glands (only from the bottom of Junction Box).	
14.	Unused cable entries shall be provided with SS plugs.	
15.	Junction box shall be provided with an additional FRP canopy to completely cover the Junction Box from rainfall (in any direction). The Canopy shall have suitable coverage.	

vii. Rodent Repellent at CCC

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
1.		The entry of Rodents and other unwanted pests shall be controlled using non-chemical, non- toxic devices. Ultrasonic pest repellents shall be provided in the control room to repel the pests without killing them. However periodic pest control using Chemical spray can be done once in 6 months as a contingency measure to effectively fight the pest menace.	
2.	Configuration	Master console with necessary transducer	
3.	Operating Frequency	Above 20 KHz (Variable)	
4.	Sound Output	50 dB to 110 dB (at 1 meter)	
5.	Power output	800 mW per transducer	
6.	Power consumption	15 W approximately	
7.	Power Supply	230 V AC 50 Hz	
8.	Mounting	Wall / Table Mounting	

viii. Air Condition for Porta Cabin and CCC

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.		Air conditioners shall be provided within the Control Room and Server Rooms (if any). The capacity of air conditioners shall be decided on the basis of the volume of area to be air conditioned. The type of Air conditioners to be installed should be preferably split type, with its condensing units installed outside suitably connected by copper tubing of required diameter and properly insulated. The air conditioners should be electrically fed by the power point installed nearby with not less than 04 sqm copper wire, with suitable earthing.	
2.	BEE Star rating	5 Star	
3.	Capacity	1.5 Tonne	
4.	Cooling Capacity (KW/hr)	above 3000KW/hr	
5.	Compressor Type	Rotary type	
6.	Air circulation (CFM H/M/L)	above 450/350/300	
7.	Moisture Removal (L/hr):	above 1.5	
8.	IDU Noise level(dBA)	≤ 55/50/45	
9.	Control	Microprocessor controlled with remote	
10.	Power Source (V/Hz/Ø)	230/50/1	
11.	Display	LED/LCD	
12.	Voltage Stabilizer Wall mount type with Time delay, High & low voltage & Thermal overload protection.		
13.	Capacity	4 KVA	
14.	Warranty / Maintenance	Throughout contract period	
15.	High Voltage Cut Off	240	
16.	Efficiency	>95%	
17.	Copper piping with insulation for suction line		
18.	Copper piping with insulation for Discharge line		
19.	PVC piping for drain		
20.	Indoor – Outdoor unit connecting power cable and required cable from power socket to stabilizer and from stabilizer to AC Unit		
21.	Base plate for hanging indoor unit		

ix.   Porta Cabin for counselling

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
1.	Dimension (L x W x H)	15ft x 10ft x 8.5 ft	
2.	Material	• Rock wool Sandwiched in between external GI Sheet (of at least 6 mm) & inside 8mm Laminated particle board • 3mm MS with internal grid • Design to be sturdy for all weather conditions • Roof properly sloped and watertight • Flooring cement fibre sheet with vinyl carpet • External multi coat of epoxy primer and epoxy paint	
3.	Foundation	Concrete 17 ft x 12 ft x 1 ft (minimum)	
4.	Windows	02 Nos. – 3ft x 3ft	
5.	Door	Insulated Galvanized Door	
6.	Lights	04 Nos. – LED	
7.	Door Light / External Light	1 No.	
8.	Fan	02 Nos.	
9.	Switches & Socket	06 Amp x 05 Nos. / 16 Amp x 02 Nos.	
10.	AC Provision	02 Nos. – 1 ton - Split with sequential controller	
11.	MCB	01 Nos.	
12.	Bulkhead Ceiling	Yes - 50mm Rock Wool	
13.	Flooring	19mm Cement fibre sheet with 2mm PVC vinyl carpet on top	
14.	Outer Colour	As per requirement	
15.	Executive Chair	10 Nos.	
16.	Weather sheds for all door and windows	Yes	
17.	Provision for LCD Screen / Workstation set	Yes	
18.	Foundation of Porta Cabin	As per site requirement for extreme weather conditions including required stairs	

x.   5 KVA UPS (For Porta Cabins and Toll Plaza Apparatus)

#	Parameter	Minimum Specifications	Compliance Yes/No
1	**Type of UPS**	Rack mountable UPS in 19-inch Rack (should be convertible to Tower type if required)	
	Input Characteristics.		
2	Nominal Input Voltage	400V AC 3 Phase	
3	Input Voltage Regulation	310-480VAC at Full load	
4	Nominal Input Frequency	50Hz.	
5	Type of Rectifier	IGBT Based PWM Rectifier	
6	Voltage Detection Tolerance ±3% Calibration	±3% Calibration	
7	Input Frequency Range	45-65 Hz	

#	Parameter	Minimum Specifications	Compliance Yes/No
8	Input Power Factor	0.9 or above	
9	Current Protection	With Fuse/breaker	
10	Connectivity	4 way Terminal block	
Battery Parameters.			
11	Charging Method	Constant voltage constant current (CVCC)	
12	Charging current Capacity	Minimum 4.3 Amps. Additional Charger if required, shall be provided	
13	Type of Batteries	SMF VRLA or Tubular	
14	Number of batteries	20	
15	back up 30 min	minimum 10000 VAH for SMF, minimum 12000 VAH for tubular	
16	Type	12V Blocks	
17	Charge Voltage Accuracy	±1%	
18	Battery Makes	SMF : Reputed Brands Exide or Quanta. Tubular : Exide Tubular C10 Rated	
Output Parameters.			
19	Load power factor	0.9	
20	Output Power Capacity KW	5 KW	
21	Nominal Output voltage	230V +/- 1%	
22	Output Frequency	Frequency Range (Batt. Mode): 50 Hz ± 0.1 %; Frequency Range (Synchronized Range): 46Hz ~ 54 Hz @ 50Hz system	
23	Output Waveform	Pure sine wave	
24	Total Harmonic distortion (THD)	Less than 3% for Linear Load and Less than 5% for RCD Load	
25	Inverter	IGBT based PWM with Instantaneous Sine wave control	
26	Power Rating	5kVA/5kW.	
27	Dynamic response	IEC62040-3 Classification 1	
28	Crest factor	3:1	
29	Duty.	Continuous duty	
30	Frequency synchronization Band for Static. Bypass	46 - 54Hz	
31	Transfer (Inverter to Bypass)	0 ms	
32	Retransfer (Bypass to Inverter)	0 ms	
33	Automatic Bypass	Inbuilt	
34	Connectivity	Terminal block	
35	Overall Efficiency (AC-AC)	>90% or more	
Other Functions			
36	Intelligent Fans Speed Control	Yes.	
37	Auto Restart Function	Yes.	
38	Railkit	Should be provided for Mounting in Rack	
Physical and Environmental Characteristics.			

#	Parameter	Minimum Specifications	Compliance Yes/No
39	Acoustic Noise Level	Less than 50dB @ 1 Meter	
40	Ambient Temperature	0 - 40 Deg C without any derating	
41	Storage Temperature	-15°C~ 50°C	
42	Humidity	<90 % and non-condensing	
43	Altitude	<1000m	
44	Enclosure Protection Grade	IP 21	
45	Cooling	Forced Air	
Metering (Digital display)			
46	Input voltage	Advanced LCD based Display System, able to monitor Input Voltage/Battery Voltage/Output Voltage/Output Frequency/Input Frequency/Ambient Temperature.	
47	Battery voltage		
48	Output voltage		
49	Output current		
50	Output frequency		
51	Input Frequency		
52	Battery Autonomy		
53	**Fault indicated on Digital Display Alarms**	LED indication display	
54	Display	Shall be Reversible type for both Rack & Tower Type configuration	
55	Protection	Overload/Short Ckt/Battery Deep Discharge/Low Battery/Reverse Battery/Inverter Current Limitation/Over Temperature/Output Overvoltage.	
56	Default communication ports	RS 232 Interface	
57	Optional features	Remote monitoring	
Certification & Standards			
58	Standards	IEC 62040-1, 2 & 3	
59	Certification	PEP Certified	

xi.   **Solar UPS- 2 KVA**

Sr. No.	Minimum Specifications	Compliance Yes/ No
1	**SPV Modules**	
a	The modules should be tested and certified by a Govt. of India authorized test centers or should conform to relevant IEC standard as per MNRE guidelines. Offered module shall have a power output warranty of 90% of the rated power for 10 years and 80% at the end of 25 years. Every module should have suitable by-pass diode at its terminal box. The series diode to prevent during partially shading due to cloud/tree/building etc.	
b	The PV modules must conform to the latest edition of any of the following IEC /equivalent BIS Standards for PV module design qualification and type approval: Crystalline Silicon Terrestrial PV Modules: IEC 61215 / IS14286. In addition, the modules must conform to IC 61730 Part 1 requirements for construction and Part 2 requirements for testing for safety qualification or equivalent IS (under Dev.)	
c	The modules used shall have following specifications: a. Type: Mono crystalline as per MNRE Norms	

	b. Modules Specification and standard: Confirming to the existing MNRE guidelines	
d	Each PV module used in solar power project must have a RF identification tag (RFID). The RFID can be inside/ outside the module laminate but must be able to withstand harsh environmental conditions. The RFID tag should be such that nobody should be able to tamper with the tag or remove the tag without damaging the PV module.	
e	Inter connections of solar modules should be through good quality male female joint. Name of manufacturer, Sl. No. of Module & manufacturing year should be clearly fixed inside the glass lamination of every module. Thermal sticker should be affixed behind every module which should clearly state the specifications & capacity of the module.	
f	The total capacity of the Solar Photovoltaic Power Plants mentioned is the minimum capacity in wattage of the total SPV modules installed in the Power Plant with reference to the Voltage at which the SPV Power Plant is designed. Capacities mentioned are the minimum name plate value of the SPV Power Plant. Supplier should submit the drawing of the Steel structures which they shall supply & install along with the array support structure for mounting of SPV modules, as per scope of work. For drawing & specification of module mounting structures (MMS) is required.	
g	Total Quantity of Solar Panels shall be sufficient enough to charge the UPS and Battery bank that will provide backup of minimum 24 Hrs.	
2	**Mechanical Components**	
a	**Module Mounting Structure (MMS):** Supplier should submit the drawing of the MMS which they shall supply. MMS should be installed along with the hot dipped galvanized (minimum 80 microns) array support structure for mounting of SPV modules at site. The panel frame structure should be capable of withstanding a minimum wind load as per **IS 875-Part 3**, after grouting and installation. A proper survey must be conducted for optimal angle incident of placing the solar PV panels on the MMS for both the summer and winter season according to the direction of sun. Proper clearance must be given from the found for wind circulation. MMS should be sturdy & designed to assist SPV Modules to render maximum output. The hardware (fasteners) used for installation of SPV Modules & MMS should be of suitable Stainless Steel (SS 304) for any kind of theft protection. Solar PV Module design will conform to following Mechanical requirement i. Toughened, low iron content, high transmissivity front glass. ii. Anodized Aluminium Frame. iii. Ethyl Vinyl Acetate (EVA) encapsulant. iv. Silicon edge sealant around laminate. v. Tedlar /Polyester trilaminate back surface. vi. Anti-theft protection fasteners vii. ABS plastic terminal box for the module output termination with gasket to prevent water moisture. viii. Resistant to water, abrasion, hail impact, humidity & other environment factor for the worst situation at site. ix. Bypass diode. (Electrical Requirement) a. As per guidelines issued for off-grid and decentralized applications program b. All PV modules must have bypass diode.	
b	**Foundation (If installed on ground):** The PCC foundation shall have to be designed on the basis of the weight of the structure with module and minimum wind speed of the site as per **IS 875-Part 3**. Each MMS should be with suitable legs grouted on pedestals. Bidder to propose suitable structure for mounting solar panel as per site requirement.	

c	**Junction Boxes** for Cables from Solar Array: The junction boxes shall be made up of FRP /MS/PP/ABS with dust, water and vermin proof.	
d	**Array Junction Box (AJB):** All the arrays of the modules shall be connected to DCDB through AJB. AJB shall have terminals of bus-bar arrangement of appropriate size Junction boxes shall have suitable cable entry with suitable grounding arrangement for both input and output cables. Suitable markings on the bus bars shall have to be provided to identify the bus bars etc. Every AJB should have suitable arrangement Reverse Blocking diode (Schottky diode of suitable rating with respect to the capacity of array) connected in such a manner that the diode is mounted on a proper heat sink so as to increase the life of diode. Each AJB should preferably not have more than four array inputs. Cable interconnection arrangement shall be within conduit pipe on saddles installed properly. Cable connection should be done in such a manner that fault findings if any, can be identified easily. The cables should be connected in such a manner that clamp meter can be comfortably inserted around the individual cables to measure the data like current, voltage etc. AJB should also be marked as A1, A2, & so on The Array Junction Box is one of the key components required for undertaking the task of installation of off grid solar roof top PV systems as per MNRE/IEC guidelines. Hence, although bidder may install the AJB as per design of the equipment, the total solar PV array capacity should meet the requirement of solar solution for the project.	
	Note: If SPV OEM is different from Inverter OEM then separate MAF and product data sheets, certificates etc. to be provided respective OEMs. Bidder's also need to provide technical compliance on letter head of respective OEMs.	
e	**Main Features of the Inverter:** It should be a combined unit comprising of inverter, charge controller, visual display, necessary protections and provision to export excess power to Grid. • It should be Industrial grade <<bi-directional>>Inverter • It should have Integrated MPPT P V Charger Controller. • It should not over charge the batteries once all the batteries are fully charged. • It should sustained both the temperature during winter and summer season • It should have protection from over voltage, under voltage, over current protection. • It should have short circuit protection / Earth Leakage protection. • It should be rated for continuous operation at full load. • It should have solar priority grid charging. • The inverter must operate at the load power factor of 0.9.	
f	**6. Specification Inverter with Isolation Transformer**	

	Feature	Minimum Specification	
1	Switching elements	IGBT /MOSFET	
2	Type of Charge Controller	With MPPT charge controller with regulated constant output and controlled charging with auto boost, float and trickle mode charging.	
3	Nominal Inverter Capacity	Minimum 2 Kw or Higher	
4	Nominal Array Capacity	2kWp	
5	Maximum DC Voltage	500 V	
6	Mppt Voltage range	150 V- 450 V	
7	Suitable MPPT Range	For 96 volts input Or 48 volts input	
8	Battery nom Volt	>= 96V or >= 48 V OR as per design	
9	Inverter Surge Rating @ 40 deg C	150% > 30 sec	

10	Inverter Output Voltage	230V +/- 1% for single phase	
11	Grid synchronization Voltage range	170V - 270V. (PCU should charge the battery & Inverter should be able to work at this voltage range.)	
12	Grid Frequency range	50 Hz (47 to 53 Hz)	
13	Current THD	< 3%	
14	DC Ripple	< 2%	
15	Inverter Efficiency @ 40 deg C, Nominal load	90 % at peak load on Grid mode	
16	Operating Ambient Temperature	0 to 50 deg C	
17	Humidity	95% max. noncondensing	
18	Enclosure	Free standing, IP 21, Epoxy powder coated	
19	Cooling	Forced air cooling	
20	Protection	Short Circuit	
		Overload	
		Over Temperature	
		Over Voltage	
		Lightning	
21	Output wave form	Pure Sine wave	
22	Grid Charger capacity	Suitable to charge the battery and feed to Inverter simultaneously. minimum 10% to the battery AH capacity to be provided to charge the battery	
	Valid Test Certificates to be attached for the following (latest of the certification series mentioned below)		
23	Environmental Testing- PCU/inverter with built in MPPT charge controller.	IEC 60068-2 (1,2,14,30) / Equivalent BIS Std	
24	Efficiency Measurements – Inverter with built in MPPT charge controller	IEC 61683 / IS 61683	
25	Safety Measurement- Anti Islanding Protection, Electromagnetic compatibility & electromagnetic interference of inverter	IIEC 62109-1 & IEC 62109-2, IEC 61000-6-3:2007, IEC 61000-3-2:2006, IEC 61000-3-3:2006.	
g	**The inverter should have following feature:** If due to cloudy conditions, solar energy is not sufficiently available, the system should automatically draw the balance power from the batteries. The charging and discharging cycle of the battery should be optimized for highest efficiency.		
h	**Protection & Safety:** Specifically, the inverter should be a single phase static solid state type unit. Both AC & DC lines shall have suitable MCB/MCCB to allow safe start up and shut down of the system. Inverter should have protections for overload, surge current, high Temperature, over/ under voltage and over/ under frequency. The inverter shall have provision for input & output isolation each through solid-state electronic device shall have to be protected to ensure long life of the inverter as well as smooth functioning of the inverter. Inverter should have safety measures to protect inverter from reverse short circuit current due to lightening or line faults of distribution network.		
i	**Battery Bank:** The battery bank should support 24x7 operations through-out the year as per the load mentioned. Batteries type should be of Li-PO/ Li		

	Type. The vendor shall calculate the battery capacity requirements to meet the SLA. The proposed battery bank should provide .. hours backup.	
j	**Lightning & Over Voltage Protection:** The SPV Power Plant should be provided with suitable lightening and over voltage protection. The principal aim in this protection is to reduce the over voltage to a tolerable value before it reaches the PV or other sub-systems components. The source of over voltage can be lightening or any other atmospheric disturbance. Each LA shall have to be earthed through suitable size earth bus with earth pits. The earthing pit shall have to be made as per IS 3043. LA should be installed to protect the array field, all machines and control panels installed in the control rooms.	
K	**Earthing Protection:** Each array structure of the PV yard should be grounded properly using adequate number of earthing kits. Each kit should contain super earth mixture and galvanized clamp and rod. All metal casing/shielding of the plant should be thoroughly grounded in accordance with Indian Electricity Act/IE rules as amended up to date. The earthling pit shall have to be made as per IS: 3043. All the array structures, equipment & control systems should be compulsorily connected to the earth.	
l	**DC Distribution Box:** A DC distribution box shall be mounted close to the inverter. The DC distribution box shall be of the MS/thermo plastic IP65 DIN rail mounting type and shall comprise the following components and cable terminations: • Incoming 2 core(Positive and negative DC) cables from the DC Combiner Box; • DC circuit breaker, 2 pole (the cable from the DC Combiner Box will be connected to this circuit breaker on the incoming side. • DC surge protection device (SPD), • Outgoing 2 core cable (Positive and negative DC) to the solar inverter.	
m	**AC Distribution Box:** An AC distribution box shall be mounted close to the solar inverter. The AC distribution box shall be of the MS/ thermo plastic IP65 DIN rail mounting type and shall comprise the following components and cable terminations: • Incoming 3 core cable from the solar grid inverter • AC circuit breaker, 2 pole / 4 pole • AC surge protection device (SPD), • Outgoing cable to the building electrical distribution board.	
n	**Cables/Wires:** All cables should be of copper as per ISI and should be of industrial grade as per requirement. All connections should be properly made through suitable lug/terminal crimped with use of suitable proper cable glands. The size of cables/wires should be designed considering the line loses, maximum load on line, keeping voltage drop within permissible limit and other related factors. The cable/wire should be of ISI/ISO mark for overhead distribution as per the existing norms of MNRE. For normal configuration the Minimum suggested sizes of copper cables are: Module to module/SJB/AJB - 4 sq mm (single core) AJBs to MJBs/DCDB - 10 / 16 sq mm (two core)/or as per design& rating MJBs to DCDB - as per design & rating DCDB to PCU - as per design & rating Battery to BPP - as per design & rating BPP to DCDB - as per design & rating DCDB to PCU - as per design & rating PCU to ACDB - as per design & rating The size & rating of the cables should be suitable as per the site condition, design & capacity of SPV Power Plant.	

Common Specifications for Field components

(below specifications applicable for all field components unless explicitly specified otherwise)

#	Parameter	Minimum Specifications	Compliance (Yes / No)
1.	Operating & Storage Humidity	95% or less (non-condensing)	
2.	Operating temperature	10 Deg C to 60 Deg C	
3.	Power Supply	24 VDC ± 20% / 220 to 240 VAC Preferably powered through POE	
4.	Power Consumption	< 30 W per equipment Power over Ethernet (POE) (802.3 af) wherever application	
5.	RoHS compliant certificate	RoHS compliant certificate with third party speed test report	
6.	Protection Level	Minimum IP65 or better	
7.	Protection	The field equipment should come with concealed cabling and connectors, with no exposed wiring or connector.	
8.		The housing should be of composite or Stainless-Steel Material without heater/fan.	
9.	Security	All IT equipment on field should have Password protection, IP address Filtering	
10.	Communication Protocol	As per requirement IPv4 / IPv6 / NTCIP /RJ-45 / RS232 / RS485 / Ethernet etc.	
11.	Body Colour	Traffic Aspects, Timer etc. – Light Grey / Black Others: White / Light Grey / Black	
12.	Approvals / Certifications	EN / CE / UL / BIS / IRC	

8.2. IT Hardware

i.   Violation Detection System Evidence Camera

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Active Pixels	3840 × 2160 @ 60fps in mainstream	
2.	Image Sensor Type	8MP/4K, 1-inch Sensor	
3.	Shutter Speed	Manual: 50 μs to 10,000 μs or better Automatic: AES 1/50 to 1/100000	
4.	Digital Noise Reduction	2D / 3D DNR	
5.	Lens focal length	12- 40 mm/equivalent	
6.	Illumination	0.15 Lux (F1.2, AGC On) at 50m IRE	
7.	IR Range	25m or better	
8.	Video Compression	H.265, H.264, MPEG	
9.	SNR	60 dB	
10.	Coverage	Up to 3 lanes	
11.	Capture Speed Range	Upto **180 km/h**	
12.	Image Enhancement	BLC, HLC should support	
13.	Video Stream	Dual Stream with can be configured individually	
14.	Camera Text in Picture	16 Character title anywhere on screen	
15.	Trigger Mode	External I/O trigger/Radar trigger/Video trigger	
16.	Digital I/O	2-ch inputs, 2-ch outputs	
17.	Storage	Built-in micro SD, up to 128 GB	

ii.   ANPR Box Camera

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Active Pixels	2560x1440 at 20 fps	
2.	Image Sensor Type	1/3 inch Progressive Scan CMOS or better	
3.	Shutter Speed	Manual: 50 μs to 10,000 μs or better Automatic: AES 1/50 to 1/100000	
4.	WDR	120dB Min.	
5.	Digital Noise Reduction	3D DNR	
6.	IRIS	Auto Iris DC Drive	
7.	Lens	5-50mm, C/CS Mount or Equivalent	
8.	Illumination	0.15 Lux (F1.2, AGC On) at 50m IRE	
9.	IR Range	up to 80m using external IR Illuminator	
10.	Video Compression	H.265, H.264, MPEG	
11.	Video Stream	3 Stream with can be configured individually	
12.	Camera Text in Picture	16 Character title anywhere on screen	
13.	Stream	1920 × 1080 at 25 FPS and 2560 x 1440 at 20 FPS	
14.	Storage	Built-in micro SD, up to 128 GB	
15.	General Feature	Anti-flicker, mirror, password protection, privacy mask, watermark, IP address filter	
16.	Alarm Notification	Upload to FTP / memory card, notify TMC, trigger recording, trigger capture, trigger alarm output	
17.	White Balance	Yes	
18.	Automatic Gain Control	Yes	
19.	Day/Night Switch	Day, Night, Auto, Schedule	
20.	Backlight compensation	Yes	
21.	Region of Interest	Yes	
22.	Simultaneous Live View	upto 2 channels	

iii.   Housing

#	Parameters	Minimum Specifications	Compliance (Yes / No)
1.	Camera mounting	Vandal proof Pole / Pole Hanging mountable	
2.	Cable Entry	IP 66 complaint cable pass – through	
3.	Finish	Off – white semi – gloss	
4.	Construction	Aluminium or engineering plastic with optically clear UV protected polycarbonate dome	
5.	Ventilation	14 x 7 Fan assisted thermostatically controlled heater / defogger / forced air cooler	

iv.   Radar for Speed Detection

#	Parameters	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Speed	Up to 200 KMPH	
2.	Enclosure IP protection	NEMA 4X /IP 66	
3.	Distance	Minimum up to 200 mtrs.	
4.	Frequency	24 to 24.25 GHz / 76 - 81 GHz or equivalent band as permissible by Government of India	
5.	Beam Width	$35° \times 16°$ or better	
6.	Trigger Consistency	≤+1m or better	
7.	Trigger Mode	Approaching, leaving, bidirectional	
8.	Capture Rate	≥ 95% or better	
9.	Capture Distance	18 to 28 m (adjustable) or better	
10.	Speed Acquisition Time	0.1sec to 0.3sec	
11.	Lane coverage	Single Lane or multi-lane	
12.	• Lightening arrester shall be installed for safety of system (As per BIS standard IS 2309 of 1989 or higher) • May be coupled with Local Processing Unit for processing of data at the edge level.		

v.   Speed Display

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Sign size	1000mm X 1000mm	
2.	Matrix Pixel Pitch	25mm	
3.	Brightness	> 8000 CD/m2	
4.	Mono color	Amber	
5.	Viewing angle	>30 degrees	

vi.   Vehicle Actuated Speed Display

#	Parameter	Minimum Specifications	Compliance (Yes / No)
1.	Viewing Angle	15 to 30 Deg	
2.	Display Colour	Red (625), Amber (590), Green (525)	

#	Parameter	Minimum Specifications	Compliance (Yes / No)
3.	Display Size	18" Full Matrix (rounded) Characters for quick recognition	
4.	Body shape	Square	
5.	Number of Digits of Speed Display	3	
6.	Display Type	SMD LED	
7.	Luminous Intensity	7500 candela per meter square	
8.		The Radar should be FCC or equivalent certified and should support multi-lane speed detection and traffic flow statistics.	
9.	Speed Acquisition Time	0.1sec to 0.3sec	
10.	Speed	Support multi-target real-time speed monitoring, speed measurement range upto 200km/h	
11.	Distance	Up to 100 mtrs.	
12.	Frequency	24 to 24.25 GHz / 76 - 81 GHz or equivalent band as permissible by Government of India	
13.	Beam Width	35° × 16° or better	
14.	Trigger Consistency	≤+1m or better	
15.	Trigger Mode	Approaching	
16.	Capture Rate	≥ 95% or better	
17.	Capture Distance	18 to 28 m (adjustable) or better	
18.	Lane coverage	Single Lane or multi-lane	
19.	Protocol	TCP / IP, NTCIP, SNMP	
20.	Power	Should support suitable Solar Power as primary supply as per RFP requirements	
21.	Enclosure	Weatherproof, UV resistant, vandal resistant and Water Protected, IP 66 / NEMA 4X Rated. Should be secured with locking and rear accessible enclosure, with sufficient ventilation. Mild steel / Aluminium cabinet / Casing	
22.	Communication	RJ 45 / Built in 4G/5G SIM Card Modem or Router for network connectivity. To be supplied with suitable 4G/5G SIM / ESIM from day 1.	
23.		Should have Large "YOUR SPEED "sign included above the display.	

vii.   Variable Message Sign

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1	Colour	True Colour	
2	Brightness and Legibility	The displayed image shall not appear to flicker to the normal human eye. Auto dimming feature to adjusts to ambient light level.	

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
3	Pixel Density	Minimum 10,000 pixels per sqm or higher	
4	Luminance Class	L3 as per IRC/EN 12966 standards.	
5	Luminance Control & auto Diming	a. Should be automatically provide different luminance levels but shall also be controllable from the traffic Centre using software. b. Auto dimming capability to adjust to ambient light level (sensor based automatic control) c. Photoelectric sensor shall be positioned at the sign front and sign rear to measure ambient light. Capable of being continually exposed to direct sunlight without impairment of performance.	
6	Contrast Ratio	R3 as per IRC/EN 12966 5000:1 or better	
7	Brightness (Calibrated)	6500 cd/m² or better	
8	Beam Width	B6 / B6+ as per IRC/EN12966 standards: Viewing angle shall ensure message readability for citizens, motorists, pedestrians, etc. on the respective locations	
9	Display capability	Fully programmable, full colour, full matrix, LED displays Alpha-numeric, Pictorials, Graphical and video	
10	Display Language	To support both pictograms and bilingual (English and Marathi - Devanagari) text	
11	Display Front Panel	It shall utilize a front face that is smooth, flat, scratch-resistant, wipe-clean, 100% anti-glare	
12	Flicker	Refresh Frequency should not be less 90 Hz. No visible flicker to naked eye.	
13	Message Creation	Dynamic message creation through the Control Room VMS application. The DMS shall also support message creation through Laptop / Device loaded with relevant software.	
14	In built Sensor	Photoelectric sensor, Ambient light sensor with temperature sensor	
15	Storage capacity	Minimum 30 GB or better Embedded VMS controller should be capable to store at least 100 messages and symbols/pictograms to allow display to run in isolated mode on a predefined-structures / timings, in case of connectivity failure.	
16 A	Small VMS Display Area	2.8 meters length x 1.2 meters height	
OR			
16 B	Big VMS Display Area	3.8 meters length x 2.8 meters height	
17	Pixel Pitch	P10 - Each pixel should be encapsulated with prismatic lens	
18	Picture Display	a. At least 300mm as per IRC /EN 12966 standards b. Full Matrix: Number of lines & characters adjustable, active area: 2.88mX1.2m at least c. Synchronized Dot to Dot display. d. Capable of displaying real time message generated by Traffic Monitoring Centre (TCC). e. Special frontal design to avoid reflection. f. Display shall be UV resistant.	
19	Viewing Distance	Suitable for readability from 150 Mtrs. or more at the character size of 240mm, from moving vehicles.	

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
20	Number of Lines and Characters	The number of lines and characters can be customized as per the requirement (Min 3 Lines and 10 Characters)	
21	Display Driving method	Direct current control driving circuit. Driver card of display applies, Direct Current Technology	
22	Display Style	Steady, flash, partial flash, right entry, left entry, top entry, bottom entry, canter spread, blank, and dimming	
23	Operating System Video	At least should support MPEG-4, WMV, QuickTime, AVI (without sound)	
24	Image	JPEG, PNG, BMP, GIF, PDF etc	
25	Text	Multiple fonts, Speeds, colours, animations	
26	Access Control	Access control mechanism would be also required to establish so that the usage is regulated.	
27	Integration	integration with the TMC application	
28	Battery	230VAC+ 15%, 50Hz, Single Phase (automatically re-start in the event of an electricity supply failure) / at least 2 hours UPS backup. Batteries with solar charging options can also be recommended as back up	
29	Casing	Weather-proof display for VMS IP-65 rated for housing all control equipment at least 2mm aluminum or non-corrosive, water resistant or better, Minimum as per EN60529 or better Standard.	
30	Wind Load	WL9 as per EN12966 to withstand high wind speeds and its own load	
31	Display Pitch	10 mm	
32	Alarms	a. Door Open sensor to Inform Control room during unauthorized access. b. LED Pixel failure detection alarm.	
33	Certifications	EN 12966 certificate from EN recognized laboratory Safety certificate from qualified Electrical engineers approved/certified by Govt. Agency. BIS Certificate: As per Standard, IS 13252 (PART 1):2010.	
34	The LED type used in DMS shall be SMT (Surface Mounted Technology) and in or equal to PLCC2 quality.		

viii. Online Field UPS (if proposed)

#	Parameter	Minimum Specifications	Compliance (Yes/No)
1.	Capacity & Type	Adequate capacity to cover all above IT Components at respective location. UPS Should be preferably DIN Rail mount type suitable for outdoor locations	
2.	Output Wave Form	Pure Sine wave	
3.	Input Power Factor at Full Load	>0.90	
4.	Input	Three Phase 3 Wire for over 3 KVA	
5.	Input Voltage Range	305-475VAC at Full Load	
6.	Input Frequency	50Hz +/- 3 Hz	
7.	Output Voltage	400V AC, Three Phase for over 3 KVA UPS	
8.	Output Frequency	50Hz+/- 0.5% (Free running); +/- 3% (Sync. Mode)	
9.	Inverter efficiency	>90%	
10.	Over All AC-AC Efficiency	>85%	

#	Parameter	Minimum Specifications	Compliance (Yes/No)
11.	UPS shutdown	UPS should shutdown with an alarm and indication on following conditions 1) Output over voltage 2) Output under voltage 3) Battery low 4) Inverter overload 5) Over temperature 6) Output short	
12.	Battery Backup	60 minutes in full load	
13.	Battery	Li-Ion/ Li-PO	
14.	Indicators & Metering	Indicators for AC Mains, Load on Battery, Fault, Load Level, Battery Low Warning, Inverter On, UPS on Bypass, Overload, etc. Metering for Input Voltage, Output Voltage and frequency, battery voltage, output current etc.	
15.	Audio Alarm	Battery low, Mains Failure, Over temperature, Inverter overload, Fault etc.	
16.	Cabinet	Rack type only	
17.	Operating Temp	Up to 60 Deg on Full Load	

ix.   Local Processing Unit/ Edge Processing Server

Sr.	Parameters	Minimum Specification	Compliance (Yes/ No)
	Make		
	Model		
1	Type	Rugged 1U Rack Mountable	
2	Processor	Minimum 8 Core Xeon Processor or better	
3	RAM	Minimum 2X8 GB DDR5 4800 MT/S RAM	
	GPU	As per requirement	
4	HDD Drive Bay	4X2.5 inch SATA, SAS. To be offered with 4X 2.4TB 10K RPM SAS 12Gbps 2.5in Hard Drive from Day 1.	
5	PSU	Redundant Hot Swappable Platinum Rated	
6	Cooling	Air Cooling through min 4 or more Fans	
7	Embedded Management	iDRAC or equivalent	
8	Embedded NIC	4X 10GbE SFP+	
9	Temperature	Built rugged to operate in temperatures up to 55 Deg C	
10	Security	Withstand dusty and harsh environments with a lockable smart filtered bezel for extra physical security	
11	OS	As per bidder solution compatible with other offered software and hardware	
12	Power up operations	• Auto reboot on power up • Self initiate all the operations as per pre defined configurations. • Maintain the log of recorded downtime	

x.   Cable Laying Requirements

Sr.	Feature
1	40M HDPE conduit for OFC cable: it should have Low Coefficient of Friction Temperature Resistance, Ultraviolet (UV) protection Should meet all the requirements of TEC Specifications as well as IS 4984-1995 Permanently lubricated HDPE Telecom Ducts have special lubricated compound on Inner Side for Conveying Optical Fibre cables with extremely low friction
2	Cable to be laid inside HD pipe in Median, at a depth of 1.5- 2 feet below ground. For bridges / culverts, it should be wall clamped.

xi.   IR Illuminator

As per design requirement to ensure night vision for all the Camera systems, ANPR system etc. MSI shall provide IR at one or more location with better specifications as per field requirement as directed by MMVD from time to time, at no extra cost to MMVD.

8.3. Command and Control Center

i.   **Video Wall**

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Panels	Total 9 no. to be supplied	
2.	Display Size	Full HD 55" IPS Panel (each) having HDMI and Display input ports.	
3.	Brightness	Max 500 cd/m2	
4.	Contrast Ratio	1000:1	
5.	Viewing Angle	178 Deg or better	
6.	Response Time	10ms or better	
7.	IR Sensor	Detachable	
8.	Bezel Width	0.44 mm or better	
9.	Dynamic compression ratio	30,000:1	
10.	To be supplied with all front accessible Push / Pull wall mounting bracket/kit and accessories as per site requirement.		
11.	Certification	EMC certificate	

ii.   **CCC Workstation**

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Should support 4 no. 4K input and 9 Full HD output		
2.	Should be fully compatible with supplied panels		
3.	Should be preferably get connected with the workstations directly with HDMI/DP ports without any converter		
4.	Maximum Video Processing Data Rate: 4 GBPS		
5.	Controller should be from Videowall Panel OEM AND Enterprise Grade Rack mountable UL Certified Server box with redundant hot swappable PSU, Windows OS and RAID configured.		
6.	To be supplied with compatible controller hardware and video cables, accessories as per requirement and GUI based wall management software with KVM and Remote management feature Videowall processor.		
7.	Should support HDMI Audio Input and output		
8.	Video Wall Controller to be supplied with HDMI/DVI cables of required length as per CCC architecture and also to be supplied with a floor-mounted enclosure/rack		

iii. Network Printer (Colour Laser)

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1	Print Speed	**Black:** 16 ppm or above on A3, 24 ppm or above on A4 **Color:** 8 ppm or above on A3, 12 ppm or above on A4	
2	Resolution	600 X 600 DPI	
3	Memory	8 MB or more	
4	Paper Size	A3, A4, Legal, Letter, Executive, custom sizes	
5	Paper Capacity	250 sheets or above on standard input tray, 100 Sheet or above on Output Tray	
6	Duty Cycle	25,000 sheets or better per month	
7	OS Support	Windows 8 and above	
8	Interface	Ethernet Interface	

iv. Multifunction Printer

Sr.	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Printer Type	Laser	
2.	Function Type	All in one with auto document feeder and auto duplexing feature	
3.	Function	Print, Scan and copy	
4.	Printer Output	Monochrome	
5.	Paper Size supported	A4, A5, A6, letter	
6.	Printer speed	Minimum of 15 PPM	
7.	Printer resolution	1200 X 1200 DPI	
8.	Connectivity	USB 2.0/WIFI/LAN	
9.	Monthly print volume	Minimum of 2000 pages	
10.	Scanning Resolution	300 Dpi or better	
11.	Display out	LED Monochrome	
12.	OS support	Windows 10 or Higher	
13.	Accessories	Power cord, USB connector cord, SDK	

v. Indoor IP Surveillance Camera 4 megapixel (for CCC and Porta Cabin)

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	Image Sensor	1/3" Progressive Scan CMOS or better	
2.	Day and Night working	IR Cut Filter	
3.	Digital Noise Reduction	3D DNR	
4.	WDR	90dB – 120dB	
5.	Focal length	2.8 mm fixed	
6.	Field of View	Minimum horizontal FOV 103°, vertical FOV 58°, diagonal FOV 123°	
7.	Lens Mount	M12	
8.	IR Range	Up to 30 meters	
9.	Video Compression	H.265/H.264/MPEG with multiple streams	

#	Parameter	Minimum Specifications	Compliance (Yes / No)
10.	Minimum Resolution	2560x1440	
11.	Video Bit Rate	32 Kbps to 16 Mbps	
12.	Audio Compression	G.711/G.722.1/G.726/MP2L2/PCM/MP3	
13.	Frame rate	25 fps	
14.	Backlight compensation	Required	
15.	Image settings	Rotate, saturation, brightness, contrast, sharpness adjustable by client software or web browser	
16.	Streaming	Min. Triple Compressed Stream (individually Configurable for future integration)	
17.	Network Storage (optional)	Support Micro SD/SDHC/SDXC card	
18.	Alarm Trigger	Motion detection, video tampering, network disconnected, IP address conflict, illegal login, HDD full, HDD error	

vi.   Online UPS for CCC

Sr.	Parameter	Minimum Specification	Compliance (Yes/ No)
1	Capacity (in kVA / kW)	20 kVA/ 20 kW 3-Phase Input / 1 or 3-Phase Output. With 60 Min battery backup on full load.	
2	Technology and Capability	a) True Online configuration with double conversion UPS	
		b) DSP based technology with reduction in electronic components.	
		c) Fully rated power (kVA=kW) for maximum power availability.	
		f) UPS should be designed at Rated PF of 1 i.e. 20kVA /20kW UPS rating.	
		g) Dual Input design.	
		h) UPS should have IGBT topology for both PFC (power factor correction) and inverter.	
		i) Capability of independent or common battery bank operation of the UPS system when operated in parallel system	
		j) Fan failure / life prediction and speed control	
3	**Input**		
3.1	Input facility -Phases / Wires	3-Phase / 4-Wire & Gnd (3Phase & Neutral + Ground)	
3.2	Input Voltage Range	380V, 400, 415V	
		Range (Full Load) 320~475VAC	
3.3	Nominal Input Frequency	50/60Hz (Auto-Selectable)	
3.4	Input Frequency Range	45-65Hz or better	
3.5	Input Power Factor	> 0.99 (Full Load)	
3.6	Current Harmonic Distortion (ITHD)	< 5%	
4	**Output**		
4.1	Nominal Output voltage for 3ϕ	380, 400, 415 Vac	

4.2	Output Voltage Regulation	± 1 %	
4.3	Nominal Output Frequency	50/60 Hz	
4.4	Output Frequency Regulation	± 0.05Hz	
4.5	Output Wave Form	Pure sine wave	
4.6	Output Voltage Distortion (THDu)	< 3 % (linear load)	
4.7	Crest Factor	3:01	
4.8	Output Short circuit Protection	Electronic Protection	
4.9	Frequency Converter Mode	Available	
5	**Efficiency**		
5.1	Overall Efficiency (AC to AC) - Online (Double Conversion)	Upto 95%	
5.2	Overall Efficiency (AC to AC) - ECO Mode (Bypass feeding the load under normal conditions)	Upto 99%	
6	Indications (LED)	For fault indications	
7	Audible Alarms	I/P Fuse Open, PFC soft start Fail, DC BUS over shutdown, DC BUS under shutdown, INV volt abnormal, Output overload shutdown, Charger fault, INV IGBT overheat shutdown, PFC over heat shutdown, Battery disconnected.	
8	Battery Backup / Battery Bank & Charger		
8.1	Battery Bank Voltage	480Vdc (default)	
8.2	Battery Bank	LiB	
8.3	Backup Required	60 min on 20 KVA full load	
8.4	Model & Cell Type/Cell Configuration	Prismatic, 1 P Series Type Configuration Only	
8.5	Chemistry of Cell composition	NMC only	
8.6	Nominal Capacity in Ah	50-100Ah	
8.7	Mandatory Safety Certifications/ compliances	UL1642/ IEC 62619, UN38.3	
8.8	Safety Features in LiB Cabinet	MCCB to be present & Should have inbuilt protection for Overcurrent, short circuit, Overvoltage, under-voltage & over temperature	
8.9	Communication Scheme with UPS	BMS Level/Dry contact integration & communication scheme	
8.1	Nominal Operating Temperature for Lithium ION Batteries	0deg C to +45deg C	
8.11	Restart / Testing Capability		
a	Automatic Restart	UPS should start up automatically on mains resumption after battery low shutdown	

b	Battery Self Test	Manual / Scheduled battery test to ensure healthiness of batteries.	
8.12	Physical		
8.13	Operating Temperature	0 to 40 deg C full load	
8.14	Operating Humidity	0 to 95% RH (Non-condensing)	
8.15	Protection Class	IP – 20	
8.16	Form Factor	Free Standing Floor Mounted UPS- Tower type	
8.17	Connections - Rectifier Input / Output / Bypass Input / Battery	Breakers for input,output,bypass & Maintenance bypass	
9	Interfaces:	Monitors and controls the status of the UPS via a network system	
10	**Restart / Testing Capability**		
10.1	Cold Start	UPS should start up	
		On AC Supply (Mains) without DC Supply (Batteries)	
		On DC Supply (Batteries) without AC Supply (Mains)	
10.2	Automatic Restart	UPS should start up automatically on mains resumption after battery low shutdown	
10.3	Self-Diagnosis	UPS should be capable to carry out self-test of Rectifier / Charger /Battery & Inverter module during start-up	
11	**Physical**		
11.1	Operating Temperature	0°C ~ 40°C	
11.2	Operating Humidity	5% ~ 95% (non-condensing)	
11.3	Air Filters	UPS should have internal anticorrosion air filters for dust filtration	
12	Certifications		
12.1	Product Safety Certifications (Mandatory)	CS: IEC61000-4-6: Level 3	
		IEC 61000-2-2	
		EN 62040-2	
		EN 61000-3-2, ETDC/ERTL Certified	
12.2	ROHS compliance	UPS should be ROHS & CE complied	

vii.   **DG Set**

#	Parameter	Minimum Specifications	Compliance (Yes / No)
	Make		
	Model		
1.	General Specifications	• Auto Starting DG Set mounted on a common base frame with AVM (Anti-Vibration) pads, residential silencer with exhaust piping, complete conforming to ISO 8528 specifications and CPCB certified for emissions. • KVA rating as per the requirement	
2.	Engine	Engine should support electric auto start, Radiator cooled / water cooled, multi cylinder, maximum 1500 rpm with electronic/manual governor and electrical starting arrangement	

#	Parameter	Minimum Specifications	Compliance (Yes / No)
		complete with battery, 4 stroke multiple cylinders/single and diesel operated conforming to BS 5514/ ISO 3046/ IS 10002	
3.	Fuel	High Speed Diesel (HSD)	
4.	Alternator	Self-exciting, self-regulating type alternator rated 0.8PF or better, 415 Volts, 3 Phase, 4 wires, 50 cycles/sec, 1500 RPM, conforming to IS 4722/ BS 5000, Windings of 100% Copper, class H insulation, Protection as per IP 23.	
5.	AMF (Auto Main Failure) Panel	AMF Panel fitted inside the enclosure, with the following meters/indicators: • Incoming and outgoing voltage • Current in all phases • Frequency, KVA and power factor • Time indication for hours/minutes of operation • Fuel Level in fuel tank, low fuel indication • Emergency Stop button • Auto/Manual/Test selector switch • MCCB/Circuit breaker for short-circuit and overload protection • Control Fuses, Earth Terminal • Any other switch, instrument, relay etc. essential for automatic functioning of DG set with AMF panel	
6.	Acoustic Enclosure	• DG set shall be provided with acoustic enclosure / canopy to reduce sound level and to house entire DG set (Engine & Alternator set) assembly outside (open-air). • The enclosure must be weather resistant powder coated, with insulation designed to meet latest MOEF/CPCB norms for DG sets, capable to withstand the climate. The enclosure must have ventilation system, doors for easy access for maintenance, secure locking arrangement	
7.	Fuel Tank Capacity	It should be sufficient and suitable for containing fuel for 12 hours continuous operation, Complete with level indicator, fuel inlet and outlet, air vent, drain plug, inlet arrangement for direct filling and set of fuel hoses for inlet and return.	
8.	Output Frequency	50 HZ	
9.	Tolerance	+/- 5% as defined in BSS-649-1958	
10.	Indicators	Over /under speed/High water temperature/low lube oil etc.	
11.	Intake system	Naturally Aspirated	
12.	Number of phases	3 phase	
13.	Frequency	1500 RPM	
14.	Cooling	Liquid Cooled (EG 50:50)	
15.	Certifications	ISO 9001/9002, relevant BS and IS standard	

8.4. Hosting Infrastructure, Network and Security

i. Outdoor (Field) Switches

Sr.	Parameter	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1	Product Class	Industrial Grade	
2	Management Type	Layer 2	
3	1Gb RJ45 PoE+ Ports	4, (@30w IEEE803at)	
4	1Gb RJ45 PoE+ Ports	4, (@90w IEEE803bt)	
5	1Gb SFP Ports	2	
6	SFP	1Gb/s, dual-fibre, single-mode, 10km range (Tx/Rx: 1310nm) 12dB DR Industrial Grade	
7	Power Inputs	2	
8	Operating Temperature	Up to +70°C of switch, PSU & SFP	
9	802.1x	RADIUS Authentication	
10	Configuration	IPv4 & IPv6	
11	SNMP	v1/v2c/v3	
12	Port Security	MAC/IP Based	
13	Storm Control	Rate Limiting	
14	IGMP Groups	1023	
15	LACP	Dynamic Trunk Static Trunk	
16	LLDP	Link Layer Discovery Protocol	
17	TACACS+	Yes	
18	VLAN	802.1Q Port Based VLAN	
19	VLANs	4K	
20	Redundancy	STP RSTP MSTP ERPS (G.8032)	
21	PoE Management	Enable/Disable Priority Level Power Level Scheduling Power Control Manual On/Off Schedule On/Off Alive Check	
22	Ethernet Standards (Managed Switch)	IEEE 802.3i (10Base-T) IEEE 802 3u (100Base-TX & 100Base-FX) IEEE 802.3ab (1000Base-T) IEEE 802.3z (1000Base-X) IEEE 802.3af (15W PoE) IEEE 802.3at (30W PoE+) IEEE 802.3x (Flow Control) IEEE 802.3az (Energy Efficient Ethernet) IEEE 802.1D Spanning Tree (STP) IEEE 802.1w Rapid Spanning Tree (RSTP) IEEE 802.1s Multiple Spanning Tree (MSTP) IEEE 802.3ab (LLDP) IEEE 802.1p (QoS Priority Marking) IEEE 802.1Q (VLANs) IEEE 802.1v (VLAN Classification)	

IEEE 802.1X (Port Security) RFC1112 (IGMP v1) RFC2236 (IGMP v2) RFC3376 (IGMP v3) IEEE 802.3ad (Port Trunk with LACP) RFC2030 Simple Network Time Protocol (SNTP) RFC2131 Dynamic Host Configuration Protocol (DHCP) ITU-T G.8032 Ethernet Ring Protection Switching (ERPS)	

ii.   **Ethernet Surge Protector**

Sr.	Minimum Specification	Compliance (Yes / No)
	Make	
	Model	
1	Industrial Grade POE Surge Protector	
2	Should support 1 x 10/100/1000Base-T(x) RJ45 Port In-Line, 65W PoE Support	
3	Should not require additional ground cables	
4	Should Support PoE Pass-Through up to 65W	
5	Transparent to all types of traffic and protocols including VLAN's, Jumbo Frames, Multicast etc.	
6	The product should be EN 61000-4-2, EN 61000-4-5 and IEC 61643-11 certified	
7	To be used for each camera end and controller end connectivity	

iii.   **Outdoor Fiber Distribution enclosure (field side / for outdoor junctions)**

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1.	**Type**	Outdoor Wall / pole mountable fiber splicing closure, suitable for distribution and drop fibers in FTTX networks. Shall be supplied loaded with 6F / 12 LC SM adapters, pigtails and splice trays.	
2.	**Outdoor usability**	Anti UV and IP 65 rated	
3.	**Cable sealings**	All cable ports and door openings to be securely sealed using rubber seals.	
4.	**Mounting options**	Wall mount or pole mountable. Wall mounting kits to be included in supply.	
5.	**Cable entry ports**	Shall have multiple cable entry ports for cables ranging from 3mm – 13mm.	
6.	**Capacity**	Shall have splicing capacity of upto 12 fibers. Storage space for 1.5m pass through cable. Upto 12 standard LC adapters.	
7.	**Material**	ABS grade plastic.	
8.	**Door access**	Shall have front door with lock	

iv.   **Smart Rack**

Sr.	Specification	Description of Items	Compliance (Yes / No)
	Make		
	Model		
1	Smart Rack	The Smart Racks should be a minimum of **33U** to enable maximum utilization of space within the Rack (**Min Usable "U" Space of Approx. 20U**) and also provide scope for future expansion. It should be used to mount and house all servers/network/storage devices in the Smart Rack. The Rack has to be designed to meet the safety requirements of the modern data centre. Both the front and rear door should be designed to give active high performance closed loop cooling system with secured locking system, cable entry should be entered via the roof plate and via the bottom gland plate without affecting the climatic conditions inside the Rack with IP54 Ingress Protection.	
2	Rack should include following accessories :	Rack Size : 800W x 1600H (33U) x 1200D (mm)	
		Rack frame with welded sturdy steel frame construction with load bearing capacity of 1200Kgs.	
		2 pairs of 33U 19" L Type angles at Front & Rear with "U" Marking	
		Front Glass Door with door stiffeners, Rear Sheet Steel Split Door with door stiffeners, Swing Handle with key lock.	
		Set of Side Panels (1600H x 1200D) - 1 set	
		Top & Bottom cover with fixed & sliding cable gland plate with foam insert and cable tie rail at rear side of the Racks for cable entry.	
		Base Plinth of 100mm height	
		Earthing studs to be provided for body earth	
		Captive Hardware (pack of 50) - 1 pack / Rack	

Sr.	Specification	Description of Items	Compliance (Yes / No)
		Blanking Panel 1U, ABS Material (Tool Less) - 5nos / Rack	
		Vertical High Density Metal Cable Manager with Hinged Doors at Front Side with Figure Loops - 2nos / Rack	
		Vertical Cable Tray at Rear Side for cable management & PDU's- 2nos / Rack	
		Horizontal Cable Organizer 1U with PVC Chanel on Front – 2nos / Rack	
		Automatic Door Opening System (For Front Door) with Gas Spring Fixing Arrangement.	
		Surface Finish: **Pure Polyester Nano Ceramic Powder Coating** with Structured Finish. RAL **9010** shade with minimum 80 microns thickness.	
3	Certification and Standards	The OEM should be a quality conscious company with ISO 9001: 2015, ISO 14001-2015, ISO 45001:2018 certifications to ensure industry best practices are followed and complying to EIA 310 and IEC 297 standards.	
4	Industrial Socket with Breaker	32A, 1Phase, Industrial Socket with Isolator, Box & Cabling.	
		Qty : 2nos / Rack	
5	Door Access Control System via Biometric Reader	Standalone Biometric Reader cum Controller to open Front Door – The installation, testing and commissioning of Reader, Controller, High Security **Electro-Mechanical Door locks**, cabling, etc. – 1 Set/ Rack.	
		· Electro Magnetic (EM) lock should not be used to avoid magnetic interference to IT Equipment's inside the Smart Rack.	
		The Access Control Reader should be Integrated with Environmental Monitoring System (HMI Console) for monitoring & control.	
6	Inbuilt "U-Mounted" Air-conditioning System without Redundancy – 7kW (N)	Inbuilt Zero "U-Mounted" Closed Loop Cooling System (Split Type) : IT-optimised design, providing ideal support for "front-to-back" air routing for the 19" installations. DX Type Close Coupled (In-Rack) Air-conditioning system with high CFM & sensible cooling Indoor and Outdoor units. The system shall not require any raised floor & shall have complete hot and cold aisle separation. Cooling capacity should support an average min density per rack of 7kW & should ensure an energy-efficient dissipation of heat. The external unit (condenser) should be equipped with Permanent Magnet Electronically Commutated fan motor for stepless variation of fan speed based on ambient temperature so as to ensure that the refrigeration system pressures are balanced during all weather conditions.	
		The cooling units should be **CE Certified** and should take a maximum of 10U space inside the IT Rack to ensure to support the Smart Rack with 7kW of Cooling Capacity with Supply Air @ 22 +/- 1 Degree Centigrade considering maximum Ambient Temperature of 45 Degree Centigrade w.r.t peak summer/weather conditions.	
		Makes of Fans :	
		Evaporator Unit : 1Ph, EC Centrifugal Fans from EBM.	
		Condenser Unit : 1Ph, AC Axial Fans from EBM / Ziehl Abegg.	
		The Cooling System should include:	

Sr.	Specification	Description of Items	Compliance (Yes / No)
		"U-Mounted" Indoor Cooling Unit Module of Capacity 7kW should be mounted at bottom section of Rack.	
		Each Cooling Module should have inbuilt microprocessor control & power module.	
		The Cooling unit should be 'CE' Certified.	
		Each Cooling Module should have GI Powder Coated Condensate Tray at bottom for Condensate Drain (by Gravity).	
		Cooling Module (evaporator) should have 2nos of EC Fans for maximum efficiency and minimum power consumption & supporting a total of 1100CFM. The flow characteristics of the heat exchanger should be optimised for the lowest possible pressure losses on the air side. This should minimise the energy consumption of the fans.	
		The **Fixed Scroll Compressor** should be housed in external Outdoor unit & compatible with the Environment Friendly R410A refrigerant. The external unit (condenser) should be equipped with Permanent Magnet Electronically Commutated fan motor for stepless variation of fan speed based on ambient temperature so as to ensure that the refrigeration system pressures are balanced during all weather conditions.	
		Minimum 7'' Touch Screen Display with HMI Console to be provided to monitor & control the cooling system.	
		The cooling system should be with separate indoor unit modules (evaporator) and outdoor units (condenser). The compressor should be part of the outdoor unit to eliminate noise and vibration inside the indoor unit. The warm server air is drawn in directly from the rear of the rack and the cooled air is blown back in front of the 19" equipment level from down (Vertical Air Flow), over the whole height of the enclosure. Power connection for outdoor unit 230V, 1~, 50/Hz.	
7	Emergency Exhaust System	The Smart Rack should be equipped with emergency exhaust fans mounted on the rear door of Rack to ensure that in case the temperature gets too high, the front door opens and the Exhaust fans start to operate automatically to ensure that the hot air inside the Smart Rack gets exhausted – 2nos / Rear Door.	
8	Low Side Works	Complete Low Side Works for Air-Condition System, considering 10mtrs distance b/n indoor & outdoor for each 7kW Cooling Unit.	
9	Environmental Remote Monitoring System with Alarm Beacon	The Smart Rack should be equipped with Remote Monitoring system with e-mail alerts for notifications. The central monitoring system should be integrated with min 7" Touch Screen HMI Controller and should not consume any "U" space of Smart Rack and should monitor various sensors.	
		Real time monitoring of following parameters:	
		In-Rack Cooling Units,	
		Water Leak Drip Sensor - 1no / Rack,	
		Temperature & Humidity Sensor - 2nos/Rack,	
		Fire Alarm via Smoke Sensor - 1no/Rack,	
		Door Sensors,	
		Automatic Door Opening of the Front Doors,	

Sr.	Specification	Description of Items	Compliance (Yes / No)
		Access Control System,	
		Exhaust Fans on Rear Doors,	
		Alarm beacon with e-mail alerts notification.	
		In case of emergence due to Utility Power failure or when the Temperature inside the Rack is going beyond the set threshold point or during cooling unit failure, to open Front Door of Rack automatically (without any human intervention) and automatically switch on the Exhaust Fans on Rear Doors, to exhaust the hot air from Rear of Rack.	
10	Cable Trays	Supply and Fixing of Cable Trough of size : 300W x 60H mm with Cover Lid & necessary accessories for fixing. – 10 Mtrs	

v. Outdoor Fiber Joint Closure (same OEM as of the fiber cables)

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1	Type	Fiber Optic Joint closure shall be of single ended environmentally sealed enclosure for fiber management in the outside plant network	
2	Size options	Shall be available for 12 fiber splice options.	
3	Sealings	Base and dome to be sealed with a clamp and O-ring system. The sealing agent must be of re-usable mechanical type. Heat shrink type is not accepted.	
4	Cable inlets	Multiple cable inlet options from upto 4 round cable ports and atleast 1 oval port shall be provided	
5	Splice trays	Splice trays to be hinged for access to any splice without disturbing other trays	
6	Cable Handling	Closure shall be compatible with most common cable types: e.g. loose tube, central core, slotted core, ribbon fiber	
7		Shall be capable of receiving cable OD of 15-19mm 2 nos and 9-12mm cables OD upto 4 nos.	
9	Environment	The closure shall be suitable for usage in aerial, pedestal and underground (up to 5 meters) environments. Shall be IP 65 or better rated for outdoor usages.	

vi.   **Fiber Patch Cord**

Sr.	Technical Parameters	Compliance (Yes/No)
	Make:	
	Model:	
1	Fiber Patch Cord, LC Duplex - LC Duplex, Spiral Steel Armored, 9/125μm OS2 Singlemode Round Cord (4.0 +/- 0.2mm) IL <= 0.3dB, RL>= 50dB, LSZH Jacket IEC 60332-1, Meets ANSI/TIA 568.3-D, Length 3 Meter	
2	Spiral Steel Armor (<= 1.8mm Diameter) , Aramid Yarn, Tight Buffer Fiber	
3	Connectors: The optical fiber patch leads shall comprise of Single mode 9/125μm fiber G652.D	
4	Connector Insertion loss <= 0.3 dB	
5	Return Loss >= 50 for UPC and >= 55 for APC	
6	Jacket Material: LSZH complying to IEC 61034-1, IEC-60332-1, IEC-60754-1	
7	Length: 3 Meter or as per BoQ	
8	Attenuation: 1310/1550 : 0.35/0.22 dB/KM	
10	Repeatability: <= 0.2DB 10 Times Mating Cycles	
11	Tensile Strength : 750N	
12	Crush Resistance : 1000N/100mm	
13	RoHS Complied, Meets ANSI/TIA 568.3-D	

vii.   **6 Core Armoured Outdoor Fiber Cable**

S. No.	Technical Parameters	Compliance (Yes/No)
1	6 Core Singlemode (OS2) 9/125 Fiber Cable, ITU G.652.D, ECCS Armored Uni-Tube Filled With Thixotropic Jelly, UV-HDPE Jacket, Strength Member 2 No. of Steel Wires embedded in HDPE Jacket	
2	Application : The fiber cable should be installed in Outdoor, Duct, Trenches & Underground application.	
3	Features : The fiber cable should have excellent features of Tensile, Crush, Water Prevention with Jelly &/Or Moisture Barrier Tape	
4	**Cable Construction**	
5	Uni-tube (Central Loose Tube) with color coded fibers	
6	Central Loose Tube : PBT Loose Tube filled with Thixotropic Jelly	
7	Armoring : Corrugated ECCS Tape Armouring (0.155 mm Nominal thickness)	
8	Outer Sheath : UV Resistance HDPE	
9	Moisture Barrer : Water Blocking Tape Under Armor	
10	Strength Member: 2 No. of Steel Music Wires (>= 1.0mm) embedded in HDPE Jacket	
11	**Physical / Mechanical Characteristics**	
12	Outer Diameter : 7.5 +/- 0.5 mm	
13	Nominal Jacket Thickness : 1.5 mm	
14	Tensile Strength : >= 1000 Newton (IEC 60794-1-2-E1)	
15	Bending Radius : <= 20*OD (IEC 60794-1-2-E11) (OD=Cable Outer Diameter)	
16	Crush Resistance : >= 2000 Newton/100mm (IEC 60794-1-2-E3)	
17	Water Penetration : Meets IEC 60974-1-2 (24 Hr, 3Meter Sample, 1Meter Height)	
18	Weight : <= 65 Kg/km	
19	**Environmental Characteristics**	

20	Operating Temperature : IEC 60794-1-2-F1 @ -20°C to +70°C	
21	Storage Temperature : EC 60794-1-2-F1 @ -30°C to +60°C	
22	Installation Temperature : EC 60794-1-2-F1 @ -15°C to +60°C	
23	Safety : ROHS to be mentioned in data sheet	
24	**Optical Characteristics**	
25	Fiber Type : SM (9/125) OS2 as per G.652.D	
26	Max. Attenuation : 0.35 dB/km @ 1310nm , 0.22 dB/km @ 1550nm	
27	Mode Field Diameter @ 1310nm : 9.2 +/- 0.4 µm	
28	Dispersion : ≤ 3.5 ps/nm.km & ≤ 18 ps/nm.km	
29	Fiber cut of Wavelength : ≤ 1320	
30	Cable Cut of Wavelength : ≤ 1260	
31	Zero Dispersion Wavelength : 1300-1324 nm	
32	Zero Dispersion Slope : ≤ 0.092 ps/nm².km	
33	Coating Diameter : 245 ± 10 µm	
34	Cladding Diameter : 125 ± 0.7 µm	
35	Fiber Curl : ≥ 4 m radius curve	
36	Cladding Non-Circularity : $\leq 1\%$	
37	Mode Field Concentricity error : ≤ 0.6 um	
38	Coating/Cladding Concentricity Error : ≤ 12 um	

viii. 12 Port Outdoor LIU

Sr	Minimum Specifications	Compliance (Yes/No)
	Make	
	Model	
1	SITC of 12 Port LC Duplex Type DIN RAIL Mount Fiber LIU Loaded with Singlemode OS2 LC Adapters & Pigtails along with Splice Trays	
2	Size 128 X 130 X 36mm or as per cascading of modules to meet 24 or 48 Ports	
3	The optical fiber Pigtails shall be factory loaded with Single mode 9/125µm fiber of Min. 1.5Meter Length	
5	Completely Enclosed without any open area to avoid any Rodent Entry	
7	Min. 1.2mm Steel Sheet Material with Black Texture Powder Coated and Cover of 1.5mm	
8	Loaded with 12F or 24F Splice Tray with Min 4 Cable Entries from Side/Rear	
9	Rugged Design and should accept cable diameter of 12-18mm	

ix. CAT6 U/UTP Outdoor Armored Cable Specification

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1	Type	CAT6 U/UTP 4 pair Outdoor Armored Cable, solid bare copper with cross filler pair separator exceeding ANSI/TIA 568 CAT6 and ISO/IEC 11801 Class E standard	
2	Construction	23 AWG solid Copper, 4 Pair UTP, Outdoor double jacketed	
3	Application	Support 1000BASE-T application at 250 MHz as per CAT6 channel upto 70 mtr.	
4	Jacketing	Inner Jacket – Polyethylene (PE) / PVC.	
5		Outer jacket – UV resistant LSZH sheath	

6	Outer jacket thickness	1.4mm or better	
7	Armor	ECCS tape armor	
8	Armor thickness	Min 0.125mm or better	
9	Outer Diameter	10.0 - 12.0 mm	
10	Packaging	305 Mtr Reel	
11	Frequency	Tested upto 250 MHz	
12	Performance @250Mhz for 70m channel	Min NEXT – 33.1dB Max Insertion Loss – 35.9dB Min Return Loss – 8.0dB Min PSNEXT – 30.2dB	
13	Electrical parameters	Max DC resistance: 9.38 Ohm/100m Mutual Capacitance: 5.6 nF/100m Delay Skew: <45 ns	
14	Tensile rating	1000N or better	
15	Crush resistance	1000N or better	

x. **CAT6 UTP JACKS**

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1.	Type	Category 6, UTP Modular Outlet Jack, Complying to ANSI/TIA 568.2-D and ISO/IEC 11801	
2.	Min Mating cycle life	750 mating cycles	
3.	Min termination Punch down support	200 termination cycles	
4.	Min Plug Retention force	50 N or higher.	
5.	Cable strain protection	Integrated bend-limiting and strain-relief unit for cable entry	
6.	Clutter free access	Jack shall not have any internal shutter or dust cap.	
7.	Termination procedure	Bidder should have a mechanism to maintain the quality of the termination ir-respective of the skill level of the termination staff.	
8.	Housing	Polyphenylene oxide, UL 94V-0 rated.	
9.	Jack contacts	Beryllium copper, and plated	
10.	Standards	(b) Shall be Intertek / ETL certified for 4 connector channel performance in compliance with – ANSI/TIA 568-C.2 ISO/IEC 11801	
11.		(c) Zero BER certified to IEEE 802.3 for 1000BASE-T applications. Tested for PoE and PoE+ applications.	
12.	Plug performance	Shall be IEC 60603-7 compliant Min Insulation resistance 500 mOhm.	
13.	Current rating	1.5A	

xi. **6 port Outdoor Patch Panel**

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1	Type	MiniPod, 6 port, unloaded with angled port adapters, unshielded.	
2	Application	Shall be designed for use with all standard flexible conduit systems	
3	Mounting	Mounting type shall be surface mount, Black colour	
4	Accessories	Shall be supplied with admin labels, mounting screws and accessories.	
6	Dust protection	Each port shall feature integrated sliding dust covers	
7	Material	ABS UL 94V-0 rated	
8	Port performance	CAT6 UTP as per ANSI/TIA 568-C.2 and ISO/IEC 11801.	
9	Electrical parameter	Ports shall deliver 1.5A current rating; Insulation resistance min. 500 MOhm. Contact Resistance, maximum 100 mOhm. IEC 60603-7-4 compliant	
10	Cable handling	Shall support re-entry of cables for future changes and expansions.	

xii.   CAT6 UTP Jack Panels 24 Port

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1.	Type	24-port, Modular, 1U, UTP Patch Panel, Category 6, ANSI/TIA 568-C.2 and ISO/IEC 11801	
2.	Port arrangement	Configured as 6 Port Module with individually replaceable CAT-6 Jacks	
3.	Port Identification	9mm or 12mm Labels on each of 24-ports (to be included in supply	
4.	Mating cycle life	750 mating cycles	
5.	Punch downs supported	Min 200 times	
6.	Accessories	Integrated bend-limiting strain-relief unit for cable entry	
7.	Cable support	Shall be supplied with removable rear cable manager.	
8.	Housing	Polyphenylene oxide, 94V-0 rated	
9.	Jack contacts	Beryllium copper and plated	
10.	Panel	Black, powder coated steel	
11.	Approvals	UL and cUL listed.	
12.	Termination Pattern	T568 A and B;	

xiii.   CAT6 UTP PATCH CORDS

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1	Type	CAT6 UTP RJ45 Patch Cord complying to ANSI/TIA 568.2-D, ISO/IEC 11801 and IEEE 802.3bt (Type 4)	
2	Conductor	24 AWG 7 / 32, stranded copper conductors 100 Ohm	
3	Length	Shall be available in multiple length and jacket colour.	
4	Plug Protection	Factory fitted strain relief boots on either side	
5	Jacket	LSZH as per IEC 60332-1	
6	Wiring	Shall be available in universal B-wiring	
7	Performance	In Compliance with IEC 60603-7	
8	Approval	Intertek - ETL 4 connector channel compliant. UL 1863 compliant.	

xiv.   UTP Field Termination Plug

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make		
	Model		
1	Standardization	Compliant with Cat.6/Cat6A	
2	Cable shield	U/UTP	
3	Number of conductors	8	
4	Termination	IDC type Tool less field termination plug	
5	Material	PC UL 94V-0/Copper alloy High-impact, flame retardant, thermoplastic	
6	Contact material	Metal	
7	Mating cycle	750 cycle min	

xv.   **L2 Switch**

Sr.	Minimum Specification	Compliance (Yes/ No)
	Make:	
	Model:	
1	The Switch Should have 1U/2U 19 Inch Rack mountable Ethernet switch and support 1+1/1+N High Availability mode for Single IP Management. Switch should be open to Multivendor NAC solution.	
2	It should have minimum 24 number 10/100/1000 Base X ports with 4X1GE/10GE SFP+ Fiber ports and 4 X 10/25G QSFP 28 Ports populated with 2 X 1G SM SFP and 2 X 10 G SM SFP+ with option of 2X100G QSFP28 virtual stacking ports.	
3	The switch must be stackable (dedicated stacking ports) up to 8 Units with stacking bandwidth of 600 gbps or higher. Switch must support dual redundant FAN modules and Hot Swappable power supplies from day 1	
4	The switch must support Port mirroring capability.	
5	Switch should have hot swappable dual power supplies and hot swap fan from day 1.	
6	Switch shall have minimum 168 Gbps of switching capacity and 125 Mpps of forwarding rate	
7	Switch should have 1 GB Flash and 1 GB RAM and should support 4K VLANs ID.	
8	The switch must support 30K MAC or more, ip multicast entries (S, G, V): 8K or more, minimum IPv4 Route Table: 30K or more and IPv6 Route Table: 15K or more, Switch should support VRF, ECMP in same hardware.	
9	ITU-T G.8032/Y1344 2010: Ethernet Ring Protection (ERPv2) or Ring protection solution	
10	IEEE 802.1D, IEEE 802.1w, IEEE 802.3ad/802.1AX Link Aggregation Control Protocol (LACP)	
11	Communication between switches to switch should be encrypted at Layer 2. It also encapsulates and protects the metadata fields. It should use industry standard MKA. Communication should have AES-GCM (Galois/Counter Mode) symmetric encryption, which is capable of line-rate encryption and decryption and provides replay attack protection of every frame.	
12	During system boots, the system's software signatures should be checked for integrity. System should be capable to understand that system OS are authentic and unmodified	
13	Switch should support IGMP Snooping, MLD v1/v2 from day 1, Multicast Groups-4K or more. Support Rest API/XML API, CLI scripting through Python or TCL Language.	
14	Multiple VRF, Internet Control Message Protocol version 6 (ICMPv6), PIM-SM, PIM-SSM / PIM-DM	
15	Switch must have functionality like Static routing, RIP , OSPF VRRP & QoS feature from day 1	
16	Switch 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, 802.1ae, 802.3u, 802.3ab, 802.3z & 1588v2.	
17	The switch must support Web-based Management (GUI), SSH v2	
18	switch must support Broadcast & Multicast Rate limiting per port.	
19	The switch must support IPv4/IPv6 management.	
20	Switch shall conform to following standards	
20.1	- UL 60950 or IEC 60950 or CSA 60950 or EN 60950	
20.2	- EN 55022 Class A/B or CISPR22 Class A/B or CE	
22	All the Switches and Transceiver should be from the same OEM for better integration.	

xvi.   **Core Switch**

Sr.	Minimum Specification	Compliance (Yes/ No)
	Make	
	Model	
1.	Switch should be chassis or fixed form factor with full Enterprise Layer 3 image supporting IPv6 with the latest Firmware as available with Line rate non-blocking performance.	
2.	The switch should support Minimum 24 x 10Gbps SFP+ port and 2 x QSFP28 port	
3.	160 Gbps HA bandwidth should be offered from Day 1	
4.	10G-SR optic – 12 no. per switch. Should be from Switch OEM.	
5.	1Gig RJ45 optic - 6 no. per switch. Should be from Switch OEM.	
6.	Switch should support HA options in Active - Active or Active Backup configuration as required, all supporting features and licenses to be provided to support the same.	
7.	The switches should be interconnected to offer line rate speed as desirable.	
8.	The switch should support relevant 1G/10G/40G/100G interfaces to connect.	
	Performance	
9.	Minimum 1 TBPS backplane or more with non-blocking performance supported by tolly / Miercom or equivalent reports/Declaration from OEM on letter head signed by competent authority.	
10.	Minimum 32K or better MAC addresses and ARP table	
11.	3.9K 802.1Q VLAN with 3.9K VLAN ID support	
	Networking Features	
12.	Should support L3 routing in hardware for both IPv4 and IPv6 packets	
13.	Should support 64K route table capacity for IPv4 and IPv6 in hardware.	
14.	Should support Static Route, OSPF, BGP from Day one for both IPv4 and IPv6 considering all License, software, hardware upgrades required if any.	
15.	Should support 8 ports up to max 128 LAG groups, should be able to LAG across switches	
16.	Switch should support BGP-EVPN, VRF, VXLAN/ PFC/ETS/equivalent DCBX/ ECN/WRED etc.	
17.	**MLD/MLD Snooping**, IGMP Snooping v1/v2/v3, PIM technologies.	
	Security Features	
18.	Should support all AAA functions with RADIUS and TACACS integration.	
19.	Should support various storm control functions.	
20.	Should support 802.1x implementation using RADIUS	
21.	Should support Ingress and Egress ACLs	
	Management Function	
22.	Should support encrypted communication between the user accessing the device namely using all access methods CLI, SSHv2, SSL, and SNMPv3 and Secure FTP/TFTP	
23.	Should support features like LLDP, LLDP-MED or equivalent	
24.	The Operating image should be modular in architecture with the industry standard CLI would be preferred along with SNMP and XML support.	
25.	XML/PERL/Python/API integration support should provide the ability to control IP addresses, configure both physical and logical interfaces, configure Access controls.	
26.	Should support sFlow or equivalent	
27.	Should support management function like Ping, Telnet, Tracert for both IPv4 and IPv6	
	Physical parameter of switch	
29.	Should be offered FANs module and Power supply Redundancy.	

Sr.	Minimum Specification	Compliance (Yes/ No)
	Compliant Standards:	
30.	Should be ROHS Compliant, IPv6 Ready for both Host and Router	
31.	UL/CSA 60950-1, Second Edition EN 60950-1, Second Edition. Switch or its operating system should have EAL/NDcPP certified at the time of delivery of the Switch. OEM duly signed letter to be submit with the bid for confirmation with dates.	
32.	EN 300 386, EN 55024, EN 61000-3-2, EN 61000-3-3 or equivalent standards	

xvii.   Servers

Sr.	Minimum Specification	Compliance (Yes/No)
	Make:	
	Model:	
1.	ITMS / RLVD / VMS / Application / Database/ Recording / Viewing /EMS & NMS Other Servers	
2.	Latest Gen 2x Intel Xeon/AMD 24 Core 64 Bit Processor 2.8 GHz or better base performance	
3.	64 GB of RAM @ 2933 MHz DDR4 ECC or better Server Class Memory	
4.	Each blade server to be configured with 54 TB usable space using suitable drives configured in RAID 5 from Day 1	
5.	4x GbE Network Interface Card or higher bandwidth interfaces	
6.	To be supplied with suitable HBA cards from day 1 as per solution requirement without any additional cost	
7.	Operating System: Licensed version of 64 bit Server Edition latest version of Microsoft® Windows based Operating system	
8.	All Server scaling/sizing to be done in such a manner that the it should fit inside 1 single supplied Server Rack and get connected with the Storage box in the same Rack. No separate Rack will be considered for Servers and Storage box.	
9.	Virtualization-Shall support Industry standard virtualization hypervisor like Hyper-V/ VMware.	
10.	To be supplied with required latest version of Enterprise level OS, DB, Virtualization license as per offered solution for entire project period from Day 1	
11.	Redundant Hot Swappable PSU	
12.	The Server should be ASHRAE certified	

xviii.   Storage Specifications

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
	Make:		
	Model:		
1	Storage Controller	The Storage Solution should be based on hardware-based storage controller. controller with Data Assurance/equivalent solution should be offered by bidder using VMS or third-party appliance or software, where data while in motion between recording server and storage should have protection mechanism to avoid data corruption by detecting and correcting data integrity issues received on the I/O path from the recording server or due to hardware failures on the drives so as to offer End-to-End Data integrity Protection. Storage system should be able to upgrade to Dual Redundant hardware storage controller	

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
		without adding new storage. Storage OS should not be general purpose OS like Windows, Linux etc.	
2	Cache required	The system should have minimum 8 GB DRAM cache memory (SSD based cache will not be considered as DRAM cache) across the controllers with an ability to protect data on cache if there is a controller failure or power outage. The cache on the storage should have 72hrs or more battery backup (OR) should have destaging capability to either flash/disk. The system should also offer extended cache based on SSD.	
3	Drive Support	The system must support intermixing of SSD, SAS and NL-SAS drives to meet the capacity and performance requirements of the applications. Backend path should be based on 12G SAS connectivity.	
4	Protocols	The storage should be configured with FCP/ iSCSI protocols. Any hardware/software required for this functionality shall be supplied along with it.	
5	RAID configuration	Should support various RAID levels 6 and above.	
6	Storage Capacity	**160** TB Storage usable capacity should be provisioned with 4TB or higher capacity drives in RAID 6 Config.	
7	Drive Support	System must support intermixing of SSD, SAS and NL-SAS drives to meet the capacity and performance requirements of the applications. The system must support a minimum of a 84 disks per controllers for scalability purpose and must use every drive, up the supported count of drives per pool, spreading out all volumes across all drives and also decrease the drive rebuild time. In dual controller configuration for future scalability the storage system should support minimum of 172 Drives.	
8	Front-End and Backend connectivity	The proposed storage system should have minimum2 numbers of 12 Gbs or higher backend SAS ports. scalable to 4 ports with dual controller. The system should have the capability to support 4 Ports of 10G/16G FCP & ISCSI The storage system should be configured with 2 ports 10G for ISCSI Connectivity.	
9	Rack Mountable	The storage should be supplied with rack mount kit if required. All the necessary patch cords (Ethernet and Fiber) shall be provided and installed	
10	Storage functionality and Availability	The storage shall have the ability to expand LUNS/Volumes on the storage online and instantly. The system should support instant creation of clones of active data.	
		The storage shall have the ability to create logical volumes without physical capacity being available or in other words system should allow over-provisioning of the capacity. The license required for the same shall be supplied along with storage model.	
		System should have redundant hot swappable components like, disks, power supplies, fans etc.	
		System should support asynchronous and synchronous replication. System should be configured with Asynchronous replication license."	
		System Management software should have capability to monitor performance for IOPs, MB/s, latency and should be	

Sr.	Parameters	Minimum Specification	Compliance (Yes/No)
		able to drill down to the capabilities of monitoring controllers, disk pools, volumes, drives.	
		System GUI manager should be able to manage multiple arrays together Should support Role-based access control and audit log, sup- port for Multi-factor Authentication.	
		The proposed storage system should be configured to provide data protection against two simultaneous drive failures.	
		The required number hard disks for parity & spares, should be provided exclusively of the usable capacity mentioned after consider RAID and Filesystem overhead. At least 2% of the usable capacity requested on each tier should be configured as spare drives with the subsequent disk types	
		Storage system should support RAID level distributing data across multiple Disk to ensure faster re build time.	
		Proposed storage system should be scalable to dual controller as may be required in the future with capability to support up to six nine's availability.	
		The Storage System should support T10-PI standard/equivalent solution should be offered by bidder using VMS or third-party appliance or software, where data while in motion between recording server and storage should have protection mechanism to avoid data corruption by detecting and correcting data integrity issues received on the I/O path from the recording server or due to hardware failures on the drives so as to offer End-to-End Data integrity Protection.	
		Storage system should support SSD cache. Storage system should allow changing of cache block size non disruptively/ without affecting the video live video recording or playback for defined RAID group level to meet various kind of workload.	
		Storage should have Energy star rated Platinum power supplies/ equivalent or higher standards.	
		The proposed solution with storage sub system should support 99% reliability.	
11	Point-in-times images	The storage should have the requisite licenses to create point-in-time snapshots. The storage should support minimum 256 snapshots per system. The license proposed should be for the complete supported capacity of the system.	
12	OS support	Support for industry- leading Operating System platforms including LINUX, Microsoft Windows, etc. It shall support connecting hosts over iSCSI or FC	
13	Management	Easy to use GUI based administration interface for configuration, storage management and performance analysis tools. The proposed storage should provide Proactive monitoring of the health of the system and configurable automated delivery of replacement drives when failures occur.	

xix.   Server Load Balancer & Web Application Firewall (For CCC and DR)

Sr.	Minimum Specification	Compliance (Yes/No)
	Make	
	Model	
	GENERAL	
1	Proposed hardware platform should be of high performance, highly scalable, and purpose-built next Generation platform for application security with integrated functionalities of Application Load Balancer and Web Application Firewall (WAF)	

Sr.	Minimum Specification	Compliance (Yes/No)
	from same OEM running on same OEM OS version and platform; Web Application solution should not be virtual WAF and it should not white labelled WAF running on third party hardware.	
2	The appliance must support Programmability to support Automation, native integration and orchestration.	
	Support of JSON and Rest API for the automated-on boarding of layer2-3 objects such as routes, virtual servers, VLAN's, pools and layer7 configurations	
3	The solution should support template/script driven configurations to abstract the complexity and reduce the misconfigurations for the on boarding of applications	
	HARDWARE	
5	Virtualization feature that virtualizes the device resources – including CPU, memory, network, operating system and acceleration resources. Each virtual SLB instance contains a complete and separated environment of the following:	
	i. Resources	
	ii. Configurations	
	iii. Management	
	iv. Operating System	
6	The ADC must use it's own Hypervisor which should be a specialized purpose build hypervisor and NOT a commercially available hypervisor like XEN, KVM etc. It should NOT use Open Source/3rd party Network Functions.	
7	1. Minimum 8 X 10G SFP+ ports provisioned from day one (1) with SR transceivers and same should be upgradeable to 25Gig Speed with change of Transceivers only. Appliance must support 40G and 100G ports for future scalability 2. The proposed hardware must support minimum 50 Gbps of SSL throughput (bulk encryption) 3. Appliance must provide minimum SSL TPS of 80K with RSA 2K keys and 60K TPS with ECC ECDSA P-256 4. Minimum compression throughput of 40 Gbps 5. Minimum L7 throughput- 90Gbps	
8	The solution shall be provided in High Availability in Active-Active and Active-Passive Mode configuration, when deployed in dual mode and should have seamless takeover in-case if one device fails. It should also support in transparent failover between the devices, and support session mirroring, connection mirroring and heartbeat check and necessary logs to be generated for audit and compliance.	
9	The proposed solution must have the capability to provide SSL offloading using both RSA and ECC based keys	
10	The proposed appliance should provide multi-tenant design and should have below capabilities: 1) Application traffic isolation: Should be able to define separate address space, VLANs, Routing information and default gateways for each application 2) Administrative Partitions: Should ensure that specific users are granted access to only the partitions for which they are authorized	
11	The proposed solution should have inbuild HTTP to MQTT Parser. The proposed solution should provide certificate based authentication between IOT devices and Load Balancer	
12	The proposed solution must provide below application optimization features: 1) TCP Optimization: Should be able to modify TCP parameters like keep alive interval, maximum RTO, window size, Nagle Algorithm, delay window control, packet loss ignore rate, flow control, congestion control speed etc. on the fly to improve application performance 2) Hardware based Compression: Solution should be able to provide cost-effective offloading of traffic compression processing to improve page load times and reduce bandwidth utilization. 3) Caching: Solution should be able to do caching to reduce network traffic and increase application performance	

Sr.	Minimum Specification	Compliance (Yes/No)
13	The proposed solution must offer out of band programming for control plane along with data plane scripting for functions like content inspection and traffic management	
14	Server Load Balancer should support SQL-based querying for the following databases for health checks: • Oracle • MSSQL • MySQL • PostgreSQL • DB2	
15	Should have administration partitioning and segmentation with different routing separation, whereby the physical device can span across multiple network segments without any inter device routing. The solution should support segmentation to use of the same IP address across the multiple network segments.	
16	The Proposed solution should have application delivery features such as Layer-7 load balancing, Layer-7 content switching, caching & compression, hardware based SSL offload and server side compression.	
17	The Proposed solution should be able to monitor the applications using intelligent application monitors which can be either using system defined executable scripts. It should also provide mechanism to bind multiple health checks, support for application specific VIP health check and next gateway health checks	
18	Proposed WAF solution should support all types of cipher suites and SSL/TLS protocol including but not limited to ECDHE, ECDSA, GCM & TLS 1.3.	
19	The system must support proxy SSL function that allows inspection of SSL encrypted traffic while clients are directly authenticated by the backend servers.	
20	It should have the ability to granularly define the key exchange algorithm, ciphers and signing algorithm for the SSL&TLS connection as per the application need.	
21	The WAF solution should not be any white labeled or 3rd party WAF solution deployed on any OEM hardware/software. The proposed WAF solution should be ICSA certified.	
22	The solution should provide OWASP Compliance Dashboard which provides holistic and interactive interface that clearly measures app's compliancy against the OWASP Application Security Top 10 and also provide suggestions/shortcuts to address the compliances and configure policies for it.	
23	The WAF solution must support Security Policy to be applied per application, rather than one single policy for an entire system.	
24	The Solution must protect the Application against credential theft from man-in-the-middle (MITM) and MITM browser attacks by encrypting and obfuscating the form parameters. The Solution must be flexible enough to configure the data encryption level, URL list, parameters, etc., to be protected against such attacks.	
25	WAF correlation should identify complex attack chains, and not just aggregate events based on attacks or sources along with advanced BOT detection mechanism based on smart combination of signature-based and heuristic analysis.	
26	WAF should support source based brute force and distributed brute force protection with source IP based and URL based rate limiting.	
27	Solution should provide automatic and manual updates to the signature database to ensure complete protection against the latest web application threats. New signatures should be in detection mode for some days and can be enforced in blocking mode based on our requirement.	
28	Proposed WAF Solution should have capability to automatically learn and provide input validation which should include Directories, URLs, Form Field Values, Content type, Field Consistency, Cookies, http method, Referrer, user authentication forms and fields for application user tracking, XML elements, SOAP Actions, Whether the field values is numeric/alphanumeric/alphabets, length of the field, etc.	
29	The Solution must protect against HTTP, HTTPS and Application layer DOS and DDOS attacks including stress-based DOS and Heavy URL attacks. The solution must support all the common web application vulnerability assessment tools (Web application scanners) including Acunetix, Qualys, Rapid 7, IBM Appscan, etc (or)	

Sr.	Minimum Specification	Compliance (Yes/No)
	Equivalent Gartner vulnerability assessment tools to virtually patch web application vulnerabilities. Necessary logs to be generated for audit and compliance.	
30	The Solution must detect and mitigate L7 DDoS attacks originating from a bot-net using application based behavioural analysis that learns application level parameters like HTTP request methods, reply types, average object size and more.	
31	The solution should be able to "clock" error responses to hide sensitive server related information in the response body and response headers. It should also facilitate hiding/masking sensitive parameters in logs policy wise. Device should support File Upload Violation & scanning for malicious content in Uploads through ICAP integration.	
32	System should support inbuilt ability or integration with any 3rd party solution to encrypt the user credentials in real time at the browser level (data at rest) before the traffic hits the network so as to protect the credentials especially password, Aadhar number or any other sensitive parameter to protect from cyber actors, key loggers and credential stealing malware residing in the end user's browsers. Necessary logs to be generated for audit and compliance.	
33	The solution must distinguish between browsers and bots which are able to execute Java script by using advanced techniques such as browser capability challenge and CAPTCHA challenge to do device fingerprinting. Should provide PCIDSS compliance requirements for web application servers. Necessary logs to be generated for audit and compliance.	
	Solution should support the following Security Protections:	
34	BEHAVIORAL ANALYSIS using behavioural algorithms and automation to defend against IoT botnet threats	
	POSITIVE and NEGATIVE SECURITY MODEL should have advanced behaviour-analysis technologies to separate malicious threats from legitimate traffic. The administrators should be able to see all the signatures and not just the signature categories. Admins can apply Specific signatures to specific policies	
	ZERO DAY ATTACK PROTECTION should be provided by behaviour-based protection with automatic signature creation against unknown, zero-day DDoS attacks.	
35	Should be able to uniquely detect and block if required the end user on the basis of internal IP address, Plug-ins Installed in the browser, OS, system files etc. instead of going with traditional IP based blocking only.	
36	Proposed solution should be capable of identifying the Client IP address through Geo-location IP database and provide controls to prevent identity theft, financial fraud and espionage activities. WAF should allow IP addresses or IP range for bypassing applied security policy for particular application, but should not bypass for others	
	Proposed solution should be capable of detecting unusual or unexpected patterns in the web traffic and rate limit based on specific URI.	
	Proposed WAF Solution should have capabilities to provide protection against L7 DDoS including but not limited to below mentioned list - HTTPS Rate Limiting - HTTPS Malformed filtering - HTTPS GET AND POST Flood - HTTPS SLOW GET - HTTPS SLOW POST	
	Ability to enforce a given user to follow a sequences of pages while accessing	
37	The solution must be able to block transactions with content matching known attack signatures while allowing everything else. The solution should also have an option to put a signature in staging mode. Meaning that the system applies the attack signatures to the web application traffic, but does not apply the blocking policy action to requests that trigger those attack signatures.	
38	The solution should be able to execute the following actions upon detecting an attack or any other unauthorized activity:	

Sr.	Minimum Specification	Compliance (Yes/No)
	a. - Ability to drop requests and responses, b. - Block the TCP session, c. - Block the application user, or d. - Block the IP address e. Should be able to generate unique identifier to track attack event	
39	Must support multiple HTTP versions such as HTTP/1.0, HTTP1.1 & HTTP 2.0. Should validate header length, content length, Body length, Parameter length, body line length etc.	
	WAF solution should have GraphQL content profile and policy template and attack signatures on GraphQL traffic	
40	WAF must provide inbuilt or via 3rd party integration the capability of API security including support for uploading swagger file and protect leakage of user credentials accessing the web applications using HTML field Obfuscation to protect against malware-based attacks and the solution should have capability to protect Credential Attacks that can steal credentials from the user's browser to avoid cyber exploits. It should be able to authenticate users based on browser type and version, operating system type and version. Necessary logs to be generated for audit and compliance.	
41	Should support the performing of comprehensive countermeasure to protect against zero-day attack, Challenge – Response Mechanism like Java script challenge, which should be able to detect and protect attacks in real time through inbuilt Captcha Mechanism. Necessary logs to be generated for audit and compliance	
42	Proposed Solution should have capability to automatically fetch signatures for relevant software, server technology. These signatures need to get updated on regular interval basis as and when released by OEM.	
	WAF should support normalization methods such as URL decoding NULL byte string, termination, converting backslash to forward slash etc.	
43	Solution must provide following Features and Protections against various attacks: 1) Open Web Application Security Project (OWASP) Top 10 attacks 2) OWASP Top 10 API security 3) Parameters Tampering 4) Cookie Poisoning 5) SQL Injection 6) Session Hijacking 7) Heavy URL protection 8) Web Page Parameter Security 9) forceful Browsing 10) L7 DDOS attacks 11) Debug Options 12) Backdoor 13) Buffer Overflow Attacks 14) Data Encoding 15) Cross-Site Scripting (XSS) 16) Brute Force Attacks 17) OS Command Injection 18) Cross Site Request Forgery (CSRF) 19) Information Leakage 20) Path (directory) Traversal 21) Predefined resource location 22) Behavioral based detection and protection 23) Web application layer customized protection 24) White listing based protection 25) API (Application Programming Interfaces) protection 26) Support for JASON and XML format in API security. 27) Dynamic Bot protection and mitigation using script or challenge-response mechanism 28) Sensitive data exposure protection for example, passwords, credit card etc.	

Sr.	Minimum Specification	Compliance (Yes/No)
	29) Unauthorized navigation 30) Anti-site scraping 31) HTTP/OCSP protocol validation 32) Cookie signing validation	
44	The proposed WAF appliance should provide real time and historical traffic logs with option to filter with multiple parameters i.e. source IP, destination IP, Port, signature, profile, custom words, etc.	
45	The WAF should support specific profiling like parameter length, meta characters etc. to configure granular controls for specific deployed web application.	
46	The solution must support integration with third party DAST tool to perform virtual patching for its protected web applications. The solution must support all the common web application vulnerability assessment tolls (Web application scanners) including Acunetix, Qualys, Rapid 7, IBM Appscan etc. to virtually patch web application vulnerabilities.	
47	Solution must have anti-bot protection, Brute force protection with session tracking, Data Guard protection for Information leakage protection and advanced detection methods like- TPS (Transection per Second) and JavaScript, CAPTCHA Challenge and device fingerprinting.	
48	The solution must protect against FTP, SMTP, HTTP, HTTPS and Application layer Dos and DDOS attacks including stress based DOS and Heavy URL attacks.	
49	The solution should be able to perform profiling of JSON with dedicated JSON parser to inspect all JSON messages and apply security policies to embedded object pairs and binary payloads. Solution should enforce JSON security policy parameters, such as restricting URL wildcards and parameters, malformed data, and JSON payloads, methods and objects.	
50	The solution should be able to protect web applications that include Web services (XML) content like: • Full Schema/WSDL validation • Backend application parser protection against XML DOS • XML Encryption and XML Signatures • Granular WSDL methods selection	
51	The proposed solution must support SSL VPN and Single Sign On functionality on same hardware solution running on same OS version from same OEM in future.	
	MANAGEMENT	
52	Should support device management using 1 no. dedicated management port and 1 no. dedicated console port from the day one of supply, CLI (SSH), GUI (HTTPS) and should support authentication, authorization and accounting (AAA) integration with external authentication support providers such as Active Directory, LDAP, RADIUS/TACACS+ and support Role based Access (RBAC) to ensure security.	
53	Proposed WAF Solution should be managed from dedicated Central Management solution i.e. Administration /Management /Logging /Reporting, etc.	
54	The proposed WAF and Management solution should be capable for backup and restoration of configuration, traffic logs, system logs, etc.	
55	Proposed WAF Solution and Management solution should be accessible through GUI (including TLS 1.0, TLS 1.1, TLS 1.2 or TLS 1.3) & SSH (including V3)	
56	If Central management solution is not available at DC then the WAF appliance should have capability to be managed locally or through secondary management at DR and vice-versa.	
57	Should have diagnostics capability support (e.g. logs, core dumps, Syslogs, configurations etc.) which can be used to share with Technical support team in case of any malfunctioning by the devices. Should have online vulnerability and configuration diagnosing tool.	
60	The solution must support IPV6 logo ready, or IPv6 ready.org phase 2 certifications	

xx. Application Availability, Security and Performance in the Cloud

Sr.	Minimum Specifications	Compliance (Yes/No)
	Make	
	Model	
1	Proposed Solution shall include Load Balancer and Web application firewall, SSL VPN, Single-sign on functionalities. Bidder can propose these functionalities on a single software solution or multiple software solutions from same OEM.	
2	The software solution must support Programmability to support Automation, native integration and orchestration. It should enable declarative provisioning and configuration of the software solution across cloud environments and integration with automation and CI/CD tools including Ansible, Jenkins, and Terraform.	
3	The proposed solution should support all popular hypervisors like Nutanix, VMware ESXi, Linux KVM, Hyper-V and Citrix Hypervisor along with public cloud support for AWS, Azure, GCP and Oracle Cloud.	
4	The document/cross reference provided by the OEM for each clause asked in the RFP must be available on a GLOBAL public domain and the proposed solution must support all technical features specified in the RFP from day 1. OEM Simple undertaking without any test results/proofs claiming any performance number will not be accepted.	
5	The solution must provide minimum 3 Gbps of L7 throughput and must be scalable in future. The licenses supplied should be portable from one private cloud to another private cloud or public cloud and vice versa.	
	Application Availability and performance Functionality	
6	The proposed solution must provide below application optimization features: 1) TCP Optimization: Should be able to modify TCP parameters like keep alive interval, maximum RTO, window size, Nagle Algorithm, delay window control, packet loss ignore rate, flow control, congestion control speed etc. on the fly to improve application performance 2) Compression: Solution should be able to provide cost-effective offloading of traffic compression processing to improve page load times and reduce bandwidth utilization. 3) Caching: Solution should be able to do caching to reduce network traffic and increase application performance	
7	The proposed solution must provide Active-Active DC functionality and should provide global server load balancing between DC and DR on-premise/cloud based.	
8	The offered solution should provide Authoritative DNS capability to understand records like A, AAAA, CNAME, DNAME, HINFO, MX, NAPTR, NS, PTR, SOA, SRV, TXT	
9	The proposed software solution must be able to load balance both TCP and UDP traffic from L3 to L7. The proposed solution must have the capability to provide SSL offloading using both RSA and ECC based keys	
10	Supports DNS SEC eg digitally sign DNS answers. This enables the resolver to determine the authenticity of the response, preventing DNS hijacking and cache poisoning. These signed DNS responses can be used in conjunction with the dynamic DNS system to enable global server load balancing.	
11	Server Load Balancer should support SQL-based querying for the following databases for health checks: • Oracle • MSSQL • MySQL • PostgreSQL • DB2	
12	The proposed solution should provide the application and DNS visibility and reporting with below metrics and entity for each application: • Client IP addresses and subnets as well as geographical regions	

Sr.	Minimum Specifications	Compliance (Yes/No)
	• Total DNS transactions as well as Average and Max Transactions/sec • Most commonly requested domains • Server Latency and Page Load times • Virtual Server and Pool server performance • Page Load Time • Response code • OS and Browser	
13	The proposed solution should support dynamically create L4/L7 services on LB systems and load balance network traffic across the services via Monitoring the orchestration API server, the service should be able to modify the LB system configuration based on changes made to containerized applications. The service should support Kubernetes or Open Shift either CLI/API.	
	Application Security functionality	
14	Solution should provide OWASP Compliance Dashboard which provides holistic and interactive interface that clearly measures app's compliancy against the OWASP Application Security Top 10 and also provide suggestions / shortcuts to address compliances and configure policies for it.	
15	The WAF solution must support Security Policy to be applied per application, rather than one single policy for an entire system.	
16	The Solution must protect the Application against credential theft from man-in-the-middle (MITM) and MITM browser attacks by encrypting and obfuscating the form parameters. The Solution must be flexible enough to configure the data encryption level, URL list, parameters, etc., to be protected against such attacks.	
17	The Solution must protect against HTTP, HTTPS and Application layer DOS and DDOS attacks including stress-based DOS and Heavy URL attacks. The solution must support all the common web application vulnerability assessment tools (Web application scanners) including Acunetix, Qualys, Rapid 7, IBM Appscan, etc (or) Equivalent Gartner vulnerability assessment tools to virtually patch web application vulnerabilities. Necessary logs to be generated for audit and compliance.	
18	The Solution must detect and mitigate L7 DDoS attacks originating from a bot-net using application based behavioural analysis that learns application level parameters like HTTP request methods, reply types, average object size and more.	
19	The solution should be able to "clock" error responses to hide sensitive server related information in the response body and response headers. It should also facilitate hiding/masking sensitive parameters in logs policy wise. Solution should support File Upload Violation & scanning for malicious content in Uploads through ICAP integration.	
20	System should support inbuilt ability or integration with any 3rd party solution to encrypt the user credentials in real time at the browser level (data at rest) before the traffic hits the network so as to protect the credentials especially password, Aadhar number or any other sensitive parameter to protect from cyber actors, key loggers and credential stealing malware residing in the end user's browsers. Necessary logs to be generated for audit and compliance.	
21	The solution must distinguish between browsers and bots which are able to execute Java script by using advanced techniques such as browser capability challenge and CAPTCHA challenge to do device fingerprinting. Should provide PCIDSS compliance requirements for web application servers. Necessary logs to be generated for audit and compliance.	
22	Solution should integrate with BoT prevention solution. All public facing internet-based HTTP (Port 80) and HTTPS (Port 443) applications that are	

Sr.	Minimum Specifications	Compliance (Yes/No)
	integrated in Antibot Solution shall be routed first to the Anti-bot on the cloud for scanning & only genuine traffic shall be forwarded to the application. Cloud solution should exists in INDIA.	
23	Solution should be able to protect specific endpoints across online applications, including websites, mobile apps and APIs.	
24	Solution should provide real-time decision engine to detect and mitigate automated transactions aimed at the protected applications.	
25	Solution should provide hundreds of signals to detect automated behavior by integration of the network, browser/device, and user interaction. Solution should leverage threat intelligence across a global customer network and use artificial intelligence (AI) to create new countermeasures and stop the most sophisticated attackers.	
	VPN FUNCTIONALITY	
26	Should support minimum 1000 concurrent VPN users from day one and scalable to 2000 users in future. The Solution should support both Split Tunnel and Full Tunnel modes.	
27	The Solution must provide both Browser and Client based SSL VPN. Solution must support SSL VPN for Windows, MAC OS, Linux, Ubunto, CentOS, Android, and IOS based devices. Must be compatible to common Browsers: IE, Firefox, Chrome, Safari etc.	
28	The Solution should support IPv4 and IPv6. VPN must support automatic IKE (Internet Key Exchange) and manual key exchange. The Solution should support SSL VPN through DTLS (UDP) for improved performance.	
29	The Solution should also support site-to-site IPSEC VPN.	
30	"The Solution should be able to support robust endpoint posture inspection and deny access for non-compliance endpoints. The Solution must support the following checks: * Able to perform Antivirus/Malware software checks, including checks for Enabled State, Engine & Database version, Last Scan, and Last Update of the antivirus software. * Able to perform domain check to auto connect to VPN when outside the office network. * Able to perform IP address / Geolocation check to restrict access from unwanted locations. * Able to perform Operating System, Windows Registry, File or Process checks. * Able to check if mobile devices have been jailbroken."	
	MANAGEMENT	
31	Proposed Solution should be managed from dedicated Central Management solution i.e. Administration /Management /Logging /Reporting, etc.	
32	The proposed Management solution should be capable for backup and restoration of configuration, traffic logs, system logs, etc.	
33	Proposed Solution and Management solution should be accessible through GUI (including TLS 1.0, TLS 1.1, TLS 1.2 or TLS 1.3) & SSH (including V3)	
34	If Central management solution is not available at DC then the WAF software solution should have capability to be managed locally or through secondary management at DR and vice-versa.	
35	Should have diagnostics capability support (e.g. logs, core dumps, Syslogs, configurations etc.) which can be used to share with Technical support team in case of any malfunctioning by the instances. Should have online vulnerability and configuration diagnosing tool.	
	Certification	
36	Proposed OEM Should have ISO 9001 and ISO 27001 certificate	

Sr.	Minimum Specifications	Compliance (Yes/No)
37	The solution must support IPV6 logo ready, or IPv6 ready.org phase 2 certifications	
38	The Software Solution or its Operating system shall be tested and certified for EAL 2 / NDPP (Network Device Protection Profile) / NDcPP (Network Device collaborative Protection Profile) or above under Common Criteria program for security related functions or under Indian Common Criteria certifications scheme (IC3S) by STQC, DEIT, Govt. of India.	

Note: -

We agree and understand that the MMVD reserves right to ask bidder to show any or all the compliances in the product data sheet or any other document from the OEM. The bid may be rejected and EMD may be forfeited and / or contract may be terminated, and Performance Security may be forfeited as applicable, at sole discretion of MMVD in case of any inconsistency found / observed anytime during the tendering process of contract period. All the offered products should be BIS / CE or equivalent Certified.

Thanking you,

Yours faithfully

(Signature of the Authorized signatory of the Bidder)
Name and Designation:
Seal:
Date and Place:
Business Address:

9. Format 9: Functional Requirements Compliance Matrix

<< To be printed on Bidder /Lead Bidder Company's Letter Head and Signed by Authorized Signatory>>

TO WHOMSOEVER IT MAY CONCERN

Functional Requirements Compliance Matrix

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years – **Functional Requirements Deviation Matrix.**

Please find below, duly filled Functional Requirements Deviation Matrix.

Sl. No	RFP Clause No.	RFP Page Number	RFP Clause (Entire Clause with all non-deviation points)	Compliance (No)	Details of Alternative Proposed
Eg.				No	
Eg.				No	
1					
2					

We agree and understand that the MMVD may or may not consider the deviation and alternative proposed at its sole discretion, and it shall be final and binding on the MSI.

MNVD reserves right to ask bidder to show any or all the compliances in the product data sheet or any other document from the OEM. The bid may be rejected and EMD may be forfeited and / or contract may be terminated and PBG may be forfeited as applicable, at sole discretion of MMVD in case any inconsistency found / observed anytime during the tendering process of contract period.

We assure that all the points not covered above in the deviation are all complied with, and we will be able to deliver to the RFP requirements if selected as Successful Bidder.

Thanking you,

Yours faithfully

(Signature of the Authorized signatory of the Bidder)
Name:
Designation:
Seal:
Date:
Place:
Business Address:

Annexure Set III – Envelope C

1. Format 1: Commercial Bid Covering Letter

<< To be printed on the Bidder's (Lead Bidder in case of Consortium) Letter Head and shall be signed by Authorized Signatory>>

Tender No.:   Date:

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001

Dear Sir,

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years- Commercial Bid Covering Letter

1) I, the undersigned Bidder, having read and examined in detail all the bidding documents in respect to "Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years.", do hereby propose to provide our services as specified in the RFP.

2) **Price and Validity:** All the prices mentioned in our bid are in accordance with the terms as specified in the bidding documents. All the prices and other terms and conditions of this bid are valid for a period of 120 days from the date of submission of bids.

3) **Taxes:** We have studied the clause relating to Indian Income Tax and hereby declare that if any applicable direct or indirect taxes (Foreign, Central or State or Local), rates, duties, charges and levies (Foreign, Central or State or Local), is altered under the law, we shall pay the same. If applicable, all taxes, duties, levies and charges which are to be paid for the delivery of services have been paid by the Bidders in their respective countries.

4) **Deviations:** I hereby declare that all terms and conditions mentioned in RFP (all volumes, Annexures and Corrigendum) are acceptable to us without any deviation and all the services shall be performed strictly in accordance with the bid documents.

5) **Unit Rates:** I have provided in the relevant schedules enclosed, the unit rates for the purpose of price adjustment in case of any increase to / decrease from the scope of work under the contract. We shall abide by the rates provided by us for all the line items for the entire duration of Contract period for any increase / decrease in scope of work as approved by MMVD.

6) **Qualifying Data:** I confirm having submitted the information as required by you under Instruction to Bidders. In case you require any other further information / documentary proof in this regard before evaluation of our Tender, we agree to furnish the same in time to your satisfaction.

7) **Performance Security:** I hereby declare that in case the contract is awarded to us, we shall submit the Performance Security in the form prescribed in the RFP.

8) **Bid Prices:** I hereby declare that our Bid Price of Amount as mentioned in the Commercial Bid is inclusive of all applicable taxes, duties etc. covering all the

expenditure for the entire project period is for the entire scope of the work as specified in the RFP documents, and shall not vary throughout the entire contract period unless specifically agreed by MMVD in writing, and Bid Price in excluding only GST.

9) I hereby declare that our bid is made in good faith, without collusion or fraud and the information contained in the bid is true and correct to the best of our knowledge and belief.

10) I understand that our bid is binding on us and that you are not bound to accept a Bid you receive. I confirm that I am severally responsible for this commercial offer.

Thanking you,
Yours faithfully

(Signature of the authorized representative of the Bidder)

Name:
Designation:
Seal:
Date:
Place:
Business Address:

2. Format 2: Commercial Bid Format

<< To be printed on the Bidder's (Lead Bidder in case of consortium) Letter Head and shall be signed by Authorized Signatory>>

Commercial Bid

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years

Please find below detailed Commercial Bid for the subject project. This bid is exhaustive and includes all the required components and services to be consumed during the execution of this project. The rates quoted are all inclusive, i.e. inclusive of all taxes, levies, other expenses and excluding GST.

Sr.	Item Rate (All inclusive, excluding GST)	in INR (All inclusive, excluding GST) (Upto two decimal only)	
		In Figures	In Words
1	**Per Challan Rate** **(Applicable for any type of violation detected through ITMS system subject to T&C of the RFP)**	Eg. XX.XX	
	Commercial Bid Total		

Note:
- All the prices are to be entered in Indian Rupees ONLY
- Prices indicated in the schedules shall be inclusive of all taxes, Levies, duties and other charges and MMVD shall not pay any sum over and above the quoted rates in case of Successful Bidder. GST will be paid over and above quoted rates as per prevailing applicable rates.
- We agree, anytime during the project period, MMVD reserves the right to ask the Bidder to submit proof of payment against any of the taxes, duties, levies indicated.

Further, we are aware that project duration is for 132 months i.e. 12 months of Implementation Stage and ten (10) years post Go-Live, and the above rates shall hold good for the entire contract period, we shall be paid as per above quoted rates as agreed by MMVD as per payment terms defined in the said RFP.

Thanking you,
Yours faithfully

(Signature of the authorized representative of the Bidder)
Name   Designation   Seal   Date   Place   Business Address

3. Format 3: Priced Bill of Quantity

<< To be printed on the Bidder's (Lead Bidder in case of Consortium) Letter Head and shall be signed by Authorized Signatory>>

__Commercial Bid__

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Subject: Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years– Commercial Bid submission

Please find detailed Bill of Quantity for each line item and entire project. We have also added additional line item separately with all the necessary justification and details (if any). All the rates are all inclusive, i.e. inclusive of all taxes, GST, levies, other expenses and charges.

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
1	Field Components	**Spot and Average speed system**	One Spot speed - avg in 20 km *Separate mount*	1 Lane	28				
2		Radar + Evidence Camera + IR + ANPR + lane wise speed display ANPR can be one or more for min. no. of required lanes		2 Lanes	20				
3		**Lane Discipline Violation Detection System**	One Lane - avg in 20 km *Mount with Spot Speed*	1 Lane	28				
4		Only separate analytics per location (Coupled with Evidence Camera)		2 Lanes	20				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
5		**Vehicle Actuated Speed Signs** (Speed Detection and Display Systems)	One avg in every 20 km	Nos.	48				
6		**Wrong Way Entry / Exit Violation Detection System (separate locations)** ANPR can be one or more for min. no. of required lanes (Analytics + Evidence Camera + IR + ANPR)	One avg in every 20 km 1 lane detection + with RLVDs in below row	Nos.	18				
7		**Red Light Violation Detection System** **Stop Line Violation Detection System** **Seat Belt Violation Detection System** **Wrong Way Entry / Exit Violation Detection System** 4 Analytics + Evidence Camera + IR + ANPR	One avg in every 33 km **1 Lane, 2 Arm:**	Nos.	10				
8			**1 Lane, 3 Arm: 2 lanes, 3 arm:**		10				
9		ANPR can be one or more for min. no. of required lanes	*Separate mount*		10				
10		**Unauthorized Parking Violation Detection System** Only separate analytics per location (Coupled with Evidence Camera)		Nos.	96				
		Dynamic Messaging Systems VMS board + Controller + Hardware and Accessories + Mounting + UPS + VMS Software	One avg in every 80 km **2.8 mtr length x 1.2 mtr height**	Nos.	12				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
			50% on separate mount 50% on existing mount						
11			One avg in every 80 km **3.8 mtr length x 1.8 mtr height** *50% on separate mount 50% on existing mount*	Nos.	12				
12		**Two-Wheeler** No- Helmet Violation Detection System Triple Riding Violation Detection System Only separate analytics per location (Coupled with Evidence Camera)		Nos.	96				
13		**Vehicle Document Related Violation** Restricted Vehicle Type/ Over Dimensional Cargo Others	No separate analytics	Nos.	0		To be included		
14	**Toll Plaza Apparatus**	ANPR (hardware, software etc.) at Toll Gates		Unit	38				
15		AVCC with Over height detection, Vehicle profiling At each Toll Gate	Separate Mounting	Nos.	38				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
16		Signal and Dynamic Registration number display		Set	38				
17	Extra Items	Signboards (1 ft. x 1.5 ft.) and mounting accessories etc.		Nos.	118				
18		Road Marking at junctions	Arm Wise	Arms	110				
19	Mounting	**Galvanized Cantilever Pole (for covering 1 / 2 Lanes)**	All spot on 1 / 2 lane road and All arms for RLVD	Nos.	213				
20		**Installation for Galvanized Cantilever Pole** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	213				
21		**Galvanized Poles** (7 mtr to 9 mtr as per site requirement)	Wrong Way and DMS of varied size on separate mount	Nos.	78				
22		**Installation for Galvanized Pole** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	78				
23		**Mounting and Installation of AVCC**	Min. 1 Pole per Toll Gate	Per Toll Gate	38				
24		**Poles (Min. 3 Mtr.) for following at Toll Plaza:** ANPR AND Display AND Signal		Nos.	38				
25		**Installation for Pole at Toll Plaza** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	38				
26		**Pole for Electrical Junction Box**	Each location with Pole / Cantilever and Toll Plaza	Per location	166				
27		**Installation for Pole for Electrical Junction Box** Foundation J Bolts 4 Pieces with Nuts, Foundation Plate, Cable Entry Plate, Concrete Foundation, Lightening Arrestor Rod and Cable etc.		Per location	166				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
28	Network and Power

Field Components, Toll Plaza, Porta Cabin, CCC | **Junction Box (IP 65 rated with RAIN Canopy, SS Glands 6 no., Lock, DIN Rail, Pole / Ground mounting kit)**
(including installation and all connections, Power DB, Sub Meter connectivity, Cables, Industrial Grade DIN Rail Mount POE Switch with Industrial Grade SFP Modules, Industrial Grade DIN Rail PSU for switch, WAGO Terminal Block, Connectors, 12 Port Outdoor LIU, SM LC-LC Patch Cord 1 M, Power Line Surge Protector, POE Ethernet Surge Protector, MCB, RCCB, Power Strip 4X6AMP, 3 Core 2.5 Sq mm Armoured Power Cable, Armoured CAT6 Cable, Field Termination Plug, CAT 6 RJ45 Jacks, Cable Route Marker, 50mm HDPE, Metal Conduit, Flexible conduit, Lightning Arrester, Power cabling, chemical earthing and grounding etc.) | Minimum 1 per location | Per location | 118+14 | | | | |
| 29 | | Local Processing Unit (LPU) | | Per location | 118+14 | | | | |
| 30 | | Solar Panels to provide necessary power for all the field components at respective location | Solar Panel + Solar UPS + Batteries + Installation + Mounting Accessories **(For Field Components)** | Per location | 130 | | | | |
| 31 | | Field Solar UPS with invertor
Minimum 2KVA (24 hrs backup with Solar as Primary Power) | | | 130 | | | | |
| 32 | | Li-Ion/ Li-Po Battery with Air Cooled Junction Box for 24 hrs backup | | | 130 | | | | |
| 33 | | **Electrical Junction Box**
(including ACDB, MCB power switches, cabling, colling fans, space for UPS and Batteries, earthing connection etc.) | | Per location | 166+14+10+1 | | | | |
34		Armoured 3 core 2.5 mm power cable	For Last mile Connectivity as	Per location	166+14+10				
35		HDPE Pipe			166+14+10				
36		GI Pipe			166+14+10				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
37		Power Cable laying Cost	per Site requirement For Field Components through Solar and Toll Plaza Components through Grid Power.		166+14+10				
38		CAT6 cable, min. 12 core OFC as per requirement	For Last mile Connectivity as per Site requirement	Per location	166+14+10				
39		Network Cable laying cost (Trenching, Ducting, Slicing, Termination, Manhole, etc.)			166+14+10				
40		Industrial Grade Dual SIM 5G Router	For Field Components	Per Location	118				
41		Recurring SIM cost - LTE (Primary and Secondary for redundancy) - 5G unlimited upload	For Field Components	2 SIM per location	130				
42		Electricity Charges Recurring charges for electricity at Toll Plaza apparatus		Per Location	14				
43		Electricity Charges Recurring charges for electricity at Porta Cabin		Per Location	10	**Provided by the Dept.**			
44		Electricity Charges Recurring charges for electricity at CCC		Per Location	1				
45		5KVA UPS with batteries to cover all Toll Plaza components with 60 min backup	For Toll Plaza apparatus	Per Location	14				
46		2 KVA 3Ph in 1 Ph out UPS with Battery Bank for 60 min backup (Excluding AC)	For Porta Cabin	Per Location	10				
47		20 KVA UPS with batteries to cover all CCC components with 60 min backup	For CCC	Per Location	1				

Sr. No. A	Group B	Item C	Remarks D	Unit E	Qty for both sides (1406 km) F	Unit Rate (in INR) G	One Time CapEx (in INR) H = F x G	OpEx Per Year (in INR) I	OpEx for 10 Years (in INR) J = I x 10
48		**Display Wall 3 x 3 with min 55" LED Display**		Nos.	1				
49		Videowall Processor / Controller Unit for display wall with required software		Nos.	1				
50		Connector cables and peripherals for Video Wall & Brackets		Lot (as Required)	1				
51		Audio Visual Annunciator System		Nos.	1				
52		Monitoring Workstations (3 Monitors per workstation)		Nos.	5				
53		Network Colour Multifunctional Device (Printer, Scanner, Copier) with required accessories (paper, ink, toner, printer head etc.) for 5 years		Nos.	5				
54	Command and Control Center	IP Dome Camera System		Nos.	5				
55		Access Control System		Set	1				
56		VESDA and Fire suppression system		Set	1				
57		Switches and all other networking components		Lumpsum (As Required)	1				
58		Redundant SDWAN Router with SDWAN Orchestration License		Lumpsum (As Required)	1				
59		Civil Work for Command Center (Including Stage, Table, Chair, AC, Power Backup, Passive Cabling, False Ceiling, cladding, Carpet, partitioning etc.)		LumpSum	1				
60		Desktops for IMVs for Challans		Nos.	3				
61		DG set components, setup, accessories, cables, storage etc. + Diesel (~50 Ltrs per day)-including fuel at CCC		Set	1				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
62	**Central Hosting Infra at CCC**	**100 mbps ILL** Redundant ILL Link from 2 different ISPs		LumpSum	1				
63		LLB,WAF, Security feature Hardware Box including all security License cost - Smart Rack Mountable Single Hardware Box		Set	1				
64		Routing & Security Solution		LumpSum	1				
65		L2 Switch - For ISP Internet Link(ILL) Termination and connecting workstations		Set	3				
66		24 Port L3 Core Switch - For Connecting Server, Storage		Set	2				
67		**Redundant 2U Application Servers (Smart Rack Mountable)** 2 X 24 Core Processor, 64 GB RAM, 54 TB HDD, RAID, OS, Virtualization, Onsite support)		Set	3				
68		Storage Type 1 (160TB)	Earler 2 qty	Set	1				
69		24 Port Fully Loaded CAT6 Patch Panel		Set	2				
70		Smart Server Rack		Set	1				
71		IP PDU		Set	2				
72		Modular 20 KVA 3Ph in 1 Ph out UPS with Battery Bank for 60 min backup		Set	1				
73	**Porta Cabin for Counselling**	**Porta Cabin for Counselling** (False Ceiling, Flooring, including Seating arrangements for 10 people, Cladding for wall, Electrical wiring, switches etc., (min 2) air-condition, concrete foundation etc. as per RFP)	10 x 15 x 8.5 Ft.	Set	10				
74		**50 Mbps ILL** ILL Link from 1 ISP		LumpSum	10				
75		55" LED Display / Workstation - for counselling		Unit	10				
76		Desktop with Monitor - for Viewing Center		Set	10				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
77		Workstation Desk - for viewing center		Set	10				
78		24 Port L2 POE Switch with 4 SFP+ Modules		Unit	10				
79		12U Wall Mount Network Rack		Unit	10				
80		IP Dome Camera with NVR (as per requirement to cover entire area)		Set	10				
81		Manpower (24 x7) - for manning all Porta Cabin and assisting MMVD	1-2 people in 2 shifts	Nos.	0				
82		Security and Facility Management Staff	12 hrs 2 shifts		20				
83		Command and Control Centre Application including incident management.		Lumpsum	1				
84		Geographic Information Software including Base Map preparation, data layers etc. (or can be merged with ICCC/ ITMS Application) as applicable. excluding Satellite Imagery (to be provided by Dept.)		Lumpsum	1				
85	Software	Video Management System (VMS Base license + Per Camera License)	For DC, DR,	Lumpsum	1				
86		ITMS Base License		Lumpsum	1				
87		Enterprise Management Software (EMS) (Asset Management System, Network Management, System Security Management, Manpower Management, SLA Management System etc.)		Lumpsum	1				
88		Web Portal - for Commuters and Responders		Lumpsum	1				
89		Mobile App - for Responders		Lumpsum	1				
90		Integrations APIs - eChallan, Vahan / Saarthi etc.		Lumpsum	10				
91	Misc.	**Insurance Cost** For Theft, Fire, Death, Third Party Damage etc.		LumpSum	1				

Sr. No.	Group	Item	Remarks	Unit	Qty for both sides (1406 km)	Unit Rate (in INR)	One Time CapEx (in INR)	OpEx Per Year (in INR)	OpEx for 10 Years (in INR)
A	B	C	D	E	F	G	H = F x G	I	J = I x 10
92		Security Audit	Minimum 6 times as per RFP	LumpSum					
93		Field Survey		LumpSum					
94		SMS Recurring Cost		LumpSum					
95		Cloud Hosting of all applications **Application Availability, Security - and Performance in Cloud DR**		Lumpsum					
96	**Training**	Functional Training		At least once every year					
97		Implementation Manpower		Lumpsum (As Required)					
98		Project Manager		Nos.	1				
99		Technical Manager		Nos.	To be proposed by bidder to meet RFP minimum requirement as per bidder's requirements				
100		Lead Command and Control Operator	As defined in RFP Clause 2 under "Project Phases"	Nos.					
101	**Manpower**	Command and Control Center Operators including GIS operators		Nos.					
102		CCC Support Staff + housekeeping + security		Nos.					
103		Repair and Maintenance Staff		Nos.					
		Total Cost (Exclusive of Applicable Taxes)							
		Total Cost (Inclusive of Applicable Taxes)							

{Bidder may insert additional line item here, if any with all the required details}

{Bidder may insert all the assumptions here}

We fully understand that our payment will be as per Annexure Set III – Format 2 as per payment terms defined in the RFP.

Thanking you

Yours faithfully

(Signature of the authorized representative of the Bidder)
Name:
Designation:
Seal:
Date and Place:
Business Address:

Annexure Set IV – Other Annexures

1. Annexure 1: Key Submission

#	Brief Description	Documents to be furnished
	Envelop A	
1.	**The Bidder (All members in case of Consortium) should be:** • A company registered under the Indian Companies Act, 1956 / 2013 OR LLP firm under LLP provisions 2008, both as amended from time to time. • Registered with GST Authorities in India **Bidder (All members, in case of Consortium)** should have been operating for the last **five years** in India (including name change / impact of mergers or acquisitions). **Maximum three companies are allowed in a consortium** including the Lead Bidder, subject to compliance to the **clause 13.2** under "Instructions to Bidder". **The Lead bidder s**hall essentially be the Master System Integrator, who will be jointly and severally responsible for complete scope, whereas consortium partners shall be severally responsible only for its respective scope.	**For Bidder (All members of consortium)** • Copy of Certificate of Incorporation Registration under Companies Act 1956 / 2013 OR Registered Limited Liability Partnership deed as applicable • The latest Income Tax returns along with the copy of PAN • Number of the bidder • Copy of PAN Number • Copy of Registration Certificates with the GST Authorities • Service Tax / Sales Tax Registration Certificates (of applicable years) • For Bidder (All Members in case of Consortium), documentary proof such as purchase orders or certified true copy of balance sheet and PL statements for last 5 years for operation in India as on the date of publishing of RFP notice. Joint Bidding agreement clearly stating the roles and responsibilities of each member as per **Annexure Set I - Format 11**.
2.	**Bidder (All members jointly, in case of Consortium)** should have an average annual turnover of at least **INR 64 Crores** in India during the last 3 financial years from IT / ITeS / ICT/ ITMS Projects.	• Certificate from the Statutory Auditor / Chartered Accountant. • Copy of Audited Financial Statements • Details mentioned in format as mentioned in **Annexure Set 1 - Format 4 (4.1).** • In case Chartered Accountant certificate is submitted the said certificate also need to be counter signed by Company Secretary / authorized signatory of the bidder.
3.	Bidder (All members in case of consortium) should have **positive net worth** as per the audited consolidated financial statements as on 31st March 2023.	• Certificate from the Statutory Auditor / CA clearly specifying the net worth of the firm.

#	Brief Description	Documents to be furnished
		• Audited and Certified Balance Sheet and Profit/Loss Account of last 3 Financial Years should be enclosed. • Details mentioned in format as mentioned in **Annexure Set 1 - Format 4 (4.1).** • In case Chartered Accountant certificate is submitted the said certificate also need to be counter signed by Company Secretary / authorized signatory of the bidder.
4.	Bidder (Lead Bidder in case of Consortium) should submit a valid Bank Solvency Certificate of minimum **INR 1 Crore** issued **not more than six months** prior to the last date (deadline) of submission of bid.	• A Valid Solvency Certificate from the Bidder's bank
5.	**The Bidder (All members jointly, in case of consortium)** should have experience of minimum number of completed/ ongoing **"Similar Project" in India** with a minimum project value as per below table, during last 5 years. <table><tr><th>Number of similar projects executed</th><th>Minimum Project Value per project, meeting the criteria (in INR)</th></tr><tr><td>One Similar Project</td><td>171 Crore</td></tr><tr><td colspan="2" align="center">OR</td></tr><tr><td>Two Similar Projects</td><td>107 Crore</td></tr><tr><td colspan="2" align="center">OR</td></tr><tr><td>Three Similar Projects</td><td>86 Crore</td></tr></table>	• Copy of work order along with the copy of the contract agreement mentioning the relevant Scope of work and project value • Completion Certificate OR In case of on-going project, a partial completion certificate from the client on client's letter head with project completion cost matching the required criteria. • Details mentioned in format as mentioned in **Annexure Set 1 - Format 4 (4.2)**.
6.	**The OEM/s proposed for the project** should have experience of providing equipment in **"Similar Project" in India** with minimum 50 locations (completed/ongoing) for detecting Wrong Way / Lane Change / Unauthorized Parking / Speed Violation (Spot and Average Speed both) / ANPR systems **during last 5 years.**	• Copies of work order or Experience letter stating the quantity • Contact details (Name, Email & Phone) of the customer. • Experience Letter is submitted has to be on client letterhead and signed by the client.
7.	**The bidder (All members jointly, in case of consortium)** should have experience of executing **"Similar Project"** (Completed/ Ongoing) in India using technologies as mentioned below during last 5 years: 1. Solar based Primary Power Supply	• Copies of work order or Experience letter stating the technologies (Solar based Primary Power Supply or 4G/ 5G based Primary Network Connectivity or both) used for executing the project

#	Brief Description	Documents to be furnished
	2. 4G/ 5G based Primary Network Connectivity	• Contact details (Name, Email & Phone) of the customer. • Experience Letter is submitted has to be on client letterhead and signed by the client.
8.	**The Bidder (All members jointly, in case of Consortium)** as on date of submission of bid should minimum number of professionals on its roles in India as below • **Enforcement system design and deployment services**: Minimum 5 **OR** • **IT / ITeS / ICT services:** Minimum 25	• Declaration from the HR head of the Bidder on company letter head as per **Annexure Set I - Format 7.** • Detailed CV of at least 5 employees of either type of professionals defined in this clause as per format in **Annexure Set I– Format 7**.
9.	**Bidder (any one member in case of consortium)** should have a local office in Maharashtra**.** If Bidder doesn't have local office in Maharashtra, it should open a local office within 30 days from date of Signing of the contract.	• Proof of the Local Office (Rental Agreement/Utility bill) in Maharashtra OR • Undertaking from authorized signatory to open the local office in Maharashtra within 30 days from Date of Signing of contract.
10.	**Certifications:** **The Bidder (All members jointly, in case of consortium)** should possess the following Certifications which are valid at the time of bid submission: • ISO 9001:2008 • ISO 20000:2011 • ISO 27000:2013 • SEI CMMI- Level 5 for Software development and services (SVC)	• Valid Copy of valid certificates on the name of the Bidder or member of consortium • **The certifications shall need to be kept valid throughout the duration of the contract period.**
11.	**The Bidder (all the members of Consortium)** should not have been blacklisted by any Central Government and Department / State Government and Department / Central or state Public Sector Unit / Defence / Govt. Boards in India as on last date of submission of bid	• Undertaking by the authorized signatory of bidder (All members in case of Consortium) as per format given in **Annexure Set I - Format 5**.
	Envelop A (Pre-Qualifications Bids)	
12.	**Annexure Set – I** • Format 1: Bid Submission Covering Letter • Format 2: Bidder Information Format • Format 3A: Format for Power of Attorney to appoint and authorized Signatory • Format 3B: Format for Power of Attorney to authorized Lead Member of Consortium	

#	Brief Description	Documents to be furnished

	• Format 4: Format for Financials and Technical qualification criteria
	   o 4.1 Format for Financials from Statutory Auditors of the bidder
	   o 4.2 Format for Technical Qualification Criteria
	• Format 5: Undertaking – Non-Blacklisting
	• Format 6: Undertaking of "No Conflict of interest"
	• Format 7: Declaration from the HR head of the Bidder for Experienced Manpower
	• Format 8: Self Declaration
	• Format 9: Format for Anti-Collusion Certificate
	• Format 10: Earnest Money Deposit as Bank Guarantee Format
	• Format 11: Joint Bidding Agreement
	• Format 12: Joint Undertaking from Lead Bidder and ISPs for Bandwidth requirements	

	Envelop B (Technical Bids)	

13.	**Annexure Set II:**
	• Format 1: Technical Proposal Covering Letter
	• Format 2: Un-priced Bill of Material
	• Format 3: Profile of Proposed Project Team
	• Format 4: Details of Solution Partners
	• Format 5: Undertaking - Technical Support Arrangement with OEM
	• Format 6: Manufacturer Authorization Form (MAF) from OEM
	• Format 7: Sub-contractor Scope
	• Format 8: Detailed Technical Specifications and Compliance Matrix
	   o 8.1 Civil / Non – IT Specification
	   o 8.2 IT Hardware
	   o 8.3 Command and Control Center
	   o 8.4 Hosting Infrastructure, Network and Security
	• Document on Technical Solution Proposed for the Project	

	Envelop C (Commercial Bids)	
14.	**Annexure Set III:** • Format 1: Commercial Bid Covering Letter • Format 2: Commercial Bid Format • Format 3: Priced Bill of Quantity	

2. Annexure 2: Format for Performance Security as Bank Guarantee

Ref. No.   :
Date   :
Bank Guarantee No.   :

To,
The Transport Commissioner
Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai – 400 001
Email: etendercomp.tpt-mh@gov.in

Against Letter of Intent / Work Order number _____ dated _____ relating to Tender No. << >> for the project "**Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years**" (hereinafter referred as 'LoI' / 'Work Order') and the contract to be executed between the Motor Vehicles Department, Maharashtra State, (hereinafter referred as "MMVD") and _____ (hereinafter called the "Successful Bidder" / "MSI"), this is to certify that at the request of the Successful Bidder we _____ Bank, and having one of the branches at _____ (hereinafter called the "Bank") are holding in trust in favour of MMVD, the amount of Rs. _____ (write the sum here in words) to indemnify and keep indemnified the MMVD against any loss or damage that may be caused to or suffered by the MMVD by reason of any breach by the Successful Bidder of any of the terms and conditions of the contract that will be entered subsequently and / or in the performance thereof.

We agree that the decision of MMVD, whether any breach of any of the terms and conditions of the contract and/or in the performance thereof has been committed by the Successful Bidder and the amount of loss or damage that has been caused or suffered by MMVD shall be final and binding on us and the amount of the said loss or damage shall be paid by us forthwith on demand and without demur to MMVD.

We _____ Bank, further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for satisfactory performance and fulfilment in all respects of the contract by the Successful Bidder i.e. till _____(write a date which is **138 months** from the date of signing of contract (12 months Implementation Phase, 120 Months of O&M Phase post Go-Live, and 6 months thereafter) – hereinafter called the "**said date**") and that if any claim accrues or arises against us _____ Bank, by virtue of this guarantee before the said date, the same shall be enforceable against us _____ Bank, notwithstanding the fact that the notice of any such claim is given to us _____ Bank, by MMVD either before the said date.

Payment under this letter of guarantee shall be made promptly, within one month of our receipt of notice to that effect from MMVD.

It is fully understood that this guarantee is effective from the date of the said LoI / Work Order and that we _____ Bank, undertake not to revoke this guarantee during its currency without the consent in writing of MMVD.

We undertake to pay to MMVD any money so demanded notwithstanding any dispute or disputes raised by the Successful Bidder in any suit or proceeding pending before any court or Tribunal relating thereto our liability under this present guarantee being absolute and unequivocal without any demur, reservation, recourse, contest or protest and without any reference to the Successful Bidder or any other person.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment there under.

We _____ Bank, further agree that MMVD shall have the fullest liberty, without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said contract or to extend time of performance by the Successful Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by MMVD against the said Successful Bidder and to forebear or enforce any of the terms and conditions relating to the said contract and we, _____ Bank, shall not be released from liability of MMVD under this guarantee by reason of any such variation or extension being granted to the said Successful Bidder or for any forbearance by MMVD to the said Successful Bidder or for any forbearance and or omission on the part of MMVD or any other matter or thing whatsoever, which under the law relating to sureties, would, but for this provision have the effect of so releasing us from our liability under this guarantee.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Successful Bidder or any absorption, merger or amalgamation of the Bank or the Successful Bidder with any other person.

Our liability under this Bank Guarantee shall not exceed and is restricted to Rs. _____only.

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

_____
Signature of Authorized Signatory (with official seal)
Date   :
Place   :
Name   :
Designation   :
Address   :
Telephone & Fax   :
E-mail address   :

          Signature of Witness 1   Signature of Witness 2

Name: _____   Name: _____

(Bank's common seal)
Bank details of Maharashtra Motor Vehicles Department is mentioned below can be used for Bank Guarantee:
    a) Name of Account Holder: A.O.T.C (M.S), Mumbai
    b) Bank Name: State Bank of India
    c) Branch Name: Mumbai Main Branch (Branch Code: 00300)
    d) Account No.: 39282067215
    e) IFSC Code: SBIN0000300

3. Annexure 3: Service Levels

9.1. Definitions

Term	Meaning / Definition / Explanation
SLA Period	SLA will be calculated on quarterly basis (except for the Implementation Stage), starting from date of Commencement of Operation, by the SLA management system.
Services	Includes Hardware, applications, components, equipment, spare parts, manpower, network, electric, SMS services, unless specifically mentioned otherwise.
Total Time	Day is considered as 24 hours Week is considered as calendar week, i.e. 7 days Months is considered as calendar month, i.e. 28/29/30/31 days as applicable. It is the total number of hours available in the SLA Period (Eg. SLA Period is quarterly) being considered for evaluation of SLA performance. Total Time = No. of Days of that quarter X 24 Hrs Eg: No. of days in Qtr 2 (Apr-Jun) = 91 days Total Time = 91 X 24 = 2184 hrs
Downtime	It is the time period for which the specified services / components are **not available** for use at specified functional, technical and service standards. It is calculated for every SLA Period, which is being considered for evaluation of SLA performance.
Uptime	It is the time period for which the specified services / components are **available** for use, at specified functional, technical and service standards. It is calculated for every SLA period, which is being considered for evaluation of SLA performance. Uptime can be calculated for any component / service (Non -IT and IT) as follows; $$\text{Uptime (\%)} = \left(1-\left(\frac{\text{Downtime}}{\text{Total Time} - \text{Scheduled Maintenance Time}}\right)\right) \times 100$$ For eg. In a quarter cycle, there are a total of 91 days x 24 hours = 2184 hours. The downtime clocked is 48 hours. Hence the calculation would be {1- [(48) / (2184 – 0)]} * 100 = 97.80%
Rounding off	All figures will be rounded off to nearest number with maximum 2 decimals
Scheduled Maintenance Time	It is the time period for which the specified services / components with specified technical and service standards are not available due to scheduled maintenance activity. Any planned application / server downtime shall not be included in the calculation of application / server availability. MMVD has liberty to decide the duration of such outage, on case-to-case basis. Scheduled Maintenance Time is calculated separately for each SLA period cycle, which is being considered for evaluation of SLA performance.
Information Security Breach	Any data leakage, information sharing other than concerned stakeholders, reports sharing without the consent of MMVD, any instance of hacking, information/data compromise etc.
Guidelines Breach	Non-compliance to guidelines shared by various government agencies such as complying with standards for website/mobile app development etc.
Resolution Time	It is the time elapsed from the moment incident is occurred / reported by any applicable mode of communication, to the time by which the incident is resolved completely.

Warranty Period	If any issues remain outstanding at the end of the contract period, the Agency shall be required to still provide warranty until MMVD is satisfied with the resolution of the issues.
Severity Matrix	The resolution time shall vary based on the severity of the incident reported, which is categorized as below: i. **Critical:** Incidents which, have severe impact on service delivery resulting in **complete halt** of one or more business operations. These incidents may include, but are not limited to unavailability of critical hardware, severe civil damage to the test track or control room etc., application module etc., virus attack etc. ii. **High:** Incidents which have significant impact of one or more business functions. These incidents may include, but are not limited to unavailability of non-critical hardware, software module, major civil damage to the test track or control room etc. iii. **Medium:** Incidents which have considerable impact of one or more business functions. These incidents may include, **failure of** one or few information providing functions or failure in execution of one or few Use Cases assigned by MMVD which are not affecting the other day to day operations. iv. **Low:** Incidents which have an impact on business operations, that is acceptable temporarily, and need to be addressed within the time-frame defined in SLA. Response time for incidents for above mentioned severity levels is as below: <table><tr><th>Type of Incident</th><th>Response Time</th><th>Resolution Time</th></tr><tr><td>Critical</td><td><=30 minutes from the time incident is reported</td><td><=8 hours from the time incident is reported</td></tr><tr><td>High</td><td><=1 minute from the time incident is reported</td><td><=12 hours from the time incident is reported</td></tr><tr><td>Medium</td><td><=2 hour from the time incident is reported</td><td><=24 hours from the time incident is reported</td></tr><tr><td>Low</td><td><=4 hours from the time incident is reported</td><td><=48 hours from the time incident is reported</td></tr></table>

Note:
- In case of dispute regarding severity, MMVD's decision shall be final & binding on MSI.
- Incident logging shall not be limited to raising the incident ticket by the MSI / MMVD staff, the time of occurrence shall be taken as the base time of incident logging and shall be used for calculations of SLAs.

9.2. Service Level Conditions

1. **General Terms of Service Level Conditions**

    a. The MSI shall configure the SLA Monitoring Tool as per definitions and conditions mentioned under this section.
    b. Payment to the MSI shall be impacted by the penalty levied for non-performance as per SLA requirements.
    c. The MSI shall be imposed a penalty on the payment due to the MSI for, at end of each SLA Period Cycle for that respective SLA Period cycle, for every deviation of the desired levels / non-compliance as defined in the SLA parameter table.
    a. The afore mentioned SLA parameters shall be measured as per the individual SLA parameter requirements and measurement methods, through appropriate SLA

Measurement tools to be provided by the MSI. The MSI shall need to configure the SLA Measurement Tools such that all the parameters as defined under SLA matrix given below are captured and calculated. MMVD reserves right to get the audit of SLA/ SLA Monitoring system done by any other third party agency as it deems fit at MMVD's cost. MSI shall provide all the necessary access to the auditor as directed by the MMVD.

b. Apart from SLA monitoring tool, Incident Management System and Issues raised by RTO to MMVD shall also be taken into account.

c. During O&M Stage SLAs, shall be measured and appropriate reports be generated for monitoring the compliance.

2. Implementation Stage SLAs

a. **Parameters**: The SLA parameters for the Implementation Stage shall be directly related to the Project Deliverable and Timelines as mentioned in the **clause 3** under "Administrative Aspects".

b. **Period**: These SLAs shall be applicable until "Commencement of Operations" / "Go-Live".

c. **Penalty Value:** As defined in SLA Parameters table. Week/ Month/ Quarter period shall be considered as whole week (7 days together) or whole month or whole quarter as per calendar dates including the holidays.

3. Operations and Maintenance Stage SLAs

a. **Parameters**: The SLA parameters for the post-implementation stage shall be related to the ongoing operations and management of the project. The SLA Parameters table specifies performance parameters as 'Required', 'Acceptable' and 'Breach Level'. The measurements of individual SLAs shall differ as mentioned in the table.

b. **Required** parameter has the value that is always desired by MMVD.

c. **Period**: These SLAs shall be applicable for the entire contract period post "Commencement of Operations" / "Go-Live".

d. **Penalty Value**: As defined in SLA parameter table.

e. In the event of non-compliance to the above conditions, MMVD reserves to terminate the contract as per provisions in the resultant MSA.

f. In case, the downtime of any service or application is not resolved at the end of any quarter, the downtime for the same needs to be highlighted and carried forward to the next quarter from the time of call logging.

g. In the event of a single event triggers multiple service level failure, only specific set of SLA shall be imposed. This SLA dependencies shall be considered as mutually agreed between MSI and MMVD. E.g. If the there is a network failure due to which few camera systems are down, then the SLAs will be applicable for the network only and not for other related parameters.

MMVD's decision in this regard shall be final and binding on the MSI.

9.3. SLA Parameters

Sr.	Service Parameter	Required Performance Level	Acceptable Performance Level	Penalty during Acceptable Performance Level	Breach Level (Beyond Performance Level)
	PROJECT IMPLEMENTATION PHASE				
1.	• Survey and Report Submission • Preparation and submission of Project Plan / Project Implementation & O&M Plan Doc.	Within 2 weeks from signing of contract	Within 4 weeks	Rs. 5,000 Per day delay	> 4 weeks
	T_1 = Date of Start of Installation and Commissioning Phase				
2.	• Site Preparation (including Civil Work, Solar Panels, cabling for power, network etc.) • Seeking necessary permissions • Procurement, installation, Development, configuration, integration, testing and commissioning of I.T. and Non I.T. infra, applications etc.	Within 8 months from T_1	Within 9 months	Rs. 5,000 per day per highway stretch delay in total	> 7 months
3.	• Delivery and installation of all hardware, software, networking components, power backup etc. at CCC and Porta Cabin • Integration with all required third party application • Setting up of Switches, Servers, Storage units, racks, UPS, etc. • Software Licenses details	Within 8 months from T_1	Within 9 months	Rs. 10,000 Per day delay in total	> 7 months
4.	• Testing Report • Documentation • User Customization and UAT • Security Audit • Training and Capacity Building • Deployment of Resources	Within the timelines specified in Clause 3 under "Administrative Aspects"	Within another 1 month	Rs. 1,000 per day delay for each case.	> 1 Month delay per case

Sr.	Service Parameter	Required Performance Level	Acceptable Performance Level	Penalty during Acceptable Performance Level	Breach Level (Beyond Performance Level)
			PROJECT OPERATIONS AND MAINTENANCE PHASE		
5.	**Components**				
A	**Uptime for individually each Field Components including but not limited to** • CCTV Cameras of all types • ANPR system • Violation Detection System • DMS • Controller, Local Processing Unit, IR, UPS • Other fields components	Uptime of >=98%	Uptime >=95% and <98%	Rs. 10,000 per SLA Period Cycle per field component	Uptime < 95%
B	**Uptime for individually each CCC Components including but not limited to** • Video Wall • Workstation and accessories including keyboard, mouse, etc. • Access Control System • Indoor CCTV system • Fire Detection and Control System • Other CCC components	Uptime of >=99.5%	Uptime >=98% and <99.5%	Rs. 5,00,000 per SLA Period Cycle per CCC / viewing centre component	Uptime < 98%
C	**Uptime for individually each Porta Cabin Components including but not limited to** • LCD Screen • Workstation and accessories including keyboard, mouse, etc. • Indoor CCTV system • Fire Detection and Control System • Access Control System • Other Porta Cabin components	Uptime of >=98%	Uptime >=95% and <98%	Rs. 5,00,000 per SLA Period Cycle per CCC / viewing centre component	Uptime < 95%

Sr.	Service Parameter	Required Performance Level	Acceptable Performance Level	Penalty during Acceptable Performance Level	Breach Level (Beyond Performance Level)
D	Percentage Failure of a particular Component (Downtime percentage)	<= 2%	>2% to <=5%	Immediate repair / replacement and Rs. 10,000 per SLA Period Cycle	> 5%
6.	**Network**				
A	**Uptime for network services including but not limited to** • Primary and Secondary Network Connection • 5G Routers, Switches, and SDWAN • For each field components, CCC, Porta Cabin etc.	Uptime of >=98%	Uptime >=95% and <98%	Rs. 1,00,000 per SLA Period Cycle per Solar Power Apparatus component	Uptime < 95%
B	**Upload Speed** *(measured through multiple random sampling anytime during the SLA period)*	Upload Speed >=5 MBPS	Upload Speed >=2 MBPS and < 5 MBPS	Immediate corrective measures and Rs. 50,000 per SLA Period Cycle for individual 4G / 5G network for more than 5 instances for the respective network.	Penalised for 2nd consecutive SLA period cycle
7.	**Power**				
A	**Uptime for Solar Power Apparatus including but not limited to** • Solar Panel • Solar UPS • Batteries	Uptime of >=98%	Uptime >=95% and <98%	Rs. 1,00,000 per SLA Period Cycle per Solar Power Apparatus component	Uptime < 95%
B	**Solar Power efficiency** • Time taken for 0% to 100% charging of all the batteries • Time taken for discharging from 100% to 0% for all the batteries *(Measured through multiple random sampling anytime during the SLA period, and as compared to efficiency (charging / discharging time) at Go-Live for 24 hrs continuous backup.)*	Efficiency of battery charging time and battery discharging time for all batteries >=98% *(Percentage of original efficiency)*	Uptime >=95% and <98%	Immediate corrective measures and Rs. 50,000 per SLA Period Cycle for individual Solar Power apparatus for more than 5 instances. *Exception to the weather dependency as per report submitted by the bidder from the India Meteorological Department.*	Penalised for 2nd consecutive SLA period cycle

Sr.	Service Parameter	Required Performance Level	Acceptable Performance Level	Penalty during Acceptable Performance Level	Breach Level (Beyond Performance Level)
8.	**Hosting Infra Services and related services**				
A	Availability of the services of DC (on-premise Data Center at CCC)	Availability >=99.5%	Availability >=98% and <99.5	Rs. 10,00,000 per SLA Period Cycle for each component or group of components	Availability <98%
B	Uptime for each device of the of DC (on-premise Data Center at CCC)	Uptime of >=98%	Uptime >=95% and <98%	Rs. 100,000 per SLA Period Cycle for each component	Uptime < 95%
D	Availability of the services of Cloud DR	Availability >=99.5%	Availability >=98% and <99.5	Rs. 10,00,000 per SLA Period Cycle for each service or group of services	Availability <98%
E	CPU and Disk Utilisation – per event	<= 75%	Utilization > 75%	Appropriates scaling up of Cloud Infra as per requirement by next SLA cycle in case of occurrence of more than 100 events per server / storage.	Non scaling of hosting infra as per requirement
9.	**Uptime for Software Applications – applicable for all software applications, Mobile App for Commuters and Responders, security applications etc.**				
A	Availability / Uptime of software and other applications/tools (per application)	Availability / Uptime of >=98%	Availability / Uptime of >=95% and <98%	Rs. 1,00,000 per SLA Period cycle per application	Uptime < 95%
B	Maximum time for Application response to user (per application)	<=5 sec.	>5 to <=15 sec.	Rs. 10,000 per SLA Period Cycle per application for more than 100 reported response delay	>60 sec.
10.	**Accuracy and False Alarms**				
A	Accuracy of Violation Detection System / ANPR	± 5% variation than the defined values	> ±5% and <= ±10% variation	Rs. 1,00,000 per SLA Period Cycle	> ±10% variation
B	Suspected Challans approved by MSI operator and rejected by MMVD official Percentage of Total Challans approved by MSI	<= 2%	>2% and <=5% per SLA cycle	Rs. 5,00,000 per SLA Period Cycle	>5%

Sr.	Service Parameter	Required Performance Level	Acceptable Performance Level	Penalty during Acceptable Performance Level	Breach Level (Beyond Performance Level)
11.	**Security**				
A	Virus Attack Resolution (Detection and Quarantine / Removal)	<=4	>4 to <=8	Rs. 1,00,000 per such incident reported	>8
12.	**Resolution for all above components, software, hardware, network, DC-DR, Manpower etc. based on severity level of impact**				
A	Critical	<=8 hours	>8 to <=12	Rs. 1,00,000 per such resolution delay reported	>8
B	High	<=12 hours	>12 to <=24		>12
C	Medium	<=24 hours	>24 to <=48		>24
D	Low	<=48 hours	>48 to <=72		>36
13.	**Manpower Availability**				
A	Applicable for all the manpower required to be 24 x 7 as defined in the RFP	Availability >=99.5%	Availability >=95% and <99.5	Rs. 10,000 per SLA Period Cycle per manpower resources	Availability <95%
14.	**Liquidated Damages** (Severe issues may directly lead to termination. MMVD's decision in this regards shall be final and binding on MSI)				
A	• Information Security Breach, Data Leakages • Guidelines and Requirements Breach • Network and System Security Breach	Resolution time <=3 hour	>3 to <=6	Rs. 10,00,000 per such breach reported	>6 hours

Note:

- MSI shall be responsible for maintaining the SLA for the entire period of contract without exception. MSI shall ensure that during the entire contract period all components and equipment is supported by OEM warranty support. Any components / equipment approaching end of life cycle as per its OEM's policy, should be replaced with new equipment, at no extra cost to MMVD. Any technology upgrade, replacement of hardware, software etc. required for the same, shall be provided by MSI at no extra cost to MMVD.
- The maximum penalty per SLA cycle for the MSI shall be limited to 5% of the total quarterly billing of the respective SLA cycle. Beyond such limit, MMVD reserves right to consider as reached "Breach Level".
- The maximum penalty for entire project period shall be limited to 2% of total project cost / payment till that quarter + total VGF paid till date. Post which, MMVD reserves right to invoke Termination Clause.

9.4. Breach Level

In case of SLA reaching the breach level post "Commencement of Operations", either due to individual Service Parameter or due to exceeding maximum limit, MMVD may give **'Grace Period'** to the MSI for immediate next SLA Period Cycle for improving its performance, at its own discretion.

- MSI shall make necessary corrections in the operations and maintenance of the ITMS system to ensure that during such Grace Period, the quarterly SLA penalty liability for the MSI shall be less than 2% of the quarterly payment.
- MSI shall ensure that the quarterly SLA penalty liability for the MSI shall reduce even post such Grace Period.

Failing which, MMVD may invoke the termination clause as per MSA. The Grace Period also shall be inclusive of the Total Contract Period.

4. Annexure 4: Pre-Bid Queries Format

Name of the Bidder:						
Contact Address of the Bidder:						
Name of Person(s) Representing the Bidder:						
RFP Name:						
Sr.	**RFP Ref No.**	**RFP Page No.**	**RFP Clause No.**	**Clause / Clause Title**	**Queries / Clarification / Suggestion**	**Justification by Bidder / Remarks**

Signature:
Name of the Authorized signatory:
Company seal:
Date and Stamped

Note: To be submitted in the specified format in excel only to email id as mentioned in **Clause 6** under "Instructions to Bidders"

5. Annexure 5: Internal Rate of Return (IRR) Calculation

Parameter	Total All inclusive, including GST	Q1	Q2	....	Q40
A. Total Estimated Project Cost	2,13,09,00,000				
B. Total Estimated CapEX	77,30,00,000				
C. Total Estimated OpEx for entire project period of 10 yrs	1,35,79,00,000				
D. Total Estimated OpEx for each year	13,57,90,000				
E. Total Estimated OpEx for each Quarter	3,39,47,500				
F. Total Estimated IT CapEx	49,97,00,000				
G. Total Estimated Non - IT CapEx	26,07,00,000				
H. Viability Gap Funding (as per RFP)	23,00,00,000				
I. Capex - VGF (amount considered as financed)					
J. Quoted "Per Challan Rate" (including GST), duly accepted by MMVD.					

E. Total Estimated OpEx for each Quarter					
K. Cumulative Total Expenditure by MSI at the end of each quarter Cumulative total expenditure of previous quarter + Total Estimated OpEx for each Quarter					
L. Total Challans for the quarter (actual count - detected by ITMS, approved by MMVD, subject to RFP terms)					
M. Quarterly Revenue (L x J) (Total Challans for the quarter X Quoted "Per Challan Rate" (including GST), duly accepted by MMVD)					
N. Quarterly EBIDTA (M - K)					
O. Quarterly Finance Cost Quarterly Interest and / or Principal amount on Financed Amount (I) (will be considered as per 12% for 10 years)					
P. Quarterly Depreciation (calculated using Straight Line Depreciation Method) **Will be considered as below:** F. Total Estimated IT CapEx): @12%, and G. Total Estimated Non - IT CapEx: @10% *All other items are excluded from the depreciation calculation.*					
Q. Quarterly Gross Profit (N - O - P)					

Parameter	Total All inclusive, including GST	Q1	Q2	….	Q40
R. Corporate Tax On Quarterly Gross Profit (Q), as per prevailing Acts and Rules as on last day of the respective quarter. (say @29.12%)					
S. Quarterly Net Profit (Q - R)					
T. Quarterly Free Cash Flow (S + P - B)					
U. Quarterly NPV (at Discounting Rate of 24%, upto respective quarter + Total Estimated CapEx (B))					
V. Quarterly IRR (IRR upto respective quarter including CapEx)					

6. Annexure 6: Vehicle Registration Statistics

Sr. No	Office Name	Office Code	FY 20-21	FY 21-22	FY 22-23	Total Population as on 29/01/2024
1	MUMBAI (CENTRAL)	MH01	45,521	52,628	65,048	9,87,816
2	MUMBAI (WEST)	MH02	32,968	40,862	52,332	7,87,218
3	MUMBAI (EAST)	MH03	47,413	51,809	64,381	9,26,258
4	THANE	MH04	70,730	83,565	1,07,438	17,61,784
5	KALYAN	MH05	61,899	64,752	76,550	10,64,634
6	PEN (RAIGAD)	MH06	17,938	20,537	24,806	4,13,872
7	SINDHUDURG(KUDAL)	MH07	10,952	11,746	14,258	2,44,716
8	RATNAGIRI	MH08	16,127	18,162	23,107	3,74,136
9	KOLHAPUR	MH09	50,829	59,407	76,605	14,98,597
10	SANGLI	MH10	41,309	44,416	56,854	8,86,632
11	SATARA	MH11	31,267	33,900	44,702	7,46,846
12	PUNE	MH12	1,41,944	1,69,918	2,75,076	37,44,587
13	SOLAPUR	MH13	41,118	46,031	61,860	8,89,662
14	PIMPRI CHINCHWAD	MH14	96,515	1,06,824	1,60,310	21,41,299
15	NASHIK	MH15	71,680	81,421	99,529	16,94,247
16	AHEMEDNAGAR	MH16	35,640	41,713	51,385	6,48,776
17	SRIRAMPUR	MH17	29,018	33,690	42,473	6,83,489
18	DHULE	MH18	20,720	23,208	29,565	4,28,298
19	JALGAON	MH19	43,611	47,465	56,753	9,01,449
20	CHHATRAPATI SAMBHAJINAGAR	MH20	57,639	65,153	82,624	13,12,157
21	JALANA	MH21	25,261	28,628	32,634	4,43,784
22	PARBHANI	MH22	19,134	22,863	26,088	3,16,035
23	BEED	MH23	13,253	18,688	23,323	3,06,065
24	LATUR	MH24	28,258	31,032	41,723	5,35,767
25	DHARASHIV	MH25	21,036	21,742	26,629	3,40,660
26	NANDED	MH26	36,456	41,121	46,828	6,04,124
27	AMRAWATI	MH27	36,623	41,382	47,733	7,73,005
28	BULDHANA	MH28	31,997	31,551	36,415	4,83,506
29	YAWATMAL	MH29	30,210	34,146	38,209	5,47,082
30	AKOLA	MH30	21,595	23,718	28,836	2,69,922
31	NAGPUR (U)	MH31	15,885	19,583	25,302	7,09,067
32	WARDHA	MH32	15,095	15,042	17,742	3,29,069
33	GADCHIROLI	MH33	14,892	12,946	13,411	1,88,617
34	CHANDRAPUR	MH34	31,831	31,984	34,539	5,79,120
35	GONDHIA	MH35	16,497	16,328	18,986	2,91,722
36	BHANDARA	MH36	16,278	15,150	15,898	2,71,877
37	WASHIM	MH37	15,933	17,331	19,275	2,37,106
38	HINGOLI	MH38	13,521	15,713	16,089	1,85,676
39	NANDURBAR	MH39	12,113	12,380	14,622	2,13,333
40	NAGPUR (RURAL)	MH40	36,707	41,596	47,251	7,67,323
41	MALEGAON	MH41	24,507	30,312	30,948	4,50,735
42	BARAMATI	MH42	22,617	25,106	33,357	4,95,168
43	VASHI (NEW MUMBAI)	MH43	24,368	28,175	36,663	5,89,962
44	AMBEJOGAI	MH44	12,189	15,275	18,121	1,97,823

45	AKLUJ	MH45	16,940	21,039	27,997	3,44,379
46	PANVEL	MH46	36,675	41,715	55,330	6,99,682
47	BORIVALI	MH47	43,820	50,663	62,542	8,84,535
48	VASAI	MH48	54,412	56,127	75,958	8,79,053
49	NAGPUR (EAST)	MH49	33,834	43,065	55,326	7,29,743
50	KARAD	MH50	10,017	11,109	14,142	2,26,519
Total Vehicle Population			**16,96,792**	**19,12,717**	**24,47,573**	**3,60,26,932**

-----xx-------xx-------END OF PART IA AND PART IB OF THE RFP-------xx------xx-----

Request for Proposal for Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years

Part II

Tender Notification No:
Date:

<u>Issued By</u>
The Transport Commissioner
Motor Vehicles Department
Government of Maharashtra

Transport Commissioner Office,
5th Floor, MTNL Building No. 2,
Near Flora Fountain, MG Road,
Fort, Mumbai - 400 001
Tel: 022 – 20826498
Email ID: etendercomp.tpt-mh@gov.in

Confidentiality

This document has been designed for limited circulation only, amongst the interested parties (Bidders) who have requested for RFP for "Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years". Information shared with Bidders through this document, and any subsequent written document or verbally in this regard is confidential in nature. Any further circulation of this information without prior permission of MMVD is prohibited and shall attract punishment / penalties.

Disclaimer

Motor Vehicles Department, Maharashtra (hereinafter referred to as "MMVD") has issued this Request for Proposal (hereinafter referred to as "RFP") for "Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years" on such terms and conditions as set out in this RFP document, including but not limited to the Functional and Technical Specifications and requirements set out in different parts of this RFP document.

This RFP has been prepared with an intention to invite prospective Bidders and to assist them in making their decision of whether or not to submit a proposal.

It is hereby clarified that this RFP is not an agreement and the purpose of this RFP is to provide the bidder(s) with information to assist them in the formulation of their proposals. This RFP document does not purport to contain all the information bidders may require. This RFP document may not be appropriate for all persons, and it is not possible for MMVD to consider the investment objectives, financial situation and particular needs of each bidder. MMVD has taken due care in preparation of information contained herein. However, this information is not intended to be exhaustive. Interested parties are required to make their own inquiries and respondents shall be required to confirm in writing that they have done so and they do not solely rely on the information contained in this RFP in submitting their proposal. This RFP includes statements, which reflect various assumptions and assessments arrived at by MMVD in relation to the project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require.

This RFP is not an agreement by and between MMVD and the prospective bidders or any other person. The information contained in this RFP is provided on the basis that it is non–binding on MMVD, any of its authorities or agencies, or any of their respective officers, employees, agents, or advisors. MMVD makes no representation or warranty and shall incur no liability under any law as to the accuracy, reliability or completeness of the information contained in the RFP document. Each Bidder should conduct its own investigations and analysis to check the accuracy, reliability and completeness of the information in this RFP Document, and where necessary, obtain independent advice from appropriate sources. Each Bidder is advised to consider the RFP document as per his understanding and capacity. The bidders are also advised to do appropriate examination, enquiry and scrutiny of all aspects mentioned in the RFP document before bidding. Bidders are encouraged to take professional help of experts on financial, legal, technical, taxation, and any other matters / sectors appearing in the document or specified work.

Bidders are also requested to go through the RFP document in detail and bring to notice of MMVD any kind of error, misprint, inaccuracies, or omission in the document. MMVD reserves the right not to proceed with the project, to alter the timetable reflected in this document, or to change the process or procedure to be applied. MMVD also reserves the right to decline to discuss the Project further with any party submitting a proposal.

No reimbursement of cost of any type shall be paid to persons, entities submitting a Proposal. The Bidder shall bear all costs arising from, associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, expenses associated with any demonstrations or presentations which may be required by MMVD or any other costs incurred in connection with or relating to its Bid.

Issue of this RFP does not imply that MMVD is bound to select and pre-qualify Bids for Bid Stage or to appoint the Agency for the project and MMVD reserves the right to reject all or any

of the Bids without assigning any reasons whatsoever. MMVD 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 information contained in this Request for Proposal ("RFP") Document or subsequently provided to Bidder, whether verbally or in documentary form by or on behalf of the MMVD or any of their employees is provided to the Bidder on the terms and conditions set out in this RFP Document and any other terms and conditions subject to which such information is provided.

The MMVD, their employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the RFP Document. The Government Representatives may in their absolute discretion, but without being under any obligation to do so, update, amend or supplement the information in this RFP Document.

Structure of the RFP

This RFP is meant to invite proposals from interested bidders capable of delivering the services described herein. This Request for Proposal document consists of following parts viz:

Part I:

Part IA: Instruction to Bidders
Part IA of this RFP details out clear instructions to the bidders for the bidding process requirements in addition to selection process and criteria for selection of Agency

Part IB: Scope of Work
This part gives detail requirements of the project including the scope, project activities and timelines, technical requirements and specifications with respect to Intelligent Traffic Management System.

This part also describes various phases of the project and roles and responsibilities of the Agency during the entire project duration including the implementation stage and the Operations and Maintenance stage.

Various administrative aspects including timelines are also described in this part.

Part II: Draft Agreements

This part of the RFP provides various Terms and conditions of the contract, Draft Agreements format such as Draft Non-Disclosure Agreement, Draft Master Service Agreement etc. which would be entered into between the MMVD and the Successful Bidder (Agency) at the start of the project.

This is the Part II of the RFP document.

Table of Contents

Draft Master Service Agreement

THIS MASTER SERVICE AGREEMENT ("MSA") is made on the _____ day of _____ 20___ at <Mumbai>, India.

BETWEEN

The **Governor of the state of Maharashtra** exercising executive powers of the **Government of Maharashtra** through the Transport Commissioner**, Maharashtra Motor Vehicles Department (MMVD)** having its office at Transport Commissioner's Office, 5th Floor, MTNL Building number 2, M.G. Road, Fort, Mumbai - 400 001, India hereinafter referred to as **'MMVD,** which expression shall, unless the context otherwise requires, include its successors and assigns);

AND

_____ <Name of Bidder> _____**,** (a Company registered and incorporated in India under the Companies Act, 1956/2013 (as amended from time to time) through having its registered office at_____(hereinafter referred to as **'MSI / Successful Bidder'** which expression shall, unless the context otherwise requires, include its permitted successors and assigns).

Each of the parties mentioned above are collectively referred to as the '**Parties**' and individually as a '**Party**'.

WHEREAS

a)   MMVD is desirous to implement the project _____ _____, hereafter referred to **"Project"** for a period of 132 months (12 months of Implementation Phase till Go-Live and 10 years post Go-Live – "Contract Period")

b)   In furtherance of the same, MMVD undertook the selection of a suitable MSI through a competitive bidding process for implementing the Project and in this behalf issued Request for Proposal (RFP) number_____dated_____.

c)   The Successful Bidder has been selected as the MSI on the basis of a bidding process and the bid response set out in the RFP, and as set out as Annexure of MSA, to undertake the_____Project.

d)   This agreement (**the "Master Service Agreement" / "MSA" / "Contract Agreement"**) shall be executed with the Bidder (Lead Bidder in case of Consortium), hereafter called as **'MSI'**, on mutually agreed terms and conditions. The MSI shall be responsible entirely for the complete implementation, operations and maintenance of the Project.

e)   The MSI was issued Letter of Intent with number_____dated_____to carry out_____.

f)   The MSI has submitted Performance Security number_____, of amount _____, valid throughout the contract period till date_____<Performance Security expiry date>_____and agrees to extend the same to meet the SLAs and other requirements for the "Project" as per terms and conditions of the RFP.

NOW THEREFORE, in consideration of the mutual covenants, promises, assurances, representations and provisions set forth herein, the Parties hereto agree as follows:

1. DEFINITIONS AND INTERPRETATION

1.1. Definitions

Terms and expressions used in MSA (including the Introduction) shall have the meanings as under

Terms	Definition
Adverse Effect / Material Adverse Effect	Means material adverse effect on (a) the ability of the MSI to exercise any of its rights or perform / discharge any of its duties / obligations under and in accordance with the provisions of MSA and/or (b) the legal validity, binding nature or enforceability of MSA;
Affiliate	"Affiliate" means, with respect to any Party, any other entity that, directly or indirectly: (a) Controls such Party; (b) is Controlled by such Party; (c) is Controlled by the same person who, directly or indirectly, Controls such Party; and "Control" with respect to any person, shall mean: (a) the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such person whether through the ownership of voting share capital, by agreement or otherwise or the power to elect more than one-half of the directors, partners or other individuals exercising similar authority with respect to such person; (b) the possession, directly or indirectly, of a voting interest of more than 50%; and the terms "Controlling" and "Controlled by" shall be construed accordingly;
Agreement	Means this Master Services Agreement, Non-Disclosure Agreement etc. together with all Articles, Annexures, Schedules and the contents and specifications of the RFP;
Applicable Law(s)	Means any statute, law, ordinance, notification, rule, regulation, judgment, order, decree, bye-law, approval, directive, guideline, policy, requirement or other governmental restriction or any similar form of decision of, or determination by, or any interpretation or administration of the MMVD as may be in effect on the date of the execution of the MSA and during the subsistence thereof, applicable to the Project;
Confidential Information	Means all information including MMVD Data (whether in written, oral, electronic or other format) which relates to the technical, financial and business affairs, dealers, suppliers, products, developments, operations, processes, data, trade secrets, design rights, know-how, plans, budgets and personnel of each Party and its affiliates, Commuters and Citizens which is disclosed to or otherwise learned by the other Party in the course of or in connection with the MSA (including without limitation such information received during negotiations, location visits and meetings in connection with the MSA and Project)
Control	Means, in relation to any business entity, the power of a person to secure (i) by means of the holding of shares or the possession of voting power in or in relation to that or any other business entity, or (ii) by virtue of any powers conferred by the articles of association or other document regulating that or any other business entity, that the affairs of the first mentioned business entity are conducted in accordance with that person's wishes and in relation to a partnership, means the right to a share of more than one half of the assets, or of more than one half of the income, of the partnership;

Terms	Definition
Data	"Data" here refers to information gathered through the ITMS system or any other existing system of the MMVD including Vahan System, eChallan system or obtained from any MMVD officials, written or verbal or in any other form.
Deliverables	As per defined Scope of Work in the RFP
Effective Date	"Effective Date" means the date on which the Contract is signed and executed by the successful bidder – "Contract commencement date".
Go-live / Commencement of Operations	"Go-live" as defined in the Part I and II of the RFP document.
Intellectual Property Rights	Means all rights in written designs and copyrights, moral rights, rights in databases and Bespoke Software / Pre-existing work including its up-gradation systems and compilation rights (whether or not any of these are registered and including application for registration);
Agency / MSI	Refers to the Successful bidder / Master System Integrator, the entity selected to execute the project and responsible for handling the overall implementation and operations of the _____ Project, in accordance with the terms of this RFP
Material Breach	Means a breach by either Party (MMVD or MSI) of any of its obligations under the MSA which has or is likely to have an Adverse Effect on the Project which such Party shall have failed to cure;
MSA / Contract / Agreement	Means the Agreement entered into between the MMVD and the MSI as recorded in the Contract form signed including all attachments and Appendix/ Annexes thereto, the Tender and all Annexures thereto and the agreed terms as set out in the proposal, all documents incorporated by reference therein and amendments and modifications to the above from time to time;
MMVD Data	Means all proprietary data of the MMVD, and any other authorities generated out of operations and transactions and related information including but not restricted to user data which the MSI obtains, possesses or processes in the context of providing the Services to the users pursuant to the MSA;
Personnel	"Personnel" means persons hired by the MSI or by any Sub-Consultant as employees and assigned to the performance of the Services or any part thereof;
Project	Selection of Master System Integrator (MSI) to Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle for a period of 10 years.
Project Implementation	Means Project Implementation as per the functional and technical requirements, SLAs, testing standards and acceptance criteria prescribed by MMVD;
Project Implementation Committee	Shall be constituted by MMVD to monitor the activities, deliverables and progress of the Project. PIC shall comprise of the staff members of the MMVD, other officials from concerned department and external experts (as defined in the RFP);
Replacement MSI	Means any third party that MMVD appoint to replace MSI upon expiry of the Term or termination of MSA to undertake the Services or part thereof;
Required Consents	Means the consents, waivers, clearances and licenses to use MMVD's Intellectual Property Rights, rights and other authorizations as may be required to be obtained for the software and other items that MMVD or

Terms	Definition
	any other authorities are required to make available to MSI pursuant to MSA;
RFP	The Tender Document (Part I and II) referred above along with all the Addendum / Corrigendum to the Request for Proposal (if any).
Role	Role based security model refers to a model of system security wherein only authorized users have access to the system.
Schedule	Schedule / Annexure / Appendix
Service Level	Means the level of service and other performance criteria which shall apply to the MSI for services as set out in the SLA parameters in the RFP document effective during the Term of MSA;
Services	Means the services delivered to the Citizens, Stakeholders of MMVD, employees of MMVD, other concerned stakeholders, and to professionals, using the tangible and intangible assets created, procured, installed, managed and operated by the MSI including the tools of information and communications technology and includes but is not limited to the list of services specified in relevant sections in the RFP.
SLA	Means the Performance and Maintenance Service Level Agreement agreed between the MSI and the MMVD as part of MSA executed for the Project as per SLA parameters defined in the RFP document.
Software	Means the software designed, developed / customized, tested and deployed by the MSI for the purposes of the Project and includes the source code (in case of Bespoke development) along with associated documentation, which is the work product of the development efforts involved in the Project and the improvements and enhancements effected during the term of the Project, including the third party software products (including the COTS products with perpetual license to use for the project), proprietary software components and tools deployed by the MSI, unless otherwise specified explicitly;
Stakeholders	Means the Citizens, MMVD, vendors etc. and other Departments of State Government / Local Govt. / Central Govt.;
System	System refers to the hardware and software components used in the Project or the hardware and software components required for successful implementation, operations and execution of the Project.
Warranty / AMC Period	Shall be comprehensive onsite warranty for all civil, software, hardware modules and network components / equipment for the entire duration of the project.

1.2. Interpretation

In MSA, unless otherwise specified:
a. references to Clauses, Sub-Clauses, Paragraphs, Schedules and Annexures are to clauses, sub-clauses, paragraphs, schedules and annexures to the MSA unless explicitly specified;
b. use of any gender includes the other genders;
c. references to a 'company' shall be construed so as to include any allowed company, corporation or other body corporate, wherever and however incorporated or established unless specifically restricted;
d. references to a 'person' shall be construed so as to include any individual, firm, company, government, state or MSI of a state, local or municipal authority or government body or any joint venture, association or partnership (whether or not having separate legal personality);
e. a reference to any statute or statutory provision shall be construed as a reference to the same as it may have been, or may from time to time be, amended, modified or re-enacted;
f. any reference to a 'day' (including within the phrase 'business day') shall mean a period of

24 hours running from midnight to midnight;

g. references to a 'business day' shall be construed as a reference to a day (other than a Sunday) on which Government of Maharashtra is generally open for business;

h. references to times are to Indian Standard Time;

i. a reference to any other document referred to in the MSA is a reference to that other document as amended, varied, innovated or supplemented at any time; and

j. all headings and titles are inserted for convenience only. They are to be ignored in the interpretation of the MSA.

k. Successful Bidder or MSI has been used for the same entity i.e. bidder selected for the project.

1.3. Measurements and Arithmetic Conventions

All measurements and calculations shall be in the metric system and calculations done to 2 (two) decimal places, with the third digit of 5 (five) or above being rounded up and below 5 (five) being rounded down except in money calculations where such amounts shall be rounded off to the nearest INR (upper).

1.4. Ambiguities within Agreement

In case of ambiguities or discrepancies within the MSA, the following principles shall apply:

1. as between two Clauses of the MSA, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in a general Clause;

2. as between the provisions of the MSA and the Schedules/Annexures (including the Part I of the RFP document), the Agreement shall prevail, save and except as expressly provided otherwise in the Agreement or the Schedules/Annexures; and

3. As between any value written in numerals and that in words, the value in words shall prevail.

1.5. Priority of documents

The MSA, including its Schedules and Annexures, represents the entire agreement between the Parties as noted in this Clause. If in the event of a dispute as to the interpretation or meaning of the MSA it shall be necessary for the Parties to refer to documents forming part of the bidding process leading to the MSA, then such documents shall be relied upon and interpreted in the following descending order of priority:

1. The MSA, NDA agreement, Schedules and Annexures;

2. Request for Proposal (Part I of the RFP) and Addendum / Corrigendum to the Request for Proposal (if any).

3. For the avoidance of doubt, it is expressly clarified that in the event of a conflict between the MSA, Annexures / Schedules or the contents of the RFP, the terms of the MSA shall prevail over the Annexures / Schedules and Annexures / Schedules shall prevail over the contents and specifications of the RFP.

4. For the avoidance of doubt, it is expressly clarified that in the event of a conflict between this Master Service Agreement and Non-Disclosure Agreement, MSA shall prevail over NDA.

2. SCOPE OF THE PROJECT

The MSI shall be required to:

1. Design, Implement, Operate and Maintain Intelligent Traffic Management System on various stretches in the Nagpur Circle as per requirements specified in the RFP and Addendum / Corrigendum to the Request for Proposal (if any).

2. Operate, manage, maintain and provide technical support to the ITMS System for the period of for a period of 10 years (**120 months)** from the date of Go-Live (as mentioned in RFP).

The roles and responsibilities of the Parties under this Agreement have been set out in detail in the **Part I** of the RFP document.

For the avoidance of doubt, it is expressly clarified that the MSA shall govern the provision of the contracted professional services under the SLA to the MMVD and other authorities. The Parties shall each ensure that the range of the Services defined in the RFP document and under the SLA shall not be varied, reduced or increased during the contract period unless explicitly agreed by both the parties in the writing and as addendum to this MSA.

3. TERM AND DURATION OF THE AGREEMENT

This Agreement (the "Master Service Agreement" / the "MSA" / "Contract Agreement") shall come into effect on _____, 202_ (hereinafter the '**Effective Date**') and shall continue till operation and maintenance completion date which shall be the date of the completion of the operation and maintenance of the Project. In the event that implementation period gets extended beyond 12 months, MMVD reserves the right to extend the term of the Agreement by corresponding period to allow validity of contract for 120 months from the date of Date of Go – Live / Commencement of Operations. In the event of such an extension, MMVD shall not reimburse the bidder for the expenses incurred.

4 CONDITIONS PRECEDENT and EFFECTIVE DATE

4.1. Provisions to take effect upon fulfilment of Conditions Precedent

Subject to express terms to the contrary, the rights and obligations under the MSA shall take effect only upon fulfilment of all the Conditions Precedent set out below. However, MMVD may at any time at its sole discretion waive fully or partially any of the Conditions Precedent for the MSI.

4.2. Conditions Precedent of the MSI

The MSI shall be required to fulfil the Conditions Precedent as follows:
1. To provide the MMVD, as and when required, certified true copies of its constitutional documents, Financial Documents, experience documents, tax cleared certificates, board resolutions authorizing the execution, delivery and performance of the MSA by the MSI and any other documental evidence MMVD may ask from MSI from time to time.
2. No amount or any other charges whatsoever on any account shall be levied by the MSI on the MMVD and any of its users or citizens for any services provided under the Project unless approved by the MMVD.
3. MSI shall obtain all approvals and clearances required, with MMVD's assistance, for Implementation of the Project including laying of fiber, electricity connections, erection of poles, cantilevers, construction premises for CCC and Data center etc.
4. Any other requirements as detailed in the RFP document.

4.3. Extension of time for fulfilment of Conditions Precedent

The parties shall, at MMVD's discretion, extend the time for fulfilling the Conditions Precedent.

4.4. Non-fulfilment of the MSI's Conditions Precedent

1. In the event that any of the Conditions Precedent of the MSI have not been fulfilled within 15 days of signing of the MSA or time as specified in the RFP document or time as specified by MMVD from time to time, and the same have not been waived fully or partially by MMVD, the MSA shall cease to exist;
2. In the event that the Agreement fails to come into effect on account of non-fulfilment of the MSI's Conditions Precedent, the MMVD shall not be liable in any manner whatsoever to the MSI and the MMVD shall forthwith forfeit the Performance Security.
3. In the event that possession of any of the MMVD facilities or resources have been delivered to the MSI prior to the fulfilment of the Conditions Precedent, upon the termination of the MSA such possession shall immediately revert to MMVD, free and clear from any encumbrances or claims.

5. REPRESENTATIONS AND WARRANTIES

5.1. Representations and warranties of the MSI

The MSI represents and warrants to the MMVD that:

1. it is duly organized and validly existing under the laws of India, and has full power and authority to execute and perform its obligations under the MSA and other agreements as per scope of RFP and to carry out the transactions contemplated hereby;

2. it has the financial standing and capacity to perform its obligations under the Agreement as per scope defined in the RFP document and is a competent provider of a variety of information technology and business process management services as per requirements to meet the project objectives;

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

    i.   from the Effective Date, it shall have the financial standing and capacity to undertake the Project in accordance with the terms of the MSA;

    ii. in providing the Services, it shall use reasonable endeavours not to cause any unnecessary disruption to MMVD's normal business operations

4. the MSA has been duly executed by it and constitutes a legal, valid and binding obligation, enforceable against it in accordance with the terms hereof, and its obligations under the MSA shall be legally valid, binding and enforceable against it in accordance with the terms hereof;

5. the information furnished in the tender documents and as updated on or before the date of the MSA is to the best of its knowledge and belief true and accurate in all material respects as at the date of the MSA;

6. the execution, delivery and performance of the MSA shall not conflict with or result in the breach of or constitute a default by any of the terms of its Memorandum and Articles of Association 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;

7. 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 the MSA or which individually or in the aggregate may result in any impairment of its ability to perform any of its obligations under the MSA;

8. it has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Government Instrumentality which may result in any Adverse Effect on its ability to perform its obligations under the MSA and no fact or circumstance exists which may give rise to such proceedings that shall adversely affect the performance of its obligations under the MSA;

9. it has complied with Applicable Laws in all material respects and has not been subjected to any fines, penalties, injunctive relief or any other civil or criminal liabilities which in the aggregate have or may have an Adverse Effect on its ability to perform its obligations under the MSA;

10. no representation or warranty by it contained herein or in any other document furnished by it to MMVD in relation to the Required Consents contains or shall contain any untrue or misleading statement of material fact or omits or shall omit to state a material fact necessary to make such representation or warranty not misleading; and

11. no sums, in cash or kind, have been paid or shall be paid, by it or on its behalf, to any person by way of fees, commission or otherwise for entering into the MSA or for influencing or attempting to influence any officer or employee of MMVD in connection therewith.

12. The MSI fully indemnifies the MMVD, from any damages arising out of breach of the aforesaid conditions.

5.2. Representations and warranties of the MMVD

MMVD represent and warrant to the MSI that:

1. it has full power and authority to execute, deliver and perform its obligations under the MSA and to carry out the transactions contemplated herein and that it has taken all actions necessary approvals to execute the MSA, exercise its rights and perform its obligations, under the MSA and carry out the transactions contemplated hereby;
2. it has taken all necessary actions under Applicable Laws to authorize the execution, delivery and performance of the MSA and to validly exercise its rights and perform its obligations under the MSA;
3. it has the financial standing and capacity to perform its obligations under the Agreement;
4. it is subject to the laws of India, and hereby expressly and irrevocably waives any immunity in any jurisdiction in respect of the MSA or matters arising thereunder including any obligation, liability or responsibility hereunder;
5. the MSA has been duly executed by it and constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof and its obligations under the MSA shall be legally valid, binding and enforceable against it in accordance with the terms thereof;
6. the execution, delivery and performance of the MSA shall not conflict with, result in the breach of, constitute a default under, or accelerate performance required by any of the 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;
7. There are no actions, suits or proceedings 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 default or breach of the MSA or which individually or in the aggregate may result in any material impairment of its ability to perform its material (including any payment) obligations under the MSA;
8. It has no knowledge of any violation or default with respect to any order, writ, injunction or any decree of any court or any legally binding order of any Government Instrumentality which may result in any Adverse Effect on the MMVD's ability to perform its obligations under the MSA and no fact or circumstance exists which may give rise to such proceedings that would adversely affect the performance of its obligations under the MSA;
9. It has complied with Applicable Laws in all material respects;
10. All information provided by it in the RFP in connection with the Project is, to the best of its knowledge and belief, true and accurate in all material respects; and upon the MSI performing the covenants herein, it shall not at any time during the term hereof, interfere with peaceful exercise of the rights and discharge of the obligations by the MSI, in accordance with the MSA.

5.3. Obligations of the MSI

1. It shall provide to the MMVD, the Solutions, Systems, Deliverables etc. as set out in the RFP.
2. It shall perform the Services as set out in the RFP and in a good and workmanlike manner commensurate with industry and technical standards which are generally in effect for international projects and innovations pursuant thereon similar to those contemplated by the MSA, and so as to comply with the applicable Service Levels set out with the MSA.
3. It shall ensure that the Services will be provided as per the Project Timelines set out in the RFP. It shall keep accurate and systematic accounts and records in respect of the Services hereunder, in accordance with accepted accounting principles and in such form and detail as shall clearly identify all relevant changes in time and costs, and the bases thereof; and it shall agree that the MMVD or its designated representative when applicable, and upto three (3) years from the expiration or termination of the MSA has the right, to inspect the same and make copies as well as to have them audited by auditors appointed by the MMVD, if so required, as the case may be.
4. The MSI hereby acknowledges that the MMVD has the discretion to conduct checks and audits depending on the situation of the case.
5. It shall comply with such reasonable instructions as may be notified by the MMVD from time to time;
6. It shall deliver project monitoring, implementation, progress, compliance, utilization reports demonstrating performance of the Services in the prescribed formats and at the frequency, specified by the MMVD.
7. It shall comply with all statutory and legal requirements of the Country, State and jurisdiction in which it operates and in which the Services are carried out as may arise from time to time whilst acting on the Instructions;
8. It shall seek the prior approval for any hardware or software proposed to be installed and also for the proposed manner of such installation and the MMVD's decision in this regard shall be final and binding;
9. It shall provide alternate options not later than seven (7) days from the date on which the MMVD rejects the said hardware / software or the proposed manner of installation.

6. APPROVALS AND REQUIRED CONSENTS

1. The MSI shall procure, maintain and observe all relevant and regulatory and governmental licenses, clearances and applicable approvals (hereinafter the "Required Consents") necessary for the MSI to implement the ITMS system and provide the Services as per RFP document. All costs related to procuring such approvals shall be borne by the MSI.
2. The MMVD shall use reasonable endeavours to support MSI to obtain the Required Consents. In the event that any Required Consent is not obtained, the MSI and the MMVD shall co-operate with each other in achieving a reasonable alternative arrangement as soon as reasonably practicable for the MMVD to continue to process its work with a minimal interruption to its business operations as is commercially reasonable until such Required Consent is obtained, provided that the MSI shall not be relieved of its obligations to provide the Services and to achieve the Service Levels until the Required Consents are obtained, if and to the extent that the MSI's obligations are not dependent upon such Required Consents. However, all costs related to procuring such approvals shall be borne by the MSI.

7. USE OF MMVD ASSETS BY THE MSI

During the Term the MSI shall:

1. take all reasonable and proper care of the entire hardware and software, network or any other information technology or non-IT infrastructure components used for the Project and other facilities leased / owned / operated by the MSI, exclusively in terms of ensuring their usability for the delivery of the Services as per the MSA (hereinafter the "Assets") in proportion to their use and control of such Assets;

2. keep all the tangible Assets in a good and serviceable condition (reasonable wear and tear) as at the date the MSI takes control of and/or first uses the Assets, during the entire Contract Period, and at the time of handover to the MMVD at the end of the contract period / termination of the contract.

3. ensure that any instructions or manuals supplied by the manufacturer of the Assets for use of the Assets and which are provided to the MSI shall be followed by the MSI and any person who shall be responsible for use of the Assets;

4. take such steps as may be properly recommended by the manufacturer of the Assets and notified to the MSI or as may, in the reasonable opinion of the MSI, be necessary to use the Assets in a safe manner;

5. ensure that the Assets implemented for the project by the MSI, are kept suitably housed and in conformity with Applicable Law;

6. procure permission from the MMVD and any person(s) duly authorized by them to enter any land or premises on which the Assets are, so as to inspect the same, subject to any reasonable third party requirements;

7. not, knowingly or negligently use or permit by use any of the Assets in contravention of any statutory provisions or regulation or in any way contrary to Applicable Law and for any other purpose not explicitly approved by MMVD in writing.

8. ACCESS TO THE MMVD LOCATIONS

1. For so long as the MSI provides services to the MMVD location, as the case may be, on a non-permanent basis and to the extent necessary, the MMVD shall, subject to compliance by the MSI with any safety and security guidelines which may be provided by the MMVD and notified to the MSI in writing, provide the MSI with:
   a. Reasonable access, in the same manner granted to the MMVD employees, to the required location during working hours.
   b. Reasonable work space, access to office equipment and other related support services in such location and, as may be reasonably necessary for the MSI to perform its obligations hereunder and under the SLA.

2. Access to locations, office equipment and services shall be made available to the MSI on an "as is, where is" basis by the MMVD.

3. The MSI agrees to ensure that its employees, agents and contractors shall not use the location, services and equipment referred to in RFP for the following purposes:
   a. For the transmission of any material which is defamatory, offensive or abusive or of an obscene or menacing character; or
   b. In a manner which constitutes a violation or infringement of the rights of any person, firm or company (including but not limited to copyright or right of confidentiality).
   c. Any other purpose not specifically forming the part of the Scope of the Project.

4. MSI shall not part with or create any Encumbrance on the whole or any part of the Site.

5. MSI agrees to promptly report in writing to the MMVD, any act or omission or issues or conflicts which they are aware that could have an adverse effect on the project.

6. The MSI acknowledges and agrees that any information and data on climatic, hydrological, topographical and general conditions relating to the Project Sites made available to it by MMVD has been done so for the convenience of the MSI and that the MSI enters into the Contract based upon its own investigations and determinations.

7. MSI warrants that it has, to its complete satisfaction, examined and inspected the Project Sites and its surroundings and where applicable, any existing structures or works on, over and under the Project Sites and is familiar with and has satisfied itself with the Project Sites conditions including the climate, topography, access to and from Sites, safety, availability of labour, water and electricity. No claim by MSI regarding misunderstanding or misapprehension in respect of matters related to this Clause shall be maintainable.

9. OPERATION PHASE

1. **Governance:** The review and management process of MSA shall be carried out in accordance with the Governance Schedule set out in **Annexure III** of the MSA and shall cover all the management aspects of the Project.
2. **Use of Services:** The MMVD shall undertake and use the Services in accordance with instructions or procedures communicated by the MSI and as per the SOP defined by MMVD and / or defined by the MSI and agreed by the MMVD which is part of the SLA or the MSA or RFP or any agreement that may be entered into between the Parties from time to time; The MMVD shall use and operate the services and system implemented, managed and maintained by MSI.
3. **Security and Safety:** MSI shall comply with the technical requirements of the relevant security, safety and other requirements specified in the IT Act including the regulations issued by dept. of telecom (wherever applicable), guidelines and procedures of the relevant IRC codes, and other environmental guidelines and follow the industry standards related to safety and security (including those as stated in the RFP), in so far as it applies to the provision of the Services. Additionally, the following points shall be considered:
    a. Each Party to the MSA shall also comply with the Government of India, and the respective State's and respective ULB / District regulatory authority's security standards and policies in force from time to time at each location of the project.
    b. The Parties to the MSA shall use reasonable endeavours to report forthwith in writing to each other all identified attempts (whether successful or not) by unauthorized persons (including unauthorized persons who are employees of any Party) either to gain access to or interfere with the MMVD as the case may be or any of their nominees data, facilities or Confidential Information.
    c. MSI shall upon reasonable request by the MMVD, participate in regular meetings when safety and information technology security matters are reviewed. As per the provisions of the MSA, MSI shall promptly report in writing to the MMVD, any act or omission which they are aware that could have an adverse effect on the proper conduct of safety and information technology security at the facilities of MMVD.
4. **Cooperation:** Except as otherwise provided elsewhere in MSA, each Party ("Providing Party") to the MSA undertakes promptly to provide the other Party ("Receiving Party") with all such information and co-operation which the Receiving Party reasonably requests, provided that such information and co-operation:
    a. Does not require material expenditure by the Providing Party to provide the same;
    b. Is reasonably required by the Receiving Party in order for it to comply with its obligations under the MSA;
    c. cannot be construed to be Confidential Information; and
    d. Is capable of being provided by the Providing Party.
    e. Further, each Party agrees to co-operate with contractors and subcontractors of the other Party as reasonably requested in order to accomplish the purposes of the MSA.

10. NON-EXCLUSIVITY

The right of the MSI to perform executes and implements the Works or any part thereof pursuant to the Contract, is not exclusive and shall not prevent MMVD from granting a similar right to other parties.

11. FINANCIAL MATTERS

11.1.   Terms of Payment and Service Credits and Debits

1. In consideration of the Services and subject to the provisions of MSA, the MMVD shall pay the MSI for the Services rendered in pursuance of MSA, in accordance with the Terms of Payment Schedule set out in the Part I of the RFP.

2. All payments are subject to the adherence to defined Service levels as may be provided for in the SLA. For the avoidance of doubt, it is expressly clarified that payment for the service provided shall be in accordance with the RFP. MMVD may also calculate penalties and liquidated damages and raise a demand on the MSI for payment of the same. The MSI shall have to pay the penalty amount so raised within the time specified in the RFP document. In case of any dispute the same may be referred to the Transport Commissioner, Maharashtra State or the Additional Chief Secretary / Principal Secretary (Transport and Ports), whose decision shall be final in this regard. In event of failure of MSI to pay the penalty amount, MMVD shall have the discretion to recover the same from the payment due to the MSI and / or PBG submitted. The MSI shall have to replenish the Performance Security amount so deducted by MMVD within 15 days of such deduction.

3. Save and except as otherwise provided for herein or as agreed between the Parties in writing, the MMVD shall not be required to make any payments in respect of the Services (or, without limitation to the foregoing, in respect of the MSI performance of any obligations under MSA) other than those covered in the RFP. For the avoidance of doubt, it is expressly clarified that the quoted rate in the Commercial Bid by the MSI shall be deemed to include all ancillary and incidental costs and charges arising in the course of delivery of the Services including consultancy charges, infrastructure costs, project costs, implementation and management charges and all other related costs including taxes.

4. Payments against Services rendered by the MSI shall be subject to fulfilment of the conditions of the RFP and MSA or any additional instructions by the MMVD and subject to MSI complying with the provisions of MSA & Instructions, as stipulated by MMVD.

5. If the MSI fails, omits or neglects to observe or commits or allows to be committed a breach of any of the terms, conditions, provisions or stipulations of the RFP, MSA or in connection with any other Instructions or in case of occurrence of any material breach, then the MMVD shall be entitled to initiate appropriate legal proceedings, in addition to withholding / suspension of payment and / or recovering payments and / or termination along with damages, interests and expenses without prejudice to any other right or remedy which the MMVD has under MSA or otherwise in law.

6. No mobilization advance shall be payable to the MSI.

7. The MMVD shall be entitled to delay or withhold part of the payment due to MSI which is under a dispute. The withheld amount shall be limited to that which is the disputed amount. The disputed amount shall be referred to the escalation procedure as set out in Dispute Management Clause under MSA. Any exercise by the MMVD under this Clause shall not entitle the MSI to delay or withhold the Services. In case any payment is disputed by MMVD, the same shall be notified to MSI. The MSI shall take suitable measures to rectify the errors, defects, mistakes, etc. in the services delivered and inform the MMVD in writing. If the MSI does not act upon the errors, defects, mistakes etc. or fails / refuses to inform MMVD to the satisfaction of MMVD, the dispute may be referred in accordance with the Dispute Management Procedure defined in the MSA.

11.2.   Payment and Settlement

Subject to the specific terms of the SLA, the MSI shall be paid in accordance with the Clause 4 under Administrative Aspects of the Part I of the RFP document.

11.3.   Tax

Read Clause 17 under Instruction to Bidders, Part I of the RFP document.

12. TERMINATION

12.1.   Breach

1. In the event the MMVD has sufficient reasons to believe that the MSI is in Breach of its obligations under MSA and the SLA, the MMVD may give one quarter's grace period for curing the Breach to MSI. In case the Breach continues, even after the notice period, the MMVD, as the case may be, shall have the option to terminate the Agreement. Any notice served pursuant to this Clause shall give reasonable details of the Breach, which could include, but not limited to, the following events and the termination shall become effective if the MSI:
   a. is not able to deliver the services as per the SLAs defined in RFP.
   b. fails to deliver any or all of the goods / services within the period(s) specified in the RFP.
   c. fails to perform as per the performance standards as set out in the RFP.
   d. persistently neglects to carry out his obligations under the Contract and/or commits default in complying with any of the terms and conditions
   e. Fails to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or un-workman like manner
   f. without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the MMVD (which shall be final and binding) he will be unable to secure completion of the work by the date for completion and continues to do so
   g. Appoints a sub-contractor without the prior approval of MMVD, or terminates any of the Sub-contractor; or
   h. having terminated any of the Subcontracts with the consent of MMVD, appoints a replacement Sub-contractor without the prior approval of MMVD.
   i. the MSI without the consent of MMVD assigns or transfers all or any of its rights or obligations under the Contract;
   j. the MSI repudiates the Contract or otherwise evidences an intention not to be bound by the Contract; or
   k. the expropriation, confiscation, compulsory acquisition of the Project Facility;
   l. if the MSI or any of its servants or agents commit or suffer to be committed or omit or suffer to be omitted any act, deed, matter or thing which in the opinion of MMVD whose decision (without an obligation to give reasons therefor) in this regard will be final, is prejudicial to the interests or reputation of MMVD.
   m. the MSI offers, gives or promises any payment directly or indirectly to any government, political party, or official thereof, or any candidate for political office, or to MMVD in order to influence any substantive decision of, or induce any party or person to use its influence to offset any substantive decision of any Relevant Authority or Statutory Authority or MMVD in regard to any aspect of the Contract;
   n. the MSI makes any warranty or representation in or in accordance with the Contract which was materially incorrect when made so as to materially affect MMVD's interests; or
   o. in the event that the MSI's liability for Liquidated Damages reaches the cap on such damages as set in the MSA and the Completion Certificate for the whole of the Works has not been issued; or
   p. fails to provide, maintain or renew and/or comply with its obligations in relation to the Performance Security; or
   q. the MSI has, without valid reason and MMVD consent, failed to commence the Works promptly, or fails to progress the Works regularly and/or diligently or
   r. the MSI has failed to adhere to the Technical Conditions of Contract and in the reasonable estimation of the MMVD, such failure is likely to mean that Completion of the Works is likely to be delayed beyond the relevant Time for Completion; or

s. the MSI's personnel is/are incompetent, have acted in a manner prejudicial to MMVD best interest or have failed to comply with MMVD health, safety, environment or other rules or regulations and procedures; or

t. the MSI has failed to achieve two Timelines Activities (as defined in Clause 3 – "Project Timelines" under Administrative Aspects of Part IB of the RFP), consecutively.

u. If the MSI, in the judgment of the MMVD has engaged in corrupt or fraudulent practices (as defined in the Part I of the RFP) in competing for or in executing the contract and / or during the project execution.

v. MSI fails to complete, test and commission the project works within the Time for Completion or commits any other violation/breach of the terms and conditions of the Contract which is not rectified within the grace period.

2. The MMVD may by giving a one month's written notice, terminate MSA if a change of control of the MSI has taken place. For the purposes of this Clause, in the case of MSI, change of control shall mean the events stated in the MSA and such notice shall become effective at the end of the notice period.

3. In the event, MSI (one or more members in case of consortium) undergoes one or more of the following:

a. change of control

b. passing of a resolution by the shareholders of the MSI for the winding up of the MSI;

c. the appointment of a liquidator in a proceeding for the winding up of the MSI or the Bidder entering into a compromise with its creditors; or

d. the making by the court of an order winding up the MSI,

MMVD may, as an alternative to termination, require a full Performance Guarantee for the obligations of MSI by a guarantor acceptable to MMVD. If such a guarantee is not furnished within 30 days of MMVD's demand, MMVD may exercise its right to terminate the MSA in accordance with this Clause by giving 15 days further written notice to MSI.

4. MMVD reserves the right to invoke the termination clause in case of breach of cap on penalties and liquidated damages by MSI as mentioned under the MSA and SLA Parameters defined in the RFP.

12.2.   Effects of termination

1. In the event that MMVD terminates MSA pursuant to failure on the part of the MSI to discharge any its obligations or in case of any loss to MMVD due to MSI's negligence or failure of MSI to comply with the conditions in this MSA, SLA, NDA, RFP and its corrigenda, and other bid documents or reasonable instructions given by MMVD to the MSI, and conditions as contained in this Clause, depending on the event of default, Performance Guarantee furnished by MSI may be forfeited wholly or partially, and any payment due to the MSI may be withheld for deduction of any applicable penalties and / or calculated liquidated damages to the MMVD due to default on the part of the MSI, as MMVD deems fit.

2. In the event that MMVD terminates the MSA which is not due to default on the part of the MSI, the compensation shall be decided by MMVD and mutually agreed as below:-

    • If the contract is terminated at the Implementation Phase (on or before Go-Live / commissioning), MSI shall be asked to remove any temporary works and tools etc. which are not part of the project deliverable and MMVD shall not pay anything additional to what has been paid already / due to be paid for the completed works, subject to adjustment of any liquidated damages, penalty charges as per SLA or charges for non-compliances or any kind of loss to MMVD. Any payment already made by the MMVD for which the services / products are not provided / delivered / returned, the sum shall be recovered from the Performance Bank Guarantee and / or MMVD shall ask the bidder to refund any such payment promptly, no later than [21 (twenty-one)] days following the receipt of the notice from the MMVD

in this regard.

- If the contract is terminated post Commissioning of the project (in O & M Phase), the MMVD shall ask the MSI to leave all the hardware, equipment and software applications etc. as per terms defined of the MSA. MSI shall be required to adhere to the same. The MSI shall be paid on pro-rate basis for the respective period for which payment is due, subject to adjustment of any liquidated damages, penalty charges as per SLA or charges for non-compliances or any kind of loss to MMVD.

3. MMVD, on receipt of a written application for reimbursement, on approval if deemed appropriate, agrees to pay MSI for
   a. All charges for Services MSI provides during Exit Management at actuals and any Deliverables and/or system (or part thereof) MSI delivers during Exit Management, and
   b. Reimbursable expenses MSI incurs during Exit Management at actuals. If MMVD terminates without cause, MMVD also agrees to pay any applicable adjustment expenses MSI incurs as a result of such termination (which MSI shall take reasonable steps to mitigate). The reimbursement shall be made for only those expenses for which original bill is produced, and only for the expense incurred by MSI and shall be paid at actuals. MMVD shall not pay any kind of interest.

4. Upon Termination, the Parties shall comply with the following:
   a. MMVD may repatriate the MSI 's and sub-contractor's personnel from any part of the Project Site and the Works;
   b. MMVD may enter the Project Sites and the Works thereof and expel the MSI therefrom and MMVD may complete the Works itself or by employing any third party;
   c. MMVD may, to the exclusion of any right of the MSI over the same, take over and have free use, without payment to the MSI of any MSI's Equipment and temporary works (which are not part of Project deliverables) of which have been delivered to the Project Sites for such period as the MMVD considers necessary for the Execution of the Works, without being responsible to the MSI for fair wear and tear thereof and to the exclusion of any right of the MSI over the same.
   d. MMVD may at any time sell any of the said MSI's Equipment, temporary works and any unused materials and apply the proceeds of sale in or towards for satisfaction of any sums due or which may become due to it from the MSI under the Contract; and
   e. MMVD shall have the power and authority to prohibit the MSI and any person claiming through or under the MSI from entering the Project Sites.

   Depending on the event of default, Performance Guarantee furnished by MSI may be forfeited and any payment due to the bidder may be withheld for deduction of any applicable penalties and / or calculated liquidated damages to the MMVD due to default on the part of the MSI.

5. Additionally, upon termination of MSA, the Parties shall comply with the Exit Management Schedule set out at **Annexure I** of the MSA.
6. MMVD shall not be liable to pay any compensation in case of cancellation of Contract.
7. Upon the expiration or termination of the MSA for any reason, the provisions of the agreement clauses like CONFIDENTIALITY, PROPRIETARY RIGHTS, INDEMNIFICATION LIMITATION OF LIABILITY AND RISK ALLOCATION, and GOVERNING LAW AND DISPUTE RESOLUTION will survive indefinitely.

12.3.   Termination of the MSA due to bankruptcy of MSI

In addition to all other rights or remedies provided for in MSA or by law, MMVD may terminate the MSA in whole, but not in part, in the event that:
  a. the other Party makes a composition with or assignment for the benefit of creditors;
  b. the other Party becomes or is unable to pay debts as they fall due;
  c. a trustee, liquidator, administrator or receiver (including an administrative receiver) or similar official is appointed with respect to the other Party or any substantial part of such Party's assets;
  d. any action is taken by or against the other Party under any bankruptcy or insolvency laws or laws relating to the relief of debtors; or
  e. the other Party is the subject of a winding-up petition which is not dismissed within five business days, or a resolution is passed for its winding-up.

The MMVD may serve written notice on MSI at any time to terminate MSA by giving written notice of one month in any of the above event. In this event, termination will be without compensation to the MSI, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the MMVD.

13. INDEMNIFICATION

13.1.   Infringement Indemnity

a) MSI will indemnify, defend and hold harmless MMVD, any MMVD Affiliates and their respective employees, principals (partners, shareholders or other holders of an ownership interest, as the case may be) and agents from and against any and all Losses to any third party from claims that any Work Product, Software or Hardware or infrastructure as applicable (or the access or other rights thereto) provided by MSI to MMVD pursuant to MSA (i) infringes a patent incorporated in India or a copyright held by that third party or (ii) constitutes misappropriation or unlawful disclosure or use of that third-party's trade secrets; (iii) connection with any defect, damage during transportation, inadequacy or unsuitability of the design, manufacture, workmanship or materials or failure to meet in any or all respects the requirements of the Contract (iv) bodily injury, death or damage to tangible personal property arising in favour of any person, corporation or other entity (including the Indemnified Party) attributable to the Indemnifying Party's negligence or wilful default in performance or non-performance under MSA (collectively, "Infringement Claims")
Patent Rights and Royalties: Any Royalties and fees for patents covering equipment's, materials, articles, apparatus, devices or processes used in the Works for this project shall be deemed to have been included in the Quoted Rates.
b) MMVD will indemnify, defend and hold harmless MSI, any MSI Affiliates and their respective employees, principals (partners, shareholders or other holders of an ownership interest, as the case may be) and agents from and against any and all Losses arising from claims by third parties that any equipment, software (including MMVD-Owned Software and other assets), information or other resources or items (or the access or other rights thereto) provided by MMVD to MSI pursuant to MSA (i) infringes a patent incorporated in India or a copyright held by that third party or (ii) constitutes misappropriation or unlawful disclosure or use of a third party's trade secrets (collectively, "Infringement Claims").
c) Notwithstanding anything to the contrary herein, neither Party will have any liability or obligation to the other Party, such other Party's Affiliates or any other Person under (a) or (b) above to the extent that the Infringement Claim is based upon (i) modifications to any item made by or on behalf of the indemnitee in a manner that causes the infringement and the Indemnifier has warned about the same to the

indemnitee in written; (ii) use of any item in combination with any hardware, software or other products or services in a manner that causes the infringement and where such combination was not within the reasonable contemplation of the Parties given the intended use of the item; (iii) the failure of a Party to use corrections or enhancements to such deliverables that are made available by the other Party; (iv) detailed, non-discretionary designs or specifications provided by the indemnitee that necessarily caused such Infringement Claim; or (v) the indemnitee's distribution, marketing or use for the benefit of third parties (other than to provide Services to the MMVD hereunder) of the deliverable or item.

d) If any deliverable or item provided by a Party hereunder is, or in such Party's reasonable judgment is likely to become, the subject of an Infringement Claim, the providing Party, at its expense and in addition to defending the claim and paying amounts as required by (a) or (b) above, will use reasonable efforts to procure for the other Party the right to use and continue using such deliverable or replace it with a non-infringing equivalent or modify it to make its use hereunder non- infringing, provided that such replacement or modification does not result in a degradation of the performance or quality of the deliverable. If such option is not available on commercially reasonable terms in the providing Party's good faith judgment, the providing Party will so notify the other Party, whereupon (i) the other Party will cease use of such deliverable or Service and return it to the providing Party and (ii) the Parties will equitably adjust the Service Charges to reflect the added expenses or discontinuation of Services. In such event, the Parties will seek to establish mutually acceptable alternative arrangements and to make any appropriate adjustments to their respective obligations under MSA.

e) The foregoing provisions of this Clause 13.1 constitute the Parties' sole and exclusive remedies and each Party's entire liability with respect to infringement claims.

13.2.   Indemnification Procedures

The following procedures will apply with respect to indemnification for third-party claims arising in connection with MSA:

a) Promptly after receipt by a Person entitled to indemnification hereunder (an "Indemnitee") of written notice of the assertion or the commencement of any claim, demand, action, cause of action or other proceeding by a third party, whether by legal process or otherwise (a "Claim"), with respect to any matter within the scope of above Clause the Indemnitee will give written notice thereof to the Party from whom indemnification is sought pursuant hereto (the "Indemnitor") and will thereafter keep the Indemnitor reasonably informed with respect thereto; provided, however, that the failure of the Indemnitee to give the Indemnitor such prompt written notice will not relieve the Indemnitor of its obligations hereunder except to the extent such failure results in prejudice to Indemnitor's defence of such Claim. Within 30 days following receipt of written notice from the Indemnitee relating to any claim, but no later than 15 days before the date on which any response to a complaint or summons is due, the Indemnitor will notify the Indemnitee in writing that the Indemnitor will assume control of the defence and settlement of such claim (the "Notice").

b) If the Indemnitor delivers the Notice relating to any claim within the required notice period, the Indemnitor will be entitled to have sole control over the defence and settlement of such claim; provided, however, that the Indemnitee will be entitled to participate in the defence of such claim and to employ legal advisers at its own expense to assist in the handling of such claim. After the Indemnitor has delivered a Notice relating to any claim in accordance with the preceding Clause (a) above, the Indemnitor will not be liable to the Indemnitee for any legal expenses subsequently incurred by such Indemnitee in connection with the defence of such claim.

c) If the Indemnitor fails to assume the defence of any such Claim within the prescribed period of time, then the Indemnitee may assume the defence of any such Claim at the cost and expense of the Indemnitor. The Indemnitor will not be responsible for any settlement or compromise made without its consent, unless the Indemnitee has tendered notice and the Indemnitor has then failed to assume and defend the claim and it is later determined that the Indemnitor was liable to assume and defend the claim. The Indemnitor will reimburse the Indemnitee for its costs and expenses incurred as a result of Indemnitor's failure to assume the defence of such Claim.

d) The Indemnitee will provide reasonable assistance to the Indemnitor (at the Indemnitor's expense), including reasonable assistance from the Indemnitor's employees, agents, independent contractors and Affiliates, as applicable. Notwithstanding any provision of this Clause to the contrary, the Indemnitor will not consent to the entry of any judgment or enter into any settlement that provides for injunctive or other non-monetary relief affecting the Indemnitee without the prior written consent of the Indemnitee, which consent will not be unreasonably withheld or delayed.

14. LIMITATION OF LIABILITY AND RISK ALLOCATION

14.1.   Limitation of Liability

a) Subject to Clause (b) below, the aggregate liability of each Party (and its Affiliates) to the other Party (and its Affiliates) for any Losses, proceedings, actions and third party claims arising in connection with the MSA, whether based upon an action or claim in contract, tort (including negligence), misrepresentation, equity or otherwise (including any action or claim arising from the acts or omissions of the liable Party (or, as the case may be, its Affiliate)) shall not exceed in aggregate an amount equal to the Charges for Services paid to MSI under MSA during the six month period immediately preceding the most recent event (of if such event occurs in the first six months of the Contract Term, the amount estimated to be paid in the first six months of the Contract Term).

b) The limitation described in Clause (a) above will not apply to (i) MSI's and MMVD's obligations under Confidentiality or Infringement Indemnity or (ii) MMVD's non-performance of its payment obligations for Services provided or for termination or related charges pursuant to MSA.

c) Each Party has a duty to mitigate the damages and any amounts payable under an indemnity that would otherwise be recoverable from the other Party pursuant to MSA by taking appropriate and commercially reasonable actions to reduce or limit the amount of such damages or amounts.

d) The provision of Service Level penalty will constitute MMVD's key remedy for the corresponding Service Level Default.

14.2.   Limitation on Category of Liability

a) [Subject to Clause (b) below] in no event will the measure of damages payable by either Party (or any of its Affiliates) include, nor will either Party (or any of its Affiliates) be liable for (i) any indirect or consequential loss or damage, or (ii) business interruption, loss of profits, loss of production, loss of savings, loss of competitive advantage or loss of goodwill (in each case, whether such loss or damage is direct or indirect), arising from or related to MSA, regardless of the type of claim, whether in contract, tort (including negligence), misrepresentation, strict liability or other legal or equitable theory, whether or not foreseeable, and regardless of cause of such damages even if Party has been advised of (or aware of) the possibility of such damages in advance.

b) The limitation set out in Clause (a) above will not apply to the liability of the applicable Party to the extent such liability results from (i) MSI's breach of its obligations under confidentiality clause relating to Confidential Information or (ii) MMVD's non-

performance of its payment obligations for Services provided or for termination or related charges pursuant to the MSA.

14.3.   Contractual Limitation of Action

Neither Party may assert against the other Party any claim through mediation, arbitration or litigation for breach or non-performance in connection with MSA unless the asserting Party has given the other Party written notice of the claim within three years after the asserting Party first knew or reasonably should have known of the underlying facts giving rise to such claim.

14.4.   Recourse

Parties agree that they will look only to the corporate or firm assets of the other Party in connection with any liabilities hereunder and in no event will they have any claim against any shareholder, partner or holder of an ownership interest in other Party in connection with MSA.

14.5.   Insurance

a) Utmost care must be taken while implementing the system at any point to make sure that no damage occurs to the any asset of the MMVD.
b) Any damage shall be complete liability of the MSI. Such damages can be claimed by the MMVD and MSI is liable to pay for such damages and / or do good for the same.
c) Any damage to the infrastructure which is part of the Project such as MMVD, PWD, NHAI etc., hardware, software applications, any network hardware etc. shall also be sole responsibility of the MSI.
d) MSI shall have insurance with IRDA approved Insurance Company, valid for entire project period so as to protect itself and MMVD from any damages as detailed in Clause 9 under Administrative Aspects of Part IB of the RFP.

The MSI shall be liable for, and shall indemnify, defend and hold the MMVD, PWD, NHAI its officers, agents, and employees harmless from, any and all claims or damages to persons, data, or property by any reason.

14.6.   Allocation of Risks; Acknowledgements and Applicability of Limitations

Each Party acknowledges to the other that it understands the legal and economic ramifications of this Clause 14. Each Party acknowledges that (i) the Parties are sophisticated commercial enterprises with relatively equal bargaining power; (ii) the provisions of this Clause 14 constitute an essential element of MSA; (iii) such provisions, together with the indemnities, representations and warranties set out the bargained-for allocation of risk under MSA; (iv) such Party actively considered such provisions in determining the specific risks that it assumed in agreeing to its obligations under MSA and the price to be paid to MSI in consideration for its services under MSA; and (v) the Parties had meaningful choices with respect to such provisions, and such provisions are not unreasonably favourable to either Party. Each Party irrevocably accepts the limitations and exclusions contained in this Clause 14.

14.7.   Particular Liabilities

MSI undertakes to indemnify MMVD (the "Indemnified Party") from and against all Losses on account of bodily injury, death or damage to tangible personal property arising in favour of any person, corporation or other entity (including the Indemnified Party) attributable to the Indemnifying Party's negligence or wilful default in performance or non- performance under MSA.

15. FORCE MAJEURE

15.1.   Definition of Force Majeure

The MSI or the MMVD as the case may be, shall be entitled to suspend or excuse performance of its respective obligations under the MSA to the extent that such performance is impeded by an event of force majeure ('Force Majeure').

The MSI shall not be liable for forfeiture of its Performance Security, imposition of liquidated damages or termination for default, if and to the extent that it's delay in performance or other failure to perform its obligations under the MSA is the result of an event of Force Majeure. For purposes of this Clause, *"Force Majeure"* means an event beyond the "reasonable" control of the MSI, not involving the MSI's fault or negligence and not foreseeable. Such events may include Acts of God & acts of Government of India in their sovereign capacity.

15.2.   Force Majeure events

A Force Majeure event means any event or circumstance or a combination of events and circumstances referred to in this Clause, which:

1. is beyond the reasonable control of the affected Party;
2. such Party could not have prevented or reasonably overcome with the exercise of reasonable skill and care;
3. does not result from the negligence of such Party or the failure of such Party to perform its obligations under the MSA;
4. is of an incapacitating nature and prevents or causes a delay or impediment in performance; and
5. may be classified as all or any of the following events:

    Non-Political Events
    a. act of God, including earthquake, flood, inundation, landslide, pandemic, exceptionally adverse weather conditions, storm, tempest, hurricane, cyclone (except for normal monsoons), lightning, thunder, volcanic eruption, fire or other extreme atmospheric conditions;
    b. radioactive contamination or ionizing radiation or biological contamination except as may be attributable to the MSI's use of radiation or radio- activity or biologically contaminating material;
    c. a strike or strikes or other industrial action or blockade or embargo or any other form of civil disturbance (whether lawful or not), in each case affecting on a general basis the industry related to the affected Services and which is not attributable to any unreasonable action or inaction on the part of the MSI or any of its Subcontractors or suppliers and the settlement of which is beyond the reasonable control of all such persons.
    d. general strikes, lockouts, boycotts, labour disruptions or any other industrial disturbances as the case may be not arising on account of the acts or omissions of the MSI and which affect the timely implementation and continued operation of the Project; or
    e. any event or circumstances of a nature analogous to any of the foregoing.

    Political Events
    a. Change in Law, other than any Change in Law for which relief is provided under the MSA;
    b. expropriation or compulsory acquisition by the MMVD any material assets or rights of the MSI;
    c. unlawful or unauthorized revocation of, or refusal by MMVD, GoI or any of its agencies to renew or grant any clearance or Required Consents required by the MSI to

perform its obligations without valid cause, provided that such delay, modification, denial, refusal or revocation did not result from the MSI's inability or failure to comply with any condition relating to grant, maintenance or renewal of such Required Consents applied on a non-discriminatory basis;

d. any judgment or order of any court of competent jurisdiction or statutory authority in India made against the MSI in any proceedings for reasons other than failure of the MSI to comply with Applicable Laws or Required Consents or on account of breach thereof, or of any contract, or enforcement of the MSA or exercise of any of its rights under the MSA;

e. expropriation or compulsory acquisition by the MMVD of any material assets or rights of the MSI;

f. unlawful or unauthorized revocation of, or refusal by any authority other than the MMVD to renew or grant any Required Consents required by the MSI to perform its obligations without valid cause, provided that such delay, modification, denial, refusal or revocation did not result from the MSI's inability or failure to comply with any condition relating to grant, maintenance or renewal of such Required Consents applied on a non-discriminatory basis;

   i. any requisition of the Project by any other authority; or
   ii. any requisition of the Project by the MMVD;

g. For avoidance of doubt, suspension of the Project in accordance with the provisions of the MSA shall not be considered a requisition for the purposes of Force Majeure event.

Other Events

An act of war (whether declared or undeclared), hostilities, invasion, armed conflict or act of foreign enemy, blockade, embargo, prolonged riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage, for a continuous period exceeding seven (7) days.

6. For the avoidance of doubt, it is expressly clarified that the failure on the part of the MSI under the MSA to implement any disaster contingency planning and back-up and other data safeguards in accordance with the terms of the MSA against natural disaster, fire, sabotage or other similar occurrence shall not be deemed to be a Force Majeure event. For the avoidance of doubt, it is further clarified that any negligence in performance of Services which directly causes any breach of security like trespassing, theft, hacking aren't the forces of nature and hence wouldn't be qualified under the definition of "Force Majeure". In so far as applicable to the performance of Services, the MSI shall be solely responsible to complete the risk assessment and ensure implementation of adequate security hygiene, best practices, processes and technology to prevent any breach of security and any resulting liability therefrom (wherever applicable).

15.3.   Notification procedure for Force Majeure

1. The affected Party shall notify the other Party of a Force Majeure event within Fifteen (15) days of occurrence of such event. If the other Party disputes the claim for relief under Force Majeure, it shall give the claiming Party written notice of such dispute within thirty (30) days of such notice. Such dispute shall be dealt with in accordance with the dispute resolution mechanism in accordance with **Clause 22 under MSA.**

2. Upon cessation of the situation which led the Party claiming Force Majeure, the claiming Party shall within Fifteen (15) days hereof notify the other Party in writing of the cessation and the Parties shall as soon as practicable thereafter continue performance of all obligations under the MSA.

3. MMVD shall study the submission of the MSI and inform whether the situation can be qualified one of Force Majeure. Unless otherwise directed by the MMVD in writing, the MSI shall continue to perform its obligations under the MSA as far as it is reasonably practical, and shall seek all reasonable alternative means for performance of services not prevented by the existence of a Force Majeure event.

15.4.   Terms of Payment

Upon occurrence of a Force Majeure Event after the Effective Date, the costs incurred and attributable to such event and directly relating to the Project ('Force Majeure Costs') shall be allocated and paid as follows:

1. Upon occurrence of a Non-Political Event, the Parties shall bear their respective Force Majeure Costs and neither Party shall be required to pay to other Party any costs thereof. For the avoidance of doubt, Force Majeure Costs may include interest payments on debt, operation and maintenance expenses, any increase in the cost of the Services on account of inflation and all other costs directly attributable to the Force Majeure Event.
2. Upon occurrence of a Political Event or any other event, the Parties shall bear their respective Force Majeure Costs and neither Party shall be required to pay to other Party any costs thereof, unless explicitly agreed by the MMVD in writing based on reasonable explanation provided by the other party, which shall be binding on both parties.
3. Save and except as expressly provided in this Clause, neither Party shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, costs, expense, claims, demands and proceedings relating to or arising out of occurrence or existence of any Force Majeure Event or exercise of any right pursuant hereof.

15.5.   Consultation and duty to mitigate

Except as otherwise provided in this Clause, the affected Party shall, at its own cost, take all steps reasonably required to remedy and mitigate the effects of the Force Majeure event and restore its ability to perform its obligations under the MSA as soon as reasonably practicable. The Parties shall consult with each other to determine the reasonable measures to be implemented to minimize the losses of each Party resulting from the Force Majeure event. The affected Party shall keep the other Parties informed of its efforts to remedy the effect of the Force Majeure event and shall make reasonable efforts to mitigate such event on a continuous basis and shall provide written notice of the resumption of performance hereunder. Nothing in this Clause will relieve MSI's obligations to provide Disaster Recovery Services for various infrastructure created for the project.

16. AUDIT, ACCESS AND REPORTING (Read with Clause 42.2 – Annexure II of MSA)

16.1.   Operational Audits

MSI will provide to such auditors (including third-party auditors and MMVD's internal audit staff) as MMVD may designate in writing, access to any facility at which the Services are being performed, to appropriate MSI management personnel and material subcontractors, and to the data and records maintained by MSI with respect to the Services: (i) for the purpose of performing audits and inspections of MMVD and its businesses; (ii) to verify the integrity of MMVD Data; (iii) to examine the systems that process, store, support and transmit such MMVD Data; and (iv) to confirm that the Services are being provided in accordance with the MSA, including the Service Levels. To the extent applicable to Services performed by MMVD, the scope of such audits may include, without limitation, (a) MSI's practices and procedures; (b) adequacy of general controls (e.g., organisational controls, input / output controls, system modification controls, processing controls, system design controls, and access controls) and security practices and procedures; and (c) the adequacy of disaster recovery and back-up procedures.

Any such audits will be conducted at MMVD's expense. However, any recommendations / course corrections or any other incidental costs as a result of such audit shall be borne by respective party.

16.2.   Financial Audits

In order to document the Services and the Charges paid or payable by MMVD under MSA, MSI will retain its standard records and supporting documentation for at least [three] years post contract period.

16.3.   Audit Conferences

a) Following any audit or examination, MMVD will conduct (in the case of an internal audit), or request its external auditors or examiners to conduct, an exit conference with MSI to obtain factual concurrence with issues identified in review and provide MSI a report copy.
b) The Parties will meet to review each audit report promptly after the issuance thereof and mutually agree upon the appropriate manner, if any, in which to respond to the changes suggested by the audit report. MSI will respond promptly to audit reports in writing, but in no event more than 30 days from receipt of each report.

17. CONFIDENTIALITY; SAFEGUARDING OF DATA

17.1.   Confidentiality

a) In connection with the MSA, each of the Parties has disclosed and may continue to disclose to the other Party information that relates to the disclosing Party's business operations, financial condition, citizens / applicants, products, services or technical knowledge. Except as otherwise specifically agreed in writing by the Parties, MSI and MMVD each agree that (i) all information communicated to it by the other and identified as confidential, whether before or after the Signing of Contract; (ii) all information identified as confidential to which it has access in connection with the Services, whether before or after the Signing of Contract; (iii) all information communicated to it that reasonably should have been understood by the receiving Party, because of confidentiality or similar descriptions, the circumstances of disclosure or the nature of the information itself, to be confidential to the disclosing Party; and (iv) the terms and conditions of the MSA (collectively, the "Confidential Information"), will be deemed to have been received in confidence and will be used only for purposes of the Project. The Parties acknowledge that third-party software may be subject to additional confidentiality restrictions imposed by the applicable vendor's licence or other agreement.
b) Each Party's Confidential Information will remain the property of that Party except as otherwise expressly provided in the MSA. Each of the Parties will use at least the same degree of care to safeguard and to prevent disclosing to third parties the Confidential Information of the other as it employs to avoid unauthorised disclosure or publication of its own information (or information of its customers) of a similar nature, and in any event, no less than reasonable care. Each Party may disclose relevant aspects of the other Party's Confidential Information to its employees, Affiliates, subcontractors and agents to the extent such disclosure is reasonably necessary for the performance of its obligations, or the enforcement of its rights, under the MSA; provided, however, that such Party will use reasonable efforts to ensure that such employees, Affiliates, subcontractors or agents comply with these confidentiality provisions. Each Party will be responsible for any improper disclosure of Confidential Information by such Party's employees, Affiliates, subcontractors or agents. A Party may reuse for its own purposes with third parties the terms and conditions of the MSA, provided that (i) such use in no way may be attributed to the other Party, the MSA or the relationship between MSI and MMVD and (ii) such use is not used in negotiations with the other Party or any of the other Party's Affiliates for any other contractual arrangement.
c) Neither Party will (i) make any use or copies of the Confidential Information of the other except as contemplated by the MSA; (ii) acquire any right in or assert any lien against the Confidential Information of the other; or (iii) sell, assign, lease or otherwise commercially

exploit the Confidential Information (or any derivative works thereof) of the other Party. Neither Party may withhold the Confidential Information of the other Party or refuse for any reason (including due to the other Party's actual or alleged breach of the MSA) to promptly return to the other Party its Confidential Information (including copies thereof) if requested to do so. Upon expiration or termination of the MSA and completion of a Party's obligations under the MSA, each Party will (except as otherwise provided in the MSA) return or destroy, as the other Party may direct, all documentation in any medium that contains or refers to the other Party's Confidential Information and retain no copies. Subject to the foregoing confidentiality obligations, either Party may retain copies of the Confidential Information of the other Party to the extent required for (i) in the case of MSI, compliance with applicable professional standards or quality assurance purposes and (ii) in the case of MMVD, its continuing operations or internal business purposes.

d) This Clause will not apply to any particular information that either Party can demonstrate (i) at the time of disclosure to it, it was in the public domain; (ii) after disclosure to it, is published or otherwise becomes part of the public domain through no fault of the receiving Party; (iii) was in the possession of the receiving Party at the time of disclosure to it and was not the subject of a pre-existing confidentiality obligation; (iv) was received after disclosure to it from a third party who had a lawful right to disclose such information (without corresponding confidentiality obligations) to it; or (v) was independently developed by the receiving Party without use of the Confidential Information of the disclosing Party.

e) In addition, a Party will not be considered to have breached its obligations under this Clause for disclosing Confidential Information of the other Party to the extent required to provide information under Right to Information' 2005 or, satisfy any legal requirement of a competent governmental or regulatory authority.

f) Nothing contained in this Clause will be construed as obligating a Party to disclose its Confidential Information to the other Party, or as granting to or conferring on a Party, expressly or impliedly, any rights or licence to the Confidential Information of other Party.

17.2.   Ownership of Data

a) As between the Parties, MMVD will be the sole and exclusive owner of MMVD Data.

b) MSI will utilise the MMVD Data solely for purposes of the Project and will not sell, assign, lease or otherwise commercially exploit the MMVD Data. MMVD Data will be deemed MMVD Confidential Information for purposes of above Clause of confidentiality. MSI is hereby authorised to have access to and to make use of the MMVD Data during the Contract Term to the extent reasonably necessary or appropriate for the performance by MSI of its obligations hereunder.

c) MSI will observe MMVD's pre-existing written procedures and safeguards against the destruction, loss or alteration of MMVD Data in MSI's possession where they are provided to MSI in advance.

d) To the extent such procedures have not been established by MMVD, MSI will maintain safeguards no less rigorous than those maintained by MSI for its own similar data. MMVD will be responsible for the sufficiency of such policies and safeguards. With respect to the MMVD Data in the possession of MSI, MSI will be responsible for compliance with such procedures and safeguards. MMVD may establish backup security for the MMVD Data and keep backup data and data files in its possession if it so chooses.

e) MSI may retain archival copies of MMVD Data as reasonably necessary to verify MSI's compliance with the MSA. MSI will identify such data to MMVD at the time such archival copies are withheld.

f) Any document, other than the Contract and enumerated in the Contract shall remain the property of MMVD and shall be returned (in all copies) to MMVD on completion of the MSI's performance under the Contract, if so required by the MMVD.

17.3.   Unauthorized Acts

Each Party will:

a) notify the other Party promptly of any material unauthorised possession, use or knowledge, or attempt thereof, of the other Party's Confidential Information by any Person that may become known to such Party;

b) promptly furnish to the other Party details of the unauthorised possession, use or knowledge, or attempt thereof, and use reasonable efforts to assist the other Party in investigating or preventing the recurrence of any unauthorised possession, use or knowledge, or attempt thereof, of Confidential Information;

c) use reasonable efforts to cooperate with the other Party in any litigation and investigation against third parties deemed necessary by other Party, to protect its proprietary rights; and

d) Promptly use reasonable efforts to prevent a recurrence of any such unauthorised possession, use or knowledge of Confidential Information.

e) Party whose Confidential Information is the subject of such activity will reimburse any out-of-pocket expenses incurred by the other Party as a result of compliance with this Clause.

18. PROPRIETARY RIGHTS

1. As between the Parties, MMVD will be the sole and exclusive owner of the Software owned by MMVD as well as deployed by MSI as part of this project. Any derivative works, modifications, enhancements or improvements to the Software (or its related documentation) developed by MSI will be considered "Work Product".

2. MMVD will have a perpetual, non-transferrable, non-exclusive paid-up right and licence to use the software deployed by the MSI as well as copy, modify and prepare derivative works of the "Work Product", subject to any restrictions of any third-party materials embodied in the Work Product and disclosed to MMVD. MMVD's rights in the Work Product will be for purposes of MMVD's internal business only and, to the extent any Work Product contains MSI Confidential Information, will be subject to Clause related to confidentiality. All other rights (including all other intellectual property rights) in the Work Product will remain with or are hereby assigned to MSI.

3. Each Party agrees to execute any appropriate documents and take any other appropriate actions reasonably requested by the other Party to give effect to the provisions of this Clause.

18.1.   Proprietary Items

In the course of performing its obligations under the MSA, MSI may use products, materials, tools and methodologies that are proprietary to MSI or to third parties (collectively, "Proprietary Items"). As between MMVD and MSI, Proprietary Items will be deemed Confidential Information of MSI. MMVD will neither have nor obtain any rights in such Proprietary Items (or in any modifications or enhancements thereto) other than (i) to use them as solely for purposes of performing its responsibilities under the MSA; (ii) pursuant to MSI's standard licence for such Proprietary Items or, in the case of Proprietary Items owned by third parties, pursuant to terms acceptable to the applicable third party. If Proprietary Items are made available to MMVD under (i) above, they will be made available on an "as is" basis and, to the extent permitted by applicable law, without express or implied warranties of any kind. Proprietary Items made available under (ii) above will be subject to the terms of the applicable licence.

18.2.   Knowledge Capital

Nothing in the MSA will preclude MSI from acquiring, marketing, developing, distributing, licensing or using for itself or others, services, products or technology that are the same as or similar to those provided to MMVD by MSI pursuant to the MSA. Furthermore, MSI will continue to be free to use the general knowledge, skills and experience and any ideas, concepts, know-how and techniques that are acquired or used in the course of providing the Services. This Clause will not diminish MSI's obligations regarding Confidential Information.

19. WARRANTY

1. The MSI warrants that the Project, including all the system(s) and other Services provided, shall be free from any defect or deficiency in the material, design, engineering, and performance / workmanship that prevent the Project and / or any of its system(s) from fulfilling the technical requirements or that limit in a material fashion the performance, reliability, or extensibility of the Project and / or any of its system(s) as per performance guarantee / warranty period which is entire contract period.

2. If during the contract period any defect or deficiency is found in the material, design and performance / workmanship of the Project and other Services provided by MSI, the MSI shall promptly, after approval from MMVD, and at the MSI's sole cost repair, replace, or otherwise make good such default, defect or deficiency as well as any damage to Project caused by such default, defect or deficiency.

3. The MMVD reserves the right to get the defect or deficiency corrected or replacement carried out, in case MSI refuses to do the same, at the sole cost of MSI.

4. If the Project or any of its System cannot be used by reason of such default, defect or deficiency and/or making good of such default, defect or deficiency, the contract period for the Project shall be extended by a period equal to the period during which the Project or any of its system could not be used by the MMVD because of such defect and/or making good of such default, defect or deficiency and / or MMVD reserves right to recover such cost as part of the SLA penalties, Liquidated Damages, from the payment due to the MSI or from the Performance Security etc. as it deems fit.

20. LIQUIDATED DAMAGES

1. In event of delay or any gross negligence, for causes attributable to the MSI, in meeting the deliverables or milestone, the MMVD shall be entitled at its option to recover from the MSI as agreed, liquidated damages, a sum of 0.5% of the value of the deliverable or milestone which suffered delay or gross negligence for each completed week or part thereof subject to a limit of 10% of the value of delayed deliverables or milestone.

2. In the event of Liquidated Damages exceeding this cap, the MMVD has a right to invoke "Termination Clause"

3. This right to claim any liquidated damages shall be without prejudice to other rights and remedies available to MMVD under the contract and law.

4. MMVD may claim liquidated damages in addition to the penalties as defined in the SLA under this project.

5. The activities pursuant to termination of the contract shall be in-line with **Annexure I** of the MSA.

6. The MMVD reserves the right to recover the liquidated damages by adjusting the same from the payments due to MSI or by invoking the Performance Bank Guarantee which shall immediately be replenished to original amount within 15 days upon invocation.

21. CORRUPT OR FRAUDULENT PRACTICES and CONFLICT OF INTEREST

1. The terms and conditions of Clause 20 and 21 under "Instructions to Bidders" of the Part IA of the RFP document shall be applicable throughout the contract period.

22. GOVERNING LAW AND DISPUTE RESOLUTION

22.1.　　Informal Dispute Resolution

a) Prior to the initiation of formal dispute resolution procedures, the Parties will first attempt to resolve any dispute, controversy or claim arising under or in connection with the MSA (a "Dispute") informally, as follows:

i) First, the MMVD and the MSI will meet as often, for a duration and as promptly as the Parties deem necessary to discuss the Dispute and negotiate in good faith in an effort to resolve the Dispute.

ii) If the MMVD and MSI are unable to resolve the Dispute within 30 days after the referral of the Dispute to them, the Dispute will be referred to the Higher Management Committee. The Higher Management Committee may comprise of the Additional Chief Secretary / Principal Secretary, Transport Commissioner, along with a concerned Joint Secretary / Deputy Secretary and Deputy Transport Commissioner as the member Secretary. The Higher Management Committee will use reasonable efforts to resolve such Dispute or, if appropriate, to negotiate a modification or amendment to the MSA. The Higher Management Committee will meet as often, for a duration and as promptly as the Parties reasonably deem necessary to discuss the Dispute and negotiate in good faith in an effort to resolve the Dispute.

iii) If the Higher Management Committee is unable to resolve the Dispute within 30 days after such referral, then each of MSI and MMVD will appoint one senior executive who is not involved on a day-to-day basis with the subject matter of the MSA. Such senior executives will meet as often, for a duration and as promptly as the Parties reasonably deem necessary to discuss the Dispute and negotiate in good faith in an effort to resolve the Dispute.

iv) During the course of such discussions, all reasonable requests made by one Party to another for non-privileged information, reasonably related to the Dispute, will be honoured in order that each of the Parties may be fully apprised of the other's position. The specific format for such discussions will be left to the discretion of the Parties but may include the preparation of agreed-upon statements of fact or written statements of position.

b) Formal proceedings for resolution of Dispute may not be commenced until earlier of:

i) the good faith determination by the appointed senior executives that amicable resolution through continued negotiation of the matter does not appear likely; or

ii) 30 days following the date that the Dispute was first referred to the appointed senior executives.

22.2.　　Alternative Dispute Resolution

If a Dispute cannot be resolved as provided in above Clause, the Parties will cooperate in good faith to utilise mutually agreed upon alternative dispute resolution techniques prior to resorting to litigation.

a) The Adjudicator nominated to consider a dispute referred to him shall be selected on a strictly rotational basis from the relevant panel of experts appointed in accordance with the following:

i) there shall be panels of experts in respect of Intelligent Traffic Management System, enforcement system, implementation and operational and maintenance matters (the "Panel"). All the experts on the panel shall be wholly independent of the MSI, the MMVD, the relevant Sub-Contractor and any of the major competitors of the MSI or relevant Sub-Contractor;

ii) the Panel shall be comprised of 3 experts who shall be appointed jointly by the MSI and MMVD. Such appointments shall take place within 30 days of the date of this Contract,

iii) if any member of a panel resigns during the term of the Contract, a replacement expert shall be appointed by the MSI and the MMVD as soon as practicable;

iv) if the MMVD and the MSI are unable to agree on the identity of the experts to be appointed to the panel, both parties with mutual consent shall appoint such expert within 30 days of any application for such appointment by either party.

b) Within 7 days of appointment in relation to a particular dispute, the Adjudicator shall require the parties to submit in writing their respective arguments. The Adjudicator shall, in his absolute discretion, consider whether a hearing is necessary in order to resolve the dispute.

c) In any event, the Adjudicator shall provide to both parties his written decision on the dispute, within 30 days of appointment (or such other period as the parties may agree after the reference, or 45 days from the date of reference if the party which referred the dispute agrees). The Adjudicator shall give reasons for his decision. Unless and until revised, cancelled or varied by the Arbitrator, the Adjudicator's decision shall be binding on both parties who shall forthwith give effect to the decision.

d) The Adjudicator's costs of any reference shall be borne as the Adjudicator shall specify or, in default, equally by the parties. Each party shall bear its own costs arising out of the reference, including legal costs and the costs and expenses of any witnesses.

e) The Adjudicator shall be deemed not to be an arbitrator but shall render his decision as an expert and the provisions of the Indian Arbitration and Conciliation Act, 1996 and the law relating to arbitration shall not apply to the Adjudicator or his determination or the procedure by which he reached his determination.

f) The Adjudicator shall act impartially and may take the initiative in ascertaining the facts and the law. The Adjudicator shall have the power to open up, review and revise any opinion, certificate, instruction, determination or decision of whatever nature given or made under this Contract.

g) All information, data or documentation disclosed or delivered by a party to the Adjudicator in consequence of or in connection with his appointment as Adjudicator shall be treated as confidential. The Adjudicator shall not, save as permitted by Clause of Confidentiality (clause 17), disclose to any person or company any such information, data or documentation and all such information, data or documentation shall remain the property of the party disclosing or delivering the same and all copies shall be returned to such party on completion of the Adjudicator's work.

h) The Adjudicator is not liable for anything done or omitted in the discharge or purported discharge of his functions as Adjudicator unless the act or omission is in bad faith. Any employee or agent of the Adjudicator is similarly protected from liability.

i) either party is dissatisfied with or otherwise wishes to challenge the Adjudicator's decision made in accordance, then either party may (within 30 days of receipt of the Adjudicator's decision, where appropriate), notify the other party of its intention to refer the dispute to arbitration. Such notification shall invite the other party to concur in the appointment of a sole arbitrator who shall be a solicitor, barrister or arbitrator recognised by the Indian Judiciary System / Government of not less than 10 years' standing. If the parties are unable within 14 days to agree the identity of the Arbitrator either party may request the Bombay Bench of the Bombay High Court to make the appointment. The provisions of the Arbitration and Conciliation Act, 1996 shall be applicable and the award made there under shall be final and binding upon the parties hereto, subject to legal remedies available under the law. Such differences shall be deemed to be a submission to arbitration under the Indian Arbitration and Conciliation Act, 1996, or of any modifications, Rules or re-enactments thereof. The Arbitration proceedings shall be held at Mumbai, Maharashtra, India. Any legal dispute shall come under the sole jurisdiction of – Mumbai, Maharashtra State.

j) The Arbitrator shall have the power to open up, review and revise any opinion, certificate, instruction, determination or decision of whatever nature given or made under this Contract, to vary or cancel the decision of the Adjudicator and, where appropriate, to order financial compensation to be paid by one party to the other. The arbitration shall take place in Mumbai only.

k) Arbitrator shall in his absolute discretion, make such procedural directions such as ordering the parties to provide written submissions within such time period as he considers appropriate and/or to attend such hearings as he deems necessary.

l) The Arbitrator shall deliver his decision on any matter referred to him within 30 days of concluding any hearings which may have been held in connection with the matter and in any event within 3 months (or such other period as the parties may agree) of his appointment. The Arbitrator's decision shall be in writing and shall state his reasons for his decision. The decision of the Arbitrator shall be final and binding on both parties. The costs of the arbitration will be the discretion of the Arbitrator.

m) The parties shall continue to comply with, observe and perform all their obligations hereunder regardless of the nature of the dispute and notwithstanding the referral of the dispute for resolution under this Clause and shall give effect forthwith to every decision of the Adjudicator and the Arbitrator delivered under this Clause.

22.3.   Exceptions to Dispute Resolution Procedure

The provisions of both Clauses above will not be construed to prevent a Party from:
a) seeking a temporary order or injunctive or other equitable relief with respect to a breach (or attempted breach) of the MSA by the other Party; or
b) instituting litigation or other formal proceedings to the extent necessary (i) to avoid the expiration of any applicable limitations period or (ii) to preserve a superior position with respect to other creditors (iii) to recover any undisputed charges owed to MSI when due under the MSA."

22.4.   Jurisdiction.

Subject to Clauses above, the Court at Bombay, India shall have exclusive jurisdiction to settle any Dispute, including a dispute regarding the existence, validity or termination of the MSA or the consequences of its nullity. The parties agree that the Court of Bombay, India are the most appropriate and convenient courts to settle any Dispute and, accordingly, that they will not argue to the contrary.

23. PERSONNEL

1. The personnel assigned by MSI to perform the Services shall be employees of MSI or its subcontractor(s) as per requirements defined in the RFP document, and under no circumstances shall such personnel be considered employees of MMVD or any other authorities of MMVD. The MSI shall have the sole responsibility for the supervision and control of the personnel deployed in the Project and for payment of such personnel's compensation, including salary, deducting of income taxes and social security taxes, worker's compensation, employee and disability benefits and the like and shall be responsible for all obligations of an employer subject to Applicable Law as per requirements set out in the RFP and terms and conditions of the MSA.

2. The MSI shall ensure that sufficient MSI personnel are deployed to perform the Services and that such personnel have appropriate qualifications to perform the Services. MMVD shall have the right to direct the removal or replacement of any MSI personnel performing work under the MSA based on bonafide reasons. MSI shall be bound to substitute of such personnel as per directions of MMVD. MSI shall not remove such personnel from the Project without the prior written consent of MMVD as per details in the RFP and terms

and conditions of the MSA.

3. Except as stated in this Clause, nothing in the MSA or the SLA shall limit the ability of MSI to freely assign or reassign its employees; provided that MSI shall be responsible, at its expense, for transferring all appropriate knowledge from personnel being replaced to their replacements. MMVD shall have the right to review and approve MSI's plan for any such knowledge transfer. MSI shall maintain the same or higher standards for skills and professionalism among replacement personnel as in personnel being replaced.

4. Each Party shall be responsible for the performance of all its obligations under the MSA or the SLA as the case may be and shall be liable for the acts and omissions of its employees and agents in connection therewith.

5. All responsibilities towards personnel working on the project from the MSI, shall in no way be borne by MMVD. This includes, but not limited to, compensation, medical reimbursement, any medical emergency, etc. However, in case of any exigencies, the MMVD shall provide reasonable support, to the extent deemed appropriate by the MMVD.

6. Neither Party shall solicit for employment or knowingly hire an employee of the other Party with whom such Party has contact pursuant to project engagements under the MSA. This restriction shall not apply to employees of either Party responding to advertisements in job fairs or news media circulated to the general public.

7. This clause shall be read with Clause 2 under "Project Activities" in the Part I of the RFP.

24. INDEPENDENT CONTRACTOR

Nothing in the MSA shall be construed as establishing or implying any partnership or joint venture between the Parties to the MSA and, except as expressly stated in the MSA, nothing in the MSA shall be deemed to constitute any Party as the agent of the other Party or authorizes either Party to:

a. incur any expenses on behalf of the other Party;
b. enter into any engagement or make any representation or warranty on behalf of the other Party;
c. pledge the credit of or otherwise bind or oblige the other Party; or
d. Commit the other Party in any way whatsoever without in each case obtaining the other Party's prior written consent.

25. SUB-CONTRACTORS

MSI shall not subcontract any work related to Project without prior written consent of MMVD strictly as per terms and requirements set out on the RFP document. It is clarified that the MSI shall be the principal employer for all claims arising from the liabilities statutory or otherwise, concerning the sub-contractors. The MSI undertakes to indemnify the MMVD from any claims on the grounds stated hereinabove.

26. ASSIGNMENT

1. All terms and provisions of the MSA shall be binding on the MSI and MMVD and their respective successors and permitted assigns.
2. Subject to the provisions of the MSA, the MSI shall not be permitted to assign its rights and obligations under the MSA to any third party.
3. The MMVD reserves the right to assign all or any part of the MSA and Annexures, and the MSI shall be a party to such assignment, to any third party contracted to provide services to MMVD.

27. TRADEMARKS, PUBLICITY

1. Neither Party can use the trademarks/ Copyrights / Patents / any other intellectual property, of the other Party without the prior written consent of the other Party.
2. Except as required by law or the rules and regulations, MSI shall not publish or permit to be published either alone or in conjunction with any other person any press release, information, article, photograph, illustration or any other material of whatever kind relating to the MSA or the business of the Parties without prior reference to and approval in writing from the MMVD.

28. SERVICE LEVEL AGREEMENT

1. Service Level Agreements shall govern the provision of the contracted professional services of the MSI to the MMVD as per the performance criteria & expectations laid down in the RFP. SLA shall ensure establishment of the relevant performance measurement criteria & definition of the availability expectations;
2. The purpose of SLA is to clearly define the performance levels for the MSI for the duration of the MSA. The MSI has to comply with Service Level requirements to ensure adherence to project timelines, quality and availability of services, throughout the period of this contract i.e. during implementation phase and Operations and Maintenance Phase.
3. Each of the service parameters has an associate level of performance, expected to be met by the MSI. There is also an associated penalty mentioned for not meeting the performance level.
4. Detailed Service Level Parameters and required performance levels are as defined in the **Annexure Set IV – Annexure 3** of the Part I of RFP document.
5. The MSI shall develop / supply appropriate software / automated tools including the SLA Management System, Incident / Ticket Management system to monitor the performance indicators and all the SLAs Parameters as per requirements of the RFP document.
6. Power to impose penalties shall be at sole discretion of MMVD and binding on the MSI.
7. Service levels are defined along with the penalty based on the business loss due to not meeting the service level and considering the cost of operations. Service levels shall also include breach levels beyond which the agreement is liable for termination.
8. The MMVD anticipates that the SLA may need to be re-evaluated and modified to account for changes in work environment and technology from time to time. The MMVD reserves the right to revise the terms of the SLA on an annual basis if it anticipates any revisions or modifications.

29. PRINCIPAL CONTACTS

1. The MMVD and the MSI shall nominate a senior staff member to be the principal contact regarding operation of the MSA.
2. In the event that there is any change in the listed contacts, the same shall be communicated and updated prior to such change occurring.
3. The Single Point of Contact ("POC") for the MSI and MMVD shall be as mentioned below and shall be available beyond working hours as per requirement / need of the project.

Name	Title	Location	Telephone
MMVD	**Authorized Representative, MMVD**	<***>	<***>
MSI	<***>	<***>	<***>

30. NOTICES

1. Any notice or other document which may be given by either Party under the MSA or under the SLA shall be given in writing, in person or by pre-paid recorded delivery post, email or by facsimile transmission.
2. In relation to a notice given under the MSA, any such notice or other document shall be addressed to the other Party's principal or registered office address as set out below:
3. In relation to a notice given under the MSA, a Party shall specify the Parties' address for service of notices.

MMVD	MSI
<Insert Address>	<Insert Address>
Tel:	Tel:
Fax:	Fax:
Email:	Email:
Contact:	Contact:
With a copy to:	With a copy to:

4. Any such notice or other document shall be deemed to have been given to the other Party (or, if relevant, its relevant associated company) when delivered (if delivered in person) if delivered between the hours of 9.00 am and 5.00 pm at the address of the other Party set forth above or if sent by fax, provided the copy fax is accompanied by a confirmation of transmission, or on the next working day thereafter if delivered outside such hours, and 7 days from the date of posting (if by letter).
5. Either Party to the MSA may change its address, telephone number, facsimile number and nominated contact for notification purposes by giving the other reasonable prior written notice of the new information and its effective date.

31. VARIATIONS AND FURTHER ASSURANCE

1. No amendment, variation or other change to the MSA shall be valid unless authorized mutually by both the parties.
2. Such amendment shall be made in writing and signed by the duly authorized representatives of the Parties to the MSA.
3. Each Party to the MSA agrees to enter into or execute, without limitation, whatever other agreement, document, consent and waiver and to do all other things which shall or may be reasonably required to complete and deliver the obligations set out in the MSA.

32. SEVERABILITY AND WAIVER

1. If any provision of the MSA, or any part thereof, shall be found by any court or administrative body of competent jurisdiction to be illegal, invalid or unenforceable the illegality, invalidity or unenforceability of such provision or part provision shall not affect the other provisions of the MSA or the remainder of the provisions in question which shall remain in full force and effect.
2. The relevant Parties shall negotiate in good faith in order to agree to substitute for any illegal, invalid or unenforceable provision a valid and enforceable provision which achieves to the greatest extent possible the economic, legal and commercial objectives of the illegal, invalid or unenforceable provision or part provision.
3. No failure to exercise or enforce and no delay in exercising or enforcing on the part of either Party to the MSA of any right, remedy or provision of the MSA shall operate as a waiver of such right, remedy or provision in any future application nor shall any single or partial exercise or enforcement of any right, remedy or provision preclude any other or further exercise or enforcement of such right, remedy or provision or the exercise or enforcement of any other right, remedy or provision.

33. COMPLIANCE WITH APPLICABLE LAW

Each Party to the MSA accepts that its individual conduct shall (to the extent applicable to its business like the MSI as a service provider) at all times comply with all laws, rules and regulations of government and other bodies prevailing in Maharashtra.

34. PROFESSIONAL FEES

All expenses incurred by or on behalf of each Party to the MSA, including all fees of agents, legal advisors, accountants and actuaries employed by either of the Parties in connection with the negotiation, preparation and execution of the MSA shall be borne solely by the Party which incurred them unless otherwise specified explicitly.

35. ETHICS

The MSI represents, warrants and covenants that it has given no commitments, payments, gifts, kickbacks, lavish or expensive entertainment, or other things of value to any employee or agent of MMVD in connection with the MSA and acknowledges that the giving of any such payment, gifts, entertainment, or other things of value is strictly in violation of MMVD standard policies (as detailed in the RFP under Corrupt and Fraudulent Practices) and may result in termination of the MSA.

36. ENTIRE AGREEMENT

The MSA with all schedules and annexures appended thereto and the contents and specifications of the RFP constitute the entire agreement between the Parties with respect to their subject matter, and as to all other representations, understandings or agreements which are not fully expressed herein, provided that nothing in this Clause shall be interpreted so as to exclude any liability in respect of fraudulent misrepresentation.

The documents including but not limited to following shall be deemed to form and be read and construed as part of the MSA viz:

a. RFP (along with all Annexures) No:_____issued on _____
b. Corrigendum No_____ issued on_____ _
c. Clarifications to bidders queries issued on_____ _
d. Technical Bid submitted by Successful Bidder on_____and agreed by MMVD
e. Commercial Bid submitted by the Successful Bidder on_____and agreed by MMVD
f. Non-Disclosure Agreement signed between MMVD and MSI dated _____
g. Tripartite agreement if any, signed with ISP, CSP etc.

37. COOPERATION; CONSENTS

Each Party will cooperate with the other Party in good faith in the performance of its respective activities contemplated by MSA through, among other things, making available, as reasonably requested by the other Party, such management decisions, information, approvals and acceptances in order that the provision of the Services under MSA may be accomplished in a proper, timely and efficient manner. Where agreement, approval, acceptance or consent of either Party is required by any provision of MSA, such action will not be unreasonably withheld or delayed.

38. INCONSISTENCIES

To the extent that the provisions of the MSA and of any other Annexure hereto are in any respect inconsistent, the provisions of MSA will govern and control, provided that with respect to the description of the Services, the Annexure hereto will govern and control. In case of any dispute with this regards, MMVD's decision shall be final and binding.

39. COUNTERPARTS

MSA may be executed in two counterparts, each of which will be deemed to be an original, but all of which together will constitute one agreement binding on the Parties, notwithstanding that both Parties are not signatories to the original or the same counterpart.

40. SURVIVAL

Termination or expiration of the Term shall:
   a. not relieve the MSI or the MMVD, as the case may be, of any obligations hereunder which expressly or by implication survive hereof; and
   b. except as otherwise provided in any provision of MSA 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 expiration or arising out of such termination or expiration.
   c. All obligations surviving termination or expiration of the Term shall cease on termination or expiration of the Term, as the case may be.

41. DOCUMENT HISTORY

Any and all revisions made to the MSA shall be listed in chronological order as per the format set out below and a copy of the same shall be provided to the Parties:

		Description of changes	Reviewed/ Approved by
<***>	<***>	<***>	

IN WITNESS WHEREOF the Parties have by duly authorized Representatives set their respective hands and seal on the date first above written

In the presence of:

WITNESSES:

Signed by: Signed by:
(Name and designation)   (Name and designation)
For and on behalf of MMVD   For and on behalf of MSI
(FIRST PARTY)   (SECOND PARTY)

42. ANNEXURE

42.1.   Annexure I: Exit Management

(1) PURPOSE

1. Provisions under this clause shall apply on expiry or termination of the MSA.
2. In the case of termination of the Project Implementation and/or Operation and Management, the Exit management shall be applicable.

(2) TRANSFER OF ASSETS

1. MMVD shall be entitled to serve notice in writing on the MSI at any time during the exit management period (minimum of 60 days) as detailed hereinabove requiring the MSI and/or its sub-contractors to provide the MMVD with a complete and up to date list of the Assets (hard as well as soft assets) within 30 days of such notice.
2. MMVD shall then be entitled to serve notice in writing on the MSI at any time prior to the date, that is 30 days prior to the end of the exit management period, requiring the MSI to transfer all the assets to MMVD as per conditions defined in clause 12.2 of this MSA, which are not already in the name of MMVD.
3. In case of contract being terminated by MMVD, MMVD reserves right to ask MSI to continue running project operations for a maximum period of 6 months from date of termination order. The payment of such period shall be made as per original payment terms and conditions defined in the MSA.
4. **Upon service of a notice the following provisions shall apply:**
   a. cease all further work as instructed by the MMVD in the Termination Notice and the MSI shall carry out works for the sole purpose of securing, preserving and protecting that part of the Works already Executed and any work required to leave the Project Sites and the Works in a clean and safe condition as directed by MMVD;
   b. repatriate the MSI 's and sub-bidder's personnel from any part of the Project Site and the Works;
   c. in the event, if the Assets to be transferred are mortgaged to any financial institutions by the MSI, the MSI shall ensure that all such liens and liabilities have been cleared beyond doubt, prior to such transfer.
   d. Transfer all Annual Maintenance Contract, Insurance, IP rights, hardware, software license and any other licenses after clearing all liens and liabilities on any financial institute, if any. All documents regarding the discharge of such lien and liabilities shall be furnished to the MMVD.
   e. All risk and title to the Assets to be transferred / to be purchased by the MMVD shall be transferred to MMVD, as on the last day of the exit management period.
   f. MMVD shall pay to the MSI on the last day of the exit management period the payment due to MSI as per quoted rates on pro rata basis considering SLA penalties and liquidated damages, if any.
   g. ensure that it and those it is contractually or otherwise responsible for, vacate the Project Site;
   h. promptly and in an orderly manner deliver to MMVD all documents relating to the project which are for the time being under the control of the MSI;

5. Payment to the outgoing MSI shall be made to the tune of last set of completed services / deliverables, subject to SLA requirements.
6. The outgoing MSI shall pass on to MMVD and / or to Replacement MSI, the subsisting rights in any leased assets / licensed products on terms not less favourable to MMVD / Replacement MSI, than that enjoyed by the outgoing MSI, as directed by MMVD.

(3) COOPERATION AND PROVISION OF INFORMATION

During the exit management period:
1. The MSI shall allow MMVD access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable the MMVD to assess the existing services being delivered;
2. promptly on reasonable request by the MMVD, the MSI shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with the MSA relating to any material aspect of the services (whether provided by the MSI or sub-contractors appointed by the MSI). The MMVD shall be entitled to copy of all such information. Such information shall include details pertaining to the services rendered and other performance data. The MSI shall permit the MMVD to have reasonable access to its employees and facilities as reasonably required by the MMVD to understand the methods of delivery of the services employed by the MSI and to assist appropriate knowledge transfer.

(4) CONFIDENTIAL INFORMATION, SECURITY AND DATA

The MSI shall promptly on the commencement of the exit management period, supply to the MMVD or its nominated MSI the following:

1. information relating to the current services rendered and citizens, customers and performance data relating to the performance of sub-contractors in relation to the services;
2. documentation relating to OEM, vendors, sub-contractors;
3. documentation relating to Project's Intellectual Property Rights;
4. documentation relating to the hardware, software, and other assets deployed along with all the maintenance, operations and calibration details;
5. all current and updated data as is reasonably required for purposes of MMVD transitioning the services to its Replacement MSI in a readily available format as directed by MMVD,
6. all other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable MMVD, or Replacement MSI to carry out with due diligence in order to transition the provision of the Services to MMVD or Replacement MSI (as the case may be)
7. all the data generated during the project

Before the expiry of the exit management period, the MSI shall deliver to the MMVD all new or up-dated materials from the categories as detailed above and shall not retain any copies thereof, except that the MSI shall be permitted to retain one copy of such materials for archival purposes only. Before the expiry of the exit management period, unless otherwise provided under the MSA, the MMVD shall deliver to the MSI all forms of MSI confidential information, which is in the possession or control of MMVD excluding the bid documents, contracts, letters, communication, deliverables by MSI, details about the project etc.). Decision of MMVD in this regard will be final and binding.

(5) GENERAL OBLIGATIONS OF THE MSI

The MSI shall provide all such information as may reasonably be necessary to effect seamless handover as practicable in the circumstances to the MMVD or Replacement MSI and which the MSI has in its possession or control at any time during the exit management period. For the purposes of this Annexure, anything in the possession or control of any MSI, associated entity, or sub-contractor is deemed to be in the possession or control of the MSI. The MSI shall commit adequate resources to comply with its obligations under Exit Management Annexure.

(6) EXIT MANAGEMENT PLAN

The MSI shall provide the MMVD with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the MSA as a whole and in relation to the Project Implementation, and the Operation, Maintenance and SLA Management.

1. A detailed program of the transfer process that could be used in conjunction with a Replacement MSI including details of the means to be used to;
   a. ensure continuing provision of services throughout the transfer process or until the cessation of the services and of management structure to be used during the transfer;
   b. plans for the communication with such of the MSI's sub-contractors, staff, suppliers, vendors, OEMS and any related third party as are necessary to avoid any material detrimental impact on the MMVD's operations as a result of undertaking the transfer;
   c. (if applicable) proposed arrangements for the segregation of the MSI's networks from the networks employed by MMVD and identification of specific security tasks necessary at termination;
2. Plans for provision of contingent support to MMVD, and Replacement MSI for a reasonable period after transfer.
3. In the event of termination or expiry of MSA, and Project Implementation, each Party shall comply with the Exit Management Plan. During the exit management period, the MSI shall use its best efforts to deliver the services.
4. This Exit Management plan shall be furnished in writing to the MMVD within 60 days from the date of signing of the MSA, and yearly thereafter.

42.2.   Annexure II: Audit, Access and Reporting

(1) AUDIT NOTICE AND TIMING

As soon as reasonably practicable after the Effective Date, the Parties shall use their best endeavour to agree to a timetable for routine audits during the Project Implementation Phase and the Operation and Maintenance Phase. Such timetable during the Implementation Phase and thereafter during the operation Phase, the MMVD or its nominated MSI shall conduct routine audits in accordance with such agreed timetable and shall not be required to give the MSI any further notice of carrying out such audits.

The MMVD may conduct non-timetabled audits at its own discretion if it reasonably believes that such non-timetabled audits are necessary as a result of an act of fraud by the MSI, a security violation, or breach of confidentiality obligations by the MSI, provided that the requirement for such an audit is notified in writing to the MSI, a reasonable prior period to the audit (taking into account the circumstances giving rise to the reasonable belief) stating details of reasons in a reasonable level for the requirement and the alleged facts on which the requirement is based. If the MSI considers that the non-timetabled audit was not appropriate, the matter shall be referred to the escalation procedure as set out in the Governance Schedule.

The frequency of audits shall be a (maximum) half yearly, provided always that the MMVD shall endeavour to conduct such audits with the lowest levels of inconvenience and disturbance practicable being caused to the MSI's operations of the project. Any such audit shall be conducted by adequate notice of 2 weeks to the MSI. MMVD shall ensure that any 3rd party agencies (except CAG) appointed to conduct the audit shall not be the competitor of MSI and shall be bound by confidentiality.

(2) ACCESS

The MSI shall provide to the MMVD access to employees, subcontractors, suppliers, vendors, OEMs, agents and third party facilities as detailed in the RFP, documents, records and systems reasonably required for audit and shall provide all such persons with routine assistance in connection with the audits and inspections. MMVD shall have the right to copy and retain copies of any relevant records. The MSI shall make every reasonable effort to co-operate with them.

(3) AUDIT RIGHTS

The MMVD shall have the right to audit and inspect suppliers, vendors, OEMs, agents and third party facilities (as detailed in the RFP), data centres applications, documents, records, procedures and systems relating to the provision of the services, but only to the extent that they relate to the provision of the services, as shall be reasonably necessary to verify:
1. The security, integrity and availability of all data processed, held or conveyed by the MSI on behalf of MMVD and documentation related thereto;
2. That the actual level of performance of the services is the same as specified in the SLA;
3. That the MSI has complied with the relevant technical standards, and has adequate internal controls in place; and
4. Compliance of the MSI with any other obligation under the MSA and SLA and as per RFP.
5. Security audit of the system shall be done once every year, the cost of which shall be borne by the MSI.
6. Audit rights shall not include access to (i) the MSI's profit margins or overheads, or (ii) any confidential information relating to the MSI' employees, or (iii) minutes of its internal Board or Board committee meetings including internal audit, or (iv) such other information of commercial-in-confidence nature which are not relevant to the Services associated with any obligation under the MSA.

(4) AUDIT RIGHTS OF SUB-CONTRACTORS, SUPPLIERS AND AGENTS

The MSI shall use reasonable endeavours to achieve audit and access provisions, with sub-contractors, suppliers and agents who supply labour, services, equipment or materials in respect of the services. The MSI shall inform the MMVD prior to concluding any sub- contract or supply agreement due to failure to achieve the same rights of audit or access.

REPORTING: The MSI shall provide quarterly reports to MMVD regarding any specific aspects of the Project and in context of the audit and access information as required by the MMVD from time to time.

(5) ACTION AND REVIEW

Any change or amendment to the systems and procedures of the MSI, or sub-contractors, where applicable, arising from the audit report shall be agreed within thirty (30) calendar days from the submission of the said report.

Any discrepancies identified by any audit, shall be immediately notified to the MMVD and the MSI Project Manager, MSI Project Director and / or POC who shall determine what action shall be taken in respect of such discrepancies in accordance with the terms of the MSA.

(6) TERMS OF PAYMENT

Apart from the required yearly system, security audits, for any other audits and inspections, the MMVD shall bear the cost. The terms of payment are exclusive of any costs of the MSI and the sub-contractor, for all reasonable assistance and information provided under the MSA, the Project Implementation, Operation and Management, SLA, by the MSI pursuant to this Annexure. The cost towards the same shall be borne by the MSI.

(7) RECORDS AND INFORMATION

For the purposes of audit in accordance with this Annexure, the MSI shall maintain true and accurate records in connection with the provision of the services and the MSI shall handover all the relevant records and documents upon the termination or expiry of the MSA.

42.3. Annexure III: Governance Schedule

(1) PURPOSE

The purpose of this Annexure is to:
   a. establish and maintain the formal and informal processes for managing the relationship between the MMVD and the MSI;
   b. define the principles that both Parties wish to follow to ensure delivery of the Services;
   c. ensure the continued alignment of the interests of the Parties;
   d. ensure that the relationship is maintained at the correct level within each Party;
   e. create the flexibility to revise and maintain the relationship and the MSA during the Term;
   f. set out the procedure for escalating disagreements; and
   g. enable contract administration and performance management.

(2) GOVERNANCE STRUCTURE:

1. **Project Managers**: The relationship under the MSA shall be managed by the Project Managers appointed by each Party, who shall provide the interface between the executive management of the respective Parties. Within 7 days following the Effective Date, MMVD and the MSI shall each appoint a Project Manager. In the event that either Party wishes to substitute its Project Manager it shall do so in a manner in which the original appointment is made and notify the other Party of such substitution as soon as reasonably practicable but at the latest within 7 days of the substitution. The Project Managers shall have responsibility for maintaining the interface and communication between the Parties.

2. **Project Management Unit (PMU)**: A PMU shall be constituted under the supervision of PIC with Project Manager as its member secretary. PMU may comprise of appointed deputy commissioner, other concerned officials, MMVD's consultants, if any from the MMVD side, and at least Project Manager and Project Director from the MSI's side. Such unit shall meet at least on a fortnightly basis as required, at a time and location to be agreed between them. The PMU shall be responsible for monitoring the project implementation and operations, as well as address and resolve day to day issues arising during the execution.

3. **Project Management Team (PMT):** The MMVD shall appoint a committee consisting of staff members of the MMVD, other officials from concerned department and external experts / consultants. The PMT shall meet formally on a monthly / quarterly basis as required, at a time and location to be agreed between them. These meetings shall cover, at least the following agenda items: (i) consideration of Quarterly Performance Reports; (ii) issues escalated in accordance with the escalation procedure as set out in the Governance Schedule; (iii) matters to be brought before the PMT by the PMT in accordance with the MSA and the Annexures; (iv) any matter brought before the PIC by the MSI under this clause; and (v) any other issue which either Party wishes to add to the agenda.

4. In the event that there is any material factor which affects the delivery of the Services or the terms of payment, the Parties agree to discuss in the PMT any appropriate amendment to the MSA or Scope of Works including any variation to the terms of payment. In case of disagreement, the matter may be taken up by the PMT. Any variation so agreed shall be implemented by mutual consent of both parties. In case of dispute, MMVD's decision shall be final and binding on both the parties.

(3) GOVERNANCE PROCEDURES

1. The MSI shall document the agreed structures in a procedures manual.
2. The agenda for each meeting shall be set to reflect the discussion items referred to above and extraordinary items may be added either with the agreement of the Parties or at the request of either Party. Copies of the agenda for meetings, along with relevant pre-reading material, shall be distributed at least one week in advance of the relevant meeting.
3. All meetings and proceedings shall be documented such documents shall be distributed to the Parties and copies shall be kept as a record. All actions, responsibilities and accountabilities arising out of any meeting shall be tracked and managed.
4. The Parties shall ensure as far as reasonably practicable that the Governance Structure set forth herein shall resolve the issues and resolve the objectives placed before them and that members representing that Party are empowered to make relevant decisions or have easy access to empowered individuals for decisions to be made to achieve this.
5. In order to formally to submit a Disputed Matter to the aforesaid, one Party ("Claimant") shall give a written notice ("Dispute Notice") to the other Party. The Dispute Notice shall be accompanied by (a) a statement by the Claimant describing the Disputed Matter in reasonable detail and (b) documentation, if any, supporting the Claimant's position on the Disputed Matter.
6. The other Party ("Respondent") shall have the right to respond to the Dispute Notice within 7 days after receipt of the Dispute Notice. In the event that the parties are unable to resolve the Disputed Matter within a further period of 7 days, it shall refer the Disputed Matter to next level of the dispute resolution for action as per the procedure laid down in the Clause 22, Governing Law and Dispute Resolution.
7. All negotiations, statements and / or documentation pursuant to these Dispute and its notice shall be without prejudice and confidential (unless mutually agreed otherwise).
8. If the Disputed Matter is having a material effect on the operation of the Services (or any of them or part of them) the Parties shall use all their respective reasonable endeavours to reduce the elapsed time in reaching a resolution of the Disputed Matter.

x   x   x

Draft Non-Disclosure Agreement

NON-DISCLOSURE AGREEMENT

(To be signed on Rupees 100/- non-judicial Stamp Paper)

[This Non-Disclosure Agreement needs to be signed by authorized person/s of MSI to get access to all the confidential documents and records. All the personnel, employees, agents and contractors of the MSI shall sign an NDA with MSI which is to be annexed to this NDA]

THIS NON DISCLOSURE AGREEMENT ("NDA") is executed on this the_____day of_____20___at Mumbai, India.

BETWEEN

The **Governor of the state of Maharashtra** exercising executive powers of the **Government of Maharashtra** through the Transport Commissioner**, Maharashtra Motor Vehicles Department (MMVD)** having its office at Transport Commissioner's Office, 5th Floor, MTNL Building number 2, M.G. Road, Fort, Mumbai - 400 001, India hereinafter referred to as **'MMVD,** which expression shall, unless the context otherwise requires, include its successors and assigns);

AND

_____<Name of Bidder>_____**,** (a Company registered and incorporated in India under the Companies Act, 1956/2013 (as amended from time to time) through having its registered office at_____(hereinafter referred to as **'MSI / Successful Bidder'** which expression shall, unless the context otherwise requires, include its permitted successors and assigns).

Each of the parties mentioned above are collectively referred to as the '**Parties**' and individually as a '**Party**'.

WHEREAS:

a)   MMVD is desirous to implement the project _____ _____, hereafter referred to **"Project"** for a period of 132 months (12 months of Implementation Phase till Go-Live and 10 years post Go-Live – "Contract Period")

b)   The MMVD and MSI have entered into a Master Services Agreement dated _____(the "MSA") in furtherance of the Project.

c)   Whereas in pursuing the Project (the "Business Purpose"), a Party ("Disclosing Party") recognizes that they shall disclose certain Confidential Information (as defined hereinafter) to the other Party ("Receiving Party").

d)   Whereas such Confidential Information (as defined hereinafter) belongs to Disclosing Party as the case may be and is being transferred to the Receiving Party to be used only for the Business Purpose and hence there is a need to protect such information from unauthorized use and disclosure.

NOW THEREFORE, in consideration of the mutual covenants, promises, assurances, representations and provisions set forth herein, the Parties hereto agree as follows:

1. DEFINITIONS and INTERPRETATION

Terms and expressions used in this Agreement (including the Introduction) shall have the same meanings set out in Clause 1 of Master Service Agreement (MSA).

2. AMBIGUITIES WITHIN AGREEMENT

In case of ambiguities or discrepancies within the NDA, the following principles shall apply:
1. as between two Clauses of the NDA, the provisions of a specific Clause relevant to the issue under consideration shall prevail over those in a general Clause;
2. as between the provisions of NDA and the Annexure, the NDA shall prevail, save and except as expressly provided otherwise in NDA or the Annexure; and
3. as between any value written in numerals and that in words, the value in words shall prevail.

3. PRIORITY OF AGREEMENTS

The Parties hereby expressly agree that for the purpose of giving full and proper effect to the NDA, the MSA and NDA shall be read together and construed harmoniously. In the event of any conflict between the MSA and the NDA, the provisions contained in the MSA shall prevail over NDA.

4. TERM

NDA shall remain in effect for five years from the date of the last disclosure of Confidential Information ("Term") or 10 years from the date of the Signing of Contract, whichever is later, at which time it shall terminate, unless extended by the disclosing party in writing.

5. SCOPE OF THE NDA

1. NDA shall apply to all confidential and proprietary information disclosed by Disclosing Party to the Receiving Party and other information which the disclosing party identifies in writing or otherwise as confidential before or within (30) thirty days after disclosure to the Receiving Party ("Confidential Information"). Such Confidential Information consists of certain specifications, documents, software, data including video, photos, prototypes and/or technical information, and all copies and derivatives containing such Information that may be disclosed to the Disclosing Party for and during the Business Purpose, which a party considers proprietary or confidential.
2. Such Confidential Information may be in any form or medium, tangible or intangible, and may be communicated/disclosed in writing, orally, or through visual observation or by any other means to the Receiving Party.
3. NDA shall apply to all Information, documents, records and registers relating to the Project disclosed by the MMVD or created or generated as the part and in course of the project, by the MSI.
4. Nothing contained in the NDA shall be construed as granting or conferring rights of license or otherwise, to the MSI, in any of the Information.
5. NDA shall benefit and be binding upon the MMVD and MSI (and their subcontractors) and their employees, respective subsidiaries, affiliates, successors and assigns.
6. NDA shall be governed by and construed in accordance with the Indian laws having jurisdiction of Mumbai only.

6. OBLIGATIONS OF THE RECEIVING PARTY

The Receiving Party shall:

1. use the Confidential Information only for the Business Purpose and shall hold the Confidential Information in confidence using the same degree of care as it normally exercises to protect its own proprietary information, taking into account the nature of the Confidential Information, and
2. grant access to Confidential Information only to its employees, sub-contractors on a 'need to know basis' and restrict such access as and when not necessary to carry out the project.
3. cause its employees, partners, sub-contractors, and their employees to comply with the provisions of the NDA;
4. reproduce Confidential Information only to the extent essential for fulfilling the project;
5. prevent disclosure of Confidential Information to third parties;
6. disclose the Confidential Information to its consultants/contractors on a need to know basis; provided that by doing so, the Receiving Party agrees to bind such consultants/ contractors to terms at least as restrictive as those stated herein.
7. upon making a disclosure under this Clause shall advise the consultants/contractors of the confidentiality obligations imposed on them by this Clause.
8. upon the Disclosing Party's request, the Receiving Party shall either return to the disclosing party all Confidential Information or shall certify to the disclosing party that all media containing Confidential Information have been destroyed. Provided, however, that an archival copy of the Confidential Information may be retained in the files of the Receiving Party's counsel, solely for the purpose of proving the contents of the Confidential Information.
9. not remove any of the other Party's Confidential Information from the premises of the Disclosing Party without prior written approval.
10. exercise extreme care in protecting the confidentiality of any Confidential Information which is removed, only with the Disclosing Party's prior written approval, from the Disclosing Party's premises. Each Party agree to comply with any and all terms and conditions the disclosing party may impose upon any such approved removal, a condition such as that the removed Confidential Information and all copies must be returned by a certain date, and that no copies are to be made off of the premises.
11. Upon the Disclosing Party's request, shall promptly return to the Disclosing Party all tangible items containing or consisting of the disclosing party's Confidential Information all copies thereof
12. Not subcontract any work without prior written consent of MMVD strictly as per terms and requirements set out on the RFP document. It is clarified that the MSI shall be the principal employer for all claims arising from the liabilities, statutory or otherwise, concerning the sub-contractors. The MSI undertakes to indemnify the MMVD from any claims on the grounds stated hereinabove.
13. Hold such Information in confidence with the same degree of care with which the MSI protects its own confidential and proprietary information;
14. Restrict disclosure of the Information solely to its employees, agents and contractors with a need to know such Information and advice those persons of their obligations hereunder with respect to such Information;
15. Submit duly signed NDA with its said employees, agents and contractors;
16. Use the Information only as needed for the purpose of the Project;
17. Except for the said purpose of the Project, not copy or otherwise duplicate such Information or knowingly allow anyone else to copy or otherwise duplicate such information whether physical or digital under any circumstances; and
18. Not take out any information out of the MMVD premises or MMVD approved premises through any means or out from the Data Center, DR or any other storage site approved for the purpose of this project.

7. EXCEPTIONS TO CONFIDENTIAL INFORMATION

The foregoing restrictions on each party's use or disclosure of Confidential Information shall not apply to the Confidential Information that the Receiving Party can demonstrate that such Confidential Information:

1. was independently developed by or for the Receiving Party, without reference to the Information, or was received without restrictions; or
2. has become generally available to the public without breach of confidentiality obligations of the Receiving Party; or
3. was in the Receiving Party's possession without restriction or was known by the Receiving Party without restriction at the time of disclosure; or
4. is the subject of summons or other legal or administrative demand for disclosure; provided, however, that the Receiving Party has given the disclosing party prompt notice of such demand for disclosure and the Receiving Party reasonably cooperates with the disclosing party's efforts to secure an appropriate protective order; or
5. is disclosed with the prior consent of the disclosing party;
6. was in its possession or known to it by being in its use or being recorded in its files or computers or other recording media prior to receipt from the disclosing party and was not previously acquired by the Receiving Party from the disclosing party under an obligation of confidence; or
7. the Receiving Party obtains or has available from a source other than the disclosing party without breach by the Receiving Party or such source of any obligation of confidentiality or non-use towards the disclosing party.
8. Was previously known to the MSI free of any obligation to keep it confidential at the time of its disclosure as evidenced by the MSI's written records prepared prior to such disclosure; or
9. Is or becomes publicly known through no wrongful act of the MSI; or
10. Is independently developed by an employee, agent or contractor of the MSI not associated with the Project and who did not have any direct or indirect access to the Information.

Nothing contained herein shall be construed that any data that is generated by virtue of the Project shall be termed as "Confidential Information"

8. OWNERSHIP OF THE CONFIDENTIAL INFORMATION

1. Each Party recognizes and agrees that all the disclosing Party's Confidential Information is owned solely by the Disclosing Party (or its licensors) and that the unauthorized disclosure or use of such Confidential Information would cause irreparable harm and significant injury, the degree of which may be difficult to ascertain.
2. By disclosing the Confidential Information or executing the NDA, Disclosing Party does not grant any license, explicitly or implicitly, under any trademark, patent, copyright, mask work protection right, trade secret or any other intellectual property right. The Disclosing Party disclaims all warranties regarding the information, including all warranties with respect to infringement of intellectual property rights and all warranties as to the accuracy or utility of such information.
3. Access to Confidential Information hereunder shall not preclude an individual who has seen such Confidential Information for the purposes of the NDA from working on future projects for the Disclosing Party which relate to similar subject matters, provided that such individual does not make reference to the Confidential Information and does not copy the substance of the Confidential Information during the Term. Furthermore, nothing contained herein as imposing any restriction on the Receiving Party's disclosure or use of any general learning, skills or know-how developed by Receiving Party's personnel.
4. Execution of the NDA and disclosure of Confidential Information pursuant to the NDA do not constitute or imply any commitment, promise, or inducement by either party.

9. WAIVER

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 the NDA:-

1. shall be in writing
2. shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under the NDA;
3. shall be executed by a duly authorized representative of the Party; and
4. shall not affect the validity or enforceability of the NDA in any manner.

10. EXCLUSION OF IMPLIED WARRANTIES

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

11. NOTICES

Any notice or other communication to be given by any Party to the other Party under or in connection with the matters contemplated by the NDA shall be in writing and shall be given by hand delivery, recognized courier, registered post, email or facsimile transmission and delivered or transmitted to the Parties at their respective addresses set forth in the Master Service Agreement.

12. 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 the NDA shall be in writing and in the English language only.

13. COUNTERPARTS

The NDA may be executed in counterparts, each of which, when executed and delivered, shall constitute an original of the NDA.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THE NDA AS OF THE DATE FIRST ABOVE WRITTEN.

(Signature of the person/s working for and with the MSI)	For and on behalf of Maharashtra Motor Vehicles Department
Name:	Name:
Designation:	Designation:
Date:	Seal:
Place:	Date:
Seal:	Place:

------------------ END OF THE PART II OF THE RFP-------------------

...................END OF THE RFP....................