Maharashtra Industrial Township Limited (MITL)

RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support.

REQUEST FOR PROPOSAL (RFP)

Tender No: MITL/ICT/2026-27/003

Nov 2026

Maharashtra Industrial Township Limited

(MITL)

Udyog Sarathi, MIDC Office, Marol Industrial Area
Andheri (East), Mumbai, Maharashtra, India – 400093

RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support.

Ref. no: MITL/ICT/2026-27/003

Nov 2026

Maharashtra Industrial Township Limited (MITL) an SPV between the Maharashtra Industrial Development Corporation (MIDC) and the National Industrial Corridor Development Corporation (NICDC) invites proposals against RFP from interested Bidders for **RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support.** The salient features of the project, technical qualification, eligibility criteria and prescribed formats for submission can be accessed in the RFP document uploaded on the website: https://aitl.eproc.in, https://auric.city/

Interested Bidders are requested to submit their online responses to the RFP on or before, 18th Dec 2026, 3:00 PM. A non-refundable processing fee of INR 30,000 (Rupees Thirty Thousand only) excluding GST, shall accompany the submittals through the online portal only on MITL's eproc website as a non-refundable processing fee.

SD/-

Managing Director (MITL)

Maharashtra Industrial Township Limited (MITL)

Notice Inviting RFQ cum RFP

Date: 20th Nov 2026

The MITL, represented by the Managing Director, invites bids from eligible System Integrators (SI) for the following project in the prescribed bid forms and proforma enclosed herewith through the e-Procurement site, for the Scope of Work described in the RFQ Cum RFP Documents. The details of the tender are given below:-

Sr.	Tender No.	**MITL/ICT/2026-27/003**
1	Name of Work	RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support.
2	Tender Fee	Non-refundable Rs. 30,000 (Rupees Thirty Thousand only) excluding GST i.e. Rs. 35,400/- including GST
3	Location	AURIC City Shendra, SBIA
4	Bid Security (EMD)	Rs.5,00,000/- (Rupees Five Lakh Only)
5	Time for completion	6 months from the date of signing of the Contract Agreement, including Testing, Commissioning and go-live.
6	Operation and Maintenance Period	2 years from the date of go-live.
7	Address for Correspondence	Managing Director, Maharashtra Industrial Township Limited Udyog Sarathi E, MIDC Office, Marol Industrial Area, Andheri (East) Mumbai, Maharashtra State, India – 400093
8	Details for Downloading Tender Document	The complete RFQ cum RFP document can be viewed/downloaded from the websites https://aitl.eproc.in, www.auric.city from 20th Nov 2026 to 18th Dec 2026 up to 1500 hours IST.
9	Submission of Bid	Bid must be submitted online only at (https://aitl.eproc.in) on or before (up to 18th Dec 2026 by 3:00 PM (at 1500 hours IST)).
10	Email address for Pre-Bid Queries	Mr. Sadashiv Lokhande (Manager-IT) E- Mail- managerit@mitl.org.in Ph -9850535018 Mr.Sagar Paraswar (Manager- Infra and Planning) E-Mail- managerinfrahq@mitl.org.in Ph- 9860728933

Instructions to Bidders for e-Tendering

Currently, all ICT-related activities are being managed by the appointed MSI through a dedicated Control Room and Data Center. However, MITL intends to implement an advanced AI-based Video Management System (VMS), Automatic Number Plate Recognition (ANPR) System, and next-generation CCTV surveillance system, along with the required supporting infrastructure.

The appointed System Integrator (SI) shall work closely with the existing MSI to ensure seamless implementation, integration, testing, commissioning, and operational handover of the proposed system without disrupting the existing ICT and surveillance operations.

1. Accessing/Purchasing of RFQ Cum RFP documents

- It is mandatory for all the bidders to have a class-III Digital Signature Certificate (DSC) (with both DSC components, i.e. signing and encryption in the name of authorized signatory who will sign the RFQ Cum RFP response) from any of the licensed Certifying Agencies (Bidders can see the list of licensed CAs from the link https://aitl.eproc.in to participate in e-tendering of the Client).
- To participate in the RFQ Cum RFP, it is mandatory for the Bidder to register their firm with e-tendering portal of the Client, to have user ID & password which has to be obtained by submitting the applicable fee & necessary documents. Validity of online registration is one year. Following may kindly be noted:
  - (a) Proposals can be submitted only during the validity of their registration.
  - (b) The amendments / clarifications to the RFQ Cum RFP document, if any, will be hosted on the Client's website. https://aitl.eproc.in ; https://auric.city
  - (c) If the firm is already registered with e-tendering portal of Client and validity of registration is not expired the firm / Joint Venture is not required a fresh registration.

- To participate in Bidding, applicants have to pay Rs. 35,400/- (Rupees Thirty-five Thousand Four Hundred Only), including GST, towards the processing fee for the Bid (non-refundable), to be paid online only at https://aitl.eproc.in. Also, a Bid Security is also to be furnished by the Bidder for the amount of Rs. 5.00 Lakh (Indian Rupees Five Lakh Only) in the form of Demand Draft as per the format mentioned in RFQ Cum RFP document, in the name of the Employer - Maharashtra Industrial Township Limited payable at Mumbai.

2. Preparation & Submission of Proposals

The bidders may submit his Proposal online following the instructions appearing on the screen. A buyer manual containing the detailed guidelines for e-procurement is available on e-procurement portal:

(i) The documents shall be prepared and scanned in different files (in PDF or JPEG format such that file size is not more than 10 MB) and uploaded during the on- line submission of Proposal.

(ii) Proposal must be submitted online only through e-procurement portal of the Client, using the digital signature of authorized representative of the Bidder on or before the Proposal Due Date mentioned in the Data Sheet.

3. Modification / Substitution / Withdrawal of Proposals

(i) The bidder may modify, substitute or withdraw its e- Proposal after submission prior the Proposal Due Date. No Proposal shall be modified, substituted or withdrawn by the Bidder on or after the Proposal Due Date & Time.

(ii) Any alteration / modification in the Proposal or additional information supplied subsequent to the Proposal Due Date, unless the same has been expressly sought for by the Client, shall be disregarded.

(iii) For modification of RFQ Cum RFP, bidder has to detach its old Proposal from e-tendering portal and upload / resubmit digitally signed modified Proposal.

(iv) For withdrawal of Proposal, bidder has to click on withdrawal icon at e-tendering portal and can withdraw its e-Proposal.

(v) It may specifically be noted that once a proposal is withdrawn for any reason, a bidder cannot re-submit the e-Proposal.

4. Opening & Evaluation of Proposal

Opening and evaluation of the proposal will be done through an online process.

5. Submission of Hard Copy Documents

The bidder shall submit only the Power of Attorney and the Earnest Money Deposit (EMD) in the form of a Demand Draft (DD), as specified in this document, to the MITL Head Office as given below:

Sagar Paraswar,
Maharashtra Industrial Township Limited
Udyog Sarathi E, MIDC Office,
Marol Industrial Area, Andheri (East)
Mumbai, Maharashtra State, India – 400093

Mention the Tender Name on the envelope: "**RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support.**"

6. **Tender Fee Payment:**

The bidder/SI shall remit the applicable Tender Fee to the bank account specified below and upload the payment receipt/proof of payment on the **MITL e-Procurement Portal (https://aitl.eproc.in)** along with the bid submission.

Beneficiary Name: Maharashtra Industrial Township Limited

Address: Udyog Sarathi, MIDC Office, Andheri (E), Mumbai – 93

Name of the Bank: Bank of India

Branch address: Chakala Branch, Andheri (East)

Type of Account: Current Account

Account No: 006720110000968

IFSC Code: BKID0000067

Disclaimer

1. This RFQ Cum RFP document is neither an agreement nor an offer or invitation by the Maharashtra Industrial Township Limited (MITL) to the prospective bidders or any other person. The purpose of this RFQ Cum RFP is to provide information to the interested parties that may be useful to them in the formulation of their proposal pursuant to this RFQ Cum RFP.
2. MITL does not make any representation or warranty as to the accuracy, reliability or completeness of the information in this RFQ Cum RFP document and it is not possible for MITL to consider particular needs of each party who reads or uses this RFQ Cum RFP document. This RFQ Cum RFP includes statements which reflect various assumptions and assessments arrived at by MITL in relation to the RFQ Cum RFP. Such assumptions, assessments and statements do not purport to contain all the information that each bidder may require. Each prospective bidder should conduct its own investigations and analyses and check the accuracy, reliability and completeness of the information provided in this RFQ Cum RFP document and obtain independent advice from appropriate sources.
3. MITL will not have any liability to any prospective Firm/ or any other person under any laws (including without limitation the law of contract, tort), the principles of equity, restitution or unjust enrichment or otherwise for any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this RFQ Cum RFP document, any matter deemed to form part of this RFQ Cum RFP document, the award of the Assignment, the information and any other information supplied by or on behalf of MITL or their employees, any consultants or otherwise arising in any way from the selection process for the Assignment. MITL will also not be liable in any manner whether resulting from negligence or otherwise, however caused, arising from reliance of any Bidder upon any statements contained in this RFQ Cum RFP.
4. MITL will not be responsible for any delay in receiving the proposals. The issue of this RFQ Cum RFP does not imply that MITL is bound to select a bidder and MITL reserves the right to accept/reject any or all of proposals submitted in response to this RFQ Cum RFP document at any stage without assigning any reasons whatsoever. MITL also reserves the right to withhold or withdraw the process at any stage with intimation to all who submitted the RFQ Cum RFP Application.
5. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. MITL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.
6. MITL reserves the right to change/ modify/ amend any or all provisions of this RFQ Cum RFP document. Such revisions to the RFQ Cum RFP / amended RFQ Cum RFP will be made available on the website of MITL.
7. This RFQ Cum RFP including the selection process shall be governed by, and construed in accordance with, the laws of India and the Courts at Mumbai shall have exclusive jurisdiction over all disputes arising under, pursuant to and/or in connection with the Selection Process.
8. The Client, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to:
    a) Suspend and/or cancel the Selection Process and/or amend and/or supplement the Selection Process or modify the dates or other terms and conditions relating thereto;
    b) Consult with any Bidder in order to receive clarification or further information;
    c) Retain any information and/or evidence submitted to the Client by, on behalf of and/or in relation to any Bidder; and/or
    d) Independently verify, disqualify, reject and/or accept any and all submissions or other information and/or evidence submitted by or on behalf of any Bidder.

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1 INTRODUCTION

The Government of India is undertaking various industrial corridor projects under the National Industrial Corridor Development Program (NICDC). This initiative aims to establish forward-looking industrial cities in India that can compete on a global scale in manufacturing and investments. These projects are expected to generate job opportunities and foster economic growth, contributing to overall socio-economic development. According to NICDC, the National Infrastructure Pipeline includes 32 projects in 4 phases across 11 corridors. One such project is the freight corridor connecting the National Capital Region of Delhi and Jawaharlal Nehru Port in Mumbai. This freight corridor passes through states such as Uttar Pradesh, Madhya Pradesh, Haryana, Rajasthan, Gujarat, and Maharashtra and is being developed as the Delhi-Mumbai Industrial Corridor (DMIC). This freight corridor spans 1483 km in length, with an influence region extending about 150 km on either side to harness its developmental potential. NICDC and Maharashtra Industrial Development Corporation (MIDC) under the SPV of Maharashtra Industrial Township Limited (MITL) ('The Client').

MITL has 51% stake of MIDC and 49% stake of NICDC. MITL will also have the status of a Special Planning Authority (SPA) and will be responsible for the development, management, and operations of all nodes within Maharashtra.

The overall vision of MITL includes positioning of Information & Communications Technology (ICT) as the key enabler to integrate various functions of the city development and operations, provide advanced and affordable services to the citizens, along with efficient governance and management of the city operations. ICT will enable the creation of a sustainable ecosystem of the government, industries/businesses, and social infrastructure with an overall citizen-centric development. It will also enable MITL to be an efficient and tech-savvy organisation that will truly leverage ICT for its operations and decision-making. ICT will cultivate the development of a digital and connected city, which ultimately helps in promoting and sustaining economic growth and development.

Maharashtra Industrial Township Limited (MITL) intend to issue this RFQ Cum RFP to eligible bidders, to participate in the competitive bidding through https://aitl.eproc.in

1.1 Project Objective

The primary objective of this tender is to strengthen and modernise the existing AURIC Smart City safety and security ecosystem by implementing advanced HD/IP-based surveillance, AI-based video analytics, Automatic Number Plate Recognition (ANPR), and associated security and monitoring infrastructure, by utilising MITL's existing ICT infrastructure.

The proposed solution shall leverage the existing Data Centre, Command & Control Centre (CCC), and field Optical Fibre Cable (OFC) network, wherever technically feasible, to establish an integrated, scalable, and future-ready surveillance and security environment.

1.2 Project Scope

Maharashtra Industrial Township Limited (MITL), (the "Employer") invites Tender for **RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support.**

The selected System Integrator (SI) shall be responsible for the design, engineering, supply, installation, integration, testing, commissioning, training, documentation, and operational handover of an integrated Video Management System (VMS), AI-based Video Analytics System, Automatic Number Plate Recognition (ANPR) System, HD/IP-based CCTV Surveillance System, and associated ICT infrastructure for the AURIC Shendra Area.

The proposed solution shall be integrated with MITL's existing ICT, surveillance, Data Centre, Command & Control Centre (CCC), network, and field Optical Fibre Cable (OFC) infrastructure, wherever technically feasible.

The SI shall provide a complete end-to-end, turnkey solution and shall be responsible for all hardware, software, licenses, accessories, connectivity, installation, configuration, integration, testing, commissioning, and related activities required to make the system fully operational.

The scope shall broadly include, but not be limited to, the following:

i. Supply, Installation, Testing and Commissioning (SITC) of:

- Video Management System (VMS);
- AI-based Video Analytics System;
- Automatic Number Plate Recognition (ANPR) System;
- HD/IP-based CCTV surveillance cameras;
- Gantry poles and associated mounting structures;
- Junction boxes and field connectivity equipment;
- UPS and power supply arrangements; and
- All other necessary hardware, software, licenses, accessories, and associated infrastructure required for complete system implementation.

ii. Integration with Existing MSI Infrastructure:

The proposed solution shall be deployed and integrated with the existing ICT and surveillance infrastructure managed by the MSI/O&M agency for MITL. The selected System Integrator (SI) shall ensure seamless integration of the proposed systems with the existing Command & Control Centre (CCC), monitoring platforms, applications, and operational processes.

iii. Utilization of Existing MITL Infrastructure:

The SI shall maximize the utilization of existing MITL infrastructure, including the Data Centre, servers, storage, network infrastructure, and field Optical Fibre Cable (OFC) network, wherever technically feasible and subject to capacity and compatibility. The SI shall avoid unnecessary duplication of existing infrastructure.

iv. OFC and Field Connectivity:

The SI shall integrate field surveillance devices with the existing OFC network using appropriate field equipment, junction boxes, network switches, media converters, fiber accessories, UPS systems, power supply arrangements, and other required infrastructure to ensure reliable and uninterrupted transmission of real-time video, analytics data, ANPR data, events, and alerts to the Command & Control Centre.

v. AI-Based Video Analytics:

The SI shall implement AI-based video analytics for intelligent detection, classification, and alert generation for configurable safety and security events, including but not limited to:

- Intrusion and unauthorized access;
- Perimeter/security breach;
- Crowd formation;
- Loitering;
- Abandoned or unattended objects;
- Wrong-way movement;
- Line crossing; and
- Other configurable safety and security events as specified by MITL.

vi. Automatic Number Plate Recognition (ANPR):

The SI shall implement ANPR technology at strategically identified entry, exit, junction, and traffic locations for automatic vehicle identification, number-plate recognition, vehicle movement tracking, and generation of configurable alerts based on predefined rules and databases.

vii. Enhanced Safety and Security:

The proposed integrated solution shall enhance citizen and industrial-area safety and security by providing real-time surveillance, intelligent event detection, automated alerts, centralized monitoring, and faster incident response capabilities across the AURIC area.

viii. Centralized Monitoring and Management:

All newly deployed CCTV cameras, ANPR systems, and AI-based analytics shall be centrally monitored and managed through the existing MITL/ACC Command & Control Centre infrastructure, subject to technical feasibility and successful integration.

ix. Scalability and Future Readiness:

The proposed solution shall be scalable and future-ready, allowing MITL to add additional cameras, AI analytics use cases, ANPR locations, storage, and other Smart City safety and security applications in the future without requiring major modifications to the core infrastructure.

x. Coordination with Existing MSI/O&M Agency:

The selected SI shall work in close coordination with the existing MSI/O&M agency for site assessment, planning, installation, integration, testing, commissioning, and operational handover. All implementation activities shall be planned and executed to ensure minimum disruption to existing ICT, surveillance, Command & Control Centre, Data Centre, and other operational services.

xi. End-to-End Testing and Commissioning:

The SI shall conduct comprehensive end-to-end testing and commissioning of all field and central systems, including network/OFC connectivity, video transmission, VMS functionality, recording and storage, AI-based analytics, ANPR, alerts and alarms, Command & Control Centre integration, system health monitoring, and overall system performance.

xii. Operational Handover:

Upon successful testing and commissioning, the SI shall complete the operational handover of the implemented solution to MITL/the designated O&M agency along with all required system documentation, configuration details, as-built drawings, licenses, test reports, user manuals, and training.

1.3 Brief description of Bidding Process

i. The Employer has adopted a single-stage two-part process (collectively referred to as the "Bidding Process") for the selection of a Bidder for the award of the Project. Under this process, the Bids have been invited under two parts, viz. Technical Bid and Financial Bid.

ii. The Government of India has issued guidelines as mentioned in RFQ Cum RFP for the qualification of Bidders seeking to acquire stakes in any public sector enterprise through the process of disinvestment. The guidelines shall apply mutatis mutandis to this Bidding Process. The Employer shall be entitled to disqualify a Bidder in accordance with the aforesaid guidelines at any stage of the Bidding Process. Bidders must satisfy themselves that they are qualified to bid and should give an undertaking to this effect in the Form provided in RFQ Cum RFP.

iii. The bidder has to compile and submit their bid in accordance with the requirements detailed in this RFQ Cum RFP.

iv. Eligibility and qualification of the Bidder will be first examined based on the details submitted under First Part, i.e. Technical Bid, with respect to the eligibility and qualifications criteria prescribed in this RFQ Cum RFP.

v. Prior to making an Application, the Bidder shall pay the Tender Fee to the Employer as indicated in the RFQ Cum RFP. The Financial Bid under the second part shall be opened only for the Bidders whose Technical Bids are found to be responsive to the eligibility and qualifications requirements as per this RFQ Cum RFP.

vi. At the Bid Stage, the aforesaid qualified Bidders, including their successors (the “Bidders”), will be called upon to open their Financial offers (the "BIDs") in accordance with the terms specified in the Bidding Documents. The Bid shall be valid for a period of 180 days from the Bid Due Date

vii. Bidders are advised 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 for award of the contract, including implementation of the Project.

viii. The bidders can visit the site, raise pre-bid queries and attend a pre-bid meeting before the bid submission.

1.4 Schedule of Bidding Process

The Employer shall endeavour to adhere to the following schedule:

S. No.	Event Description	Date
1	Date of issue of RFQ Cum RFP	20th Nov 2026
2	Last date for receiving queries	25th Nov 2026
3	Pre-Bid Meeting (Virtual)	26th Nov 2026
4	The Employer's response to queries	30th Nov 2026
5	Last Date of submission of Proposals	18th Dec 2026 by 3:00 PM
6	Date of Opening of Technical Proposal	18th Dec 2026 at 4:00 PM
7	Date of Opening of Financial Proposal	To be notified to Bidders
8	Announcement of Technically Qualified Bidders	To be notified to Bidders
9	Opening of Financial Proposal	To be notified to Bidders
10	Letter of Award (LOA)	To be notified to Bidders
11	Signing of Contract Agreement	Within 30 days from LOA

1.5 Pre-bid Meeting and Pre-bid Clarifications

i. Pre-Bid meeting of the Bidders shall be convened at the designated date, time and place. A maximum of two representatives of each Bidder shall be allowed to participate upon submission of an authorization letter from the Bidder.

ii. The bidder or its official representative can attend the pre-bid meeting, which will take place online.

iii. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage, and thus, the Bidders will be free to seek clarifications and make suggestions for consideration of the Employer. The Employer shall endeavor to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

iv. The bidder shall submit any questions or queries by email to the address provided in this RFQ Cum RFP. The questions or queries should reach the Employer not later than 2 days before the date of the pre-bid meeting.

v. The bidder shall submit the queries in the format provided in 'Tender Forms', in both PDF and MS Word.

vi. The Employer will upload all the queries and their responses thereto to all Bidders without identifying the source of the queries. Any modification of the bidding documents which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an Addendum and not through the minutes of the pre-bid meeting.

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

viii. The Employer may also, on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by the Employer shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by the Employer or its employees or representatives shall not in any way or manner be binding on the Employer.

ix. Bidders are advised to attend the pre-bid meeting. However, non-attendance at the pre-bid meeting will not be grounds for the disqualification of a bidder. Bidders who do not attend the pre-bid meeting are responsible for complying with any modifications to the bidding documents communicated through an Addendum.

1.6 Site Visit

i. Bidders shall submit their bids only after conducting a thorough site visit and familiarizing themselves with the project site, existing infrastructure, site conditions, and surrounding environment. The bidder shall, at its own responsibility, obtain all information necessary for the preparation and submission of its bid, including but not limited to site accessibility, traffic conditions, location and surroundings, climatic conditions, availability of electrical power, and other relevant site-specific requirements.

ii. The bidder shall also conduct a detailed assessment of the existing ICT and surveillance infrastructure, including the existing OFC routes, Data Centre, Integrated Command and Control Centre (ICCC), existing network infrastructure, and RCC trenches through which OFC cables are laid for providing last-mile connectivity to field/end devices, space for the installation of additional rack in datacenter, power source at datacenter, Poles location for the installation of CCTV's.

iii. The bidder shall satisfy itself regarding the availability, condition, capacity, connectivity, and technical suitability of the existing infrastructure for implementation and integration of the proposed system. Any additional infrastructure, equipment, cabling, accessories, or modifications required for successful implementation shall be duly considered by the bidder while preparing its bid.

iv. No claim arising from the bidder's failure to inspect the site, assess the existing infrastructure, or obtain the necessary information shall be entertained after submission of the bid.

1.7 Corrupt or Fraudulent Practices

i. The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Agreement, the Employer may reject a BID, withdraw the LOA, or terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder or the Contractor, as the case may be, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, the Employer shall be entitled to forfeit and appropriate the BID Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Employer under the Bidding Documents and/ or the Agreement, or otherwise.

ii. Without prejudice to the rights of the Employer under RFQ Cum RFP hereinabove and the rights and remedies which the Employer may have under the LOA or the Agreement, or otherwise if a Bidder or Contractor, as the case may be, is found by the Employer 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 Bidding Process, or after the issue of the LOA or the execution of the Agreement, such Bidder or Contractor shall not be eligible to participate in any tender or RFQ Cum RFP issued by the Employer.

iii. The following terms shall have the meaning hereinafter respectively assigned to them:

a. “Corrupt practice” means

the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Employer who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the Agreement or arising therefrom, 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 Employer, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or

b. save and except as permitted this RFQ Cum RFP, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA 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 LOA or the Contract Agreement, who at any time has been or is a legal, financial or technical adviser of the Employer in relation to any matter concerning the Project;

iv. “Fraudulent practice” means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process.

v. “Coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process;

vi. "Undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by the Employer with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest;

vii. "Restrictive practice" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

viii. "Anti-competitive practice" means any collusion, Proposal-rigging or anti-competitive arrangement, or any other practice coming under the purview of the Competition Act, 2002, between two or more Consultants, with or without the knowledge of the Procuring Entity, that may impair the transparency, fairness, and the progress of the Procurement Process or to establish Proposal prices at artificial, non-competitive levels;

ix. "Obstructive practice" means materially impeding the procuring entity's investigation into allegations of one or more of the above-mentioned prohibited practices either by deliberately destroying, falsifying, altering; or concealing evidence material to the investigation; or by making false statements to investigators and/ or by coercive practices mentioned above, to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or by impeding the Procuring Entity's rights of an audit or access to information.

1.8 Submission of Hard Copy Documents

The bidder shall submit only the Power of Attorney and the Earnest Money Deposit (EMD) in the form of a Demand Draft (DD), as specified in this document, to the MITL Head Office as given below:

Sagar Paraswar,
Maharashtra Industrial Township Limited
Udyog Sarathi E, MIDC Office,
Marol Industrial Area, Andheri (East)
Mumbai, Maharashtra State, India – 400093

Mention the Tender Name on the envelope: **"RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support."**

1.9 Tender Fee Payment:

The bidder shall remit the applicable Tender Fee to the bank account specified below and upload the payment receipt/proof of payment on the MITL e-Procurement Portal (https://aitl.eproc.in) along with the bid submission.

Beneficiary Name: Maharashtra Industrial Township Limited

Address: Udyog Sarathi, MIDC Office, Andheri (E), Mumbai – 93

Name of the Bank: Bank of India

Branch address: Chakala Branch, Andheri (East)

Type of Account: Current Account

Account No: 006720110000968

IFSC Code: BKID0000067

2 ELIGIBILITY AND TECHNICAL EVALUATION CRITERIA

2.1 General

1. For determining the eligibility of Bidders and their qualification, the following shall apply:

a) The Bidder may be a single entity or a group of entities (the “Joint Venture”), coming together to implement the Project. However, a Bidder, applying individually or as a member of a Joint Venture, as the case may be, cannot be a member of another group of entities. The term Bidder used herein would apply to both a single entity and a Joint Venture.

b) A Bidder may be a company incorporated under the Indian Companies Act, 1956 or 2013 or under an existing agreement to form a Joint Venture. A Joint Venture shall be eligible for consideration subject to the conditions set out in **Clause 2.2** below.

c) A Bidder shall not have a conflict of interest (the **"Conflict of Interest"**) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified. Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process if:

   i. such Bidder, or any of its Joint Venture Member thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any of its Joint Venture Member thereof or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member or any of its Joint Venture Member thereof; or

   ii. such Bidder has the same legal representative for purposes of this BID as any other Bidder; or

   iii. such Bidder, or any of its Joint Venture Member thereof has a relationship with another Bidder, or any of its Joint Venture Member thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other’s' information about, or to influence the BID of either or each other; or

   iv. such Bidder, or any of its Joint Venture Members thereof, has participated as a consultant to the Employer in the preparation of any documents, Design or technical specifications of the Project.

d) A Bidder shall be liable for disqualification if any legal, financial or technical adviser of the Employer in relation to the Project is engaged by the Bidder, or any of its Members, as the case may be, in any manner for matters related to or incidental to the Project. For the avoidance of doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member in the past but its assignment expired or was terminated 6 (six) months prior to the date of issue of this RFQ cum RFP.

   i. Without prejudice to the satisfaction of the above requirements and any other prerequisites as per the terms of this document by the Bidder, its Joint Venture Member (or any constituent thereof), a Bid may still be disqualified if it has, in the sole and exclusive opinion of the Employer:

   ii. made any misleading or false representation or deliberately suppressed the information in the technical schedules/enclosures required to be submitted with /in support/as a clarification with respect to its Bid; and/or

   iii. has been blacklisted/ debarred by any government/semi-government department/ public sector company in India or in any other foreign country; and/or

   iv. has a record of poor performance such as abandoning work, not properly completing the contract, or financial failures/weaknesses; and/or

v. engaged in Fraud & Corrupt practices as mentioned under this Tender

vi. Bidder/ any member of Joint Venture shall not be under suspension from tendering by the Government ("the Government" means Central/State Government in India, or any entity controlled by it, or Government of the country where the Bidder or in case the Bidder is a Joint Venture, member(s) of the Joint Venture, is/are incorporated) as the result of the execution of a Bid–Securing Declaration.

e) Any entity which has been barred by the Central/ State Government, or any entity controlled by it, from participating in any Project, and the bar subsists as on the date of BID, would not be eligible to submit a BID, either individually or as a member of a Joint Venture.

f) In regard to matters relating to security and integrity of the country, the Bidder / any Member of the Joint Venture should not have been charge-sheeted by any agency of the Government of India or any State in India or convicted by a Court of Law.

g) The Bidder, including any Member of the Joint Venture, shall provide details of all their ongoing Projects along with the stage of litigation or Arbitration cases, if so, against the Employer/ Governments.

i. The Bidder, including any member of the Joint Venture, shall also provide details of the ongoing process of blacklisting if so, under any contract with Employer / Government.

ii. The Employer reserves the right to reject an otherwise eligible Bidder on the basis of the information provided under Clause of RFQ Cum RFP. The decision of the Employer in this case shall be final

h) The Bidder should submit a Power of Attorney as per the format at FORM T3, authorising the signatory of the BID to commit the Bidder. In the case of a Joint Venture, the Members should submit a Power of Attorney in favour of the Lead Member as per the format at FORM T3.

i) In case the Bidder is a Joint Venture, it shall comply with the following additional requirements:

a) Number of members in a Joint Venture shall not exceed 2 (two) including lead member;

b) subject to the provisions of clause (a) above, the BID should contain the information required for each Member of the Joint Venture;

c) Members of the Joint Venture shall nominate one member as the lead member (the "Lead Member"). The nomination(s) shall be supported by a Power of Attorney, as per the format at FORM T3, signed by all the other Members of the Joint Venture. The BID should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical and defects liability obligations;

d) Share of the Lead Member and Other Members in the JV shall be as follows:

Joint Venture Member	**Percent Share in Joint Venture**
Lead Member	Not less than 51%
Other Member	Not less than 20%
The total of all members of the Joint Venture shall be	**100%**

f) In the event the lead member of the JV undergoes ownership change due to a Merger and Acquisition, the new entity so formed shall continue to hold a 51% share in the JV/ Consortium till the completion of the O&M period.

g) The lead member cannot sell or sublet, or pledge its share to any new entity or the

balance members till the completion of the O&M period.

h) The Lead Member shall be authorised to incur liabilities and receive instructions for himself as well as other members of the Joint Venture, and the entire execution of the Contract, including payment, shall be done exclusively with the Lead Member

i) An individual Bidder cannot at the same time be a member of a Joint Venture submitting for BID. Further, a member of a particular Bidder Joint Venture cannot be a member of any other Bidder Joint Venture submitting for BID;

j) The Lead Member shall itself undertake and perform at least 51% (fifty-one percent) of the scope of the proposed Project.

k) Members of the Joint Venture shall have entered into a binding Joint Bidding Agreement, substantially in the form specified at Appendix 18.2 (the "Jt. Bidding Agreement"), for the purpose of making the BID and submitting a

2.2 Eligibility Criteria

S.N.	Basic Requirement	Eligibility Criteria	Document to be submitted
1	Legal Entity	Sole Bidder or all members of the Consortium must be either a firm or a Company Registered under the Indian Companies Act, 1956/2013 or A partnership firm registered under Indian Partnership Act, 1932 or a LLP registered under LLP act and should be in Operations in India for at Least 5 Years as on bid submission date.	·Certificate of Incorporation ·GST Registration Certificate ·Copy of PAN ·Work Orders and Client Certificates for the Projects executed in last 5 Years
2	Power of Attorney	Sole Bidder or all members of the Consortium should submit power of attorney in the name of the person executing the bid, authorizing the signatory to commit the Bidder.	Power of Attorney as specified in RFQ Cum RFP
3	Financial	Sole Bidder or all members of the Consortium jointly should have a minimum average annual turnover of at least 50 Crore in last three audited financial years (FY 2022–23, FY 2023–24, and FY 2024–25. The bidder or all members of the Consortium jointly should have positive net worth in the last three financial years ending 31st March 2025.	Audited financial statements for last three Financial Years, AND CA Certificate clearly specifying turnover

4	Technical Capability	The Bidder or all members of the Consortium jointly or individually have successfully completed ANPR/ ITMS/ ATCC / CCTV Surveillance / ICT projects directly for Central/State Govt. or PSUs or through MSIs for Large projects like Smart City/Safe City projects in India from FY 2022-23 onwards till date of issuance of RFQ Cum RFP: •One project value not less than 4 Crores OR •Two projects value not less than Rs. 2.5 Crores each OR •Three projects value not less than 2 Crores each	Work Order & Completion/Go-Live certificate/ Phase Completion Certificate.
5	Similar Experience	Bidder The Bidder or all members of Consortium jointly or individually should have experience in implementing a similar solution for Central/State Govt. or PSUs or through MSIs for Large projects like Smart City/Safe City projects in India. Similar solution mentioned below: 1. ANPR System with Edge Device 2. AI Based Video Analytics 3. CCTV/ANPR/VMS/AI analytics integration with ICCC 4. e-challan system integration with below analytics : 1) Without Helmet, 2) Triple riding, 3) lane discipline, 4) without seat Belt, 5) one way, 6) use of Mobile while riding	Work Order & Completion/Go-Live certificate/ Phase Completion Certificate.
6	Blacklisting	Sole Bidder or all members should have never been debarred/ blacklisted by any Government/PSU/State Agency/Government undertaking in India till the date of submission.	Letter signed by the Authorized in format given in the RFQ Cum RFP.
7	OEM MAF	Bidder should be Original Equipment Manufacturer (OEM) or Original Software Developer (OSD) for the proposed solution	Manufacturer Authorization Form (MAF) and Original Equipment Manufacturer (OEM) declarations should be provided

8	Certification	The Bidder or members of consortium should hold at least four (4) valid certifications for the following standards: 1. ISO 9001:2015 2. ISO 14001:2015 3. ISO/IEC 27001-2022 4. ISO/IEC 20000-1:2018 5. ISO 45001:2018 6. CMMI Level 3 or higher	Valid copies of the certificate
10	Consortium	Number of members in a Consortium shall not exceed 2 (Two), including the Lead Member	a. Members of the Consortium shall nominate one member as the Lead Member b. 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. Consortium agreement should be submitted in Non-judicial Bond of Min Rs. 500 with notarized
11	Tender Fees & EMD	Tender Fee and EMD in favor of XXXX, payable at XXXXXXXX	Tender Fee Receipt EMD in form of DD

Note:

1. Supporting documents requested should be arranged/numbered in the same order as mentioned above.
2. Failure to meet any of these criteria will disqualify the applicant.
3. MITL reserves the right to verify and/ or to evaluate the claims made under Pre-Qualification criteria, and any decision in this regard shall be final, conclusive, and binding upon the company.
4. All certificates or documents should also be self-attested and attached together. If at a later stage it is found that the bidder has provided false information or has wrongly certified the conditions stated in the Pre-Qualification criteria, the bidder shall be liable for action as per Attachment 1- Corrupt and Fraudulent Practices of “Special Terms and Conditions of Contract” document.

2.3 Technical Evaluation Criteria

The technical proposal shall be evaluated based on the following technical evaluation criteria as of the last date of submission of this bid. Minimum marks for Qualification in Technical Evaluation Criteria shall be 70 Marks.

S.N.	Type	Qualification Criterion	Documentary Evidence	Marks Allocated	Max Marks
1.	**Turnover**	Sole Bidder or all members of the Consortium jointly should have a minimum average annual turnover of at least 50 Crore in last three audited financial years (FY 2022–23, FY 2023–24, and FY 2024–25.)	Audited financial statements for last three Financial Years, AND CA Certificate clearly specifying turnover	50 Cr to 60 Cr: 5 Marks >60 Cr: 10 Marks	10
2.	**Certifications**	The Bidder should hold valid certifications for the following standards: 1. ISO 9001:2015 2. ISO 14001:2015 3. ISO/IEC 27001-2022 4. ISO/IEC20000-1:2018 5. ISO 45001:2018 6. CMMI Level 3 or above	Valid copies of Certificates attested by authorized Bid signatory	1 mark per ISO certificate — 3 marks for CMMI Level 3 or above certificate —	8
3.	**OEM MAF**	Bidder should be MSE OEM/OSD for the proposed solution	MAF / OEM Declarations should be provided	Cameras, VMS, ANPR and Analytics 3 marks each	12
4.	**Project Experience – Hardware**	The Bidder or all members of Consortium jointly or individually shall have successfully completed projects involving ANPR, CCTV Surveillance, and/or Law Enforcement Solutions directly for Central Government / State Government Departments / Government PSUs, or through Master System Integrators (MSIs) as	The experience may be demonstrated through one or more completed work orders / purchase orders / contracts, subject to submission of relevant documentary evidence such as work orders,	5 Projects- 10 Marks >5 Projects – 20 Marks	20

S.N.	Type	Qualification Criterion	Documentary Evidence	Marks Allocated	Max Marks
		part of large-scale projects such as Smart City / Safe City / Integrated Surveillance projects in India, during the period from FY 2022–23 onwards up to the date of issuance of this RFQ Cum RFP. The Bidder or all members of Consortium jointly or individually shall also possess prior experience in ICT supply, implementation, integration, commissioning, and/or operations and maintenance of such systems. The cumulative value of the completed orders/projects executed by the Bidder during the above-mentioned period shall be not less than ₹2 Crore.	completion certificates, client certificates, or other documents issued by the concerned Government Department / PSU / MSI		
5.	**Project Experience – Software Deployment & Integration**	The Bidder must have successfully completed Software integration projects with NPR/ITMS Systems with AI Analytics like E-Challan or ANPR or Face Recognition or any AI Platforms either as integrated PO with hardware or standalone software for directly for Central/State Govt. or PSUs or through MSIs for Large projects like Smart City/Safe City projects in India from FY 2022-23 onwards till	Work Order, Purchase Order (PO) AND Completion Certificate issued by the client, OR invoices evidencing payment received for the services rendered	AI Edge device Integration Platform – 2.5 Marks per Order – Max 2 POs Any Departmental Internal Platforms integrations with Safe City/ Smart City Projects: 5 Marks per	30

S.No.	Type	Qualification Criterion	Documentary Evidence	Marks Allocated	Max Marks
		date of issuance of RFQ Cum RFP		PO, Max 5 Orders	
4.	**Presentation**	Technical solution document based on Methodology and Process for overall implementation of projects. The bidders shall be evaluated on the following aspects: 1. Understanding of Scope of Work 2. Approach & Methodology 3. Implementation Strategy 4. Complexity of software 5. Project Plan / Timelines	Copy of Detailed Solution Document to be submitted	20 Marks	20
Total Marks					**100**

Only those bidders who secure a minimum of 70 marks (70%) or above in the Technical Qualification evaluation shall be declared technically qualified, and the Financial/Commercial Bids of only such technically qualified bidders shall be opened for further evaluation under the QCBS methodology. Bidders scoring below 70 marks shall be treated as technically disqualified, and their Commercial Bids shall not be opened.

2.4 One Bid per Bidder

Each bidder shall submit only one Bid. A Bidder who submits or participates in more than one Bid will be disqualified. No firm can be a subcontractor while submitting a Bid individually in the same Bidding process. A firm, if acting in the capacity of a subcontractor in any Bid, may participate in more than one Bid in that capacity.

2.5 Cost of Bidding

The Bidder shall bear all costs associated with the preparation and submission of its Bid and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.

3 BIDDING DOCUMENTS

3.1 Content of Bidding Documents

Each Bidder shall submit only one Bid. A Bidder who submits or participates in more than one Bid will be disqualified. No firm can be a subcontractor while submitting a Bid individually in the same Bidding process. A firm, if acting in the capacity of a subcontractor in any bid, may participate in more than one bid in that capacity.

1. This RFQ Cum RFP comprises the Disclaimer set forth hereinabove, the contents as listed below, and will additionally include any Addenda issued in accordance with clause 3.2.
    - Invitation for Bids
    - Instructions to Bidders and Conditions of Contract
    - General/Technical Specifications
    - Tender Indicative Drawings
2. The Draft Contract Agreement provided by the Employer as part of the Bid Document shall be deemed to be part of this RFQ Cum RFP.
3. The Bidder is expected to carefully examine the contents of the Bidding documents. Failure to comply with the requirements of Bid submission will be at the Bidder's own risk. The Bids which are not substantially responsive to the requirements of the Bidding documents will be rejected.
4. Bidders are informed that the site investigation information which may be provided is only for Bidder's information and the Employer does not warrant either its accuracy or sufficiency. The Bidder is responsible to inspect and examine the site, its surroundings and other available information and data, and to have satisfied himself, so far as practicable, before submitting the bid as to the form and nature of the site, the hydrological and climatic conditions, the extent and nature of works, the means of access to the site and the accommodation he may require, and all other risks, contingencies and circumstances which may influence or affect the Bid. Bidders are also advised to carry out any additional survey or investigations that may deem to be appropriate or necessary before submitting the Bid.
5. The terms Bid and Tender and their derivatives (Bidder/Tenderer, Bid/Tender, Bidding /Tendering, etc) throughout these Bidding documents are synonymous and day means calendar day. Singular also means plural.

3.2 Clarification of Bidding Documents

1. Bidders requiring any clarification on the RFQ cum RFP may notify the Employer in writing or by and e-mail. They should send in their queries on or before the date mentioned in the Schedule of Bidding Process specified in Clause 1.2. The Employer shall endeavour to respond to the queries within the period specified therein, but no later than 5 (five) days prior to the Bid Due Date. The responses will be published as stated in the RFQ Cum RFP. The Employer will publish the reply to all the queries in the e-proc website without identifying the source of queries.
2. The Employer shall endeavour to respond to the questions raised or clarifications sought by the Bidders. However, the Employer reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring the Employer to respond to any question or to provide any clarification.
3. The Employer may also on its own motion, if deemed necessary, issue interpretations and

clarifications to all Bidders. All clarifications and interpretations issued by the Employer shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by the Employer or its employees or representatives shall not in any way or manner be binding on the Employer.

3.3 Amendment of Bidding Documents

1. At any time prior to the deadline for submission of bids, the Employer may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding documents by issuing addenda.
2. Any addendum thus issued shall be part of the Bidding documents pursuant to clause 3.2. point no-3 and shall be communicated in writing or by fax or published on portal to all Bidders. Prospective Bidders shall acknowledge receipt of each addendum by fax to the Employer within one working day of receipt. Even though the same is not acknowledged within the specified time it shall be deemed that the addendum is received by the Bidder.
3. In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, the Employer may, in its sole discretion, extend the Bid Due Date.

4 PREPARATION OF BIDS

4.1 Language of Bid

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

4.2 Documents Comprising the Bid

1. The Bid submitted by the Bidder shall comprise two parts, with one containing the Technical Proposal and the other containing the Financial Proposal, both submitted at the same time.
2. The Technical Proposal shall comprise General Requirements, Employer's Requirements covering the fully completed Technical Specifications, Indicative Tender Drawings and any other relevant document. Without limiting the generality of the foregoing, the Technical Proposal shall contain following:
    - Bid Security in the form of DD from a nationalised Scheduled bank as specified;
    - Power of Attorney for authorized signatory for this bid;
    - Bid Form for Technical Proposal, signed by the authorized signatory;
    - All pages of Tender and Appendix to Tender, signed by the authorized signatory;
    - Any other information/data required to be submitted in the Technical Proposal by the bidders in accordance with these Instructions to Bidders
3. The Financial Proposal shall be comprised of the fully completed Price Bid as per instructions given on the Procurement website indicating capital cost.

    Without limiting the generality of the foregoing, the Financial Proposal shall contain the following:
    - Bid Form for Financial Proposal; signed by the authorized signatory;
    - Schedule of Prices and Schedule of Payments;
    - Any other materials required to be completed and submitted by bidders in accordance with these Instructions to Bidders.
    - The Financial Proposal shall be completed as per the itemized break down detailed in the price schedules. A Lump-sum price without the detailed breakdown will be deemed as a non-responsive bid and the Bid will be rejected.
4. The Bid Form, to Bid and unit rates and price shall be filled-in without exception, subject to extensions thereof in the same format and to the provisions of Clause 4.6regarding the alternative forms of bid security.

4.3 Bid Prices

1. The rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance relevant clause indicated in Conditions of Contract.
2. The supplementary Price Proposal, if applicable should only contain the changes in price resulting from the changes in the Technical Proposals. Bidders shall note that supplementary

price Bid shall include price variation (increase or decrease, as the case may be) of individual affected items, resulting from corresponding changes in technical proposal, and it is not enough to give the overall increase or decrease in price of affected items as a whole. Bidders should note that, if Employer, during the evaluation of the price proposals, considers that the changes in price are unrealistic in comparison with the original price proposal, the original / supplementary / both Bids are liable to be rejected.

4.4 Currencies of Bid and Payment

1. The unit rates and the prices shall be quoted by the bidder in Indian Rupees (INR).
2. Payment of the Contract Price shall be made only in Indian Rupees (INR).

4.5 Bid Validity

1. Bids shall remain valid for a period of not less than 180 days from the Bid Due Date.
2. In exceptional circumstances, prior to expiry of the original Bid validity period, the Employer may request that the Bidders extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by fax. A bidder may refuse the request without forfeiting its bid security. A bidder agreeing to the request will not be required or permitted to modify its bid, but will be required to extend the validity of its bid security for the period of the extension, and in compliance with Clause 4.6 in all respects.

4.6 Bid Security

A Bidder is required to deposit, along with its Bid, a Bid security as indicated in the Contract Data Forms (the "BID Security"), refundable after signing of the contract with the successful bidder.

4.7 Alternative Proposals by Bidders

Alternative proposals will not be considered.

4.8 Format and Signing of Bid

1. The Bidder shall provide all the information sought under this RFQ cum RFP. The Employer will evaluate only those BIDs that are received online in the required formats and complete in all respects and Bid Security, processing fee and POA are received in hard copies. Incomplete and/or conditional Bids shall be liable to rejection.
2. The Bid shall be typed or written in indelible ink and shall be signed and sealed by a person or persons duly authorised to sign on behalf of the bidder who shall also initial each page, in blue ink. All pages of the bid and all entries where amendments have been made shall be initialled by the person or persons signing the bid.
3. The Bid shall contain no alterations, omissions or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be numbered and initialled by the person or persons signing the Bid.

5 SUBMISSION OF BIDS

5.1 Sealing and Marking of Bids

1. The Bidder shall submit the Technical and Financial Bid online through the e-procurement portal. Bidder's technical proposal shall comprise the following documents in the same order as per the format provided in this RFQ Cum RFP [Forms of Tender], along with supporting documents as appropriate. All pages of the document should have the Bidder's initials or signature.

A. Technical Bid

i. Form T1- Qualification Documents And Proposal Submission Form

ii. Form T2- Details Of The Bidder

iii. Form T3- Format For Power Of Attorney For Authorised Representative

Or

iv. Form T3- Format For Power Of Attorney For Lead Member Of Joint Venture

v. Form T4- Financial Qualification Of The Bidder

vi. Form T5- Technical Qualification – Qualifying Projects

vii. Form T6- Format For Affidavit Certifying That Bidder Are Not Blacklisted

viii. Form T7- Manufacture Authorizations

ix. Form T8- Bid Compliance Undertaking

x. Form T9- Form EMD in the form of DD

B. Financial Bid

i. Financial Proposal Submission Form along with Table 1.1: Grand Summary of Supply, Installation and 2 years Maintenance Support cost table, Table 1.2 : Supply, Installation Cost Table and Table 1.3 : Two years Maintenance Support Cost Table

2. The following document supporting the Bid shall be submitted (physically in a separate envelope) marked as "Enclosures of the Technical Bid". The documents shall include:

i. Original Bid Security for amount indicated in Notice Inviting RFQ Cum RFP in the form of Demand Draft in the prescribed format.

ii. Original Power of Attorney for signing the Bid as per format at Annexure II

3. The envelope containing enclosures of the Bid shall clearly bear the name and address of the Bidder and following identification:

RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support, In addition, the Bid Due Date should be indicated on the right-hand corner of each of the envelopes.

4. The envelope containing Enclosures of the Bid shall be addressed to the Employer at the address indicated in the RFQ Cum RFP.

5. If the envelope is not sealed and marked as instructed above, the Employer assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.

6. Bids submitted by fax, telex, telegram or e-mail shall not be entertained and shall be rejected.

7. Technical proposal shall contain only technical information and no price information shall be included in the Technical proposal. Failure to do this the bid will be considered non-responsive and will be rejected.
8. Only the information provided in 'Technical Bid' though online submission will be considered for evaluation. The information provided in 'Enclosures of the Bid' including additional information, if any will be for information purpose only. The information provided in 'Enclosures of the Bid' will not be used in lieu of missing information in the Technical Bid.

5.2 Deadline for Submission of Bids

1. Technical and Financial Bid comprising the document listed at clause 5.1 point no 1 of the RFQ Cum RFP shall be submitted online through the e-procurement portal on or before Bid Due Date indicated in this RFQ Cum RFP.
2. Documents listed at Clause 5.1 point no 2 of the RFQ Cum RFP shall be physically submitted on or before the Bid Due Date, at the address provided in Clause 5.1 point no 4 in the manner and form as detailed in RFQ Cum RFP. A receipt thereof should be obtained from the person specified in Clause 5.1 point no 4.
3. The bid submission would be considered to be complete only upon successful completion of both the online submission of the Technical and Financial Bid and physical copy submission of 'Enclosures of the Bid' before the Bid Due Date and Time indicated in the Contract Data Sheet.
4. The Employer may, at its discretion, extend the deadline for submission of bids by issuing an addendum in accordance, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

5.3 Late Bids

Bids/ Enclosures of the Bid received physically by the Employer after the specified time on the BID Due Date shall not be eligible for consideration and shall be summarily rejected and will be returned unopened to the bidder.

5.4 Modification and Withdrawal of Bids

1. The Bidder may modify, substitute or withdraw its BID after submission, provided that written notice of modification, substitution or withdrawal is received by the Employer prior to BID Due Date. No BID shall be modified, substituted or withdrawn by the Bidder on or after the BID Due Date and Time.
2. For modification of e-BID, the Bidder has to detach its old BID from the e-procurement portal and upload/resubmit a digitally signed modified BID. For withdrawal of BID, bidder has to click on withdrawal icon at e-procurement portal and can withdraw its e-BID. Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, the Bidder cannot resubmit the e-BID again.
3. Any alteration/modification in the BID or additional information supplied subsequent to the BID Due Date, unless the same has been expressly sought for by the Employer, shall be disregarded.

6 BID OPENING AND EVALUATION

6.1 Bid Opening

1. The Employer shall open the Enclosures of the Technical Bids indicated in Clause 5 [Submission of Bids], in the presence of the Bidders who choose to attend. “If for any reason, the opening could not be done on Bid Due Date, the new date and the time of opening shall be communicated separately”.
2. Technical Bids of those Bidders, who have not submitted their Bid online, shall not be considered for opening and evaluation.
3. The Employer will subsequently examine and evaluate Technical Bids in accordance with the provisions set out in Clause 2.1 [Eligibility Criteria] and Clause 2.2 [Technical Criteria].
4. Bidders are advised that qualification of Bidders will be entirely at the discretion of the Employer. Bidders will be deemed to have understood and agreed that no explanation or justification on any aspect of the Bidding Process or selection will be given.
5. To facilitate evaluation of Technical BIDs, the Employer may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Technical BID. Such clarification(s) shall be provided within the time specified by the Employer for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.
6. If a Bidder does not provide clarifications sought under Clause 6.1 point no 5 above within the prescribed time, its Bid may be liable to be rejected. In case the Bid is not rejected, the Employer may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Employer.
7. The Employer reserves the right to reject any Technical BID which is non-responsive as per clause no 6.4 [Examination of Bids and Determination of Responsiveness]and no request for alteration, modification, substitution or withdrawal shall be entertained by the Employer in respect of such BID
8. Any information contained in the Bid shall not in any way be construed as binding on the Employer, its agents, successors or assigns, but shall be binding on the Bidder if the Project is subsequently awarded to him on the basis of such information.
9. The Employer reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Bid(s) without assigning any reasons.
10. If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, the Employer may, in its sole discretion, exclude the relevant project from computation of the Eligible Score of the Bidder.
11. In the event that a Bidder claims credit for an Eligible Project, and such claim is determinedby the Employer as incorrect or erroneous, the Employer shall reject such claim and exclude the same from computation of the Eligible Score, and may also, while computing the aggregate Experience Score of the Bidder, make a further deduction equivalent to the claim rejected hereunder. Where any information is found to be patently false or amounting to a material misrepresentation, the Employer reserves the right to reject the Bid.
12. The Employer will get the BID security verified from the issuing authority and after due verification, the Authority will evaluate the Technical BIDs for their compliance to the eligibility and qualification requirements pursuant to Clause 2.1 [Eligibility Criteria] and Clause 2.1 [Technical Criteria] of this RFQ Cum RFP.
13. After evaluation of Technical Bids, the Employer will publish a list of technically responsive Bidders whose financial Bids shall be opened. The Employer shall notify other Bidders that they have not been technically responsive. The Employer will not entertain any query or clarification from Applicants who fail to qualify.
14. The Employer shall inform the venue and time of online opening of the Financial Bids to the

technically responsive Bidders through e-procurement portal of the Employer and e-mail. The Employer shall online open the Financial Bids on date and time to be informed in this clause in the presence of the authorised representatives of the Bidders who may choose to attend. The Employer shall publicly announce the Bid Price quoted by the technically responsive Bidder. The Employer shall prepare a record of opening of Financial Bids.

6.2 Process to be Confidential

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award of the successful Bidder is announced. Any effort by a Bidder to influence the Employer's processing of Bids or award decisions may result in rejection of the Bidder's Bid.

6.3 Clarification of Bids and Contacting Employer

1. To facilitate evaluation of Bids, the Employer may, at its sole discretion, seek clarifications from any Bidder regarding its Bid. Such clarification(s) shall be provided within the time specified by the Employer for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing but no change in the price or substance of the bid shall be sought, offered or permitted, except to get additional information to fully understand the proposals of the bidder and to confirm that the requirements of the bidding documents will be met.
2. The request shall be answered promptly within the time stipulated in the request. Failure to respond promptly may result in the Technical proposal being deemed not to be substantially responsive.
3. In case the Bid is not rejected, the Employer may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of the Employer.

6.4 Examination of Bids and Determination of Responsiveness

1. Prior to evaluation of Bids, the Employer shall determine whether each Bid is responsive to the requirements of the RFQ Cum RFP and has been properly signed.
2. A substantially responsive Bid is one which conforms to all the terms, conditions and specifications of the Bidding documents, without material deviation or reservation. The material deviation or reservation would be implied by any of the following assumption/condition/criteria.
    - which affects the scope, quality or performance of the works in any substantial way;

      which is inconsistent with the Bidding documents and/or limits the Employer's rights or the Bidder's obligations under the Contract in any substantial way;

      whose rectification would unfairly affect the competitive position of other Bidders presenting substantially responsive bids.
3. The prerequisite condition for determining substantial responsiveness of the Bid are:
    - it is received by the Bid Due Date including any extension thereof
    - it is accompanied by the Bid Security for the required value as per the format
    - it contains all the information and documents (complete in all respects) as requested in this RFQ Cum RFP;
    - it contains certificates from its statutory auditors in the formats specified;
    - it does not contain any condition or qualification; and
    - it is not non-responsive in terms hereof.
4. The Employer reserves the right to reject any Bid which is non-responsive and no request for

alteration, modification, substitution or withdrawal shall be entertained by the Employer in respect of such Bid.

6.5 Correction of Errors

1. Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
   - where there is a discrepancy between the rates in figures and in words, the lower of the two will govern; and
   - where there is a discrepancy between the unit and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.
2. The amount stated in the Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Bid security may be forfeited in accordance with Bid Security Clause.

6.6 Evaluation and Comparison of Technical Proposals

1. The 'Enclosure of the Bid' will be opened in the presence of Bidder's authorized representatives who are present during the opening of the said part.
2. Evaluation of technical proposal documents will be taken up only for those Bids which are determined as substantially responsive Bid. Prior to detailed evaluation of the documents, Employer shall examine the documents to determine whether they are complete, whether the documents have been properly signed, and whether the Bids are generally in order.
3. The information contained in the technical proposal shall prevail during technical and financial evaluation of Bids and shall be binding on the contractor post award of work. In case any data / information is missing from the above listed documents and is likely to have financial implications, Employer reserves the right to load the financial Bid submitted by the Bidder.
4. If the information given in the technical proposal is determined to be incomplete by Employer, the Employer reserves the right to reject the Bid without assigning any reason thereof.

6.7 Clarification of Technical Proposals

1. Employer may conduct clarification meetings with each or any Bidder to discuss any matters, technical or otherwise, where Employer requires amendments or changes to be made to the Technical Proposal or conditions required to bring all the Bidders at par.
2. Where amendments or changes are required by Employer, Bidders will be requested in writing to adjust their Technical Proposals accordingly and submit a revised Technical Proposal and supplementary price proposal within the time and date to be decided later on.

6.8 Evaluation and Comparison of Price Proposals

1. Employer will evaluate and compare only the Bids determined to be substantially responsive in accordance with above mentioned clause.
2. In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid Price by adjusting the Bid Price as follows:
   - Making any correction for errors pursuant to Correction of Errors; or
   - Making an appropriate adjustment for any other acceptable variations, deviations; and

- Making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Correction of Errors clause.

3. The Employer reserves the right to accept or reject any variation, deviation offer. Variations, deviations, and other factors, which are in excess of the requirements of the Bidding documents or otherwise result in unsolicited benefits shall not be taken into account in Bid evaluation.
4. The estimated effect of the price adjustment conditions under will not be taken into account for Bid evaluation.

7 AWARD OF CONTRACT

7.1 Award Criteria

The bid shall be evaluated on the Quality and Cost Based Selection (QCBS) methodology, with a weightage of 70% to the Technical bid and 30% to the Commercial bid. The contract shall be awarded to the bidder securing the highest Composite Score (H1), subject to fulfilment of all terms and conditions specified in this RFQ Cum RFP. The detailed QCBS methodology and formulae are set out below

- Under QCBS selection, the technical bids will be allotted weightage of 70% and while the commercial bids will be allotted weightages of 30%.
- The bid with the highest technical score shall be given a score of 100 and other bidders technical proposal scores that are proportional to their marks with respect to the highest technical marks.
- The bid with the lowest cost will be given a commercial scope of 100 and other bidders commercial scores that are inversely proportional to their prices with respect to the lowest offer.
- The total score, both technical and commercial, shall be obtained by weighing the quality and cost scores and adding them up. On the basis of the combined weighted score for quality and cost, the bidders will be ranked in terms of the total score obtained.
- The bid obtaining the highest total combined score in evaluation of quality and cost will be ranked as H1 followed by the bid securing lesser marks as H2 and H3 etc.
- The bid securing the highest combined marks and ranked H1 will be invited for negotiation, if required and shall be recommended for award of contract. In the event two or more bids have the same score in final ranking, the bid with highest technical score will be ranked as H1 and will be invited first for negotiations.
- An evaluated bid score (B) will be calculated for each responsive bid using the following formula, which permits a comprehensive assessment of the bid price and the technical merits of each bid.

Evaluated bid score (B) = (T/T high*70) + (C low/C*30)

Where,

- C – Evaluated Bid price
- C Low – The lowest of all evaluated bid prices among responsive bid
- T – The technical score awarded to the bid
- T high – The technical score achieved by the bid that was scored best among all responsive bids.

Bidder	Technical Marks	Commercial Marks	Calculation of bid score	Evaluated Bid score (B)	Rank
1	88	110	[88/95*70] + [110/110*30]	94.84	H-2
2	90	140	[90/95*70] + [110/140*30]	89.88	H-3
3	80	160	[80/95*70] + [110/160*30]	79.57	H-4
4	95	130	[95/95*70] + [110/130*30]	95.38	H1

7.2 Employer's Right to Accept any Bid and to Reject any or all Bids

Notwithstanding Clause 7.1, the Employer reserves the right to accept or reject any bid, 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 Employer's action.

7.3 Notification of Award

1. Prior to expiry of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder by email confirmed by registered letter that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the “Letter of Award” (LOA) shall name the sum which the Employer will pay the Contractor in consideration of the execution, completion, and Operation and Maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called “the Contract Price”).
2. The notification of award will constitute the formation of the Contract.
3. Upon furnishing by the successful Bidder of a performance security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

7.4 Performance Bank Security

Performance Bank Guarantee (PBG) of the value of 5% of the Contract Value need to be provided by the successful bidder as per the format given in the RFQ Cum RFP. PBG should be drawn on a Nationalized / Scheduled Bank for 2 years and 6 Months with an additional claim period of 1year from the date of expiry, providing for encashment at Mumbai Branch.

8 Project Overview and Components

The project aims to strengthen the AURIC Shendra safety and security ecosystem through an integrated deployment of HD/IP CCTV, AI-based video analytics, VMS, and ANPR systems.

The proposed solution shall integrate with the existing Data Centre, ICCC/Command & Control Centre, and OFC/network infrastructure to enable centralized monitoring, intelligent event detection, automated alerts, and enhanced operational efficiency.

8.1 Automatic Number Plate Recognition (ANPR) System

The Project Area consists of five (05) designated entry/exit gates, and all five gates shall be covered under the proposed Automatic Number Plate Recognition (ANPR) System. The selected bidder/service provider shall undertake the Design, Supply, Installation, Testing, Commissioning, Integration, Configuration and Maintenance (SITC) of the complete ANPR solution at all five entry/exit locations. The ANPR system shall automatically capture and recognize the registration number of vehicles entering and exiting the Project Area and shall maintain the corresponding vehicle movement records in a centralized system. The system shall be designed to provide reliable vehicle identification and monitoring on a 24x7 basis, under varying lighting, weather and traffic conditions.

Sr. No.	**Business Requirement of ANPR**
BR 1	The City Surveillance and Traffic Management System shall provide a high-throughput edge-native analytics platform capable of processing 1000 concurrent Full HD. RTSP video streams per compute appliance in real time without frame drops.
BR 2	The system shall operate in a 100% air-gapped, on-premise infrastructure with zero mandatory public cloud connectivity, zero third-party licensing handshakes, and no recurring per-detection metering charges.
BR 3	The platform shall deliver an audited cumulative capture and recognition accuracy $\geq 95\%$ across high-density mixed traffic, multi-lane occlusions, high vehicle velocities, and adverse weather conditions.
BR 4	Every recognition event shall be enriched with multi-dimensional vehicle forensics (Class/Body Type, Dominant Color, Spatial Bounding Box, Kinematic Direction, and Lane ID) to eliminate plate cloning and false alibis.
BR 5	The system shall evaluate real-time detections against local and central Blacklist/Watchlist databases with an end-to-end alert generation and dispatch latency of < 250 ms.
BR 6	The platform shall provide an on-premise Edge Active-Learning and AI Retraining Studio, allowing the Authority to fine-tune and retrain models on local edge-cases without external vendor dependencies.
BR 7	The architecture shall guarantee 99.5% continuous operational availability, ensuring that individual stream failures, network jitter, or AI weight updates never disrupt adjacent parallel video processing channels.

Sr. No.	Business Requirement of ANPR
BR 8	The system shall automatically compile tamper-evident judicial evidence packages including full-frame context images, cropped high-resolution plate images, and microsecond-precision UTC timestamps.
BR 9	The platform shall simultaneously deliver Law Enforcement ANPR Surveillance and Smart City Traffic Engineering extracting directional turn counts, lane occupancy, and volume matrices from existing camera infrastructure.
BR 10	The system shall incorporate Role-Based Access Control (RBAC), multi-operator workspace leasing, cryptographic session management, and immutable audit trails for compliance with national evidentiary standards.

Functional Requirement of ANPR System

Sr. No.	Functional Requirement
FR 1	The system shall execute a synchronized 3-stage neural inference pipeline: Spatial Plate Localization, Visual Attention Sequence Transduction, and Structural Vehicle Classification.
FR 2	The optical character recognition engine shall natively decode single-line, two-tier stacked, commercial transport, electric vehicle, diplomatic, and military arrow-prefix plate formats with character-level confidence scores.
FR 3	The vehicle classifier shall categorize all passing vehicles across 13 distinct structural categories, automatically harmonized into 5 standard enforcement classes (Car, Bus, Truck, Two-Wheeler, Auto-Rickshaw).
FR 4	The system shall implement Spatial-Lock™ Centroid Verification, ensuring that each detected license plate is geometrically locked to its parent vehicle bounding box, eliminating misattribution in bumper-to-bumper traffic.
FR 5	The tracking subsystem shall maintain continuous vehicle track identities using multi-hypothesis kinematic tracking and execute cross-frame consensus voting to extract the highest-clarity plate candidate per passage.
FR 6	The system shall extract both the dominant vehicle exterior body color and the plate background color (White, Yellow, Green, Black, Red) using glare-resilient, dynamic HSV chromatic decomposition.
FR 7	The ATCC engine shall support user-defined virtual tripwires and multi-segment polygon zones to measure directional turning movements (Straight, Left, Right, U-Turn), queue lengths, and lane occupancy ratios.

Sr. No.	Functional Requirement
FR 8	The platform shall feature Aegis-Gate™ Automated Promotability Benchmarking, executing offline regression verification (mAP@50, Precision, Recall, Character Accuracy) before approving candidate weights for production.
FR 9	The ingestion supervisor shall continuously reconcile active streaming workers against the central database, autonomously restoring all video feeds within 5 seconds of a system reboot.
FR 10	The operations dashboard shall provide sub-second forensic search across alphanumeric wildcards, vehicle category, dominant color, camera source, and timestamp intervals with animated visual preview clips.
FR 11	The system shall provide automated Blacklist/Watchlist alarm generation with configurable multi-recipient broadcast via Webhooks, REST APIs, and automated relay triggers.
FR 12	The platform shall support standardized open data exchange in JSON, XML, and RESTful HTTP APIs for seamless integration with third-party VMS, NVR, ICCC, and ITMS platforms.
FR 13	The system shall maintain real-time vehicle speed estimation (km/h) using perspective-calibrated kinematic displacement across calibrated road geometry.
FR 14	The platform shall include an interactive Web-Based Ground-Truth Annotation Canvas, allowing operators to correct bounding boxes and update labels with single-click dataset synchronization.
FR 15	The ITMS module shall compute real-time traffic flow indicators including Vehicle Headway (seconds), Gap Time (seconds), and Spatial Density (vehicles/km/lane).
FR 16	The system shall support user-configurable operational exclusion zones and privacy masking regions to omit non-traffic areas, sidewalks, and private premises.
FR 17	The platform shall support automated deduplication windows (configurable from 1 to 30 seconds), preventing repeated violation alerts for stationary or slow-moving queued vehicles.
FR 18	The system shall provide configurable confidence filtering thresholds for plate localization, character sequence decoding, and vehicle categorization independently per camera stream.
FR 19	The user interface shall provide real-time side-by-side metric comparison views displaying performance differentials (Δ%) between staging AI models and production models.

Sr. No.	Functional Requirement
FR 20	The system shall generate automated daily, weekly, and monthly traffic summary reports exportable in CSV, PDF, and MS Excel formats directly from the web console.
FR 21	The platform shall provide live visual bounding box and tracking vector overlays rendered dynamically over live RTSP streams without altering raw evidence recordings.
FR 22	The system shall support Hotlist import and synchronization supporting bulk CSV and JSON file uploads containing upwards of 1,000,000 target registration numbers.
FR 23	The platform shall support manual one-click operator verification and dispute resolution marking false-positive detections directly from the forensic log view.
FR 24	The system shall provide automated email and SMS dispatch integration for high-priority stolen vehicle and criminal hotlist detections.
FR 25	The platform shall support multi-camera spatial correlation, allowing operators to track suspect vehicle trajectories across sequential intersection nodes along a corridor.

3: Technical Requirements of ANPR System

Sr. No.	Technical Requirement Specification
TR 1	The software shall be architected as fully containerized microservices operating under Cloud-Native Container Orchestration (Kubernetes) with isolated execution namespaces for Inference, Analytics, Training, and Database.
TR 2	The core inference engine shall support Multi-GPU Dynamic Load Balancing utilizing FP16 Half-Precision Tensor runtimes, unified memory allocation, and dedicated CPU thread isolation.
TR 3	The video ingestion pipeline shall implement Omni Stream Asynchronous Processing, executing dedicated non-blocking RTSP capture threads with per-stream watchdogs ($4{,}000$ms) and zero global mutex locks.
TR 4	The character recognition engine shall utilize a Compact Vision-Transformer Architecture (≤ 5MB runtime artifact), achieving sub-1.8ms inference execution latency per plate crop.
TR 5	The analytics persistence layer shall utilize an enterprise relational database with Native JSONB Document Indexing, supporting concurrent write throughput exceeding 500records/sec.

Sr. No.	Technical Requirement Specification
TR 6	The engine shall execute Interleaved Multi-Cadence Scheduling, running plate detection ($N = 2$) and vehicle classification ($N = 3$–5) while maintaining continuous 15 FPS tracking without GPU saturation.
TR 7	The system shall implement Live-Link Zero-Downtime Hot-Reloading, synchronizing production model weights via persistent storage volumes without restarting active RTSP decoding pipelines.
TR 8	The image conditioning pipeline shall incorporate hardware-accelerated Adaptive Frame Enhancement (CLAHE, auto-exposure compensation, and Wide Dynamic Range) for night-time, glare, and rain resilience.
TR 9	The platform shall implement Soft Process Watchdogs, replacing fatal process terminations with non-blocking per-worker thread recycling, validating frame queue freshness every <900 ms.
TR 10	The system shall expose standardized health, readiness, and OpenMetrics telemetry endpoints detailing per-camera FPS, dropped packets, GPU allocation, and P99 latency.
TR 11	The platform shall support standard network communication protocols including IPv4, IPv6, TCP, UDP, HTTP, HTTPS, RTSP, RTP, ONVIF Profile S/G/T, and SNMP v2c/v3.
TR 12	The system shall support modular scaling allowing independent expansion of compute nodes, GPU accelerators, and storage arrays without requiring application re-architecture.
TR 13	The video ingestion engine shall support hardware-accelerated NVDEC/H.264/H.265/MJPEG stream decoding with automatic fallback to multi-threaded CPU decoding.
TR 14	The platform shall maintain secure inter-service communication using internal cryptographic bearer tokens and Kubernetes NetworkPolicy perimeter firewalls.
TR 15	The evidentiary storage subsystem shall store evidence snapshots as high-quality WebP / JPEG images on disk with relative URI indexing in PostgreSQL to prevent database bloat.
TR 16	The system shall implement isolated sub-process piping for OCR inference execution, preventing numerical thread library contention between PyTorch and TensorRT.
TR 17	The training subsystem shall implement automated dataset versioning, partitioning training, validation, and test splits with cryptographic SHA-256 weight checksums.
TR 18	The database layer shall execute automated partitioning and rolling window retention cleanup to maintain sub-10ms query speeds across databases exceeding 50 million records.

Sr. No.	Technical Requirement Specification
TR 19	The application shall support deployment on bare-metal industrial servers/
TR 20	The web dashboard shall be built with lightweight, responsive HTML5/CSS3/ES6 JavaScript requiring zero proprietary browser plugins or ActiveX controls.
TR 21	The system shall maintain an immutable, append-only security audit log recording all user logins, configuration alterations, manual edits, and evidence exports.
TR 22	The platform shall support Network Time Protocol (NTP) time synchronization with external GPS master clocks, maintaining clock drift under ± 5ms.
TR 23	The API layer shall implement high-throughput asynchronous ASGI/Fast API endpoints with connection pooling and automated HTTP keep-alive.
TR 24	The system shall feature automated synthetic data generation engines for OCR retraining, capable of generating controlled multi-font training sets on demand.
TR 25	The entire platform configuration shall be declaratively managed via version-controlled YAML configuration profiles, enabling automated disaster recovery deployment within minutes.

8.2 Enterprise Video Management System (VMS), Video Intelligence & Digital Evidence Platform

The proposed solution shall be an enterprise-grade Video Management System (VMS) designed for large-scale, mission-critical surveillance environments including Safe City, Smart City, Critical Infrastructure, Transportation, Industrial, Government and Enterprise deployments.

The platform shall provide an integrated architecture for live video management, recording, playback, device management, storage lifecycle management, system health, cybersecurity, third-party integration, edge processing, AI/analytics integration and digital evidence management.

The solution shall be designed to support current surveillance requirements while providing a scalable and extensible architecture for future video sources, analytics and operational applications.

ii. **ENTERPRISE ARCHITECTURE, SCALABILITY & RESILIENCE:**

1. The proposed VMS shall be based on a modular, distributed and service-oriented architecture suitable for enterprise and mission-critical deployments.
2. The solution shall support containerized deployment using an enterprise orchestration platform such as Kubernetes or equivalent.
3. Major functional services including recording, playback, streaming, device management, health monitoring and integration shall be capable of operating and scaling independently.
4. The architecture shall support horizontal scale-out by adding compute, storage and application resources without requiring replacement of the complete VMS platform.
5. The system shall support deployment across multiple physical or virtual servers.
6. Failure or restart of an individual application service shall not require shutdown of the complete VMS.

7. Application workloads shall support automatic health monitoring, restart and recovery through the orchestration platform.
8. The architecture shall support High Availability and project-specific Disaster Recovery deployment models.
9. The platform shall be suitable for deployment from enterprise-scale installations through multi-thousand-camera environments.
10. The bidder shall demonstrate a scalable architecture capable of supporting future expansion to 5,000 or more video channels, subject to appropriate infrastructure sizing.
11. Recording, playback, streaming and analytics capacity shall be capable of independent expansion according to workload requirements.
12. The VMS shall support deployment on qualified industry-standard compute and storage infrastructure without mandatory dependence upon proprietary NVR appliances.
13. Core system operation shall support fully on-premises deployment without mandatory dependency on a vendor-operated public cloud.
14. Surveillance video, metadata and system configuration shall be capable of remaining within customer-controlled infrastructure.

iii.UNIFIED VIDEO, DEVICE & RECORDING MANAGEMENT:

1. The VMS shall provide centralized management of video devices and associated operational capabilities.
2. The platform shall support traditional fixed IP cameras together with future video sources including:

- PTZ cameras
- Edge surveillance gateways
- Mobile cameras
- Vehicle-mounted cameras
- Body-worn cameras
- Drones/UAVs
- AI-enabled cameras
- Other IP-based video devices

3. The solution shall use a capability-driven device architecture, allowing different device categories to expose only the functions supported by the respective device.
4. Device capabilities may include live video, recording, audio, PTZ, telemetry, GPS/location, health information, analytics, evidence upload and device configuration.
5. The platform shall provide an extensible adapter-based architecture for integration of new device types and manufacturers.
6. Support for standards such as ONVIF shall not prevent integration of non-ONVIF or proprietary devices through appropriate adapters.
7. Cameras and devices shall be dynamically added, modified, enabled, disabled and decommissioned without modification of application source code.
8. Device decommissioning shall preserve historical and audit information where required.
9. The VMS shall support continuous enterprise-grade video recording.
10. The recording architecture shall use persistent recording processes or workloads suitable for long-duration operation.
11. Recording shall be internally segmented for fault isolation, recovery and storage management while being presented to operators as meaningful logical recording sessions.
12. Recording health, status and failure information shall be centrally available.
13. Recording workloads shall be distributable across multiple compute nodes.
14. Multiple authorized users viewing the same camera shall be supported through an efficient stream-distribution architecture without unnecessary duplication of upstream camera connections.
15. Operators shall access video through the VMS application rather than requiring direct access to physical camera credentials.

3. INTELLIGENT STORAGE, RETENTION & PLAYBACK:

1. The VMS shall provide integrated policy-based video data lifecycle management.
2. The platform shall support automated data tiering across storage classes based on parameters such as age, retention policy, capacity, performance requirement and business priority.
3. The storage architecture shall support combinations of:

- High-performance primary recording storage
- Capacity-optimized secondary storage
- Object storage
- Archive storage
- S3-compatible storage platforms

3. Movement of recorded video between storage classes shall be automated according to configurable lifecycle policies.
4. Before removal of a source copy during data migration, the platform shall verify successful availability of the recording at the destination storage tier.
5. The system shall maintain recording metadata and lifecycle state throughout data migration.
6. Failure of a storage migration process shall not result in uncontrolled loss of the only available recording copy.
7. Retention periods shall be centrally configurable according to project requirements.
8. The platform shall support automated policy-based deletion of recordings after expiry of the applicable retention period.
9. Storage capacity shall be independently expandable from application-compute capacity.
10. The VMS shall provide centralized visibility of recording storage capacity, utilization and lifecycle status.
11. Playback shall be independent of the physical storage location of the recording.
12. Authorized operators shall be able to request video without requiring knowledge of the underlying storage class or storage system.
13. The VMS shall automatically resolve and retrieve recordings from the applicable primary, secondary, object or archive storage location.
14. Playback workloads shall be independently scalable from recording workloads.
15. The platform shall support controlled video clip export and digital evidence retrieval by authorized users.

4. EDGE INTELLIGENCE, AI & FORENSIC SEARCH:

1. The VMS shall support both centralized and distributed edge-processing architectures.
2. Edge systems shall be capable of performing selected functions including camera ingestion, local recording, video buffering, AI inference, metadata generation and event processing.
3. Edge processing shall enable selected analytics workloads to operate close to the video source, thereby reducing unnecessary transmission of full-resolution video to central analytics infrastructure.
4. The architecture shall support transmission of events, metadata and operational information from edge locations to the central VMS.
5. Edge and centrally connected devices shall be manageable within a common enterprise architecture.
6. The core VMS shall remain independent from any single AI analytics engine.
7. AI models and analytics applications shall be capable of being upgraded, replaced or expanded without redesign of the core recording architecture.
8. The platform shall support integration of analytics such as:

- Vehicle detection and classification
- Vehicle counting
- Vehicle colour identification
- ANPR/LPR
- Traffic violation detection

- Crowd counting and density
- Occupancy
- Congestion analysis
- Heatmaps
- Object and behavioural analytics
- Face analytics, subject to applicable regulations and policies

9. Analytics-generated events and metadata shall be linkable to the associated camera, location, time and recorded video.
10. The solution shall support metadata-driven forensic investigation.
11. Search architecture shall support indexing of attributes such as time, camera, location, object type, vehicle category, colour, plate number, event type and AI classification.
12. Operators shall be capable of identifying relevant video through metadata search rather than sequentially reviewing complete historical recordings.
13. The architecture shall support future advanced investigation workflows including attribute-based and natural-language-assisted video search.

5. CYBERSECURITY, IDENTITY, AUDIT & DATA GOVERNANCE

1. The VMS shall support centralized enterprise Identity and Access Management.
2. The platform shall support Role-Based Access Control for administrative, operational, investigative and security functions.
3. Authentication and authorization shall be centrally enforced rather than independently implemented within each application service.
4. API and application access shall support enforcement through a centralized API gateway or equivalent security-control layer.
5. Camera/device credentials shall not be exposed to normal operators.
6. Production credentials and cryptographic secrets shall not be hard-coded within application source code.
7. The platform shall support integration with enterprise secrets-management and certificate-management infrastructure.
8. Secure application communication using TLS/HTTPS and customer-approved digital certificates shall be supported.
9. The architecture shall support logical and physical network segmentation between camera, application, storage, management, integration and user networks.
10. The VMS shall support integration with customer cybersecurity infrastructure including:

- SIEM
- SOC
- WAF
- PKI
- Enterprise IAM
- Vulnerability management platforms
- Centralized monitoring systems

11. Security-sensitive user and administrative activities shall be auditable.
12. Audit information shall support capture of user identity, timestamp, activity performed, affected device/evidence and relevant configuration changes.
13. Playback and evidence-export activities shall support audit logging according to customer policy.
14. The platform architecture shall support tamper-resistant or immutable audit mechanisms.
15. Audit information shall support forwarding to enterprise SIEM platforms.
16. Evidence-export activities shall be subject to authorization and traceability.
17. The architecture shall support future chain-of-custody requirements for mobile, body-worn and other evidentiary video sources.
18. The VMS shall support configurable retention and privacy policies.
19. The solution shall support customer-controlled data residency and deployment within restricted or isolated environments.
20. The platform shall provide technical controls supporting privacy-by-design, least-privilege access

and applicable data-protection requirements.

21. The solution architecture shall support technical controls relevant to the Digital Personal Data Protection framework.
22. Any formal STQC, statutory, regulatory or laboratory certification claimed by a bidder shall be supported by applicable valid documentary evidence for the offered product/version.

6. OPEN INTEGRATION, OPERATIONS & FUTURE READINESS

1. The VMS shall provide documented and controlled APIs for integration with third-party platforms.
2. Normal third-party integration shall not require direct access to the application database.
3. The platform shall support event-driven integration using scalable messaging or event-streaming mechanisms.
4. The VMS shall support integration with systems including:

- Integrated Command & Control Centre platforms
- GIS
- Access Control Systems
- Building Management Systems
- PSIM platforms
- SIEM/SOC
- Incident Management Systems
- Third-party analytics
- Mobile applications
- Digital evidence platforms
- Other enterprise applications

5. Addition of a new integration shall not require redesign of the core recording system.
6. The platform shall provide centralized operational health monitoring.
7. System Health shall provide consolidated visibility of devices, recording services, application services, storage and relevant infrastructure status.
8. Infrastructure-level implementation details shall remain abstracted from normal operators.
9. The VMS shall provide a centralized web-based user interface covering key operational functions including:

- Live View
- Playback
- Device Management
- Recording Status
- Storage Status
- System Health
- Events
- Investigation
- Evidence Export

10. The proposed platform shall follow open architecture principles and minimize dependence upon proprietary server, storage, camera, analytics or cloud infrastructure.
11. Compute, storage, analytics and application capacity shall be independently expandable.
12. The proposed system shall provide a technology and architecture roadmap capable of accommodating future device types, AI capabilities, storage technologies and enterprise integrations without replacement of the fundamental VMS platform.

7. OVERALL TECHNICAL REQUIREMENT

The proposed solution shall not be limited to the functionality of a traditional CCTV recording platform or network video recorder. The system shall provide a unified enterprise architecture combining:
Video Management + Enterprise Recording + Scalable Live Streaming + Automated Data Tiering + Policy-Based Retention + Storage-Independent Playback + Unified Device Management + Edge Processing + AI Integration + Metadata-Driven Investigation + Digital Evidence Management +

Cybersecurity + Audit + Open API Integration. The platform shall be designed to scale through addition of compute, storage and application resources rather than through replacement of the underlying VMS architecture. The preferred solution shall therefore operate as an Enterprise Video Management, Video Intelligence and Digital Evidence Platform suitable for current and future Safe City, Smart City, Government, Industrial and Critical Infrastructure surveillance requirements.

1: Business Requirements of Enterprise VMS (BR)

Ref No.	Business Requirement Specification
BR 1	The proposed solution shall be an enterprise-grade Video Management System (VMS) designed for mission-critical Safe City, Smart City, Critical Infrastructure, and Industrial deployments.
BR 2	The platform shall provide an integrated architecture for live video management, continuous recording, storage lifecycle tiering, system health, and digital evidence management.
BR 3	The system shall support scalable video ingestion starting from enterprise installations up to **5,000+ video channels** through modular horizontal compute and storage expansion.
BR 4	Core system operation shall support **100% on-premises, air-gapped deployment** without mandatory reliance on vendor-operated public clouds or metered licensing handshakes.
BR 5	Surveillance video, analytical metadata, evidentiary logs, and system configuration databases shall remain strictly within customer-controlled sovereign infrastructure.
BR 6	The VMS shall support deployment on qualified, commercial off-the-shelf (COTS) industry-standard compute and storage hardware without proprietary NVR appliance lock-in.
BR 7	The platform architecture shall guarantee 99.999% **high availability** with automated health monitoring, workload recovery, and multi-site Disaster Recovery (DR) models.
BR 8	The VMS shall operate as an open, extensible platform with documented APIs to tightly integrate with external Edge AI analytics, ANPR, ATCC, PSIM, and ICCC platforms.
BR 9	The platform shall enforce strict Role-Based Access Control (RBAC), multi-operator workspace leasing, centralized IAM, and immutable audit logs compliant with Data Protection standards.
BR 10	The system shall provide a future-proof technology roadmap supporting emerging video sources (body-worn, UAVs, mobile gateways) and AI subsystems without core platform replacement.

2: Functional Requirements of Enterprise VMS (FR)

Ref No.	Functional Requirement Specification
FR 1	The VMS shall provide centralized device lifecycle management for fixed IP, PTZ, edge gateways, mobile/vehicle cameras, body-worn cameras, and UAV video feeds via extensible adapters.
FR 2	The platform shall utilize a capability-driven device architecture, dynamically exposing supported functions (live, record, audio, PTZ, telemetry, GPS, analytics) per device profile.
FR 3	Cameras and devices shall be dynamically onboarded, configured, enabled, disabled, and decommissioned without requiring application source code modifications or server restarts.
FR 4	The VMS shall support continuous enterprise-grade video recording with internal session segmentation for fault isolation, distributable across multiple recording compute nodes.
FR 5	The system shall provide automated stream multiplexing, serving multiple client viewing sessions from a single upstream camera connection to eliminate network bandwidth duplication.
FR 6	The platform shall support automated policy-based video lifecycle management and data tiering across primary NVMe/SSD, secondary SAN/NAS, object storage, and S3-compatible archives.
FR 7	The platform shall verify recording availability and checksum integrity at the destination storage tier prior to purging source copies during automated data migration cycles.
FR 8	The VMS shall provide storage-independent playback, allowing operators to seamlessly retrieve recorded footage without requiring knowledge of physical storage tiers.
FR 9	The VMS shall support simultaneous viewing of live video and synchronized playback across up to 25 video panes per display across 4 independent workstation monitor displays.
FR 10	The system shall provide PTZ control with priority preemption, user-restricted joystick/mouse tracking, absolute/relative coordinates, automated presets, and privacy masking.

Ref No.	Functional Requirement Specification
FR 11	The VMS shall provide a single-pane web-based dashboard covering Live View, Playback, Device Management, Storage Lifecycle, System Health, Events, and Evidence Export.
FR 12	The system shall support **Metadata-Driven Forensic Search**, indexing timestamps, camera IDs, object classes, attributes, license plates, and event types for sub-second retrieval.
FR 13	The platform shall support interactive multi-layer GIS maps supporting BMP, JPEG, PNG, CAD (DWG), and GIS layers with live camera fields-of-view, active alarms, and spot monitors.
FR 14	The VMS shall provide comprehensive alarm management with visual flashing overlays, audible chimes, automated PTZ positioning, and multi-recipient email/webhook dispatch.
FR 15	The platform shall support tight event-driven integration with external AI/ANPR/ATCC analytics engines, ingesting structured JSON/XML alert payloads and bounding box coordinates.
FR 16	The system shall support dynamic bounding box, trajectory vector, and classification label rendering directly over live and playback video streams without altering raw video.
FR 17	The VMS shall support digital signing and tamper-evident watermarking on all exported video clips to ensure an unbroken chain-of-custody for judicial proceedings.
FR 18	The platform shall support bookmarking of critical video segments with searchable text annotations, user tagging, and automated export to PDF/CSV forensic reports.
FR 19	The VMS shall provide motion search capabilities across recorded footage, allowing operators to define regions of interest and search for directional motion or object removal.
FR 20	The system shall support bidirectional full-duplex and half-duplex audio communication between client operator workstations and field IP camera audio interfaces.
FR 21	The VMS shall support scheduled, continuous, motion-triggered, alarm-triggered, and manual instant recording modes configurable independently per camera channel.
FR 22	The platform shall support automated retention policy enforcement, automatically archiving or purging expired video footage based on predefined operational rules.

Ref No.	Functional Requirement Specification
FR 23	The system shall support multi-camera time-synchronized playback, enabling forensic operators to reconstruct incident sequences across multiple viewing angles simultaneously.
FR 24	The VMS shall support automated incident summarization, allowing operators to assemble and export multi-camera video highlights into a single consolidated evidentiary package.
FR 25	The platform shall support one-click emergency lockdown and spot monitor assignment, automatically routing critical alarm video streams to designated security video walls.

3: Technical Requirements of Enterprise VMS (TR)

Ref No.	Technical Requirement Specification
TR 1	The VMS shall be architected as modular, containerized microservices running under **Enterprise Container Orchestration (Kubernetes / K3s)** with independent service scaling.
TR 2	Major functional services including recording, streaming, playback, device management, health monitoring, and analytics integration shall scale horizontally without system shutdown.
TR 3	The VMS shall implement an **Asynchronous Non-Blocking Video Pipeline**, managing RTSP/RTP ingestion threads with dedicated watchdogs and zero global mutex bottlenecks.
TR 4	The recording subsystem shall support automatic N+1 and N+N failover configurations, seamlessly redirecting camera streams to standby nodes upon primary server failure.
TR 5	The VMS shall support hardware-accelerated video decoding (NVDEC/Intel QuickSync/CPU) for H.264, H.265, MPEG-4, and MJPEG compression streams.
TR 6	The analytics integration interface shall expose high-throughput **RESTful HTTP, gRPC, and WebSocket APIs** for bi-directional metadata and telemetry exchange with external AI engines.
TR 7	The VMS shall ingest external AI analytics metadata via standard **JSON/JSONB and XML schemas**, persisting event linkages with microsecond time synchronization.

Ref No.	Technical Requirement Specification
TR 8	The storage architecture shall support tiered data management across NVMe/SSD primary caching, block storage (SAN/iSCSI), network storage (NAS/NFS), and S3-compatible Object Storage.
TR 9	The platform shall enforce centralized Identity and Access Management (IAM), integrating seamlessly with enterprise LDAP, Active Directory, and OAuth2/OIDC single sign-on (SSO).
TR 10	All API communication, client streaming sessions, and administrative interfaces shall be encrypted end-to-end using TLS 1.3 / HTTPS with zero hard-coded credentials.
TR 11	The architecture shall enforce strict network segmentation between camera ingestion, recording compute, storage backend, integration bus, and client viewing networks.
TR 12	The VMS shall integrate with enterprise cybersecurity monitoring systems including Security Information and Event Management (SIEM), SOC, WAF, and PKI infrastructure.
TR 13	The platform shall maintain an immutable, append-only security audit log capturing all user logins, stream accesses, PTZ operations, configuration edits, and evidence exports.
TR 14	The system shall support Network Time Protocol (NTP) master clock synchronization, maintaining time drift across cameras, recording nodes, and analytics engines under $\pm 5\text{ms}$.
TR 15	The platform shall expose standardized Prometheus/OpenMetrics and REST health endpoints detailing stream FPS, dropped frames, CPU/RAM, and storage usage.
TR 16	The VMS shall support compliance with ONVIF Profile S (Basic Video), Profile G (Edge Storage), Profile T (Advanced Video), and Profile M (Analytics Metadata).
TR 17	The web client interface shall be built on responsive HTML5/WebRTC/CSS3 standards, delivering sub-second live video playback with zero proprietary browser plugins or ActiveX controls.
TR 18	The system shall implement automated rolling window index partitioning to maintain sub-10ms search query performance across databases containing over 100 million event records.
TR 19	The VMS shall provide automated SNMP v2c/v3 traps and email notifications for hardware faults, storage threshold warnings, camera disconnections, and network drops.

Ref No.	Technical Requirement Specification
TR 20	The database subsystem shall support high-availability clustering with automatic master-replica failover and zero-data-loss synchronous replication.
TR 21	The platform shall provide an event-driven publish-subscribe messaging bus (Kafka / RabbitMQ / Redis) capable of distributing $> 10{,}000$analytics events/sec to connected consumers.
TR 22	The VMS shall support dynamic bandwidth throttling and multi-streaming (main stream for recording, sub-stream for multi-pane live view) to optimize network utilization.
TR 23	The application shall support deployment on bare-metal and virtualized servers running enterprise Linux distribution.
TR 24	The platform shall provide a modular SDK and REST API documentation suite enabling third-party developers to build custom integrations without core codebase modifications.
TR 25	The entire VMS platform configuration and microservice deployment manifests shall be declaratively managed via version-controlled YAML, enabling full disaster recovery in minutes.

8.3 Enterprise General AI Video Analytics & Intelligent Incident Detection Suite

Business Requirements of General AI Video Analytics Suite (BR)

Sr.No.	Business Requirement Specification
BR 1	The platform shall provide an edge-native multi-model AI Video Analytics Suite capable of executing multi-class incident detection across 50 to 100 concurrent Full HD video streams per compute node.
BR 2	The analytics engine shall operate entirely on-premise in a 100% air-gapped environment with zero mandatory public cloud dependencies, external telemetry uplinks, or per-event transaction fees.
BR 3	The system shall deliver proactive automated threat detection, generating situational alarms with an end-to-end event evaluation and alert dispatch latency of $< 300\,ms$.
BR 4	The platform shall provide comprehensive asset protection, detecting unauthorized object removal, sterile zone intrusion, and line crossing to prevent theft and sabotage in critical facilities.

Sr.No.	Business Requirement Specification
BR 5	The system shall provide early life-safety intelligence, detecting flame and volumetric smoke plumes in day and night environments before physical smoke sensors can trigger.
BR 6	The platform shall deliver public safety and crowd intelligence, analyzing crowd density, surge flow rates, and abnormal gathering patterns to prevent stampedes and public disorder.
BR 7	The analytics architecture shall support Dynamic Capability Orchestration , allowing operators to assign different analytics pipelines to specific camera channels on demand.
BR 8	The system shall generate court-ready evidentiary bundles for every detected incident, packaging full-frame context images, cropped visual objects, and microsecond UTC timestamps.
BR 9	The platform shall provide seamless plug-and-play integration with the Enterprise VMS, ICCC, and PSIM platforms via standard REST, WebSocket, and event-driven message buses.
BR 10	The system shall guarantee 99.999% continuous analytical uptime , ensuring that single-camera anomalies or AI rule updates never interrupt adjacent parallel analytics channels.

Functional Requirements of General AI Video Analytics Suite (FR)

Sr.No.	Functional Requirement Specification
FR 1	Asset Theft / Object Removal Detection: The system shall detect the unauthorized removal of designated static assets from a defined zone and trigger alarms upon removal.
FR 2	Asset Movement & Virtual Tripwire Crossing: The engine shall detect objects or personnel crossing multi-segment virtual boundary lines and generate directional breach alarms.
FR 3	Perimeter & Sterile Zone Intrusion Detection: The system shall detect humans, vehicles, or unauthorized objects breaching configured sterile polygon zones.
FR 4	Loitering & Dwell Time Analytics: The system shall track objects remaining inside sensitive perimeter zones longer than a user-configured dwell threshold (configurable 5 to 300s).
FR 5	Crowd Density & Surge Monitoring: The engine shall calculate spatial crowd density (persons/m^2), triggering alarms when threshold limits or overcrowding occur.
FR 6	Crowd Flow & Congestion Analytics: The system shall measure directional pedestrian velocity and volume vectors, generating alerts upon crowd counter-flow or bottleneck congestion.
FR 7	Vehicle Counting & 13-Class Classification: The system shall detect, count, and classify passing vehicles across 13 structural categories with directional flow rates.

Sr.No.	Functional Requirement Specification
FR 8	High-Accuracy ANPR: The system shall capture and decode license plates with $\geq 95\%$ accuracy, binding plate text to vehicle class and color.
FR 9	Auto-Tracker & Kinematic Following: The system shall automatically track moving targets across camera fields-of-view and command PTZ cameras to follow targets autonomously.
FR 10	Multi-Class Object Counting: The engine shall count people, vehicles, and custom objects crossing bidirectional tripwires or entering polygon zones with real-time tally updates.
FR 11	Stopped & Illegally Parked Vehicle Detection: The system shall detect stationary vehicles stopped in sensitive or no-parking zones longer than a configured threshold (10 to 600s).
FR 12	Fire & Flame Detection: The system shall detect open flames and embers in indoor and outdoor environments within 3 to 5 seconds of ignition during day and night.
FR 13	Volumetric Smoke Detection: The engine shall identify expanding smoke plumes, haze patterns, and thermal updrafts across open yards, highways, and industrial warehouses.
FR 14	Adaptive Motion Detection: The engine shall identify moving objects using spatial-temporal filtering resistant to environmental noise such as swaying trees, rain, and headlights.
FR 15	Abandoned Object Detection: The system shall detect stationary unattended packages, luggage, or bags left in public zones exceeding a user-defined duration (configurable 10 to 300s).
FR 16	Camera Sabotage & Tampering Detection: The system shall trigger instant alarms upon camera blinding, lens spray, defocusing, masking, or physical redirection of the camera field-of-view.
FR 17	Directional Motion & Wrong-Way Detection: The engine shall detect vehicles or pedestrians traveling contrary to the authorized flow of traffic and generate instant contra-flow alarms.
FR 18	Multi-Rule Composite Logic ('AND' / 'OR' Triggers): The system shall support compound alarm rules requiring multiple spatial or temporal criteria to be satisfied before triggering an alert.
FR 19	Dynamic Bounding Box & Vector Overlays: The platform shall render color-coded bounding boxes, tracking IDs, and velocity vectors directly over live RTSP streams without altering raw video.
FR 20	Interactive Web-Based Zone & Tripwire Calibration: The console shall provide a drag-and-drop web canvas for drawing virtual tripwires, exclusion zones, and polygon detection regions.
FR 21	Automated Multi-Channel Alert Dispatch: The system shall broadcast validated alarm events via REST Webhooks, WebSocket streams, email notifications, and hardware relay closures.

Sr.No.	Functional Requirement Specification
FR 22	Forensic Metadata-Driven Search: The platform shall allow operators to query historical analytics events by rule type, object class, timestamp, camera ID, and spatial zone.
FR 23	Occupancy & Capacity Management: The engine shall compute real-time net occupancy (entries minus exits) across facilities and trigger alerts when capacity limits are approached.
FR 24	False Alarm Suppression Filtering: The system shall filter out small animals, birds, blowing debris, shadow shifts, and illumination changes using deep neural object verification.
FR 25	Edge Active-Learning Studio Integration: Operators shall be able to flag detection false-positives and send cropped samples directly to the on-premise studio for model retraining.

3: Technical Requirements of General AI Video Analytics Suite (TR)

Sr.No.	Technical Requirement Specification
TR 1	The analytics engine shall be architected as fully containerized microservices operating under Enterprise Kubernetes with isolated execution namespaces and independent scaling.
TR 2	The system shall support Multi-GPU Tensor-Accelerated Computing utilizing FP16/INT8 precision TensorRT runtimes with dynamic workload distribution across available GPU cores.
TR 3	The video ingestion pipeline shall implement OmniStream Asynchronous Processing , managing non-blocking RTSP capture threads with per-stream watchdogs ($4,000\text{ ms}$) and zero mutex locks.
TR 4	The system shall implement Interleaved Multi-Cadence Scheduling , running high-frequency tracking at 15 FPS while executing heavy spatial classifiers every $N = 2 - 5$ frames to optimize GPU load.
TR 5	The analytics persistence layer shall store event telemetry, spatial coordinates, and track vectors in an enterprise relational database with Native JSONB Document Indexing
TR 6	The platform shall support Live-Link™ Zero-Downtime Hot-Reloading , synchronizing updated neural network weights via shared persistent volumes without stream restarts.
TR 7	The optical recognition engine shall utilize a Compact Vision-Transformer architecture achieving sub-1.8 ms execution per plate crop.
TR 8	The video conditioning engine shall incorporate hardware-accelerated Adaptive Frame Enhancement (CLAHE, auto-exposure balancing, and Wide Dynamic Range) for night-time and glare resilience.

Sr.No.	Technical Requirement Specification
TR 9	The platform shall implement Soft Process Watchdogs , replacing fatal process terminations with non-blocking per-worker thread recycling, validating queue freshness every $< 900\ ms$.
TR 10	The system shall expose standardized health, readiness, and Open Metrics telemetry endpoints reporting per-camera FPS, dropped packets, and GPU memory metrics.
TR 11	The platform shall support standard network communication protocols including IPv4, IPv6, TCP, UDP, HTTP, HTTPS, RTSP, RTP, ONVIF Profile S/G/T/M, and SNMP v2c/v3.
TR 12	The analytics integration interface shall expose high-throughput RESTful HTTP, gRPC, and WebSocket APIs for seamless bi-directional event distribution to VMS and ICCC platforms.
TR 13	The platform shall provide an event-driven publish-subscribe messaging bus capable of distributing $> 10{,}000\ analytics\ events/sec$ to connected consumers.
TR 14	The system shall support multi-streaming architecture, utilizing secondary RTSP sub-streams for AI spatial inference while binding metadata to primary high-resolution recording streams.
TR 15	The platform shall maintain secure inter-service communication using internal cryptographic bearer tokens and Kubernetes NetworkPolicy perimeter firewalls.
TR 16	The evidentiary storage subsystem shall store evidence snapshots as high-quality WebP / JPEG images on disk with relative URI indexing in PostgreSQL to prevent database bloat.
TR 17	The system shall implement isolated sub-process piping for heavy inference tasks, preventing numerical thread library contention between PyTorch, OpenCV, and TensorRT.
TR 18	The training subsystem shall implement automated dataset versioning, partitioning training, validation, and test splits with cryptographic SHA-256 weight checksums.
TR 19	The database layer shall execute automated partitioning and rolling window retention cleanup to maintain sub-10ms query speeds across databases exceeding 50 million records.
TR 20	The application shall support deployment on bare-metal and virtualized servers running enterprise Linux (Ubuntu 22.04 LTS / RHEL 9 / Rocky Linux).
TR 21	The web dashboard shall be built with lightweight, responsive HTML5/CSS3/ES6 JavaScript requiring zero proprietary browser plugins or ActiveX controls.
TR 22	The platform shall support Network Time Protocol (NTP) master clock synchronization, maintaining time drift across cameras, recording nodes, and analytics engines under $\pm 5\ ms$.

Sr.No.	Technical Requirement Specification
TR 23	The API layer shall implement high-throughput asynchronous ASGI/FastAPI endpoints with connection pooling and automated HTTP keep-alive.
TR 24	The platform shall feature Aegis-Gate™ Automated Promotability Benchmarking, validating staging vs production weights before deployment to prevent model regressions.
TR 25	The entire analytics platform configuration shall be declaratively managed via version-controlled YAML configuration profiles, enabling automated disaster recovery deployment within minutes.

8.4 Camera

As the CCTVs shall be co-located at the street light poles, provided/if required switch shall be used to backhaul to the ACC via dedicated fibre optic infrastructure. For connectivity, CCTVs will be connected to the nearest Point of Presence (POP) through a dedicated switch and laid fibre optic infrastructure. At the POP, there will be dedicated infrastructure like a Network Video Recorder (NVR) that will be connected to the CCTV surveillance system for real-time recording purposes. Further, using the fibre optic infrastructure, real-time monitoring of CCTV surveillance videos shall be enabled at ACC video wall and workstations. Required length cantilever shall also be considered for better view capture.

8.4.1 ANPR AI BULLET (5 MP)

TR No.	Technical Requirement / Specification (RFQ Cum RFP Compliance Format)
TR-1	The camera shall be an outdoor type, 5MP Artificial Intelligence (AI) enabled motorised bullet IP camera.
TR-2	The camera shall incorporate a minimum 1/2.8” Progressive Scan CMOS image sensor or better.
TR-3	The video output resolution of the camera shall not be less than 5 Megapixels (2880×1620 pixels or higher).
TR-4	The camera shall be capable of producing a minimum of 25 frames per second (fps) at 5MP resolution (50Hz), with support for 30 fps preferred.
TR-5	The camera shall feature an integrated motorised 5–47 mm optical zoom lens (or equivalent) capable of remote motorised zoom and auto-focus control.
TR-6	The camera shall be equipped with built-in Smart IR illumination capable of covering a minimum effective distance of 80 meters.
TR-7	The camera shall be a true day/night camera incorporating a mechanical Infrared Cut Filter (ICR) with automatic switching capabilities.
TR-8	The camera shall be capable of providing clear video output at a minimum illumination of 0.01 lux or lower in color mode, and 0 lux in black-and-white (B/W) mode with IR illumination enabled.
TR-9	The camera shall incorporate True Wide Dynamic Range (WDR) circuitry of not less than 120 dB to compensate for high-contrast lighting and backlight scenes.
TR-10	The camera shall provide advanced image enhancement and processing features, including 3D Digital Noise Reduction (3D DNR), Backlight Compensation (BLC), Highlight Compensation (HLC), Automatic Gain Control (AGC), and Automatic White Balance (AWB).
TR-11	The camera shall support multi-standard video compression techniques, including H.265 / H.265+, H.264 / H.264+, and MJPEG.
TR-12	The camera shall support a minimum of triple streaming (3 independent video streams) with selectable Constant Bit Rate (CBR) and Variable Bit Rate (VBR) modes.

TR-13	The camera shall support on-board real-time video content analytics and AI detection, including Human Detection, Vehicle Detection, Face Detection, Line Crossing, Intrusion Detection, Cross Counting / People Counting, Crowd Density Monitoring, Heat Mapping, Queue Length Detection, Stationary / Abandoned Object Detection, and License Plate Detection.
TR-14	The camera shall provide a minimum of 1 audio input interface and shall support audio compression using G.711, G.726, and AAC compression standards.
TR-15	The camera shall support on-board edge recording via an integrated MicroSD card slot with a minimum capacity of 256 GB.
TR-16	The camera shall be equipped with an RJ45 10/100 Mbps auto-adaptive Ethernet network port.
TR-17	The camera shall support standard networking protocols including IPv4/IPv6, HTTP/HTTPS, and RTSP/RTP, and shall strictly comply with Open Network Video Interface Forum (ONVIF) Profile S, Profile G, and Profile T standards.
TR-18	The camera shall incorporate multi-level security features, including HTTPS encryption, multi-level user authentication, and secure password protection.
TR-19	The camera housing shall comply with an ingress protection rating of not less than IP67 for weather and dust resistance.
TR-20	The camera shall be fully operational within an ambient operating temperature range of -30°C to +60°C minimum.
TR-21	The camera shall support dual power options, operating via Power over Ethernet (PoE complying with IEEE 802.3af/at standards) as well as 12V DC input.
TR-22	The camera shall be enclosed in a rugged, weather-proof outdoor metal bullet enclosure.
TR-23	The camera shall support on-board edge Artificial Intelligence (AI) analytics processing capabilities, with an open and expandable application platform preferred.
TR-24	The camera shall be specifically suitable for Automatic Number Plate Recognition (ANPR) / License Plate Recognition (LPR) applications, featuring motorized optical zoom and specialized day/night imaging optimization for high-accuracy plate capture.
TR-25	The camera shall be fully compatible and seamlessly interoperable with standard ONVIF-compliant Video Management Software (VMS) platforms and shall support edge recording integration.
TR-26	The quoted CCTV and ANPR cameras shall be fully certified by the Standardization Testing and Quality Certification (STQC) Directorate, Ministry of Electronics and Information Technology (MeitY), Government of India, or shall have a valid test report from an STQC-accredited laboratory confirming compliance with national cybersecurity, vulnerability assessment, and quality standards for CCTV systems. In cases where formal STQC certification is in-process, the bidder shall submit verifiable documentary evidence confirming that the specific camera model has been formally applied for, accepted, and submitted for testing to STQC / MeitY- authorized test lab prior to the bid submission due date.
TR-27	The camera OEM shall have a fully established corporate office, technical support infrastructure, and authorized spares service center in India with a dedicated 24x7 escalation support mechanism to ensure long-term maintenance throughout the project lifecycle and 2-year O&M period.

8.4.2 BULLET CAMERA 5 MP

TR No.	Tender Technical Requirement (Story Format)
TR-1	The camera shall be an outdoor type, minimum 5 Megapixel (5MP) Artificial Intelligence (AI) enabled motorized varifocal bullet IP network camera.
TR-2	The camera shall incorporate a minimum 1/2.8" Progressive Scan CMOS image sensor or better.
TR-3	The video output resolution shall not be less than 5 Megapixels (minimum 2880x1620 / 3072x1728 pixels or higher).
TR-4	The camera shall be capable of delivering a minimum of 25/30 frames per second (fps) at full 5MP resolution.
TR-5	The camera shall feature an integrated motorized varifocal lens with auto-focus, having a focal length within the range of 2.8mm to 12mm (e.g. 2.8-12mm / 2.9-9mm or equivalent motorized

	optical zoom).
TR-6	The camera shall be equipped with built-in Smart IR / IR LED illumination providing an effective illumination distance of up to 50 meters.
TR-7	The camera shall be a true day/night camera incorporating a mechanical Infrared Cut Filter (ICR) with automatic switching capabilities.
TR-8	The camera shall provide clear video output at a minimum illumination of not more than 0.05 lux in color mode, and 0 lux in black-and-white (B/W) mode with IR illumination enabled.
TR-9	The camera shall incorporate True Wide Dynamic Range (WDR / Super Dynamic) of minimum 120 dB or better to handle high-contrast lighting conditions.
TR-10	The camera shall support advanced image enhancement features including 3D Digital Noise Reduction (3D DNR), Backlight Compensation (BLC), Automatic Gain Control (AGC), and Automatic White Balance (AWB).
TR-11	The camera shall support multi-standard video compression techniques including H.265, H.264, and MJPEG with smart coding optimization.
TR-12	The camera shall support multi-streaming (minimum triple / multiple independent streams) with user-selectable Constant Bit Rate (CBR) and Variable Bit Rate (VBR) options.
TR-13	The camera shall support on-board edge AI video analytics, including Human/Pedestrian Detection, Vehicle Detection, Face Detection, Intrusion Detection, Line Crossing, Crowd Density / Occupancy Monitoring, Object Detection, and Audio/Sound Detection.
TR-14	The camera shall provide a minimum of 1 Audio Input and 1 Audio Output interface, supporting standard audio compression (G.711 / G.726 / AAC).
TR-15	The camera shall provide a minimum of 1 Alarm Input and 1 Alarm Output interface for external sensor integration.
TR-16	The camera shall support on-board edge storage via an integrated MicroSD / MicroSDXC card slot with capacity of up to 256 GB.
TR-17	The camera shall be equipped with an RJ45 10/100 Mbps auto-sensing Ethernet network interface port.
TR-18	The camera shall support standard networking protocols including IPv4/IPv6, HTTP/HTTPS, RTSP/RTP, TCP/IP, DHCP, DNS, DDNS, NTP, and SNMP.
TR-19	The camera shall strictly comply with Open Network Video Interface Forum (ONVIF) standards, supporting ONVIF Profile S, Profile G, and Profile T (or Profile M).
TR-20	The camera shall incorporate multi-level cybersecurity features including HTTPS encryption, multi-level user authentication, and secure password protection.
TR-21	The camera housing shall comply with an ingress protection rating of not less than IP66 / IP67 for all-weather outdoor operation.
TR-22	The camera shall be fully operational within an ambient operating temperature range of -30°C to +60°C minimum.
TR-23	The camera shall support dual power options, operating via Power over Ethernet (PoE complying with IEEE 802.3af standard) as well as 12V DC input.
TR-24	The camera shall be enclosed in a rugged, weather-resistant outdoor metal / aluminum die-cast bullet housing.
TR-25	The camera shall be fully compatible and seamlessly interoperable with standard ONVIF-compliant Video Management Software (VMS) platforms and shall support edge recording.
TR-26	The quoted CCTV and ANPR cameras shall be fully certified by the Standardization Testing and Quality Certification (STQC) Directorate, Ministry of Electronics and Information Technology (MeitY), Government of India, or shall have a valid test report from an STQC-accredited laboratory confirming compliance with national cybersecurity, vulnerability assessment, and quality standards for CCTV systems. In cases where formal STQC certification is in-process, the bidder shall submit verifiable documentary evidence confirming that the specific camera model has been formally applied for, accepted, and submitted for testing to STQC / MeitY- authorized test lab prior to the bid submission due date.
TR-27	The camera OEM shall have a fully established corporate office, technical support infrastructure, and authorized spares service center in India with a dedicated 24x7 escalation support mechanism to ensure long-term maintenance throughout the project lifecycle and 2-year O&M period.

8.5 Gantry / T- type Structure for ANPR System

The bidder shall design, manufacture, supply, transport, install, test and commission a full-span overhead gantry structure for mounting ATCC cameras, ANPR cameras, LED floodlights and associated traffic-monitoring sensors above the roadway. The gantry shall provide a rigid, stable and vibration-resistant mounting arrangement to ensure accurate vehicle detection, classification, counting and ANPR operation across multiple lanes. The structure shall be suitable for 24x7 outdoor operation under Indian climatic and environmental conditions.

Scope of Supply – Summary

The bidder's scope shall be Design, Engineering, Manufacturing, Supply, Transportation, Civil Foundation, Erection, Installation, Testing and Commissioning of the complete full-span overhead gantry system, including all structural members, poles, beams, base plates, anchor bolts, camera brackets, floodlight brackets, cable-management accessories, fasteners, corrosion protection, earthing/bonding and all other accessories necessary for a complete and operational installation.

All dimensions mentioned in this specification shall be treated as minimum/indicative requirements. The bidder shall submit site-specific structural calculations and obtain approval for the final dimensions based on actual road width, soil conditions, equipment loading, wind loading and applicable statutory requirements.

1: Business Requirements (BR) — Overhead Gantry/ T-Type Pole Structures

Ref No.	Business Requirement Specification (RFQ Cum RFP Compliance Format)
BR 1	The gantry and cantilever structures shall provide unobstructed, high-vantage overhead support for ANPR cameras, ATCC sensors, general surveillance cameras, and LED illuminators across multi-lane arterial roadways and intersection corridors.
BR 2	The physical dimensions, structural span, horizontal cantilever reach, vertical clearance, and foundation depth shall be tailored and engineered based on actual ground site survey data, roadway width, lane geometry, and soil bearing capacity.
BR 3	The project architecture shall support two standardized structural topologies: (a) Full-Span Overhead Portal Gantries (12m to 25m span) for wide entry/exit corridors, and (b) T-Type / Cantilever Semi-Gantries (4m to 8m outreach) for median/junction locations.
BR 4	The structure shall guarantee high structural stiffness and torsional rigidity, eliminating wind-induced or traffic-induced vibrations to ensure continuous, sharp, blur-free optical capture for license plate recognition (>=98% OCR accuracy).
BR 5	The vertical support column shall provide heavy-duty integral mounting provisions to carry an outdoor weather-proof Junction Box (housing a 1 KVA UPS, 26 Ah SMF battery, 48V PSU, and industrial switch) at an ergonomic maintenance height.
BR 6	The overhead structures shall maintain mandatory vertical road clearances (minimum 5.5m to 6.5m) and structural setback distances in strict compliance with Indian Roads Congress (IRC:6 / IRC:SP:84) and MoRTH safety guidelines.
BR 7	Full-span portal gantries shall incorporate a full-width internal catwalk/walkway with safety handrails and a caged access ladder, while T-type poles shall allow safe maintenance access via mobile elevated work platforms (MEWP).
BR 8	The complete structural assembly shall be designed for an operational design life of not less than 15 to 25 years in harsh 24x7 outdoor industrial/tropical environments through heavy-duty hot-dip galvanization.
BR 9	The structural design, material sourcing, fabrication, welding, galvanizing, civil foundation, and earthing shall strictly conform to applicable Bureau of Indian Standards (IS 800, IS 875, IS 2062, IS 4759, IS 4923) and MoRTH specifications.
BR 10	The structural framework shall incorporate a reserve load capacity of minimum 25% to allow future installation of additional sensors, radar speed detectors, variable message signs (VMS), or upgraded cameras without structural alterations.

2: Functional Requirements (FR) — Overhead Gantry / T-Type Pole Structures

Ref No.	Functional Requirement Specification (RFQ Cum RFP Compliance Format)
FR 1	The structure shall provide dedicated, vibration-damped mounting positions positioned directly above the center of each traffic lane to ensure optimal focal distance and capture angle for ANPR and ATCC cameras.
FR 2	The Full-Span Portal Gantry shall bridge across the entire carriageway (covering 4 to 6 lanes, span up to 25.0 meters) supported on dual vertical end-columns, carrying up to 6 ANPR/CCTV cameras, illuminators, and 1 vertical Junction Box.
FR 3	The T-Type / Cantilever Structure shall feature a single heavy-duty vertical high-mast pole installed on the road median or curb with a horizontal outreach arm (4.0m to 8.0m) covering 1 to 2 traffic lanes, carrying 2 to 3 cameras and 1 Junction Box.
FR 4	The structure shall provide dedicated brackets for mounting synchronized IR / White-Light LED strobe illuminators and floodlights positioned to eliminate retro-reflective plate glare and illuminate vehicle windshields at night.
FR 5	All camera mounting assemblies shall feature heavy-duty 3-axis universal mechanical swivel adjustments (Pan, Tilt, and Roll) with positive locking screws to ensure permanent optical alignment after commissioning.
FR 6	The gantry truss and cantilever arm shall incorporate mechanical damping and high stiffness to restrict dynamic tip deflection under maximum wind gust conditions to less than L/500 for portal gantries and L/250 for cantilever arms.
FR 7	The vertical support column shall provide rigid unistrut channels and heavy-duty clamps to mount an outdoor IP67/IP66 junction box (weight up to 60 kg) at a height of 1.5m to 2.0m above ground level, allowing easy ground-level technician access.
FR 8	The structure shall provide fully enclosed internal cable pathways, perforated hot-dip galvanized cable trays, and conduit entry/exit ports with rubber grommets to route power, optical fiber, and Ethernet cables with zero sagging or UV exposure.
FR 9	Full-span portal gantries shall feature an anti-skid galvanized grating catwalk (minimum 600mm width) with 1000mm high safety handrails and a lockable caged climbing ladder with anti-climb security plates starting 2.2m above ground.
FR 10	The structure shall incorporate a dedicated lightning air terminal at the highest point, bonded via down-conductors to dual chemical earth pits achieving a combined earth resistance of <= 1.0 Ohm.

3: Technical Requirements (TR) — Overhead Gantry/ T-Type Pole Structures

TR No.	Detailed Technical Requirement / Specification (Story Format)
TR 1	The contractor shall design, fabricate, and install two structural types based on site survey: (a) Type-1 Full-Span Overhead Portal Gantry (12m to 25m span, dual support legs) for multi-lane highways and toll gates; (b) Type-2 'T-Type' / Cantilever Semi-Gantry (single pole with 4m to 8m outreach arm) for central medians, T-junctions, and arterial roads.
TR 2	The structure shall maintain a minimum vertical clearance of 5.5 meters to 6.5 meters above the highest crown point of the road surface. Portal gantries shall have a span of up to 25.0 meters, while T-type cantilever arms shall have an outreach length of 4.0m to 8.0m as validated during the pre-construction site survey.
TR 3	All structural members, columns, chords, trusses, base plates, and brackets shall be manufactured from prime structural steel conforming to IS 2062 (Grade E250 / E350) or hollow structural sections (HSS) conforming to IS 4923 (YSt 310 / YSt 355), free from laminations, cracks, and surface defects.
TR 4	Vertical support columns shall be fabricated as heavy-duty polygonal/octagonal continuously tapered steel sections (bottom diameter 300–450mm, top diameter 200–300mm, wall thickness 6–10mm) or structural lattice columns. Horizontal gantry beams shall be fabricated as modular space-trusses or rectangular hollow box sections (minimum 300x300mm to 450x450mm).
TR 5	The complete structural assembly shall be designed and certified (via STAAD.Pro / FEA calculations by a certified structural engineer) to withstand basic wind speeds of 160 km/h to 180 km/h in accordance with IS 875 (Part 3), IS 800:2007 (Steel Code), and IRC:6, considering dead, live, wind, and equipment dynamic loads with a safety factor >= 1.5.

TR 6	All fabricated structural components, trusses, ladders, catwalks, fasteners, and bracket assemblies shall be hot-dip galvanized in full compliance with IS 2629 / IS 4759, achieving a minimum uniform zinc coating thickness of 86 to 100 microns (equivalent to >=610 g/m2 zinc mass).
TR 7	The horizontal gantry truss shall be certified to support a dynamic payload of up to six (6) heavy-duty ANPR/CCTV cameras plus LED floodlights and accessories (total dynamic load up to 150 kg), while the T-type cantilever arm shall support up to three (3) cameras plus floodlights (total dynamic load up to 75 kg).
TR 8	The structure shall be supplied with heavy-duty vibration-damped camera mounting bracket assemblies made of hot-dip galvanized steel / SS 304, featuring 360-degree pan, +/-45-degree tilt, and horizontal sliding adjustments on unistrut rails for precision lane alignment.
TR 9	One vertical support column shall be equipped with factory-welded/clamped unistrut mounting channels and stainless steel brackets to securely mount an outdoor IP67/IP66 Junction Box (housing a 1 KVA UPS, 26 Ah battery, 48V PSU, and switch, weighing up to 60 kg) at a height of 1.5m to 2.0m above ground level.
TR 10	Portal gantries shall incorporate a full-span maintenance catwalk (minimum 600 mm width) fabricated from anti-skid hot-dip galvanized serrated grating with 1000 mm high safety handrails and toe-guards, accessed via a vertical caged ladder on one leg with a lockable anti-climb security barrier plate.
TR 11	The structure shall feature internal cable routing ducts and hot-dip galvanized perforated cable trays (minimum 150 mm width) along columns and horizontal arms, complete with weather-proof entry/exit glands, flexible conduit fittings, and edge-protection grommets.
TR 12	The structure shall be erected on deep reinforced concrete pedestal foundations (RCC M25 / M30 grade) designed as per site soil bearing capacity (depth 1.5m to 2.5m), incorporating heavy-duty foundation cage reinforcement conforming to IS 456.
TR 13	The base plate shall be manufactured from minimum 25 mm to 32 mm thick structural steel plate (IS 2062) reinforced with 10–12 mm thick gusset stiffeners, anchored using a cluster of high-tensile Grade 8.8 (IS 1367) foundation J-bolts (M24 / M30 / M36) with double lock-nuts and heavy washers.
TR 14	The gap between the RCC pedestal top and the base plate underside shall be pressure-grouted with high-strength non-shrink cementitious/epoxy grout (minimum 50 MPa compressive strength), finished with a 45-degree watershed bevel to prevent water stagnation.
TR 15	The structure shall feature a solid copper / ESE lightning air terminal mounted at the highest apex, connected via insulated 50 sq.mm copper down-conductors to dual dedicated maintenance-free chemical earth pits, achieving a combined earth resistance of <= 1.0 Ohm.
TR 16	The structure shall be equipped with dual, low-intensity solar/mains-operated red LED Aviation Obstruction Lights (AOL complying with ICAO Annex 14) mounted at outer truss peaks, along with retro-reflective high-intensity Class-C hazard zebra marking tapes on vertical support columns.
TR 17	The contractor shall submit OEM Material Test Certificates (MTC), Ultrasonic / Dye-Penetrant Non-Destructive Testing (NDT) welding inspection reports, and magnetic gauge zinc thickness test certificates for 100% of the fabricated structural lots.
TR 18	Prior to fabrication, the contractor shall submit: (1) Site Survey & Alignment Plan, (2) General Arrangement (GA) Drawings, (3) Structural Fabrication & Detailing Drawings, (4) STAAD.Pro Structural & Wind Load Analysis Report, (5) RCC Foundation Design Calculations, and (6) Cable Routing Layout for formal written approval by the Authority.
TR 19	The structure shall be accepted only after successful erection, verification of vertical roadway clearance, torque-testing of all structural bolts, vibration verification under live traffic, earthing resistance testing (<=1.0 Ohm), and optical alignment of all ANPR/CCTV cameras.
TR 20	The contractor shall provide a minimum 24-month comprehensive on-site warranty covering structural integrity, galvanization finish, foundation stability, and mounting bracket assemblies, rectifying any structural or corrosion defect at zero cost to the Authority.

8.6 Junction BOX for CCTV Junctions

A. **Technical Requirement (TR) Specification**

19" Outdoor Pole Mount Weatherproof Equipment Enclosure / Network Rack (Dimensions: 600mm W x 600mm D x 700mm H | 2mm CRCA Sheet | IP66/IP67 Compliant)

TR No.	Parameter	Tender Technical Requirement / Specification (Story Format)
TR-1	Product Description & Type	The enclosure shall be an outdoor, heavy-duty 19-inch pole-mountable closed network and equipment rack designed to house network switches, power supplies, fiber patch panels, and surveillance field equipment.
TR-2	Dimensions	The external dimensions of the pole-mount rack shall be 600 mm (Width) x 600 mm (Depth) x 700 mm (Height), accommodating standard 19-inch rack-mountable equipment with sufficient internal clearance.
TR-3	Material & Sheet Thickness	The entire enclosure body, frame, door, and mounting structures shall be fabricated from high-grade Cold Rolled Close Annealed (CRCA) steel sheet having a uniform thickness of not less than 2.0 mm.
TR-4	Ingress Protection & Weather Resistance	The enclosure shall comply with an Ingress Protection rating of IP67 / IP66 (dust-tight and protected against powerful water jets/temporary immersion), suitable for harsh 24x7 outdoor field environments.
TR-5	Surface Treatment & Finishing	The enclosure shall undergo a rigorous 7-tank chemical pre-treatment process followed by pure polyester thermosetting powder coating (minimum 80–100 microns thickness) in RAL 7035 / light grey shade, ensuring high corrosion, UV, and salt-spray resistance.
TR-6	Sealing & Gasket	The front door and all mating joints shall be fitted with seamless, continuous foamed Polyurethane (PU) / high-grade EPDM weather-proof gaskets to maintain airtight and watertight sealing.
TR-7	Door & Security Locking	The rack shall feature a single front-opening solid door fitted with a heavy-duty three-point locking mechanism / cam lock, along with an external heavy-duty Padlock arrangement (hasp/staple) for enhanced field security.
TR-8	Pole Mounting Arrangement	The rack shall be supplied with a robust, heavy-duty pole mounting bracket assembly and stainless steel (SS 304) clamps/straps, capable of securely mounting the fully loaded enclosure onto poles of various diameters.
TR-9	Vertical AC Mains Channel (PDU)	The rack shall incorporate a dedicated vertical AC Mains Power Distribution Channel equipped with 5 Nos. of 5/15 Amp multi-pin universal power sockets, indicator LED, and an integrated Single Pole / Double Pole Miniature Circuit Breaker (MCB) for overload protection.
TR-10	Horizontal AC Distribution Box &	The enclosure shall be equipped with a horizontal AC Distribution Box complete with mounting hardware, housing 5 Nos. of 5/15 Amp power

TR No.	Parameter	Tender Technical Requirement / Specification (Story Format)
	Hardware	sockets, terminal blocks, internal electrical wiring, and surge protection / isolation provisions.
TR-11	Thermal Management & Fan Assembly	The rack shall feature dedicated fan mounting positions (Fan POSN) equipped with 2 Nos. of 230 VAC heavy-duty ball-bearing cooling exhaust fans, protected by IP-rated louvers with washable/replaceable dust filters and thermostat control.
TR-12	Equipment Trays / Shelves	The enclosure shall include 2 Nos. of heavy-duty, ventilated CRCA equipment trays/shelves inside the rack for supporting non-rack mountable items like power adapters, media converters, and accessories.
TR-13	Cable Manager	The rack shall include a standard 19-inch 1U cable manager with horizontal cable routing loops/slots to ensure organized, strain-free cable dressing and maintenance.
TR-14	DIN Rail Mounting Plate	The enclosure shall be fitted with a dedicated heavy-duty DIN Rail mounting plate/channel to facilitate clean and modular mounting of industrial network switches, SMPS power supplies, and terminal blocks.
TR-15	19" Mounting Angles / Uprights	The rack shall be fitted with front and rear 19-inch vertical mounting upright angles made of minimum 2.0 mm CRCA steel with clear U-marking slots for flexible depth and height equipment adjustments.
TR-16	Cable Entry & Glands	The bottom gland plate of the enclosure shall be equipped with multiple weather-proof, compression-type cable entry glands (PG/Metric rated) for incoming power, network, and fiber optic cables.
TR-17	Earthing & Electrical Safety	The enclosure shall incorporate a dedicated copper earthing/grounding busbar with grounding studs on the main chassis, front door, and mounting plates to ensure comprehensive electrical safety and lightning surge dissipation.
TR-18	Operating Temperature & Environment	The enclosure and its internal accessories shall be designed to operate continuously across an ambient outdoor operating temperature range of -10°C to +60°C with relative humidity up to 95% RH non-condensing.

B. **KVA Online / Line-Interactive UPS (30 Min Backup)**

TR No.	Tender Technical Requirement / Specification
TR 1	The UPS shall be a true online double conversion / high-efficiency line-interactive UPS with pure sine wave output, designed for 24x7 continuous mission-critical surveillance and network field operation.

TR No.	Tender Technical Requirement / Specification
TR 2	The UPS shall have a minimum power rating of 1.0 kVA / 800W to 900W (power factor not less than 0.8 / 0.9).
TR 3	The UPS shall operate on single-phase AC input with a wide input voltage window (140V to 300V AC nominal at 230V AC) and an input frequency range of 45 Hz to 65 Hz (auto-sensing).
TR 4	The UPS shall deliver a regulated output voltage of 230V AC ± 1% at 50 Hz ± 0.5% with pure sine wave waveform and Total Harmonic Distortion (THDv) < 3% for linear loads.
TR 5	The transfer time between AC mains mode and battery backup mode shall be zero (0 ms) to guarantee uninterrupted power continuity.
TR 6	The UPS system shall provide a minimum of 30 minutes continuous full-load battery backup time using the connected external 12V 26 Ah SMF battery bank.
TR 7	The UPS shall incorporate an intelligent multi-stage, temperature-compensated battery charger with deep discharge, overcharge, and reverse polarity protection.
TR 8	The overall AC-to-AC efficiency of the UPS shall not be less than 88% to 90% at full load in online mode.
TR 9	The UPS shall feature a front-panel LCD/LED display indicating load percentage, battery charge level, input/output voltage, frequency, operating mode, and fault alarms.
TR 10	The UPS shall have a compact 19-inch rack-mount or rack/tower convertible chassis suitable for installation inside 19" outdoor pole-mount equipment racks.
TR 11	The UPS shall be equipped with USB / RS-232 communication ports, along with support for an optional SNMP network management card for remote IP-based monitoring.
TR 12	The UPS shall comply with applicable international safety (IEC/EN 62040-1) and EMC/EMI (IEC/EN 62040-2) standards.

C. **12V 26 Ah Sealed Maintenance Free (SMF / VRLA) Battery**

TR No.	Tender Technical Requirement / Specification
TR1	The battery shall be a 12V Sealed Maintenance Free (SMF) / Valve Regulated Lead Acid (VRLA) battery utilizing Absorbent Glass Mat (AGM) technology.
TR 2	The battery shall have a nominal voltage of 12V DC and a rated capacity of not less than 26 Ah at

TR No.	**Tender Technical Requirement / Specification**
	a 10-hour or 20-hour discharge rate (C10/C20 rating @ 27°C).
TR 3	The battery container and top cover shall be fabricated from heavy-duty, impact-resistant, flame-retardant ABS material (UL94-V0 / UL94-HB).
TR 4	The battery shall have an ultra-low self-discharge rate of less than 3% per month at 25°C and a design float service life of not less than 3 to 5 years under standard float-charging conditions.
TR 5	The battery shall be equipped with high-conductivity copper/lead alloy terminals (M5/M6 bolt/nut or flag type) with insulated protective covers and heavy-duty interconnecting copper links.
TR 6	The battery shall be completely sealed, leak-proof, and maintenance-free, capable of safe operation in any mounting orientation without electrolyte leakage.
TR 7	The battery shall incorporate self-resealing, explosion-proof safety release vent valves to vent excess pressure safely while preventing ambient air ingress.
TR 8	The battery shall strictly comply with applicable BIS (IS 15549 / IS 16046) and IEC (IEC 60896-21/22) standards for stationary VRLA batteries.

D. **Industrial Grade 48V DC 240W DIN-Rail Power Supply (Cisco IE 4000 Switch)**

TR No.	**Tender Technical Requirement / Specification**
TR 1	The power supply shall be a heavy-duty, industrial-grade DIN-rail mountable AC-to-DC power supply unit specifically certified and designed to power industrial field Ethernet switches, including Cisco IE 4000 series switches.
TR 2	The power supply shall deliver a nominal output voltage of 48V DC (adjustable from 48V to 55V DC) with a continuous output power rating of not less than 240 Watts (minimum 5.0 Amperes @ 48V DC).
TR 3	The power supply shall accept a wide universal AC input voltage range of 85V to 264V AC (single phase) / 120V to 370V DC at 47 Hz to 63 Hz, ensuring stable operation during grid fluctuations.
TR 4	The power supply shall deliver high operational efficiency of not less than 93% to 94% at full rated load, incorporating Active Power Factor Correction (PFC) with PF > 0.95 at 230V AC.
TR 5	The power supply shall feature a rugged, compact metal chassis with an integrated 35 mm DIN-Rail (TS-35/7.5 or TS-35/15) mounting mechanism for modular installation on field rack DIN rails.
TR 6	The power supply shall utilize 100% natural convection cooling (fanless design) to guarantee maintenance-free operation and high reliability inside outdoor field enclosures.
TR 7	The power supply shall incorporate comprehensive protection mechanisms, including Output Short-Circuit Protection, Overload Protection (Constant Current Limiting with auto-recovery), Over-Voltage Protection, and Over-Temperature Protection.
TR 8	The power supply shall be equipped with a 'DC OK' dry relay contact output for remote status monitoring by the supervisory network switch, along with a front-panel DC OK LED indicator.
TR 9	The power supply shall be capable of continuous operation across an extended industrial operating temperature range of -40°C to +70°C and relative humidity from 20% to 95% RH non-condensing.

TR No.	Tender Technical Requirement / Specification
TR 10	The power supply shall comply with industrial EMC standards (EN 55032 Class B, EN 61000-6-2), Safety standards (UL 508 / IEC 62368-1), and shock/vibration standards (IEC 60068-2-6 / IEC 60068-2-27).

9 Scope of Work and Technical Specification

The bidder shall undertake the complete survey, supply, installation, laying, routing, termination, testing and commissioning of power cables from the nearest approved power feeder/source location up to the designated field junction/enclosure and laying of fiber optic cable from the designated OFC tapping closure/joint closure to the respective field junctions for ANPR system and HD/IP camera and associated field equipment. Cable and conduit shall be provided to the bidder. The scope shall be on, manpower, tools, tackles, transportation, excavation, cable protection, RCC core cutting, reinstatement, termination, testing and commissioning required for a complete and operational system.

The bidder shall verify actual site conditions before execution and shall prepare the final cable route based on approved drawings and site survey.

Power & Optical Fiber Cable Laying, Routing, Trenching, Core Cutting, Splicing, Termination, Testing, Commissioning and Surface Reinstatement for Surveillance & ANPR Infrastructure

9.1 Broad Scope of Work & General Obligations

1. **Overview:**

   The successful Bidder / System Integrator (hereinafter referred to as the 'Contractor' or 'Bidder') shall undertake the complete turnkey scope comprising detailed site survey, supply of all ancillary hardware/materials, laying, routing, core cutting, jointing, termination, splicing, testing, and commissioning of electrical power cables from the nearest approved electrical feeder pillar/source to the designated field junction boxes/cabinets, as well as the laying, routing, and termination of Optical Fiber Cables (OFC) from the designated OFC tapping/joint closures to the respective field junctions for the ANPR System, HD/IP Surveillance Cameras, and associated field equipment.

2. **Turnkey Responsibility:**

   While primary cable and conduit materials shall be provided to the Bidder as per the approved Bill of Quantities (BOQ), the entire execution responsibility—including the deployment of skilled manpower, tools, tackles, specialized machinery, testing instruments, transportation, excavation, cable protection, RCC diamond core cutting, backfilling, compaction, surface reinstatement, termination accessories, testing, and integrated commissioning—shall strictly fall within the comprehensive scope of the Bidder to deliver a fully functional, robust, and operational field surveillance network.

3. **Pre-Execution Survey & Approvals:**

   The Bidder shall conduct a thorough physical survey of the actual site conditions prior to the commencement of any physical works and shall formulate, submit, and obtain formal written approval for the Detailed Route Survey (DRS) and Good for Construction (GFC) drawings from the Engineer-in-Charge / Authority.

9.2 Power Cable Laying & Source-to-Junction Connectivity

The Bidder shall execute the end-to-end power cabling works from the nearest approved electrical feeder/substation to the field junction cabinets serving the CCTV & ANPR camera poles, strictly adhering to the Indian Electricity Rules, National Electrical Code (NEC), and CPWD electrical specifications. The scope shall encompass:

1. **Feeder Identification:**

   Identification and physical inspection of the nearest approved electrical power feeder pillar/source location in coordination with the designated Electrical Authority / DISCOM / Employer.

2. **Capacity & Load Verification:**

   Comprehensive verification of existing feeder electrical load capacity, voltage stability, phase balancing, breaker rating, and earthing availability prior to cable connection.

iv. **Route Survey & Engineering:**

Execution of physical route survey, peg-marking, and preparation of Detailed Route Drawings (DRDs) indicating exact trench paths, utility crossings, and feeder tapping points.

v. **Cable Laying & Conduit Routing:**

Laying of armoured power cables through existing duct banks, dedicated trenches, new HDPE conduits, or approved overhead/cable-tray pathways in strict compliance with prescribed bending radii.

5. **RCC Core Cutting:**

   Execution of RCC/concrete diamond core cutting through structural walls, pavement, and bridge sections wherever required, ensuring no structural damage to adjacent property.

6. **Mechanical Cable Protection:**

   Provision of heavy-duty mechanical cable protection (e.g., DWC / GI / Hume pipes) at all road crossings, culverts, storm-water drains, and vulnerable entry/exit points.

7. **Glanding & Termination Hardware:**

   Supply and installation of heavy-duty double-compression weatherproof brass cable glands, tinned copper crimping lugs, heat-shrinkable insulation sleeves, and engraved ferrule numbering.

8. **Source & Junction Termination:**

   Secure termination and phase connection at both the feeder source end (incorporating isolator/MCB provisions) and the field junction box end.

9. **Cable Identification:**

   Indelible, UV-resistant numbering and cable identification tagging at intervals not exceeding 20 meters and at every turning/entry point.

10. **Electrical Testing:**

    Execution of pre-commissioning electrical testing, including Insulation Resistance (Megger) testing, conductor continuity testing, polarity verification, and voltage-drop validation.

11. **Surface Reinstatement:**

    Complete layer-wise backfilling, mechanical compaction, and 100% surface reinstatement of all disturbed surfaces to match pre-existing conditions.

9.3 Optical Fiber Cable (OFC) Splicing, Management & Termination

The Bidder shall execute precision optical fiber splicing, dressing, and termination between the main OFC tapping closures (FOSC) and the field junction Light Interface Units (LIUs) / Fiber Termination Panels (FTPs). The scope shall strictly include:

i. **Fusion Splicing:**

High-precision core-to-core fusion splicing executed by calibrated automatic fusion splicers, guaranteeing a splice insertion loss of not more than 0.05 dB per joint at both 1310 nm and 1550 nm wavelengths.

ii. **Splice Protection:**

Installation of heat-shrinkable micro-sleeves with internal stainless steel reinforcement rods over every spliced joint to prevent optical degradation and mechanical stress.

iii. **Fiber Management & Slack Storage:**

Systematic fiber loop routing and slack cable management inside splice trays, ensuring strict compliance with minimum bend-radius thresholds (minimum 20 times outer cable diameter).

iv. **Pigtails & Connectors:**

Supply and fusion jointing of factory-tested single-mode (G.652D) pigtails with ceramic-ferrule LC/SC (UPC/APC) connectors.

v. Patch Cords:

Provision of factory-tested, low-loss duplex single-mode fiber patch cords for connecting the LIU to industrial Ethernet switches and optical transceivers.

vi. **LIU / ODF Termination:**

Mounting, grounding, and termination within 19-inch rack-mount or DIN-rail Light Interface Units (LIU) / Fiber Termination Panels (FTP) complete with splice bridges and coupler plates.

vii. **Core Identification & Labeling:**

Permanent, standardized alphanumeric labeling on all fiber buffers, splice trays, connector ports, and patch cords matching the master core allocation schedule.

viii. **OTDR & Optical Power Testing:**

Execution of bi-directional Optical Time Domain Reflectometer (OTDR) testing and Optical Power Meter (OPM) insertion loss testing for every active/spare core, with comprehensive trace reports submitted to the Employer.

9.4 Field Junction Box Connectivity & Integration

The Bidder shall terminate, dress, connect, and integrate all incoming and outgoing electrical, network, and optical fiber cables inside the field junction boxes/panels, leaving the enclosure in a neat, professional, and easily maintainable condition. The scope includes:

1. **Weatherproof Cable Glands:**

   Glanding of all cables using IP67/IP68 rated double-compression brass/polyamide cable glands with neoprene sealing washers to prevent moisture and dust ingress.

2. **Cable Segregation & Management:**

   Strict physical and electromagnetic isolation between AC mains power cabling and low-voltage Ethernet/optical communication lines using dedicated internal cable channels and slotted trunking.

3. **Power Termination:**

   Termination of incoming power via DIN-rail mounted isolator/MCBs and multi-pin socket channels with proper phase-neutral-earth polarities.

4. **Optical Termination:**

   Termination of incoming optical fiber cables into the internal LIU/FTP with secure patch cord dressing to the field Ethernet switch.

5. **Internal Ferrule Labeling:** Clear, permanent indelible ferrule labeling on every internal

wire, terminal block, circuit breaker, and network patch cable.

6. **Earthing & Bonding:**

   Solid grounding and equipotential bonding of the junction box chassis, door, and equipment mounting plates to the local chemical earthing electrode, achieving an earth resistance of <= 1.0 Ohm.

7. **Surge Protection:**

   Installation and connection of Type-2 Surge Protection Devices (SPD) on incoming power lines to protect sensitive field electronics from voltage surges and lightning transients.

8. **Environmental Sealing:**

   Application of flame-retardant, weatherproof PU foam / RTV silicone sealant around unused gland knockouts and bottom entry plates to guarantee complete environmental sealing.

9.5 Utilization of Existing Infrastructure & Asset Protection

Where existing RCC utility ducts, cable trenches, spare OFC cores, or feeder pillars are designated for utilization, the Bidder shall adhere to the following mandatory protocol:

1. **Inspection** Perform comprehensive physical and optical inspection of the existing infrastructure in the presence of the Employer's authorized representative.
2. **Continuity & Space Verification:** Test and verify the structural integrity, duct continuity, and spare capacity of existing conduits and fiber cores prior to pulling cables.
3. **Written Work Permits:** Secure formal written clearance and permits from the Engineer-in-Charge before initiating any cable pulling, splicing, or electrical tapping.
4. **Duct Cleaning:** Execute rodding, cleaning, and mandrelling of existing ducts where silt or debris accumulation is observed.
5. **Utility Protection:** Exercise extreme caution during execution to avoid any physical or electrical damage to existing live power cables, telecom links, water lines, or municipal utilities.

9.6 Contractor Liability & Indemnification:

Any damage caused to existing municipal, utility, or third-party assets as a consequence of the Bidder's negligence or improper execution shall be repaired, restored, or replaced by the Bidder entirely at its own cost within a maximum penalty window of four (4) hours, with zero financial liability to the Employer.

9.7 Trenching, Civil Excavation, Compaction & Surface Reinstatement

Where open excavation or trenching is necessary for cable/duct laying, the Bidder shall execute the civil works in strict accordance with municipal guidelines and standard engineering specifications. The scope includes:

1. **Route Alignment & Peg Marking:** Precise alignment marking along approved paths, avoiding established tree roots and known underground utilities.
2. **Safety Barricading:** Deployment of mandatory safety barricades, retro-reflective caution tapes, warning blinkers, and traffic diversion signboards around active excavation zones.
3. **Trench Excavation:** Excavation of trenches to a standard depth of not less than 1.0 m to 1.2 m and width of 0.3 m to 0.4 m in all types of strata (soil, soft rock, hard rock, or paved ground).

4. **Sand Bedding:** Provision of a 100 mm sifted sand/cushion bedding layer at the trench bottom prior to conduit placement.
5. **Protective Layering:** Laying of HDPE PLB conduits followed by a 100 mm sand covering layer and heavy-duty precast concrete cable protection covers / warning tape placed 300 mm above the conduit.
6. **Backfilling & Compaction:** Layer-wise backfilling using excavated soil (free from stones/debris) in layers not exceeding 150 mm, watered and mechanically compacted using power rammers to achieve >= 95% Modified Proctor Density.
7. **Debris Disposal:** Immediate carting away and environmentally compliant disposal of all excess excavated muck, broken concrete, and debris from the site.
8. The Bidder shall restore all excavated and disturbed surfaces to their original or superior condition, including but not limited to:
9. **Concrete Surfaces:** Reinforced Cement Concrete (RCC) and Plain Cement Concrete (PCC) roads and driveways matching original grade (M20/M25).
10. **Asphalt Roads:** Asphalt / bituminous mastic road surfaces with proper tack coat, base course, and wearing course compaction.
11. **Paver Blocks & Kerbs:** Interlocking paver blocks, patterned cobblestones, and kerb stones relaid over compacted stone dust bedding.
12. **Walkways & Landscaping:** Pedestrian footpaths, tiled walkways, central verges, and landscaped green patches.

9.8 Documentation, Testing Reports & Handover Deliverables

Upon completion of the installation and prior to final operational sign-off, the Bidder shall compile and submit three (3) sets of hard-copy documentation dossiers along with digitized CAD/PDF soft copies on USB media, comprising:

1. As-Built Route Drawings: Approved Detailed Route Survey (DRS) drawings and final As-Built Cable Route Drawings incorporating precise GPS coordinates of all cables, tapping closures, joint chambers, and feeder pillars.

2. Cable Schedules: Comprehensive cable identification schedules detailing cable types, lengths, cross-sections, conduit occupancy, and routing paths.

3. Connectivity Matrices: Complete end-to-end source-to-destination electrical and network connectivity matrices for all 70 CCTV junctions and 5 Gantry locations.

4. Fiber Core Allocation Schedule: Detailed fiber core allocation charts, optical loss budgets, and field splicing schedules.

5. Optical Test Reports: Certified bi-directional OTDR trace reports (.SOR files + PDF) and optical insertion loss test reports for 100% of the fiber cores.

6. Electrical Safety Test Reports: Insulation Resistance (Megger) test sheets, conductor loop resistance reports, and earth pit resistance test certificates.

7. Core-Cutting Log: Detailed schedule and photographic log of all RCC core-cutting locations, structural seals, and waterproof grouting works.

8. Photographic Dossier: Date-stamped, geo-tagged photographic dossier capturing site conditions Before Excavation, During Cable Laying/Splicing, and After Complete Surface Reinstatement.

9. Material Test Certificates: OEM Factory Acceptance Test (FAT) certificates, Type Test certificates, and statutory Bureau of Indian Standards (BIS) compliance documents.

10. Warranty Certificates: Comprehensive OEM warranty certificates covering a minimum of 2

years on-site warranty for all supplied termination and protective hardware.

11. Handover Certificate: Integrated System Testing, Commissioning, and Operational Handover Sign-off Certificate signed jointly by the Bidder and the Engineer-in-Charge.

8.0 Bidder's Comprehensive Responsibilities & Statutory Compliance

The Bidder shall maintain single-point responsibility for the flawless execution of the entire field connectivity works, strictly adhering to all statutory labor laws, environmental safety protocols, and municipal right-of-way regulations. The Bidder shall ensure:

Safety & PPE: Deployment of certified personal protective equipment (PPE - helmets, high-visibility jackets, safety shoes, gloves) for all field technicians and laborers.

Inter-Agency Coordination: Continuous liaison and coordination with local traffic police, municipal corporations, highway authorities, and electricity distribution companies to obtain necessary Right-of-Way (RoW) and shutdown permits.

Defect Rectification: Immediate rectification of any installation defect, cable fault, optical loss anomaly, or structural settlement occurring during the 2-year Operation and Maintenance (O&M) period.

8.1 Inclusivity of Pricing: No extra claims or additional payments shall be entertained by the Employer for minor accessories, hardware consumables, specialized tools, scaffolding, labor overruns, or incidental civil/electrical works required to deliver a complete, robust, and operational system, unless explicitly quantified and approved in the Bill of Quantities (BOQ).

10 ROLES AND RESPONSIBILITIES

10.1 System Integrator (SI)

The following are the responsibilities of the SI:

1. **Site Survey & Engineering:** Site survey, detailed design, drawings, BOQ preparation and execution planning.
2. **ANPR System:** Supply, installation, configuration, alignment, integration, testing and commissioning of ANPR cameras and accessories.
3. **VMS System:** Supply, installation, software/licence configuration, camera integration, recording, monitoring and commissioning.
4. **Camera Installation:** Supply and installation of cameras, poles/brackets, junction boxes, cabling, power and network connectivity, alignment and testing.
5. **VRF System:** Supply and installation of VRF indoor/outdoor units, refrigerant piping, drainage, controls and insulation, including testing and commissioning for the conference room.
6. **Integration:** Integration with the existing network, ICCC/VMS and other ICT infrastructure in coordination with the existing MSI.
7. **Testing & Handover:** Testing, commissioning, documentation, as-built drawings, user training and warranty support.
8. **Coordination:** Coordination with the Client, Consultant, MSI, OEMs and other agencies for smooth execution and timely completion.

10.2 Employer- MITL/ MSI

1. Provide access to existing ICT/IT infrastructure, Data Centre, network and OFC infrastructure required for integration.
2. Provide necessary VM, IP addresses, VLANs, network ports, bandwidth and system access.
3. Provide technical details, interface specifications and integration requirements of existing systems.
4. Coordinate the integration of ANPR, VMS and cameras with the existing ICCC/VMS platform.
5. Facilitate coordination with existing OEMs, MSI, SI and other agencies, wherever required.
6. Provide site access, work permits and necessary approvals for project execution.
7. Review and approve designs, drawings, makes/models, equipment and installation methodology.
8. Provide/approve required power, space, civil works and other site facilities, as applicable.
9. Review and support approval of integration drawings, technical documents and implementation plans.
10. Coordinate with concerned Client departments, existing MSI, SI and other agencies.
11. Facilitate access to existing infrastructure and required installation locations.
12. Support configuration, integration, testing and troubleshooting activities in coordination with the SI.
13. Support testing, commissioning and final integration of the newly installed systems.
14. Ensure timely decisions, approvals and clearances required for project execution.
15. Review and accept final documentation, as-built drawings and project handover documents.

11 IMPLEMENTATION SCHEDULE

The Contractor shall adhere to the below-mentioned milestones for timely completion of the project

Milestone	Milestone Description & Deliverables	Effective Date of Contract (D)
Submission of Project Plan and Requirement Document	Submission of Detailed Project Plan and Survey Document, Design Documents	D+1 Months
Supply of Hardware & Software	Delivery of all BOQ items (VMS software, ANPR software, HD IP cameras, ANPR cameras, Junction Boxes, Poles ,Arm etc) at site store in sound condition.	D+4 Month
Field Civil, Trenching, Cabling & Structural Erection	Completion of 100% civil and installation work	D+5 Month
Operational Acceptance, 30-Day Trial Run & Go-Live	Successful completion of formal Operational Acceptance Tests (OAT), uninterrupted 30-day continuous trial run, user training, and issuance of Final Go-Live / Operational Acceptance Certificate.	D+6 Month

12 Special Terms and Conditions

12.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

1. **"Accounting Year"** means the financial year commencing from the first day of April of any calendar year and ending on the thirty-first day of March of the next calendar year.
2. **"Advance Payment"** shall have the meaning set forth in the recitals.
3. **"Affected Party"** shall have the meaning set forth in the recitals.
4. **"Affiliate"** means, in relation to either Party {and/or Members}, a person who controls, is controlled by, or is under the common control with such Party {or Member} (as used in this definition, the expression "control" means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person, whether by operation of law or by contract or otherwise).
5. **"Agreement"** means this Agreement, its Recitals, the Schedules hereto and any amendments thereto made in accordance with the provisions contained in this Agreement.
6. **"Applicable Laws"** means all laws, brought into force and effect by GOI or the State Government including rules, regulations and notifications made there under, and judgments, decrees, injunctions, writs and orders of any court of record, applicable to this Agreement and the exercise, performance and discharge of the respective rights and obligations of the Parties hereunder, as may be in force and effect during the subsistence of this Agreement.
7. **"Applicable Permits"** means all clearances, licenses, permits, authorizations, no objection certificates, consents, approvals and exemptions required to be obtained or maintained under Applicable Laws in connection with the construction, operation and maintenance of the Project Works during the subsistence of this Agreement.
8. **"Appointed Date"** means the date of issue of Letter of Award (LOA).
9. **"Arbitration Act"** means the Arbitration and Conciliation Act, 1996 and shall include modifications to or any re-enactment thereof, as in force from time to time.
10. **"Base Date"** means the last date of that calendar month, which date precedes the Bid Due Date by at least 28 (twenty-eight) days.
11. **"Bid"** means the documents in their entirety comprised in the bid submitted by the [selected bidder/Consortium] in response to the Request for Qualification cum Request for Proposals in accordance with the provisions thereof.
12. **"Bid Security"** means the Bid Security provided by the Contractor to the Employer in accordance with the Request for Proposal, and which is to remain in force until substituted by the Performance Security.
13. **"Change in Law"** means the occurrence of any of the following after the Base Date:
    a) the enactment of any new Indian law.
    b) the repeal, modification or re-enactment of any existing Indian law;
    c) the commencement of any Indian law which has not entered into effect until the Base Date.
    d) a change in the interpretation or application of any Indian law by a judgments of a court of record which has become final, conclusive and binding, as compared to such interpretation or application by a court of record prior to the Base Date; or
    e) any change in rates of any of the Taxes or royalties that have a direct effect on the Project.

14. **"Change of Scope"** shall have the meaning set forth in the recitals;
15. **"Change of Scope Notice"** shall have the meaning set forth in the recitals;
16. **"Change of Scope Order"** shall have the meaning set forth in the recitals;
17. **"Completion Certificate"** shall have the meaning set forth in the recitals;
18. **"Consortium"** means the consortium of entities which have formed a joint venture for implementation of this Project;
19. **"Construction"** shall have the meaning set forth in the recitals;
20. **"Construction Period"** means the period commencing from the Letter of Award and ending on the date of the Completion Certificate;
21. **"Contract"** means the Contract Agreement, the Letter of Award, the Form of Bid, Conditions of Contract, Contract Data Sheet, Employer's Requirements, General Specifications, Schedules and Datasheets, Indicative Tender Drawings and the further documents (if any) which are listed in Contract Agreement or in the Letter of Award,
22. **"Contract Price"** means the amount specified in the recitals;
23. **"Contractor"** means the person(s) named as contractor in the Form of Bid whose tender has been accepted by the Employer and the legal successors in title to this person(s).;
24. **"Contractor's Personnel"** means the Contractor's Representative and all personnel who may include the staff, labour, other employees of the Contractor, personnel utilised by contractor on Site, and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.
25. **"Contractor Default"** shall have the meaning set forth in the recitals;
26. **"Damages"** shall have the meaning set forth in the recitals;
27. **"Defect"** means any defect or deficiency in Construction of the Works or any part thereof, which does not conform with the Specifications and Standards, and in the case of Maintenance, means any defect or deficiency which is specified in Schedule E;
28. **"Defects Liability Period"** shall have the meaning set forth in the recitals;
29. **"Dispute"** shall have the meaning set forth in the recitals;
30. **"Dispute Resolution Procedure"** means the procedure for resolution of Disputes set forth in the recitals;
31. **"Drawings"** means all of the drawings, calculations and documents pertaining to the Project Works as set forth in Schedule-I, and shall include 'as built' drawings of the Project Works;
32. **"Document" or "Documentation"** means documentation in printed or written form, or in tapes, discs, drawings, computer programmes, writings, reports, photographs, films, cassettes, or expressed in any other written, electronic, audio or visual form;
33. **"Emergency"** means a condition or situation that is likely to endanger the safety or security of the individuals on or about the Project Works, including Users thereof, or which poses an immediate threat of material damage to any of the Project Assets;
34. **"Employer"** means the entity/person named as employer in the Contract Data sheet and the legal successors in title to this person.
35. **"Employer Default"** shall have the meaning set forth in the recitals;
36. **"Employer's Engineer"/ "Engineer" / "Engineer In-charge"** means the person appointed by the Employer from time to time to act as his technical representative;
37. **"Employer's Personnel"** means such person or persons as may be authorized in writing by the

Employer to act on its behalf under this Agreement and shall include any person or persons having Employer to exercise any rights or perform and fulfil any obligations of the Employer under this Agreement;

38. **"Encumbrances"** means, in relation to the Project Works, any encumbrances such as mortgage, charge, pledge, lien, hypothecation, security interest, assignment, privilege or priority of any kind having the effect of security or other such obligations, and shall include any designation of loss payees or beneficiaries or any similar arrangement under any insurance policy pertaining to the Project Works, where applicable herein but excluding utilities referred to in the recitals;
39. **"Force Majeure" or "Force Majeure Event"** shall have the meaning ascribed to it in the recitals;
40. **"GOI" or "Government"** means the Government of India;
41. **"Good Industry Practice"** means the practices, methods, techniques, designs, standards, skills, diligence, efficiency, reliability and prudence which are generally and reasonably expected from a reasonably skilled and experienced contractor engaged in the same type of undertaking as envisaged under this Agreement;
42. **"Government Instrumentality"** means any department, division or subdivision of the Government or the State Government and includes any commission, board, Employer, agency or municipal and other local Employer or statutory body including panchayat under the control of the Government or the State Government, as the case may be, and having jurisdiction over all or any part of the Project Works or the performance of all or any of the services or obligations of the Contractor under or pursuant to this Agreement;
43. **"Indemnified Party"** means the Party entitled to the benefit of an indemnity pursuant to the recitals;
44. **"Indemnifying Party"** means the Party obligated to indemnify the other Party pursuant to the recitals;
45. **"Indirect Political Event"** shall have the meaning set forth in the recitals;
46. **"Insurance Cover"** means the aggregate of the maximum sums insured under the insurances taken out by the Contractor pursuant to the insurance shall include:

    The Contractor shall, at its own cost, obtain and maintain adequate insurance from an IRDAI-licensed insurance company throughout the Contract Period, covering the risks associated with supply, transportation, installation, integration, testing, commissioning and maintenance of the IT infrastructure/equipment.

    A. Loss or damage to all materials, equipment and project assets supplied under the Contract, including during transportation, loading, unloading, storage, installation, testing and commissioning.

    B. Contractor's All Risk/Erection All Risk (CAR/EAR) – covering loss or damage during storage, installation, testing and commissioning, as applicable.

    C. Workmen/Employee Compensation Insurance – covering all personnel engaged in the Contract.

    The Contractor shall submit valid insurance policies and proof of premium payment to MITL before commencement of the relevant work. Any loss, damage, liability, deductible or uninsured amount arising from the Contractor's acts or omissions shall be borne solely by the Contractor.
47. **"Intellectual Property"** means all patents, trademarks, service marks, logos, get-up, trade names, internet domain names, rights in designs, blue prints, programmes and manuals, drawings, copyright (including rights in computer software), database rights, semi-conductor, topography rights, utility models, rights in know-how and other intellectual property rights, in each case whether registered or unregistered and including applications for registration, and all rights or forms of protection having equivalent or similar effect anywhere in the world;
48. **"LOA" or "Letter of Award"** means the letter of award referred to in Recital (E);

49. **"Material Adverse Effect"** means a material adverse effect of any act or event on the ability of either Party to perform any of its obligations under and in accordance with the provisions of this Agreement and which act or event causes a material financial burden or loss to either Party;
50. **"Materials"** are all the supplies used by the Contractor for incorporation in the Works or for the maintenance of the Project Works;
51. **"Non-Political Event"** shall have the meaning set forth in the recitals;
52. **"Parties"** means the parties to this Agreement collectively and "Party" shall mean any of the parties to this Agreement individually;
53. **"Performance Security"** shall have the meaning set forth in the recitals;
54. **"Project Assets"** means all physical and other assets relating to (a) tangible assets such as civil works and equipment including foundations, civil tanks and structures, buildings, process control hardware and software, electro-mechanical equipment, piping, valves, electrical equipment and motor control centres, field instruments and control system, drainage works (b) Project Facilities situated on the Site;
55. **"Project Completion Date"** means the date on which the Provisional / completion Certificate is issued and in the event no Provisional Certificate is issued, the date on which the Completion Certificate is issued;
56. **"Project Completion Schedule"** means the progressive Project Milestones set forth in contract data sheet

57. for completion of the Project Works on or before the Scheduled Completion Date;

    "Project Works" or "Works" means the Site comprising "**Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based Video VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years maintenance support."** project and all Project Assets, and its subsequent development and augmentation in accordance with this Agreement.

58. **"Quality Assurance Plan" or "QAP"** shall have the meaning set forth in the recitals;
59. **"Re.", "Rs." or "Rupees" or "Indian Rupees"** means the lawful currency of the Republic of India;
60. **"Scheduled Completion Date"** shall have the meaning set forth in the recitals;
61. **"Scope of the Project"** shall have the meaning set forth in Clause 1.6; "Section" means a part of the Project Works;"
62. **"Taxes"** means any Indian taxes including GST (Goods and service tax), excise duties, customs duties, value added tax sales tax, local taxes, cess and any impost or surcharge of like nature (whether Central, State or local) on the goods, Materials, equipment and services incorporated in and forming part of the Project Works charged, levied or imposed by any Government Instrumentality, but excluding any interest, penalties and other sums in relation thereto imposed on any account whatsoever. For the avoidance of doubt, Taxes shall not include taxes on corporate income;
63. **"Termination"** means the expiry or termination of this Agreement as per the Agreement.
64. **"Termination Payment"** means the amount payable by either Party to the other upon Termination in accordance with the Agreement.
65. **"Tests"** means the tests set forth in RFQ Cum RFP- Employer's Requirements to determine the completion of Works in accordance with the provisions of this Agreement;
66. **"Time Extension"** In case of delay due to Force Majeure, delay attributable to MITL, or other reasons beyond the Contractor's reasonable control, the Contractor may request an extension of time by submitting a written request with supporting documents. MITL may grant an extension corresponding to the actual justified delay. No extension shall be granted for delays attributable to the Contractor.
67. **"Valuation of Unpaid works"** shall have the meaning set forth in the recitals;

12.2 Order of Precedence

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

a) the Contract Agreement (if any),

b) the Letter of Award,

c) the Form of Bid,

d) the Contract Data Sheet,

e) the Employer's Requirements/Particular Conditions of Contract,

f) Published RFQ Cum RFP

g) Pre-Bid Queries and MITL Replies

h) Corrigendum Published

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

12.3 Inspections and Audit

1. The Employer or any representative authorized by the Employer in this behalf may inspect and review the progress and quality of the construction of Project Works and issue appropriate directions to the Employer's Engineer and the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.
2. At any time during construction, the Employer may appoint an external technical auditor to conduct an audit of the quality of the Works. The findings of the audit, to the extent accepted by the Employer, shall be notified to the Contractor and the Employer's Engineer for taking remedial action in accordance with this Agreement. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this RFQ Cum RFP, the external technical audit shall not affect any obligations of the Contractor or the Employer's Engineer under this Agreement.

12.4 SI/ Contractor General Obligations

1. The Contractor shall design, execute and complete the Works in accordance with the Contract and as per the Employer's instructions. The Contractor shall also remedy any defects whatsoever in the Works to the satisfaction of the Employer and in accordance with the Contract.
2. The Contractor shall provide the Plant, Equipment, Services and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.
3. The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract.
4. The Contractor shall, whenever required by the Engineer/employer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer/employer.
5. If the Contract specifies that the Contractor shall design any part of the Permanent Works, then

unless otherwise stated in the Particular Conditions:

6. the Contractor shall submit to the Engineer the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
7. these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications as specified, and shall include additional information required by the Engineer-in-charge to add to the Drawings;
8. the Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as are specified in the Contract; and
9. Prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer-in-charge/employer the "as-built" documents and operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over until these documents and manuals have been submitted to the Engineer-in-charge/employer for review and approval thereof.

12.5 Performance Security

1. The Contractor shall, for the performance of its obligations hereunder during the contract Period, provide to the Employer, within time limit specified in the Contract Data Sheet, an irrevocable and unconditional guarantee from a nationalised Bank in the format set forth in Tender Forms for an amount equal to a percentage of the Contract Price as specified in the Contract Data Sheet.
2. The Performance Security shall be valid and enforceable the Contractor has executed and completed the Works and remedied any defects or until 60 (sixty) days after the completion
3. Until such time the Performance Security is provided by the Contractor pursuant hereto and the same comes into effect, the Bid Security shall remain in force and effect, and upon such provision of the Performance Security, the Employer shall release the Bid Security to the Contractor. Notwithstanding anything to the contrary contained in this Agreement, the Parties agree that in the event of failure of the Contractor to provide the Performance Security in accordance with the provisions of this RFQ Cum RFP [Performance Security] and within the time specified therein or such extended period as may be provided by the Employer, in accordance with the provisions of Clause , the Employer may encash the Bid Security and appropriate the proceeds thereof as Damages, and thereupon all rights, privileges, claims and entitlements of the Contractor under or arising out of this Agreement shall be deemed to have been waived by, and to have ceased with the concurrence of the Contractor, and this Agreement shall be deemed to have been terminated by mutual agreement of the Parties.

12.6 Confidentiality

The Parties shall treat the details of this Agreement as private and confidential, except to the extent necessary to carry out obligations under it or to comply with Applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Employer.

12.7 Extension of Performance Security

The Contractor shall initially provide the Performance Security for a period of 2 (two) years and 6 months; as mentioned in the RFQ Cum RFP.

12.8 Staff and Labour

1. Persons in the Service of Employer: The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.
2. Labour Laws

   The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

   The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

12.9 Quality Management

1. **Quality of Materials:**

   The Contractor shall ensure that all the materials are in accordance with the requirements specified in this Agreement, Employer's Requirements, General Specifications and Standards and Good Industry Practice.

2. **Inspection:**

   The Employer and its authorized representative shall at all reasonable times:

   a) have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and

   b) during production, manufacture and construction at the Site and at the place of production, be entitled to examine, inspect, measure and test the Materials and workmanship, and to check the progress of manufacture of Materials.

   c) The Contractor shall give the Employer and its authorized agents access, facilities and safety equipment for carrying out their obligations under this Agreement.

   d) For the avoidance of doubt, such inspection or submission of Inspection Report by the Engineer-in-charge shall not relieve or absolve the Contractor of its obligations and liabilities under this Agreement in any manner whatsoever.

ix. **Sample:**

The Contractor shall submit the following samples of Materials and relevant information to the Engineer-in-charge for pre-construction review:

a) manufacturer's test reports and standard samples of manufactured Materials; and

b) samples of such other Materials as the Employer may require.

x. **Tests** – The System Integrator (SI) shall submit the detailed test cases and testing process to MITL for review and approval. The approved test cases shall be executed after completion of the project and prior to final acceptance and commissioning of the system.

12. Examination of Work Before Covering Up

In respect of the work which the Engineer-in-charge is entitled to examine, inspect, measure and/or test before it is covered up or put out of view or any part of the work is placed thereon, the Contractor shall give notice to the Engineer-in-charge whenever any such work is ready and before it is covered up. The

Engineer-in-charge shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer-in-charge does not require to do so.

13. Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Engineer-in-charge shall reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.

If the Engineer-in-charge requires the Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Employer to incur any additional costs, such cost shall be recoverable by the Employer from the Contractor; and may be deducted by the Employer from any monies due to be paid to the Contractor.

12.10 Commencement, Delays And Suspension

1. Commencement of Work: The commencement date shall be within the time specified in the Contract Data Sheet.
2. Time for Completion: The Contractor shall complete the whole of the Works, and each Section complete in itself (if any), within the Time for Completion for the Works or Section (as the case may be), including:

   a) achieving the passing of the Tests on Completion, and

   b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking over.
3. Tests on Completion: Post Supply and installation of all meters the tests shall be carried out as per employer's requirement.

12.11 Employer's Taking Over/ Completion Certificate

Taking Over/Completion Certificate:

A. The Employer shall take over the Site and the Works within seven days of the Engineer making a presentation to the management and taking the consent for issuing a certificate of Completion.

B. The Employer shall be deemed to have taken over the Works on the date when the commissioning of the scheme after the Tests on Completion would have been completed and duly informed by the Contractor to the Employer in writing unless refuted by the Employer within 14 days.

C. Contractor shall carry out the Operation and Maintenance during O&M Period.

12.12 Force Majeure

1. Force Majeure:

As used in this Agreement, the expression "Force Majeure" or "Force Majeure Event" shall mean occurrence in India of any or all of Non- Political Event, Indirect Political Event and Political Event, as defined in the RFQ Cum RFP, if it affects the performance by the Party claiming the benefit of Force Majeure (the "Affected Party") of its obligations under this Agreement and which act or event (i) is beyond the reasonable control of the Affected Party, and (ii) the Affected Party could not have prevented or overcome by exercise of due diligence and following Good Industry Practice, and (iii) has Material Adverse Effect on the Affected Party.

2. Non-Political Event:

A Non-Political Event shall mean one or more of the following acts or events:

a) act of God, epidemic, extremely adverse weather conditions, lightning, earthquake, landslide, cyclone, flood, volcanic eruption, chemical or radioactive contamination or ionising radiation, fire or explosion (to the extent of contamination or radiation or fire or explosion originating from a source external to the Site);

b) strikes or boycotts (other than those involving the Contractor, Subcontractors or their respective employees/representatives, or attributable to any act or omission of any of them) interrupting supplies and services to the Project works for a continuous period of 24 (twenty- four) hours and an aggregate period exceeding 10 (ten) days in an Accounting Year, and not being an Indirect Political Event set forth in RFQ Cum RFP;

c) any failure or delay of a Sub-contractor but only to the extent caused by another Non-Political Event;

d) any judgement or order of any court of competent jurisdiction or statutory Employer made against the Contractor in any proceedings for reasons other than (i) failure of the Contractor to comply with any Applicable Law or Applicable Permit, or (ii) on account of breach of any Applicable Law or Applicable Permit or of any contract, or (iii) enforcement of this Agreement, or (iv) exercise of any of its rights under this Agreement by the Employer;

e) the discovery of geological conditions, toxic contamination or archaeological remains on the Site that could not reasonably have been expected to be discovered through a site inspection;

3. Indirect Political Event

An Indirect Political Event shall mean one or more of the following acts or events:

a) an act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, riot, insurrection, terrorist or military action, civil commotion or politically motivated sabotage;

b) industry-wide or State-wide strikes or industrial action for a continuous period of 24 (twenty-four) hours and exceeding an aggregate period of 10 (ten) days in an Accounting Year;

c) any civil commotion, boycott or political agitation which prevents construction of the Project Works by the Contractor for an aggregate period exceeding 10 (ten) days in an Accounting Year;

d) any failure or delay of a Sub-contractor to the extent caused by any Indirect Political Event;

4. Political Event

A Political Event shall mean one or more of the following acts or events by or on account of any Government Instrumentality:

a) change in Law, only if consequences thereof cannot be dealt with under and in accordance with the provisions of this RFQ Cum RFP;

b) compulsory acquisition in national interest or expropriation of any Project Assets or rights of the Contractor or of the Sub- Contractors;

c) unlawful or unauthorized or without jurisdiction revocation of, or refusal to renew or grant without valid cause, any clearance, license, permit, authorization, no objection certificate, consent, approval or exemption required by the Contractor or any of the Sub-contractors to perform their respective obligations under this Agreement; provided that such delay,

modification, denial, refusal or revocation did not result from the Contractor's or any Sub-contractor's inability or failure to comply with any condition relating to grant, maintenance or renewal of such clearance, license, authorization, no objection certificate, exemption, consent, approval or permit;

d) any failure or delay of a Sub-contractor but only to the extent caused by another Political Event; or

5. Duty to Report Force Majeure Event

Upon occurrence of a Force Majeure Event, the Affected Party shall by notice report such occurrence to the other Party forthwith. Any notice pursuant hereto shall include full particulars of:

a) the nature and extent of each Force Majeure Event which is the subject of any claim for relief under this RFQ Cum RFP with evidence in support thereof;

b) the estimated duration and the effect or probable effect which such Force Majeure Event is having or will have on the Affected Party's performance of its obligations under this Agreement;

c) the measures which the Affected Party is taking or proposes to take for alleviating the impact of such Force Majeure Event; and

d) any other information relevant to the Affected Party's claim.

The Affected Party shall not be entitled to any relief for or in respect of a Force Majeure Event unless it shall have notified the other Party of the occurrence of the Force Majeure Event as soon as reasonably practicable, and in any event no later than 10 (ten) days after the Affected Party knew, or ought reasonably to have known, of its occurrence, and shall have given particulars of the probable material effect that the Force Majeure Event is likely to have on the performance of its obligations under this Agreement.

For so long as the Affected Party continues to claim to be materially affected by such Force Majeure Event, it shall provide the other Party with regular (and not less than weekly) reports containing information as required by Clause of the RFQ Cum RFP, and such other information as the other Party may reasonably request the Affected Party to provide.

6. Effect of Force Majeure Event on the Agreement

Upon the occurrence of any Force Majeure after the Letter of Award, the costs incurred and attributable to such event and directly relating to this Agreement (the "Force Majeure costs") shall be allocated and paid as follows:

a) 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 the other Party any costs thereof;

b) b) upon occurrence of an Indirect Political Event, all Force Majeure costs attributable to such Indirect Political Event, and not exceeding the Insurance Cover for such Indirect Political Event, shall be borne by the Contractor, and to the extent Force Majeure costs exceed such Insurance Cover, one half of such excess amount shall be reimbursed by the Employer to the Contractor for the Force Majeure events; and

c) upon occurrence of a Political Event, all Force Majeure costs attributable to such Political Event shall be reimbursed by the Employer to the Contractor.

For the avoidance of doubt, Force Majeure costs may include costs directly attributable to the Force Majeure Event, but shall not include debt repayment obligations, if any, of the Contractor.

Save and except as expressly provided in this RFQ Cum RFP [Force Majeure], neither Party shall be liable in any manner whatsoever to the other Party in respect of any loss, damage, cost, 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 hereto.

Upon the occurrence of any Force Majeure Event during the Construction Period, the Project Completion Schedule for and in respect of the affected Works shall be extended on a day for day basis for such period as performance of the Contractor's obligations is affected on account of the Force Majeure Event or its subsisting effects.

7. Termination Notice for Force Majeure Event

If a Force Majeure Event subsists for a period of 60 (sixty) days or more within a continuous period of 120 (one hundred and twenty) days, either Party may in its discretion terminate this Agreement by issuing a Termination Notice to the other Party without being liable in any manner whatsoever, save as provided in this RFQ Cum RFP [Force Majeure], and upon issue of such Termination Notice, this Agreement shall, notwithstanding anything to the contrary contained herein, stand terminated forthwith; provided that before issuing such Termination Notice, the Party intending to issue the Termination Notice shall inform the other Party of such intention and grant 15 (fifteen) days' time to make a representation, and may after the expiry of such 15 (fifteen) days period, whether or not it is in receipt of such representation, in its sole discretion issue the Termination Notice.

8. Termination Payment for Force Majeure Event

In the event of this Agreement being terminated on account of a Non- Political Event, the Termination Payment shall be an amount equal to the sum payable under

Provided that in the event Termination occurs during the Maintenance Period, the Employer's Engineer shall only determine the value of Works associated with Maintenance.

If Termination is on account of an Indirect Political Event, the Termination Payment shall include:

a) any sums due and payable under [Valuation of Unpaid Works]; and

b) the reasonable cost, as determined by the Employer's Engineer, of the Plant and Materials procured by the Contractor and transferred to the Employer for use in Construction or Maintenance, only if such Plant and Materials are in conformity with the Specifications and Standards;

If Termination is on account of a Political Event, the Employer shall make a Termination Payment to the Contractor in an amount that would be payable under Clause of RFQ Cum RFP [Termination Payment] as if it were an Employer Default.

9. Dispute Resolution

In the event that the Parties are unable to agree in good faith about the occurrence or existence of a Force Majeure Event, such Dispute shall be finally settled in accordance with the Dispute Resolution Procedure; provided that the burden of proof as to the occurrence or existence of such Force Majeure Event shall be upon the Party claiming relief and/or excuse on account of such Force Majeure Event.

10. Excuse from Performance of Obligations

If the Affected Party is rendered wholly or partially unable to perform its obligations under this Agreement because of a Force Majeure Event, it shall be excused from performance of such of its obligations to the extent it is unable to perform on account of such Force Majeure Event; provided that:

a) the suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event;

b) the Affected Party shall make all reasonable efforts to mitigate or limit damage to the other Party arising out of or as a result of the existence or occurrence of such Force Majeure Event and to

cure the same with due diligence; and

c) when the Affected Party is able to resume performance of its obligations under this Agreement, it shall give to the other Party notice to that effect and shall promptly resume performance of its obligations hereunder.

12.13 Claims, Disputes and Arbitration

I. **Dispute Resolution**

Any dispute, difference or controversy of whatever nature howsoever arising under or out of or in relation to this Agreement (including its interpretation) between the Parties, and so notified in writing by either Party to the other Party (the "Dispute") shall, in the first instance, be attempted to be resolved amicably in accordance with the conciliation procedure set forth in Clause in the RFQ Cum RFP.

The Parties agree to use their best efforts for resolving all Disputes arising under or in respect of this Agreement promptly, equitably and in good faith, and further agree to provide each other with reasonable access during normal business hours to all non-privileged records, information and data pertaining to any Dispute.

II. **Conciliation:** In the event of any Dispute between the Parties, either Party may call upon the Employer's Engineer, or such other person as the Parties may mutually agree upon (the "Conciliator") to mediate and assist the Parties in arriving at an amicable settlement thereof. Failing mediation by the Conciliator or without the intervention of the Conciliator, either Party may require such Dispute to be referred to the Managing Director of the Employer and the Chairman of the Board of Directors of the Contractor for amicable settlement, and upon such reference, the said persons shall meet no later than 7 (seven) business days from the date of reference to discuss and attempt to amicably resolve the Dispute. If such meeting does not take place within the 7 (seven) business day period or the Dispute is not amicably settled within 15 (fifteen) days of the meeting or the Dispute is not resolved as evidenced by the signing of written terms of settlement within 30 (thirty) days of the notice in writing referred to in Clause the RFQ Cum RFP or such longer period as may be mutually agreed by the Parties, either Party may refer the Dispute to arbitration in accordance with the provisions of Clause of the RFQ Cum RFP.

III. **Arbitration**

Any Dispute which is not resolved amicably by conciliation, as provided in Clause of the RFQ Cum RFP, shall be finally decided by reference to arbitration by a Board of Arbitrators appointed in accordance with Clause of the RFQ Cum RFP. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi (the "Rules"), or such other rules as may be mutually agreed by the Parties, and shall be subject to the provisions of the Arbitration Act. The venue of such arbitration shall be [Mumbai], and the language of arbitration proceedings shall be English. There shall be a Board of three arbitrators, of whom each Party shall select one, and the third arbitrator shall be appointed by the two arbitrators so selected and in the event of disagreement between the two arbitrators, the appointment shall be made in accordance with the Rules.

The arbitrators shall make a reasoned award (the "Award"). Any Award made in any arbitration held pursuant to this Clause of the RFQ Cum RFP [Claims, Disputes And Arbitration] shall be final and binding on the Parties as from the date it is made, and the Contractor and the Employer agree and undertake to carry out such Award without delay.

The Contractor and the Employer agree that an Award may be enforced against the Contractor and/or the Employer, as the case may be, and their respective assets wherever situated.

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

In the event the Party against whom the Award has been granted challenges the Award for any reason in a court of law, it shall make an interim payment to the other Party for an amount equal

to 75% (seventy-five per cent) of the Award, pending final settlement of the Dispute. The aforesaid amount shall be paid forthwith upon furnishing an irrevocable Bank Guarantee for a sum equal to 120 % (one hundred and twenty per cent) of the aforesaid amount. Upon final settlement of the Dispute, the aforesaid interim payment shall be adjusted and any balance amount due to be paid or returned, as the case may be, shall be paid or returned with interest calculated at the rate of 10% (ten per cent) per annum from the date of interim payment to the date of final settlement of such balance.

V. Adjudication by Regulatory Employer, Tribunal or Commission

In the event of constitution of a statutory regulatory Employer, tribunal or commission, as the case may be, with powers to adjudicate upon disputes between the Contractor and the Employer, all Disputes arising after such constitution shall, instead of reference to arbitration under Clause of the RFQ Cum RFP [Arbitration], be adjudicated upon by such regulatory authority, tribunal or commission in accordance with the Applicable Law and all references to Dispute Resolution Procedure shall be construed accordingly. For the avoidance of doubt, the Parties hereto agree that the adjudication hereunder shall not be final and binding until an appeal against such adjudication has been decided by an appellate tribunal or court of competent jurisdiction, as the case may be, or no such appeal has been preferred within the time specified in the Applicable Law.

12.14 Change in Scope of Work

During the Implementation and/or Operations & Maintenance (O&M) period, the Employer may require additional quantities of the items specified in the Bill of Quantities (BoQ), based on operational requirements and project needs.

In such cases, the Contractor/SI shall be required to supply, install, test and commission (SITC) the additional quantities of the respective BoQ items at the same unit rates quoted in the original contract BoQ rate, without any additional charges or escalation.

The additional quantities shall be ordered by the Employer through a written instruction/work order, subject to the overall provisions and terms and conditions of the Contract.

13 Service Levels Agreement

13.1 CAPEX Milestone-Based SLA / Liquidated Damages

Sr. No.	CAPEX Milestone	Milestone Description & Deliverables	Contractual Target	SLA / Delay Condition	Liquidated Damages
1	**Submission of Project Plan and Requirement Document**	Submission of detailed Project Plan, Site Survey Document and Design Documents for review and approval by MITL.	D + 1 Month	The Contractor shall submit all required documents within the stipulated timeline. Delay attributable to the Contractor shall be considered a milestone delay.	0.5% of Total Contract Value per week or part thereof, subject to the overall LD ceiling of 10%.
2	**Supply of Hardware & Software**	Delivery of all BOQ items, including VMS Software, ANPR Software, HD IP Cameras, ANPR Cameras, Junction Boxes, Poles, Arms, etc., at the designated site/store in sound and acceptable condition.	D + 4 Months	All items shall be delivered within the stipulated timeline and shall conform to the approved BOQ, technical specifications and approved makes/models.	0.5% of Total Contract Value per week or part thereof, subject to the overall LD ceiling of 10%.
3	**Field Civil, Trenching, Cabling & Structural Erection**	Completion of **100% civil works, trenching, cabling, installation and structural erection** required for the project.	D + 5 Months	The Contractor shall complete all field installation and associated works within the stipulated timeline. Delay attributable to the Contractor shall constitute milestone delay.	0.5% of Total Contract Value per week or part thereof, subject to the overall LD ceiling of 10%.
4	**Operational Acceptance, 30-Day Trial Run & Go-Live**	Successful completion of formal OAT, uninterrupted **30-day continuous trial run**, user training and issuance of Final Go-Live / Operational Acceptance Certificate.	D + 6 Months	The Contractor shall achieve successful Operational Acceptance and Go-Live within D+6 Months. Failure to achieve the milestone due to reasons attributable to the Contractor shall attract LD.	0.5% of Total Contract Value per week or part thereof, subject to the overall LD ceiling of 10%.

Note- “D” means the date on which the contract is signed.

13.2 SLA and Penalties During O&M period

1. Purpose & Principles of SLA Management

This SLA defines realistic performance thresholds for the 2-Year Comprehensive O&M phase. The framework is structured to maintain high system availability while protecting the Contractor from arbitrary, excessive, or unmitigated financial penalties due to external and environmental factors.

2. Contractor Protective Relief & Force Majeure Exclusions

No downtime, delay, or penalty shall be attributed to the Contractor under the following conditions:

a) **Grid Power & DISCOM Outages:** Any downtime arising from grid power failure, feeder pillar tripping, utility supply outage, or phase failure where the UPS battery capacity is exhausted during extended outages.

b) **Third-Party Fiber Cuts & Civil Works:** Physical damage or optical fiber cuts caused by external agencies, road widening, utility trenching, civic authorities, or unauthorized third parties.

c) **Client-Attributable Delays:** Delay in providing site access, electrical clearances, work permits, or approvals by the Client or statutory authorities.

d) **Force Majeure & Extreme Weather:** Floods, waterlogging, severe storms, lightning strikes beyond SPD rating, riots, vandalism, and declared Force Majeure events.

e) **Scheduled Maintenance Window:** Preventive maintenance executed during approved off-peak windows (up to 8 hours per month between 00:00 and 06:00 hrs) with 48 hours prior email notification.

3. 90-Day Stabilisation & Grace Period

A 90-Day Post Go-Live Stabilisation Period shall apply immediately following Operational Acceptance. During this period, all SLA metrics and EMS tools shall be monitored and calibrated; however, no financial penalties shall be deducted from O&M payments to allow fine-tuning of AI analytics, optical levels, and network routing.

4. Lesser Severity Penalty Scaling Matrix

The penalty percentage applicable to the Quarterly O&M Invoice Value for each severity category

Severity Level	Penalty Rate (% of Quarterly O&M Invoice)	Benchmark Description & Application
Level 0	0.00% (Nil)	Performance meets or exceeds targeted SLA levels.
Level 1	0.05%	Minor reporting delay or non-critical cosmetic dashboard defect.
Level 2	0.10%	Low-impact single field device outage or minor query delay.
Level 3	0.15%	Minor response time elongation during peak loads.
Level 4	0.25%	Moderate field junction non-availability affecting 1-2 cameras.

Severity Level	Penalty Rate (% of Quarterly O&M Invoice)	Benchmark Description & Application
Level 5	0.50%	Sub-system downtime affecting non-critical application module.
Level 6	1.00%	Core application performance reduction or temporary NVR failover.
Level 7	1.50%	Major network segment outage lasting beyond extended MTTR.
Level 8	2.50%	Severe system-wide unexcused failure (maximum single event).

5. Financial Penalty Cap & Default Threshold

- Quarterly Overall Penalty Cap: The aggregate SLA penalties deducted in any given billing quarter shall be strictly capped at a maximum of 5.0% of that Quarter's O&M Invoice Value.
- Annual Aggregate Cap: Total annual SLA penalties shall not exceed 5.0% of the Annual O&M Contract Price.
- Event of Default Relief: An SLA-related Event of Default shall only be triggered if cumulative quarterly penalties hit the maximum 5.0% cap for two (2) consecutive quarters, subject to a mandatory 30-day written Cure Notice Period allowing the Contractor to rectify root causes before any termination proceedings can be initiated.

6. Detailed Operational Performance Targets

CCTV Surveillance & ANPR Camera Availability

Performance Metric	Target Threshold	Severity Level
HD IP CCTV Camera Availability	≥ 97.0%	Level 0
	≥ 94.0% to < 97.0%	Level 2
	< 94.0%	Level 3
ANPR Camera & OCR Recognition System (Day time)	≥ 90.0%	Level 0
	≥ 90.0% to < 80.0%	Level 2
	< 80.0%	Level 3
ANPR Recognition Accuracy	≥ 88.0%	Level 0
	≥ 80.0% to < 88.0%	Level 1
	< 80.0%	Level 2

7. Central VMS, Server & Application Availability

Performance Metric	Target Threshold	Severity Level
Central VMS & Analytics Engine Uptime	≥ 98.5%*	Level 0
	≥ 96.0% to < 98.5%	Level 2
	< 96.0%	Level 4
GPU Server & Central Storage Uptime	≥ 98.5%	Level 0
	≥ 96.0% to < 98.5%	Level 2
	< 96.0%	Level 3

14 Payment Terms

Payment Terms: 80% of the total Contract Value shall be paid during the CAPEX period as per the approved payment milestones, and the remaining 20% shall be paid during the O&M period in 8 equal quarterly instalments (2.5% per quarter), subject to satisfactory performance and applicable contractual deductions.

S. No.	Milestone	Payment Percentage (% of Total Contract Value)
1	Submission of Detailed Project Plan and Technical Design Document	10%
2	Supply of all Hardware & Software	50%
3	Field Civil, Trenching, Cabling & Structural Erection	15%
4	Operational Acceptance, 30-Day Trial Run & Go-Live	5%
5	O&M period in 8 equal quarterly instalments (2.5% per quarter)	20%
Total		100%

Note: -

1. *All payments shall be upon completion and sign-off received from the Client for the respective milestones. Operations and Maintenance Support Phase Quarterly Payments shall be done after successful completion of services for the respective quarter.*
2. *If the Bidder is liable for any penalty as per the SLA (refer to the related clause of this agreement), the same shall be adjusted from payments due to the Bidder.*
3. *MITL will release the payment within 45 days of submission of valid invoice subject to the condition that invoice and all supporting documents produced are in order and the work is performed as per the scope of the project and meets the SLA Criteria.*

15 Bill of Quantity

BOQ No.	Description	Unit	Total BoQ Qty
1	AI based Video Management System (VMS) including Analytics	Nos.	1
2	HD IP camera with cantilever & Required accessories	Nos.	70
3	Automatic Number Plate Recognition Software with License (ANPR)	Nos.	1
4	ANPR Camera with License	Nos.	30
5	Any other associated components related to ANPR and analytics systems (Like GPU, Servers etc.)	LS	1
6	42U Rack	Nos.	1
7	Pole Mount Junction Box with UPS and Field switch power supply	Nos.	70
8	Gantry Poles at Entry/Exit	Nos.	5
9	1 x40mm HDPE Duct	Mtr	10000
10	Trenching	Mtr	9000
11	6 Count FOC	Mtr	10000
12	UTP Cat 6 Armoured Cable	Mtr	5250
13	Fibre Optic Splice Closure FOSC)	Nos.	75
14	Fibre Optic Patch Cords	Nos.	225
15	6 Count FTP with Pigtail and connector	Nos.	75
16	Layer 2 – Type I: Industrial Grade Field Switch	Nos.	5
17	2 C x 2.5 Sq.mm Aluminium Armoured FRLS Power Cable from Feeder pillar to Junction Box	Mtr	10000
18	Misc. (All other requirements to meet RFQ Cum RFP requirement)	Ls	1
19	Supply, Installation & Testing of VRF system at Conference Hall. For details, please ref Annex-1	LS	1

16 Qualification Documents and Technical Proposal - Standard Forms

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16.1 Form T1- Qualification Documents and Proposal Submission Form

[On the Letter head of the Bidder]

{Location, Date}

To:

Managing Director,

Maharashtra Industrial Township Limited,
Udoyg Sarathi, MIDC Office, Marol Industrial Area, Andheri (East),
Mumbai, Maharashtra, India – 400 093

Ref: RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support

Dear Sir:

We, the undersigned, offer to provide the **Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based Video VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years maintenance support** in accordance with your Request for Proposal dated [Insert Date]. We are hereby submitting our Proposal, which includes the Qualification Documents and our Financial Proposal, each in a separate sealed envelope.

If negotiations are held during the period of validity of the Proposal, we undertake to negotiate in accordance with the RFQ Cum RFP. Our proposal is binding upon us, subject only to the modifications resulting from negotiations in accordance with the RFQ Cum RFP.

We hereby declare that:

(a) The Client will be relying on the information provided in the Proposal and the documents accompanying the Proposal for the selection of the SI. All the information and statements made in this Proposal are true, nothing has been omitted which renders such information misleading and we accept that any misinterpretation or misrepresentation contained in this Proposal may lead to our disqualification by the Client.

(b) All documents accompanying our Proposal are true copies of their respective originals. We will make available to the Client any additional information it may find necessary or require to authenticate or evaluate the Proposal.

(c) We and our Affiliates are not submitting more than one or separate Proposals.

(d) We or any of our Affiliates have not been charge-sheeted by any agency of the government or convicted by a court of law, indicted or have had adverse orders passed by a regulatory authority which could cast a doubt on our ability to execute the Contract.

(e) No investigation by a regulatory authority is pending either against us or any of our Affiliates or against our chief executive officer or any of our directors/managers/employees.

(f) If due to any change in facts or circumstances during the bid process, we attract the provisions of disqualification in terms of the provisions of this RFQ Cum RFP, we shall inform the Client of the same immediately.

(g) We meet the Qualification Criteria and all other requirements of the RFQ Cum RFP and are qualified to submit a Proposal, We have not directly or indirectly through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, collusive practice, undesirable practice or restrictive. We undertake to continue to abide by and ensure that our Personnel comply with the Client's policy with regard to corrupt and fraudulent practices.

(h) We or our Affiliates, suppliers, or service providers for any part of the Contract, are not subject to any temporary suspension and have not been barred by any government or government instrumentality in India or in any other jurisdiction to which we or our Affiliates belong or in which we or our Affiliates conduct business or by any multilateral funding agency, from participating in any project or being awarded any contract or being given any funding and no such suspension or bar subsists on the Proposal Due Date.

(i) In the last 5 (five) years, we or our Affiliates have neither been expelled from any project or contract by any government or government instrumentality nor have had any contract terminated by any government or government instrumentality for breach on our part.

(j) If we are selected as the MSP, we undertake the Contract as prescribed in the RFQ Cum RFP and agree not to seek any changes in the aforesaid form and agree to abide by the same. We will provide the Goods and Services on the basis of the proposed Solution.

(k) Our Proposal is binding upon us and is subject to any modifications resulting from the Contract negotiations.

(l) We have carefully analysed the RFQ Cum RFP and all related information. We understand that except to the extent as expressly set forth in the Contract, we shall have no claim, right or title arising out of any documents or information provided to us by the Client or in respect of any matter arising out of or concerning or relating to the bid process including the award of the Contract.

(m) Our Financial Proposal has been quoted by us after taking into consideration all the terms and conditions stated in the RFQ Cum RFP, the Technical Requirements, the draft Contract, our own estimates of costs and after a careful assessment of all the conditions that may affect the Work.

(n) We irrevocably waive any right or remedy which we may have at any stage at law or howsoever arising to challenge the criteria for evaluation or question any decision taken by the Client in connection with the evaluation of the Proposals, selection of the Bidder, or in respect of this Project and the terms and implementation thereof.

(o) We acknowledge the right of the Client to reject our Proposal without assigning any reason and we hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

(p) We acknowledge the right of the Client to cancel the bid process and not award the Contract, without assigning any reason and without incurring any liability to the Bidders and we hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

(q) We undertake, if our Proposal is accepted and the Contract is signed, to initiate the Services no later than the date indicated in the RFQ Cum RFP document

(r) We shall make available to the Client any additional information it may deem necessary or require for supplementing or authenticating the Proposal.

(s) We acknowledge the right of Client to reject our application without assigning any reason or otherwise and hereby waive our right to challenge the same on any account whatsoever.

(t) We further certify that no investigation by a regulatory authority is pending either against us or against our affiliates or against our CEO or any of our Directors/ Managers/ employees.

We remain,

Yours sincerely,

Authorized Signature {In full and initials}: _____

Name and Title of Signatory: _____

Address: _____

Contact information (phone and e-mail): _____

16.2 FORM T2- Details of The Bidder

(To be submitted on the letterhead of the Bidder)

All individual firms that are bidding must complete the information in this form.

1. (a) Name:

   (b) Country of incorporation:

   (c) Date of incorporation and/or commencement of business:

2. Brief description of the company including details of its main lines of business and proposed role and responsibilities in this assignment [*Note: Such description shall not exceed 5 type-written pages.*]:

3. Details of individual who will serve as the point of contact/ communication for the Client[1]:

   (a) Name:

   (b) Designation:

   (c) Company:

   (d) Address:

   (e) Telephone Number:

   (f) E-Mail Address:

   (g) Fax Number:

4. Particulars of the Authorised Signatory of the Bidder:

   (a) Name:

   (b) Designation:

   (c) Address:

   (d) Telephone Number:

   (e) E-Mail Address:

   (f) Fax Number:

16.3 FORM T3- Format for Power of Attorney for Authorised Representative

(To be executed as per Applicable Laws)

Know all men by these presents, We, [name of organization and address of the registered office] do hereby constitute, nominate, appoint and authorise Mr / Ms [name], son/ daughter/ wife of [name], and presently residing at [address], who is presently employed with/ retained by us and holding the position of [designation] as our true and lawful attorney (hereinafter referred to as the "Authorised Representative"), to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Proposal for selection as Managed Service Provider for [name of assignment], to be developed by the Client including but not limited to signing and submission of all applications, proposals and other documents and writings, participating in pre-bid and other conferences and providing information/responses to the Client, representing us in all matters before the Client, signing and execution of all contracts and undertakings consequent to acceptance of our proposal and generally dealing with the Client in all matters in connection with or relating to or arising out of our Proposal for the said Project and/or upon award thereof to us until the entering into of the Contract with the Client.

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

The Power of Attorney will continue to be valid so long as the said Authorized Representative is in the employment of the Company.

IN WITNESS WHEREOF WE, [name of organization], THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS [date in words] DAY OF [month] [year in 'yyyy' format].

For [name and registered address of organization]

[Signature]

[Name]

[Designation]

Witnesses:

1 [Signature, name and address of witness]

2 [Signature, name and address of witness]

Accepted

[Signature]

[Name][Designation]

[Address]

Notes:

a. *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 seal affixed in accordance with the required procedure.*

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

16.4 FORM T3- Format for Power of Attorney for Lead Member of JV

Whereas the ***** ("Employer") has invited BIDs from prequalified Bidders for the ***** Project (the "Project").

Whereas, ..., ..., and..... (collectively the "Joint Venture") being Members of the Joint Venture are interested in Bidding for the Project in accordance with the terms and conditions of the Request for RFQ Cum RFP and other BID documents including agreement in respect of the Project, and Whereas, it is necessary for the Members of the Joint Venture to designate one of them as the Lead Member with all necessary power and the Employer to do for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's BID for the Project and its execution.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We,.....having our registered office at....., M/s..... having our registered office at ……,M/s..... having our registered office at and ..... 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 Joint Venture, as the Lead Member and true and lawful attorney of the Joint Venture (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 Joint Venture and any one of us during the Bidding Process and, in the event the Joint Venture is awarded the contract, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Joint Venture, all or any of such acts, deeds or things as are necessary or required or incidental to the pre- qualification of the Joint Venture 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 pre BID and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the BID of the Joint Venture and generally to represent the Joint Venture in all its dealings with the Employer, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Joint Venture's BID for the in all respect Project and/ or upon award thereof till the Agreement is entered into with the Employer & Compelled. 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/ Joint Venture.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY…….OF 2026.

For .....

(Signature)

……..

(Name & Title)

For .....

(Signature)

……..

(Name & Title)

Witnesses:

1.

2.

(Executants)

(To be executed by all the Members of the Joint Venture)

Notes:

1. 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.
2. 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 favor of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.
3. For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.

16.5 FORM T4- Financial Qualification of the Bidder

Certificate from the Statutory Auditor or Practicing CA Firm

CERTIFICATE

This is to certify that the annual turn over of _____[full name of company] [registered address] is as follows :

S. No.	Financial Years	Annual turnover	Net worth	Profit
1	2022-2023			
2	2023-2024			
3	2024-2025			
Average Annual Turnover				

Certificate from the Chartered Accountant.

This is to certify that details stated herein above pertains to M/s _____full name of company] having registered address as [registered address]

Further, it is also certified that M/s _____full name of company] has also not applied for **Corporate Debt Restructuring (CDR**) as on date.

For _____ (Name of CA Firm)

Signature of Authorized Signatory:

Name of Authorized Signatory:

Designation:

Membership No.:

UDIN:

Date:

Seal of CA / Audit firm

Note: **The bidder shall provide the certificate from its Chartered Accountant.**

16.6 FORM T5- Technical Qualification – Qualifying Projects

[Use a separate sheet for each contract]

Name of Bidder:

1.	Number of contracts	
	Name of contract	
	Country	
2.	Name of Client	
3.	Client address with Contact Details	
4.	Nature of Services and special features relevant to the contract for which the Bidding Documents are issued:	
5.	Contract role (check one) □ Prime Bidder □ Management Contractor □ Sub-Contractor □ Partner in a Joint Venture	
6.	Amount of the total contract/subcontract/partner share (in specified currencies at completion, or at date of award for current contracts) Total contract: INR_____; Subcontract: INR_____; Partner share: INR_____;	
8.	Date of award: Date of Commissioning:	
9.	Contract was completed _____ months ahead/behind original schedule (if behind, provide explanation).	
10.	Contract was completed INR _____ equivalent under/over original contract amount (if over, provide explanation).	
11.	Special contractual/technical requirements:	

(Name and Signature of Authorized Signatory)

Note:

TR 1*For each Eligible Assignment, the Bidder should indicate the duration of the assignment, the contract amount, the amount paid to the Bidder and the Bidder's role/involvement.*

TR 2*Bidders are expected to provide information in respect of each Eligible Assignment in this Appendix. Each Eligible Assignment must comply with the requirements set out in the Qualification Criteria*

TR 3*Please limit the description of the project to four (04) single sided pages (two double sided pages) A4 size sheet of paper. Descriptions exceeding four A4 size sheet of paper shall not be considered for evaluation.*

16.7 Form T6- Format for Affidavit Certifying that Bidder are Not Blacklisted

(On company letter head sign and stamp)

Affidavit

I M/s. ……, (the name of the Bidder and addresses of the registered office) hereby certify and confirm that we are not barred or blacklisted by any Central / State Government Department or Central / State PSUs from participating in any project or being awarded any contract, either individually or as member of a consortium and no such bar or blacklisting subsists as on the Proposal Due Date.

We further confirm that we are aware our Proposal for the **RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support,** Project would be liable for rejection in case any material misrepresentation is made or discovered with regard to the requirements of this RFQ Cum RFP at any stage of selection and/or thereafter during the term of the Contract.

Dated this ……..Day of ……., 20….

NAME OF THE BIDDER

……

SIGNATURE OF THE AUTHORISED PERSON

……

NAME OF THE AUTHORISED PERSON

16.8 FORM T 7- Manufacturer's Authorizations

Invitation for Bids: **RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support**

To: _____

WHEREAS _____ who are official producers of _____ and having production facilities at _____ do hereby authorize _____ located at _____ (hereinafter, the "Bidder") to submit a bid and subsequently negotiate and sign a Contract with you for resale of the following Products produced by us:

We hereby confirm that, in case the bidding results in a Contract between you and the Bidder, the above-listed products will come with our full standard warranty.

Name In the capacity of

Signed

Duly authorized to sign the authorization for and on behalf of:
_____

Dated on _____ day of _____, _____.

Note: This authorization should be written on the letterhead of the Manufacturer and be signed by a person with the proper authority to sign documents that are binding on the Manufacturer.

16.9 FORM T8- Bid Compliance Undertaking

[The Bidder shall submit an undertaking (on company letterhead and should be signed and stamped) confirming compliance to all business, functional and technical requirements as specified in this Scope of work in the RFQ Cum RFP.]

The Bidder shall submit undertaking with following points:

1. We hereby confirm that our proposal is fully and truly compliant as per the terms and conditions of this RFQ Cum RFP without any deviations.

Proposals received without Bid Compliance Undertaking shall be rejected as non-responsive. Proposals with missing, incomplete, or ambiguous responses regarding compliance may be deemed non-responsive. Bidders must submit fully compliant proposal with all the requirements as defined in the document. Client reserves the right to request more information for any or all responses listed after the bid submission deadline during the evaluation process.

16.10 FORM T9- Form of EMD (DD)

Date:

In Favour of: M/s Maharashtra Industrial Township Limited (MITL), Payable at Mumbai

- Any e-Bid not secured in accordance with above shall be treated as non-responsive and rejected by the MITL.
- Unsuccessful Bidder's EMD will be returned as promptly as possible after the opening of the Price Bid.
- The successful Bidder's e-Bid EMD will be adjusted with Performance Security to be submitted by the Bidder upon signing the contract.
- The EMD may be forfeited:
- If Bidder (i) withdraws its e-Bid during the period of e-Bid validity specified by the Bidder on the e- bid form: or (ii) does not accept the correction of errors or (iii) modifies its e-Bid price during the period of e-Bid validity specified by the Bidder on the form.
- In case of a successful Bidder, if the Bidder fails to sign the contract with the MITL.

17 Financial Proposal

(On letter head)

[Location], [Date]

To
Managing Director,
Maharashtra Industrial Township Limited,
Udyog Sarathi, MIDC Office, Marol Industrial Area, Andheri (East),
Mumbai, Maharashtra – 400093
India
Dear Sir,

Subject:RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support

Dear Sir,
With reference to your RFQ cum RFP document dated --------, I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our BID for the aforesaid Project. The BID is unconditional and unqualified.

1) I/ We acknowledge that the Employer will be relying on the information provided in the BID and the documents accompanying the BID for selection of the Contractor for the aforesaid Project, and we certify that all information provided in the BID is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the BID are true copies of their respective originals.
2) The BID Price has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFQ Cum RFP, draft Agreement, our own estimates of costs and after a careful assessment of the site and all other conditions that may affect the Project cost and implementation of the Project.
3) I/ We acknowledge the right of the Employer to reject our BID without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
4) In the event of my/ our being declared as the Selected Bidder, I/we agree to enter into an Agreement in accordance with the draft that has been provided to me/us prior to the BID Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.
5) I / We shall keep this offer valid for 180 (one hundred and eighty) days from the BID Due Date specified in the RFQ Cum RFP.

I / We hereby submit our Bid and offer a Bid Price (which is inclusive of Maintenance costs for 2 years and as per Table 1.1, exclusive of GST of Rs.....
(Rupees..... in words) for undertaking the aforesaid Project in accordance with the Bidding Documents and the Agreement. The Breakup of the above price is as follows.

S.N.	Particulars	Amount In figure	Amount in Word
1	RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support		
2	GST @ 18 %		
Total			

Note:
1. GST is estimated at the prevailing rate of 18%. However, the GST shall be payable as per the prevailing rate at the time of execution/ invoicing for a particular milestone/ stage of payment.
2.The bidder shall submit the bid amount, inclusive of GST, on the procurement portal.

Yours faithfully,

Date:

……

(Signature, name and designation of the Place: Authorized Signatory)

……

Name & seal of Bidder/Lead Member:

……

Class III DSC ID of Authorized Signatory:

Table 1.1: Grand Summary of Supply, Installation and 2 years Maintenance Support cost table

Sr.No.	Particulars	Amount (Rs)
1	Total of Supply and Installation Table 1.2	
2	Total of 2 years Maintenance support Table 1.3	
Grand Total Supply, Installation and 2 years Maintenance support Excluding GST		

Name of Bidder:	
Authorized Signature of Bidder:	

Table 1.2 : Supply, Installation Cost Table

BOQ No.	Description	Unit	Total BoQ Qty	Make	Model	Unit Rate (Rs)		Total (Rs)	
						Supply	Installation	supply	Installation
1	AI based Video Management System (VMS) including Analytics	Nos.	1						
2	HD IP camera with cantilever & Required accessories	Nos.	70						
3	Automatic Number Plate Recognition Software with License (ANPR)	Nos.	1						
4	ANPR Camera with License	Nos.	30						
5	Any other associated components related to ANPR and analytics systems (Like GPU, Servers etc.)	LS	1						
6	42U Rack	Nos.	1						
7	Pole Mount Junction Box with UPS and Field switch power supply	Nos.	70						
8	Gantry Poles at Entry/Exit	Nos.	5						
9	1 x40mm HDPE Duct	Mtr	10000						
10	Trenching	Mtr	9000						
11	6 Count FOC	Mtr	10000						
12	UTP Cat 6 Armoured Cable	Mtr	5250						
13	Fibre Optic Splice Closure FOSC)	Nos.	75						
14	Fibre Optic Patch Cords	Nos.	225						
15	6 Count FTP with Pigtail and connector	Nos.	75						
16	Layer 2 – Type I: Industrial Grade Field Switch	Nos.	5						
17	2 C x 2.5 Sq.mm Aluminium Armoured FRLS Power Cable from Feeder pillar to Junction Box	Mtr	10000						
18	Misc. (All other requirements to meet RFQ Cum RFP requirement)	Ls	1						
19	Supply, Installation & Testing of VRF system at Conference Hall. For details, please ref Annex-1	LS	1						
Grand Total Supply and Installation (Rs) excluding GST									

Name of Bidder:	
Authorized Signature of Bidder:	

Table 1.3 : Two years Maintenance Support Cost Table

BOQ No.	Description	Unit	Total BoQ Qty	Maintenance Support for 2 years
1	AI based Video Management System (VMS) including Analytics	Nos.	1	
2	HD IP camera with cantilever & Required accessories	Nos.	70	
3	Automatic Number Plate Recognition Software with License (ANPR)	Nos.	1	
4	ANPR Camera with License	Nos.	30	
5	Any other associated components related to ANPR and analytics systems (Like GPU, Servers etc.)	LS	1	
6	42U Rack	Nos.	1	
7	Pole Mount Junction Box with UPS and Field switch power supply	Nos.	70	
8	Gantry Poles at Entry/Exit	Nos.	5	
9	1 x40mm HDPE Duct	Mtr	10000	
10	6 Count FOC	Mtr	10000	
11	UTP Cat 6 Armoured Cable	Mtr	5250	
12	Fibre Optic Splice Closure FOSC)	Nos.	75	
13	Fibre Optic Patch Cords	Nos.	225	
14	6 Count FTP with Pigtail and connector	Nos.	75	
15	Layer 2 – Type I: Industrial Grade Field Switch	Nos.	5	
16	2 C x 2.5 Sqmm Aluminium Armoured FRLS Power Cable from Feeder pillar to Junction Box	Mtr	10000	
17	Maintenance Support Staff (Network Engineer (BE/ MCA with 5 years' experience in similar field))	Months	24	
18	Maintenance Support Staff (Network Engineer (Technician- 2 years' experience in similar field)	Months	24	
19	Maintenance of VRF system at Conference Hall. For details, please ref Annex-1	LS	1	

Name of Bidder:	
Authorized Signature of Bidder:	

18 Appendices

18.1 Appendix A: Form of Bank Guarantee for Performance Security

(To be stamped in accordance with Stamp Act if any, of the country for issuing bank)

To:
Managing Director,
Maharashtra Industrial Township Limited,
Udyog Sarathi, MIDC Office,
Marol Industrial Area, Andheri (East),
Mumbai, Maharashtra State, India – 400093

WHEREAS _____[name and address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute **"RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support."** (hereinafter called "the Contract"). AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a nationalised/schedule bank in India for the sum specified therein as security for compliance with its obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the contractor such a Bank Guarantee;

NOW THEREFORE we agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, on behalf of the contractor, a total of upto _____ [amount of Guarantee] _____ [in words], such sum being payable in the types and proportion of currencies in which the Contract Price is payable, and we undertake to pay you, upon first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

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

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

This guarantee shall be valid until …….(the end of warranty period of 2 years).

Notwithstanding anything to the contrary contained herein-

i. Our liability under this Guarantee shall not exceed Rs…….. (Rupees …….)

ii. This Bank Guarantee shall remain valid up to … 2years (expiry date of Bank Guarantee); and

iii. We are liable to pay up to the guarantee amount only and only if we receive from you a written claim or demand not later than ……. (claim period should be further one year after the expiry date).

iv. All your rights as well as our liability under this Bank Guarantee shall stand extinguished unless a written claim or demand is made under this guarantee on ……..(Bank address in Mumbai, Maharashtra) not later than claim period should be further one year after the expiry date.

Signature and Seal of the Guarantor_____

Name of Bank _____

Address _____

Date _____

18.2 FORMAT FOR JOINT BIDDING AGREEMENT FOR JOINT VENTURE

(To be executed on Stamp paper of appropriate value)

THIS JOINT BIDDING AGREEMENT is entered into on this the …… day of……2025.

BETWEEN

1) {……..Limited, a company incorporated under the Companies Act, 1956 or 2013} and having its registered office at …… (Hereinafter referred to as the "First Part" which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

2) {……Limited, a company incorporated under the Companies Act, 1956 or 2013} and having its registered office at (herein after referred to as the "Second Part" which expression shall, unless repugnant to the context include its successors and permitted assigns)

3) The above mentioned parties of the FIRST, SECOND PART are collectively referred to as the "Parties" and each is individually referred to as a "Party"

WHEREAS,

A. […….., incorporated under the……..'Act……, represented by its…….. and having its principal offices at…….] (hereinafter referred to as the "Employer" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited BIDs (the "Bids") by its Request for Qualification & Request for Proposal No…… dated……..(RFQ Cum RFP) for of Bidders……..Project (the "Project") through an agreement.

B. The Parties are interested in jointly Bidding for the Project as members of a Joint Venture and in accordance with the terms and conditions of the RFQ Cum RFP document and other BID documents in respect of the Project, and

C. It is a necessary condition under the RFQ Cum RFP document that the members of the Joint Venture shall enter into a Joint Bidding Agreement and furnish a copy thereof with the BID.

NOW IT IS HEREBY AGREED as follows:

1. **Definitions and Interpretations**

In this Agreement, the Capitalized terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the RFQ Cum RFP.

2. Joint Venture

2.1. The Parties do hereby irrevocably constitute a Joint Venture (the "Joint Venture") for the purposes of jointly participating in the Bidding Process for the Project.

2.2. The Parties hereby undertake to participate in the Bidding Process only through this Joint Venture and not individually and/ or through any other Joint Venture constituted for this Project, either directly or indirectly.

3. Covenants

The Parties hereby undertake that in the event the Joint Venture is declared the selected Bidder and awarded the Project, it shall enter into an Agreement with the Employer for performing all its obligations as the Contractor in terms of the Agreement for the Project.

4. Role of the Parties

The Parties hereby undertake to perform the roles and responsibilities as described below:

a) Party of the First Part shall be the Lead member of the Joint Venture and shall have the power of attorney from all Parties for conducting all business for and on behalf of the Joint Venture during the Bidding Process and until the Appointed Date under the Agreement;

b) Party of the Second Part shall be {the Member of the Joint Venture; and}

5. Joint and Several Liability

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the RFQ Cum RFP, and the Agreement, till such time as the completion of the Comprehensive AMC Period in accordance with the Agreement. The Parties do hereby undertake and declare that the Lead Member shall represent all the members of the Joint Venture and shall at all times be liable and responsible for discharging the functions and obligations of the Joint Venture; and that each member of the Joint Venture shall be bound by any decision, communication, notice, action or inaction of the Lead Member on any matter related to this Agreement and the Employer shall be entitled to rely upon any such action, decision or communication of the Lead Member. The Employer shall have the right to release payments solely to the Lead Member and shall not in any manner be responsible or liable for the inter se allocation of payments among members of the Joint Venture.

6. Share of work in the Project

The Parties undertake that they shall collectively hold 100% (hundred percent) of the percentage participation of the JV at all times until the Operation and Maintenance period of the Works. However, responsibility of carrying out the entire works up to completion, including O&M shall be of the Lead Member.

7. Representation of the Parties

Each Party represents to the other Parties as of the date of this Agreement that:

a) 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 Agreement;

b) The execution, delivery and performance by such Party of this Agreement 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 favor of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member is annexed to this Agreement, and will 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 Agreement;

c) this Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and

i. 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 fulfillment of its obligations under this Agreement.

8. Termination

This Agreement shall be effective from the date hereof and shall continue in full force and effect until Project completion (the "O&M Period") is achieved under and in accordance with the Agreement, in case the Project is awarded to the Joint Venture. However, in case the Joint Venture is does not get selected for award of the Project, the Agreement will stand terminated in case the Bidder is not selected or upon return of the BID Security by the Employer to the Bidder, as the case may be.

9. Miscellaneous

a) This Joint Bidding Agreement shall be governed by laws of {India}.

b) The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of the Employer.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED	SIGNED, SEALED AND DELIVERED
For and on behalf of	For and on behalf of
LEAD MEMBER	SECOND PART
(Signature)	(Signature)
(Name)	(Name)
(Designation)	(Designation)
(Address)	(Address)

SIGNED, SEALED AND DELIVERED

For and on behalf of

THIRD PART

(Signature)

(Name)

(Designation)

(Address)

In the presence of:

1. (Signature &Name)

2. (Signature & Name)

Notes:

1) The mode of the execution of the Joint Bidding Agreement 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.

2) Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution / power of attorney in favor of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member.

3) For a Joint Bidding Agreement executed and issued overseas, the document shall be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney has been executed.

18.3 Format Submission of Pre-Bid Query

The Bidder shall submit its queries/clarifications related to this RFQ Cum RFP to the Employer in the prescribed format given below, through the email ID specified in the RFQ Cum RFP.

Name of the Work: **"RFQ Cum RFP for Selection of System Integrator (SI) for Design, Supply, Installation, Testing and Commissioning of an Advanced AI-Based VMS, ANPR and CCTV at AURIC Shendra Industrial Area, Chhatrapati Sambhajinagar, Maharashtra. Including 2 years of Operation and Maintenance support."**

Sr.No.	RFQ Cum RFP Reference (Section / Page)	Provision as per RFQ Cum RFP	Query / Clarification Sought	Employer Response

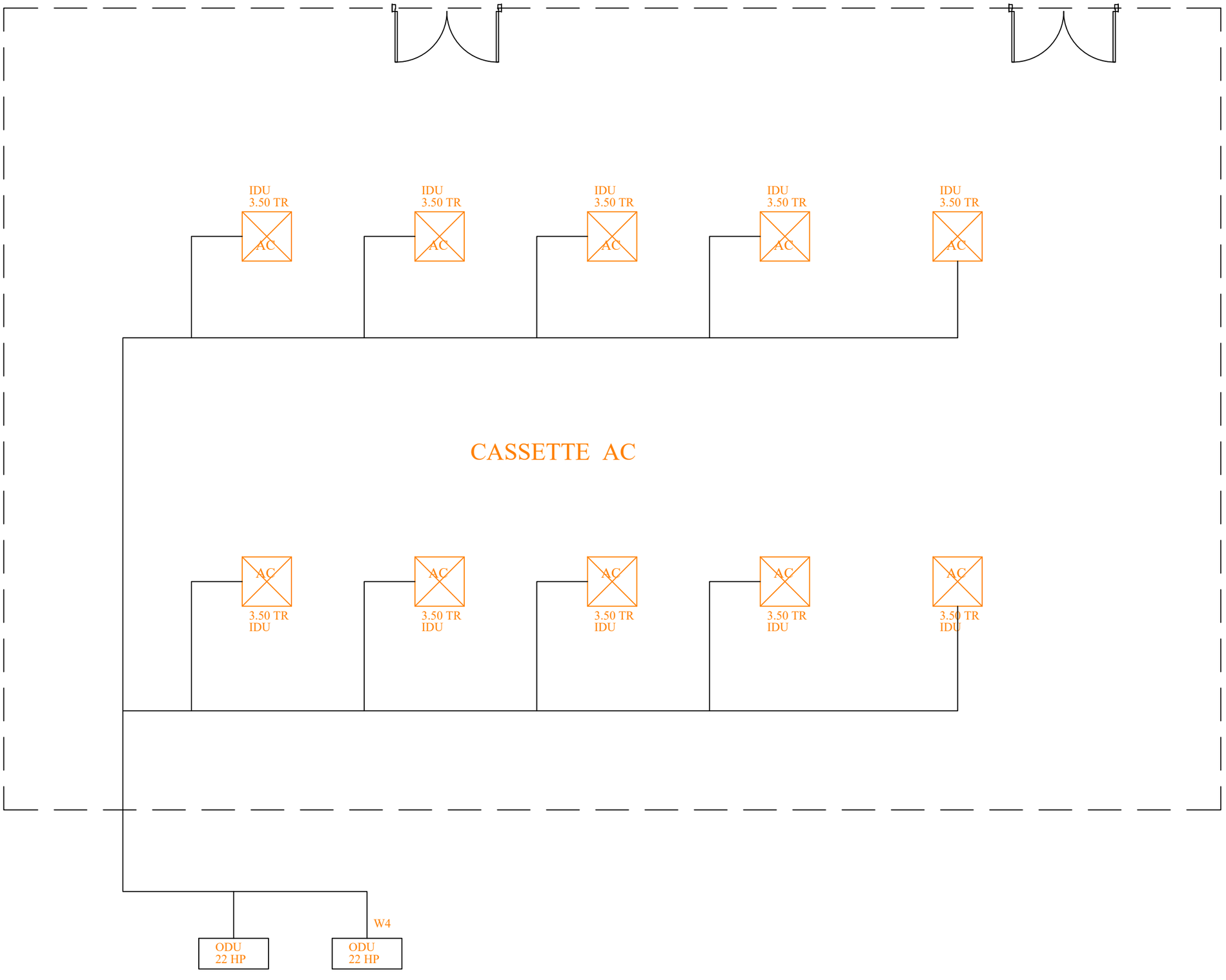
19 Annex-I: Supply, Installation & Testing of VRF System

During the Implementation Phase, the SI shall design and propose the OEM for the following Items
OEMs: Daikin preferred/ O General /Mitsubishi Electric

Sr. No.	Material Description	Unit	Qty
1	VRV Outdoor		
	R-410A Eco friendly refrigerant (with zero ODP) VRV outdoor unit (ODU) complete with semi hermetic scroll compressor, heat exchanger, multi-step function to meet load fluctuation, axial flow quiet operation with inverter motor for condenser fan , microprocessor based control panel, safety devices, controls, fault alarm indications, memory storage, condenser coil with copper tube and copper header, condenser guard, soft starter, fan guard, CRC coated outer casing, vibration isolators, Rubber pad etc . All compressors should be inverter-controlled in a single machine. The VRV systems should be for cooling mode only. Supply, fabrication and installation of MS base frame, Complete charge of refrigerant for installation, testing and handing over is a part of the scope. The capacity shall be as indicated below:		
	All machines shall be Top discharge only.		
1.01	22 HP ODU Unit	Nos	2
2	VRV / VRF Indoor Units		
2.01	VRV Round Flow Cassette Type IDU. Capacity 3.5 TR	Nos	10
3	Remote Controller		
	Cordless Remote Controller units	Nos	10
4	Refnet Joints		
4.01	Refnets required to connect respective sub-branches of copper piping to the main header at each indoor unit location.	Nos	10
5	Hard Copper Piping		
	Supply & Installation of Hard Copper refrigerant piping with all fittings for Gas and Liquid line insulated with insulation of suction line with 19 mm thick Nitrile Rubber running on necessary support including control wiring between Indoor and Condensing Unit.	Rmtr	50
6	Drain Piping for VRV Indoor Units		
	SITC of Insulated Hard PVC drain Piping with, 6 mm Tubular Insulation with supporting clamps, threaded rod, anchor fastener & including with all necessary arrangements. Proper slope 1:100 to be maintained to ensure smooth condensate flow.		
6.01	20 mm	Rmtr	40
6.02	25 mm	Rmtr	10
7	R 410 Gas		
7.01	Extra Gas Charging for all the above units as per there CU Piping length and the Indoor unit capacity (With 410-A Gas)	KG	20

Note-

1. *The above-mentioned quantities may vary during implementation. Any additional quantity required shall be supplied and installed by the SI without any additional cost to MITL.*
2. *The tentative conference hall drawing is enclosed for the SI's reference. However, the SI shall conduct a site survey before submitting the proposal.*


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W4
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22 HP
ODU
22 HP