RFP No. 2729/CRUT Date.24/11/2025

Capital Region Urban Transport

Request for Proposal (RFP) for Selection of a System Integrator (SI) to Design, Develop, Supply, Install, Integrate, Test, Commission, Operation and Maintenance of an Intelligent Transport Management System (ITMS) on Software as a Service (SaaS) Model for the Capital Region Urban Transport.

E.M.D: INR 10,00,000.00 (Rupees Ten Lakhs Rupees Only)
Tender Fees: Non-refundable Rs. 11,800/- {Rs.10,000/- + 18% GST (Rs. 1,800/-)}

Tender Inviting Authority

Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga, Bhubaneswar, Odisha (India),
Pin- 751024
https://capitalregiontransport.in/

Disclaimer

1. This Request for Proposal ("RFP") is issued by Capital Region Urban Transport (CRUT) (Capital Region Urban Transport (CRUT), Odisha.
2. The information contained in this Request for Proposal document ("RFP") or subsequently provided to Bidders, whether verbally or in documentary or any other form by or on behalf of the Office of the Capital Region Urban Transport (CRUT) (Authority) or any of its employees is provided to Bidders, on the terms and conditions set out in this RFP.
3. This RFP is not a contract and is not an offer by the Authority to the prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their Proposals pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments made by the Authority, in relation to the project. Such assumptions, assessments and statements do not purport to contain all the information that each bidder may require. This RFP may not be appropriate for all people, and it is not possible for the Authority, its employees, or advisers to consider the objectives, technical expertise, and particular needs of each party, who reads or uses this RFP. The assumptions, assessments, statements, and information contained in this RFP may not be complete, accurate, adequate, or correct. Each bidder should, therefore, conduct his own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this RFP and obtain independent advice from appropriate sources.
4. Information provided in this RFP to the bidders is on a wide range of matters, some of which depend upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The Authority accepts no responsibility for the accuracy or otherwise for any interpretation or opinion of the law expressed herein. Authority, its employees and advisers make no representation or warrants and shall have no liability to any person including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness , reliability or completeness of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this selection process.
5. The Authority also accepts no liability of any nature, whether resulting from negligence or otherwise, however caused, arising from reliance of any applicant upon the statements contained in this RFP.
6. The Authority may, in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP. The issue of this RFP does not imply that the Authority is bound to select a bidder or to appoint the selected bidder for this project, and the Authority reserves the right to reject all or any of the proposals, without assigning any reason whatsoever.
7. Capital Region Urban Transport (CRUT), or its authorized officers reserves the right, without prior notice, to change the procedure for the selection of the successful bidder or terminate

discussions and the delivery of information at any time before the signing of any agreement for the Project, without assigning reasons thereof.

8. The RFP Document does not address concerns relating to diverse investment objectives, financial situation, and particular needs of each party. The RFP Document is not intended to provide the basis for any investment decision, and each Bidder must make its / their own independent assessment in respect of various aspects of the techno-economic feasibilities of the Project. No person has been authorized by the Capital Region Urban Transport (CRUT), to give any information or to make any representation not contained in the RFP Document.
9. The bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation and expenses associated with any demonstrations or presentations which may be required by the Authority, or any other costs incurred in connection with or relating to its Proposal. All such costs and expenses shall remain with the bidder, and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a bidder, in preparation for submission of the Proposal, regardless of the conduct or outcome of the selection process.

Contents

A. Invitation to Bid

From:

General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (INDIA), Pin- 751024

To:

All Prospective bidders

1. Capital Region Urban Transport (CRUT) invites responses ("Proposals"/ "Bids") to this Request for Proposal (RFP) from eligible reputed, competent, and professional Information Technology companies, who meet the minimum eligibility criteria, as specified in this bidding document for Selection of Master System Integrator for Implementation of Integrated Transport Management System (ITMS) on Software as a Service (SaaS) Model for office of the Capital Region Urban Transport (CRUT).
2. The complete bidding document shall be published on ***<<< Date of Issuance of RFP>>>*** for the purpose of downloading.
3. A bidder should be selected based on the Pre-Qualification, Technical and Commercial evaluation criteria, and procedures described in this RFP.
4. Bidders are advised to study this RFP document carefully, before submitting their proposals, in response to the RFP Notice. Submission of a proposal in response to this notice shall be deemed to have been carried out after careful study and examination of this document with full understanding of its terms, conditions, and implications.
5. The time, date and venue details related to the pre-bid conference and proposal submission are mentioned in the Key Events and Dates Sheet. Proposals that are received after the deadline shall not be considered in this tender process.
6. To obtain first-hand information on the assignment, bidders are encouraged to attend the pre-bid meeting. However, attending the pre-bid meeting is optional.

By Order Managing Director, Capital Region Urban Transport

Sd/-
General Manager (P&A),
Capital Region Urban Transport (CRUT)

B. Data Sheet

Sr. No	Information	Details
1.	RFP Issuing Authority	Capital Region Urban Transport (CRUT)
2.	Purpose of RFP	Selection of a System Integrator (SI) to Design, Develop, Supply, Install, Integrate, Test, Commission, Operation and Maintenance of an Intelligent Transport Management System (ITMS) on Software as a Service (SaaS) Model for the Capital Region Urban Transport.
3.	RFP Issue Date	***24.11.2025***
4.	Availability of RFP documents	The RFP is available and downloadable on https://tendersodisha.gov.in/ ***on 25.11.2025*** All Subsequent changes to the Bidding document shall be published on the above-mentioned website.
5.	Non-Refundable RFP Cost	Non-refundable Rs. 11,800/- Rs.10,000/- + 18% GST (Rs. 1,800/-)}in form of Demand Draft issued by an Indian Nationalized / Scheduled Bank and drawn in favor of **Capital Region Urban Transport (CRUT)** payable at Bhubaneswar valid for 180 days from the date of submission of bid. (Shall be submitted as original hardcopy)
6.	Earnest Money Deposit	Rs. 10,00,000.00 (Rupees Ten Lakhs Rupees Only)), in form of Demand Draft issued by an Indian Nationalized / Scheduled Bank and drawn in favor of **Capital Region Urban Transport (CRUT)** payable at Bhubaneswar valid for 180 days from the date of submission of bid. (Shall be submitted as original hardcopy)
7.	Last date and time for submission of queries for clarifications	All the queries/clarification requests shall be received on or before ***08.12.2025*** upto 15:00 Hrs, through e-mail only, with subject line as follows: "Pre-Bid queries -<Bidder's Name>". The queries shall be submitted in MS-Excel file, as per the format prescribed in Volume-I of the RFP. The Pre-Bid queries shall be sent to the following e-mail Ids: Email ID: crutbbsr@gmail.com
8.	Date, time, and venue of pre-bid meeting	***09.12.2025*** at 12:30 HRS Conference Hall Capital Region Urban Transport (CRUT) Plot No. 548/1452, Patia, Kalarahanga, Bhubaneswar, Odisha (INDIA), Pin- 751024
9.	Last Date and time (deadline) for receipt of proposals in response to RFP notice	***31.12.2025 before 17: 00 Hrs.*** Capital Region Urban Transport (CRUT) Plot No. 548/1452, Patia, Kalarahanga, Bhubaneswar, Odisha (INDIA), Pin- 751024

Sr. No	Information	Details
10.	Mode of Submission	Bids shall be submitted through e-tender portals only. Except Original Demand Draft regarding E.M.D and Tender fees, any submission of hardcopy of technical or financial bid shall not accepted.
11.	Date, time, of opening of Technical Proposals received in response to the RFP notice	***02.01.2026 on 12:30 PM.*** Through online (https://tendersodisha.gov.in/)
12.	Time, and date of opening of Financial Proposals received in response to the RFP notice	Through online (https://tendersodisha.gov.in/) Date and time will intimate with the qualified bidders later.
13.	Language	Proposals should be submitted in English only.
14.	Joint Venture/Consortium	Not Allowed
15.	Mode of selection	QCBS (Quality cum Cost Base Solution)
16.	Bid validity	Proposals must remain valid up to 180 days (One hundred eighty days) from the last date of submission of the Bid.
17.	Contract Period	The contract period shall be for 5 (five) years and may be further extended based on the performance of the System Integrator (SI), in accordance with the provisions of OGFR rules.
18.	Contact Person	General Manager (P&A) Capital Region Urban Transport.

C. Glossary of Terms

The definitions of various terms that have been used in this RFP are as follows:

Sr. No	Term	Definition
1.	Acceptance	Acceptance of the proposed solution by CRUT after clearance by the 'Third Party Assessment and Acceptance Agency' deployed by CRUT.
2.	Assets	All Assets used in providing Services in accordance with this MSA and shall include: IT and Non-IT Infrastructure including Hardware. Software and System software required for delivery of Services under the Project All data, documentation, reports, records etc. Created during the Project for the purpose of the Project
3.	Auditor	Auditor shall mean the Statutory Auditor of a company
4.	Bid/ Proposal	This means the documents in their entirety comprising of the pre-qualification Proposal, Technical and Commercial Proposal, clarifications to these, technical presentation/ demo submitted by the Bidder, the Bidder herein, in response to the RFP, and accepted by CRUT.
5.	Bidder	Means the company with whom the Contract has been entered into for providing services as specified in this RFP, representatives (approved by CRUT), their executors, and administrators and permitted assigns unless excluded by the terms of the Contract. The terms Bidder have been interchangeably used in the RFP document
6.	Bidder's Representative	The person or the persons appointed by the Bidder from time to time to act on its behalf for overall co-ordination, supervision, and execution of Project
7.	Business Day	This means any day that is not a Sunday or a public holiday (as declared by Government of Odisha).
8.	Cloud / Cloud Services	This means a ubiquitous, virtualized, dynamically scalable, pay-per-use shared computing environment of application, platform and infrastructure (servers, storage, processing) used to store, manage and process data over the internet. Cloud Services shall implicitly mean Data Center hosted on a highly secure Public Cloud environment in India.
9.	Contract / Project Period	The period from date of signing of Contract with selected Bidder till 5 Years after Go-live of the Project or as further extended by CRUT.
10.	Day	A period of 24 hours runs from midnight to midnight. It means "calendar day" unless otherwise stated. Where, because of a difference in time zone, the calendar day in one country differs

Sr. No	Term	Definition
		from another country then the calendar day shall be deemed to be the calendar day applicable to India.
11.	Deliverables	The documents, milestones and activities related to the setting up and implementation of Project in CRUT, as defined in the RFP.
12.	EMD / Bid Security	This refers to the amount to be deposited by the Bidders to CRUT to demonstrate commitment and intention to complete the process of RFP for selection of Integrated Transport System (ITMS) partner for supply, installation, commissioning & integration along with 5 years of operation & maintenance of ITMS for public transport services managed by CRUT, Odisha.
13.	End of Contract	This refers to the time when the Contract Period has ended.
14.	External Users	This refers to users of the System who are external to CRUT such as Citizens, businesses, agencies
15.	Go-live	The date as declared by CRUT on which the proposed solution becomes operational after successful conclusion of all acceptance tests to the satisfaction of CRUT or as provided in this RFP with addition of timely requirements such as modifications or additions in reports or ETM process etc. Planned date of Go-live is 12 Weeks months from the date of signing of Contract
16.	Government Services	Services that are offered by CRUT or any of their agencies/ undertakings, through any of the service delivery channels as outlined
17.	Internal Users	This refers to users of the System who are internal to CRUT including its offices, and agencies and their employees etc.
18.	Letter of Intent	This refers to the letter issued by CRUT to the successful Bidder indicating its selection as the Bidder for implementation of the Project
19.	Deployed bus	Any bus in which the Bidder has deployed ETM at any time during the tenure of the contract. A bus is considered as a deployed bus if ETM is deployed in it irrespective of the number of days it has run in any month during the tenure of the contract. Once deployed, the bus is considered as a 'Deployed bus' for the remaining tenure of the contract
20.	RFP	This means the Request for Proposal released, containing the technical, functional, commercial, and operational specifications for the for selection of partner for design, development, integration, implementation, and operation maintenance of ITMS and vehicle tracking system for the transit vehicles owned by CRUT, and including all clarifications/addendums, explanations and amendments issued by CRUT in respect thereof
21.	Sign-off	A written documentation issued by CRUT evidencing the acceptance, approval or completion of any Deliverable including any documentation or testing or any stage of the Project such as Go-Live, that may be required in terms of the Contract

Sr. No	Term	Definition
22.	Rollout	The day when the Bidder completes the rollout of the new system at all locations across the locations as per requirements of the RFP and is ready for acceptance testing by CRUT.
23.	SI (System Integration)	Process through which the engaged business entity (firm/company) will design and build computing systems customized to the needs of CRUT along with timely requirements of minor integration (with SMS facility provider, scan and pay service provider that may arise in future by combining communication infrastructure, hardware and software products from one or more vendors. The software products may be new or existing systems and may be built afresh from scratch or packaged products as per the requirements of CRUT defined in the Scope of Work
24.	Total Contract Value/ Contract Value	Value (exclusive of all taxes, levies and duties) finally agreed between CRUT and the Bidder for the delivery of Services mentioned in the RFP (after negotiations with the selected Bidder). All relevant taxes would be considered for reimbursement on actuals as per CRUT's discretion and prevailing Government Laws. This will be the maximum value payable to the Bidder for this Project.
25.	Turnover	The total amount of gross receipts, on account of sales done by the entity in the normal course of business, as per the annual report and as adjusted with any qualifications in the auditors' report
26.	Users	This means the internal and external users of the System including citizens, business firms, CRUT including its offices, corporations and agencies and their employees, as the context admits or requires
27.	Acceptance	Acceptance of the proposed solution by CRUT after clearance by the 'Third Party Assessment and Acceptance Agency' deployed by CRUT.

1. Introduction

1.1. About CRUT

Capital Region Urban Transport (CRUT) is Odisha's leading public transit agency, dedicated to building a safe, reliable, and sustainable mobility network across the state's urban centers.

Originally established as Bhubaneswar Puri Transport Services Limited (BPTSL), CRUT was restructured in 2018 to manage and operate both intra-city and inter-city bus services. Since then, it has evolved into a comprehensive public transport system, expanding beyond traditional bus operations to include electric mobility, last-mile connectivity, and digital ticketing solutions.

Launched on 6th November 2018, the Ama Bus (formerly Mo bus) service forms the backbone of CRUT's operations. The buses are equipped with modern passenger amenities and cater to both intra-city and inter-city routes across major regions including Bhubaneswar, Cuttack, Khordha, Puri, Konark, Rourkela, Berhampur, and Sambalpur.

Today, CRUT operates a fleet of 670 buses, including 290 electric buses, across 113 routes. Each day, an average of 5,562 trips are completed, covering nearly 1.3 lakh kilometers and serving thousands of commuters. CRUT is now gearing up to expand its fleet by over 600 additional buses, supported through central schemes such as PM e-Bus Sewa and funding from the Government of Odisha.

To strengthen first and last-mile access, CRUT introduced the E-Ride service, a fleet of e-rickshaws that complement Ama Bus routes. These eco-friendly vehicles bridge the gap between major transit hubs and residential or commercial areas, ensuring a smooth end-to-end travel experience.

CRUT is actively moving toward a digitally integrated transport system. Key initiatives include:

- Automatic Ticket Vending Machines (ATVMs) at major terminals.
- Digital ticketing via the ONDC platform for cashless transactions.
- Closed & Open loop cards for easy, interoperable fare payment.
- Discounts for female commuters on digital transactions to promote gender-inclusive travel.

CRUT functions under a Gross Cost Contract (GCC) model, a Public-Private Partnership framework that allows it to deliver quality services at affordable fares while maintaining commercial viability. CRUT focuses on service planning, performance monitoring, and quality control to ensure passenger satisfaction and operational efficiency.

In 2024, CRUT launched Odisha Yatri, a government-backed ride-hailing platform that enables drivers to earn 100% commission-free income. The initiative not only empowers local drivers but also offers commuters a safe and reliable alternative for city travel.

CRUT operates a robust grievance redressal system through its Customer Relationship Management (CRM) platform and official social media channels. Passenger feedback is monitored and addressed promptly to maintain service quality and public trust.

With its mission to make public transport the preferred mode of travel, CRUT continues to integrate multimodal options and smart technology to redefine mobility in Odisha. Guided by the vision of "The Way We Move" and "Ride with Pride," the agency's multidisciplinary team of

planners, technologists, and operators is working toward a greener, more connected urban future for the state.

1.2. About existing IT/ITS Infrastructure

CRUT has already implemented various projects to monitor the daily bus operations and accurate information dissemination to the commuters. Below are the implemented components under the various projects which bidder shall have to use or integrate with the proposed application/systems.

- Automatic Fare Collection System.
- Automatic Vehicle Locating System.
- AMA-Bus Mobile Applications for Commuters.
- Closed & Open Loop Smart Cards
- CBO/GPS installed by various OEMs on all 670 buses.
- Automated ticket vending machines (ATVM)
- Open network for digital commerce (ONDC)
- Command & Control Centre (CCC)
- Advanced driving assistance system (ADAS) & Driver fatigue & monitoring system (DFMS)
- Helpdesk
- Inter operatable mobility interface

1.3. About Project

CRUT has already embarked on the step towards the implementation of the ITMS system in recent years. Looking at the systems already implemented and gauging the criticality of the huge operations, it is vital to bring the transformational change within CRUT to improve mobility experience for the commuters and to bring efficiency in management and administration of its services. Hence, to make it more sustainable and with the prospect of services to commuters, CRUT intends to implement an advanced Intelligent Transport Management System with specific commuter-facing interventions. The seamless integrated travel scenario, efficient user information, improved safety and central monitoring and management throughout the operation of the CRUT.

CRUT intends to implement reforms and transformation with the objective of enhancing commuter experience across value chain of services, following with the improvement of the operational and financial efficiency. This would enable CRUT to look at futuristic opportunities enabling enhanced user experience and increased patronage for public transport on a continual basis. The transformation of CRUT's capabilities will include various phases of the envisaged ITMS – Intelligent Transport Management System project.

To fulfil the above objective, CRUT desires to board the capable service provider/ SI through Request for Proposal for Selection of System Integrator for Design, Development, Supply, Installation, Integration, Testing & Commissioning of Intelligent Transport Management System (ITMS) for CRUT for a period of 5 Years.

Sr. No	Cities	Nos. of Buses planned	Phase	Tentative Timelines (From the days of Signing of Agreemnet
1.	Keonjhar	25	Phase-1	Within 30 Days
2.	Baripada	25	Phase-1	Within 60 Days
3.	Angul	25	Phase-1	Within 60 Days
4.	Jharsuguda	25	Phase-1	Within 60 Days
5.	Sambalpur	50	Phase-1	Within 30 Days
6.	Berhampur	50	Phase-1	Within 30 Days
7.	Balasore	35	Phase-2	Within 180 Days
8.	Jajpur	30	Phase-2	Within 180 Days
9.	Rayagada	25	Phase-2	Within 180 Days
10.	Jaipur (Koraput)	25	Phase-2	Within 180 Days
11.	**TOTAL**	**315**		

Notes: The above project timeline and nos. of buses planned are tentative, However Authority reserves the right to changes at any time with its sole discretion.

1.4. Project Objectives

CRUT is desirous of implementing an ITMS which includes comprehensive technology solutions for journeys, end mile connectivity, hassle free ticketing and real time monitoring.

The key objectives of this program/project are:

- Increasing the adoption and usage of public transport to reduce the carbon footprint in the capital region and its periphery.
- Providing seamless, hassle-free and inter operatable multimodal public transport to the citizen
- Enhancing travel convenience and efficiency within Odisha, thereby boosting bus ridership.
- Enhancing accessibility to bus transportation by offering real-time mobile information at bus terminals.
- Strengthening real-time decision-making capabilities through the implementation of a Management Information System.
- Streamlining incident management within the city through the establishment of a dedicated command and control center for faster and more efficient response.
- Implementing predictive tracking for Bus Bunching and related incidents.
- Addressing commuter concerns through a centralized call center and advanced GRMS (Grievance Redressal Management System).

2. Instruction To Bidders

2.1. General

1. Capital Region Urban Transport (CRUT) invites proposals ("Bids") to this Request for Proposal ("RFP") for Implementation of Intelligent Transport Management System on Software as a Service (SaaS) Model for the Capital Region Urban Transport as envisaged in in the Scope of work of this RFP.

2. The tenure of the contract of the successful bidders shall be for a term of Implementation Period plus 5 years of Operations & Maintenance phase ("the Term"). Capital Region Urban Transport (CRUT), at its discretion, may extend the contract period or deploy additional cities for further period as per the latest OGFR guideline on the same terms & conditions and on the contract, prices decided pursuant to this RFP subject to satisfactory performance of the selected bidder.

3. While every effort has been made to provide comprehensive and accurate background information and requirements and specifications, bidders must form their own conclusions about the solution needed to meet the requirements. Bidders and recipients of this RFP may wish to consult their own legal advisers in relation to this RFP.

4. All information supplied by the successful bidder may be treated as contractually binding on the bidder, after successful award of the assignment is made based on this RFP.

5. No commitment of any kind, contractual or otherwise shall exist unless and until a formal written contract has been executed by or on behalf of Capital Region Urban Transport (CRUT).

6. Capital Region Urban Transport (CRUT) may cancel this RFP at any time prior to a formal written agreement being signed between parties.

7. Proposals must be received not later than time, date and venue mentioned in the Proposal Data Sheet. Proposals that are received late shall not be considered in this tender process.

8. No oral conversations or agreements with any official, agent, or employee of Capital Region Urban Transport (CRUT) shall affect or modify any terms of this RFP and any alleged oral agreement or arrangement made by a bidder with any agency, official or employee of Capital Region Urban Transport (CRUT) shall be superseded by the definitive agreement that results from this RFP process.

9. Neither the bidder nor any of bidder's representatives shall have any claims whatsoever against Capital Region Urban Transport (CRUT) or any officials or employees arising out of or relating to this RFP or these procedures (other than those arising under a definitive service agreement with the bidder in accordance with the terms thereof).

10. All proposals and accompanying documentation of the technical proposal shall become the property of Capital Region Urban Transport (CRUT) and shall not be returned after opening the technical proposals.

11. The Bidder commits himself to take all measures necessary to prevent corrupt practices, unfair means, and illegal activities during any stage of his bid or during any pre-contract or post-contract stage to secure the contract or in furtherance to secure it.

2.2. Completeness of Response

1. The bidders are advised to study all instructions, forms, terms, requirements, and other information in the RFP documents carefully. The submission of bid shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.

2. The response to this RFP should be full and complete in all respects. Failure to furnish all information required by the RFP document or submission of a Bid not substantially responsive to the RFP document in every respect will be at the bidder's risk and may result in rejection of its Bid and forfeiture of the bid EMD.

2.3. Proposal Preparation Cost

1. The bidder shall be responsible for all costs incurred in connection with participation in the RFP process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation of Bid, in providing any additional information required by Office of the Capital Region Urban Transport (CRUT) to facilitate the evaluation process, and all other related activities of the Bid process. The Authority shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

2. All materials submitted by the bidder shall be the absolute property of Authority and no copyright etc. shall be entertained by Authority.

2.4. Amendment of RFP Document

1. All the Corrigendum / Addendum made in the document would be published on the Portal https://tendersodisha.gov.in/ and shall be part of RFP.

2. The Bidders are advised to visit the portal on regular basis to check for necessary updates. Authority also reserves the right to amend the dates mentioned in this RFP.

2.5. Bid Document Fee

The bidders are requested to pay the Bid Document Fee as defined in this RFP. The RFP document can be downloaded from the portal https://tendersodisha.gov.in/ on registration. Bids that are not accompanied by the RFP Price or accompanied by inadequate RFP Price, shall be considered non-responsive and will be rejected. The original hard copy of the demand draft should be reach at CRUT office before deadline as mentioned in tender document.

2.6. Supplementary Information to the RFP

If Authority deems it appropriate to revise any part of this RFP or to issue additional data to clarify an interpretation of provisions of this RFP, it may issue supplements to this RFP. Any such corrigendum shall be deemed to be incorporated by this reference into this RFP.

2.7. Sub-Contracting

The bidder may use the services of a sub-contractor to leverage their specialized experience in respect of following tasks/areas subject to maximum 25% of the contract value.

Sub-contracting shall be subject to the following conditions:

i. All sub-contracting arrangements must form part of the bid.
ii. All sub-contracting contracts must be entered into by the bidder.
iii. Sub-contracting should not dilute the responsibility and liability of the bidder.
iv. Any changes in subcontractors must be approved by the Capital Region Urban Transport (CRUT) prior to conclusion of any contract between the bidder and the sub-contractor.
v. Capital Region Urban Transport (CRUT) reserves the right to request discontinuation of sub-contracting of activities at any time during the contract period.
vi. The bidder must collaborate with local enterprises having relevant experience, expertise and reach for deployment and maintenance of the equipment subject to maximum 25% of the Order value as per Odisha ICT Policy 2014, Government of Odisha.

2.8. Right to Vary Scope of Contract

1. Capital Region Urban Transport (CRUT) may at any time, by a written order given to the bidder, make changes within the quantities, specifications, services, or scope of the Contract as specified.
2. If any such change causes an increase or decrease in the cost of, or the time required for the bidder's performance of any part of the work under the Contract, whether changed or not changed by the order, an equitable adjustment on mutually agreed terms shall be made in the Contract Price or time schedule, or both, and the Contract shall accordingly be amended. Any claims by the bidder for adjustment under this Clause must be asserted within thirty (30) days of the date of the bidder's receipt of the Capital Region Urban Transport (CRUT)'s changed order.

2.9. Rejection Criteria

Besides other conditions and terms highlighted in the RFP document, bids may be rejected under following circumstances:

1. Bids not qualifying under eligibility criteria.
2. Bids submitted without improper EMD or RFP fees as form of Demand Draft (Original) at CRUT office.
3. Bids received through any platform other than prescribed platform as mentioned in the RFP.
4. Bids which do not confirm the unconditional validity of the bid as prescribed in the RFP

5. If the information provided by the Bidders is found to be incorrect / misleading at any stage / time during the Tendering Process
6. Any effort on the part of a Bidders to influence the Authority' s bid evaluation, bid comparison or contract award decisions.
7. Bids received by the Capital Region Urban Transport (CRUT) after the last date and time for receipt of bids prescribed in the data sheet.
8. Bids without signature of person (s) duly authorized on the bid.
9. Bids without power of authorization and any other document consisting of adequate proof of the ability of the signatory to bind the Bidders.
10. Technical Bid containing commercial details or any such hints/ calculations /extrapolations/ records.
11. Revelation of Prices in any form or by any reason before opening the Commercial Bid
12. Failure to furnish all information required by the RFP Document or submission of a bid not substantially responsive to the RFP Document in every respect.
13. Bidders not quoting for the complete scope of Work as indicated in the RFP documents, addendum (if any) and any subsequent information given to the Bidders.
14. Bidders not complying with the General Terms and conditions as stated in the RFP Documents.
15. The Bidders do not confirm unconditional acceptance of full responsibility for providing services in accordance with the Scope of work, General Terms & Conditions and Service Level Agreements of this RFP.
16. If it is found that bidders have tendered separately under different names for the same contract, all such RFP(s) shall stand rejected and RFP deposit of each such firm/ establishment shall be forfeited. In addition, such firms/ establishments shall be liable at the discretion of the Capital Region Urban Transport (CRUT) for further penal action including blacklisting.
17. If after awarding the contract, it is found that the accepted bid violated any of the directions pertaining to the participation, the contract shall be liable for cancellation at any time during its validity in addition to penal action including blacklisting against the bidders.
18. Price Bids that do not conform to the RFP's price bid format.
19. Total price quoted by the Bidders does not include all statutory taxes and levies applicable.

3. Bid Submission Instructions

3.1. RFP Document Fees and Purchase

1. The Bidders shall download the RFP document from the website https://tendersodisha.gov.in/ as mentioned in the Proposal Data Sheet.
2. The Bidders shall pay RFP document fee as prescribed in data sheet.
3. The downloading of the RFP documents shall be carried out strictly as provided on the web site.
4. The RFP document fee is non-refundable and not exempted.

3.2. Pre-Bid Queries on RFP

1. Authority will host a Pre-Bid meeting as per the date mentioned in the RFP document sheet. The representatives, limited to 2, of the interested organizations may attend the pre-bid conference at their own cost. The purpose of the conference is to provide bidders with information regarding the RFP and the proposed solution requirements in reference to the RFP. Pre-Bid meeting will also provide each bidder with an opportunity to seek clarifications regarding any aspect of the RFP and the project.

2. All Bidders shall e-mail their queries to Capital Region Urban Transport (CRUT), crutbbsr@gmail.com The response to the queries will be published on https://tendersodisha.gov.in/.

3. No telephonic / queries will be entertained thereafter. This response of Authority shall become integral part of RFP document. Authority shall not make any warranty as to the accuracy and completeness of responses.

4. Authority shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, Authority 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 Authority to respond to any question or to provide any clarification.

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

Name of Bidder					
Department Name					
RFP Ref. No					
RFP Name					
RFP Due Date					
#	RFP Page No.	RFP Clause No.	Clause Title	Queries /Clarification Sought	Justification by Bidder
..		..	..	..	..

All Bidders shall e-mail their queries in above only in **(Microsoft Excel sheet**) format only. In case any queries/ clarification received in any other format shall not be considered.

3.3. Responses to Pre-Bid Queries and Issue of Corrigendum

1. Capital Region Urban Transport (CRUT) will formally respond to the pre-bid queries after the pre-bid conference.
2. Capital Region Urban Transport (CRUT) will endeavor to provide timely response to all queries. However, Capital Region Urban Transport (CRUT), makes no representation or warranty as to the completeness or accuracy of any response made in good faith, nor does it undertake to answer all the queries that have been posed by the bidders.
3. At any time prior to the last date for receipt of bids, Capital Region Urban Transport (CRUT) may, for any reason, whether at its own initiative or in response to a clarification requested by prospective Bidders, modify the RFP Document by issuing a corrigendum.
4. The Corrigendum, if there are any, notifications regarding extensions, if any, and clarification of the queries from all bidders will be posted on the website mentioned in the Proposal Data Sheet or emailed to all participants of the pre-bid meeting.
5. Any such corrigendum shall be deemed to be incorporated into this RFP.
6. To provide prospective Bidders with reasonable time for taking the corrigendum into account, Capital Region Urban Transport (CRUT) may, at its discretion, extend the last date for the receipt of Proposals.
7. Notifications regarding extensions, corrigendum, will be published on the website https://tendersodisha.gov.in/ mentioned in the RFP schedule and there shall be no paper advertisement.

3.4. Preparation of Proposals

1. The bidder shall prepare the bid based on details provided in the RFP documents. It must be clearly understood that the quantities, specifications, and diagrams that are included in the RFP document are intended to give the bidder an idea about the scope and magnitude of the work and are not in any way exhaustive and guaranteed by Capital Region Urban Transport (CRUT).
2. The bidder shall carry out the sizing of the solution based on internal assessment and analysis, which may include the use of modelling techniques wherever necessary.
3. The bidder must propose a solution to meet the requirements of the Capital Region Urban Transport (CRUT). If, during the sizing of the solution, any upward revisions of the specifications and/or quantity as given in this RFP document, are required to be made to meet the conceptual design and/or requirements of RFP, all such changes shall be included in the technical proposal and their commercial impact, thereof, shall be included in the commercial bid.

4. If, during the sizing of the solution, any additional product that is not listed in the RFP document is required to be included to meet the conceptual design, performance requirements and other requirements of RFP, all such product(s) should be included by the bidder in the technical proposal and their commercial impact, thereof, included in the commercial bid.

5. Capital Region Urban Transport (CRUT) will in no case be responsible or liable for any costs associated with the design/sizing of the proposed solution, regardless of the conduct or outcome of the Tendering process.

6. If at any stage during the currency of the contract, the solution proposed does not meet the functional requirements, conceptual design, performance requirements/SLA, and other requirements of RFP, the bidder shall revise the required specifications and/or quantities as proposed by the bidder in their bid to meet the said objectives/targets. All such provisions shall be made by the bidder within the lump sum contract price, at no extra cost and without any impact to Capital Region Urban Transport (CRUT) whatsoever.

3.5. Proposal preparation costs

1. The bidder shall be responsible for all costs incurred in connection with participation in the RFP process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation of proposal, in providing any additional information required by Authority to facilitate the evaluation process and in negotiating a definitive contract or all such activities related to the bid process.

2. Capital Region Urban Transport (CRUT) shall in no case be responsible for or liable for those costs, regardless of the conduct or outcome of the bidding process.

3.6. Earnest Money Deposit (EMD)

1. Bidders shall submit, along with their bids, EMD as per the details mentioned in the Data Sheet.
2. EMD of all bidders would be refunded by Capital Region Urban Transport (CRUT) after submission of Performance Bank Guarantee by the successful bidder.
3. EMD of technically disqualified bidders would be refunded by Capital Region Urban Transport (CRUT) after completion of technical evaluation within 60 days.
4. The successful Bidder's EMD will be discharged upon the Bidder executing the Contract and furnishing the Bank Guarantee for contract performance.
5. The EMD amount is interest free and will be refundable without any accrued interest in it.
6. In case bid is submitted without the EMD then Capital Region Urban Transport (CRUT) will reject the bid without providing opportunity for any further correspondence to the bidder concerned.
7. The EMD may be forfeited:
    a) If a bidder withdraws its bid during the period of bid validity.
    b) If the successful bidder fails to provide the Performance Bank Guarantee as required at the time of signing of the Agreement.

c) If the successful bidder fails to sign the Agreement within 15 days from the issue of Letter of Intent (LOI) by Capital Region Urban Transport (CRUT).

8. The Bidder shall submit the original Demand Draft issued by a Nationalized or Scheduled Commercial Bank via Speed Post, Registered Post, or Courier, ensuring it reaches the Authority before the bid submission deadline as specified in the Data Sheet.

3.7. Bidders Authorization

1. The "Bidders" as used in the RFP documents shall mean the one who has signed the RFP Forms. The Bidders may be either the Principal Officer or his duly Authorized Representative, in either case, he/she shall submit a power of attorney. All certificates and documents (including any clarifications sought and any subsequent correspondences) received hereby, shall be furnished, and signed by the representative and the principal.
2. The authorization shall be indicated by written power-of-attorney accompanying the bid in the name of the signatory of the Proposal.
3. Any change in the Principal Officer shall be intimated to Capital Region Urban Transport (CRUT) in advance.

3.8. Address for Correspondence

The Bidders shall designate the official mailing and e-mail address to which all correspondence shall be sent.

3.9. Local Conditions

1. It will be incumbent upon each Bidder to fully acquaint itself with the local conditions and other relevant factors such as legal conditions which would have any effect on the preparation of the bid and performance of the contract and / or the cost. Capital Region Urban Transport (CRUT) shall not entertain any request for clarification from the Bidders regarding such conditions.
2. Failure to obtain the information necessary for preparing the bid and/or failure to perform activities that may be necessary for providing services before entering contract shall in no way relieve the successful Bidders from performing any work in accordance with the RFP documents.
3. Neither any change in the time schedule of the contract nor any financial adjustments to the contract awarded under the bidding documents shall be permitted by the Capital Region Urban Transport (CRUT) on account of failure of the Bidders to appraise themselves of local laws and prevailing conditions.

3.10. Site Visits by Bidder

The Bidder at its own cost may visit and examine site, at a time to be agreed with office of the Capital Region Urban Transport (CRUT) (and obtain for himself on his own responsibility all information that may be necessary for preparing the Bid document). The visit may not be used to raise questions or seek clarification; such matters must be submitted in writing.

3.11. Language

The proposal should be filled by the bidders in English language only. If any supporting documents submitted are in any language other than English, translation of the same in English language is to be duly attested by the bidders. For purposes of interpretation of the documents, the English translation shall govern.

3.12. Bid validity period.

Bid shall remain valid for the time mentioned in the Proposal Data Sheet. Bid validity may be extended by the bidder by submitting a letter to Capital Region Urban Transport (CRUT) in writing on receipt of request from Capital Region Urban Transport (CRUT).

3.13. Discount

The Bidders are advised not to indicate any separate discount. Discount, if there is any, should be merged with the quoted prices. A discount of any type, indicated separately, shall not be considered for evaluation purposes. However, in the event of such an offer, without considering discount, is found to be the lowest, Capital Region Urban Transport (CRUT) shall avail such discount at the time of award of Contract. For future purposes, Unit prices of all individual components will be discounted accordingly (by the overall discount % in case overall discount % is given or by the individual component discount % in case item wise discount given) to arrive at component-wise unit prices.

3.14. Only one proposal and one solution

If a Bidder submits or participates in more than one Proposal and / or presents more than one Solution, such a Bidder shall be disqualified.

3.15. Additional Conditions

1. No oral conversations or agreements with any official or employee of Capital Region Urban Transport (CRUT) shall affect or modify any terms of this RFP and any alleged oral agreement or arrangement made by a bidder with any agency, official or employee of Capital Region Urban Transport (CRUT) shall be superseded by the definitive agreement that results from this RFP process. Oral communications by Capital Region Urban Transport (CRUT) to bidders shall not be considered binding nor shall any written materials have been provided by any person other than Capital Region Urban Transport (CRUT).
2. Neither the bidder nor any of bidder's representatives shall have any claims whatsoever against Capital Region Urban Transport (CRUT) or any of its employees arising out of or relating to this RFP or these procedures (other than those arising under a definitive service agreement with the bidder in accordance with the terms thereof).
3. All proposals and accompanying documentation of the technical proposal will become the property of Capital Region Urban Transport (CRUT) and will not be returned after opening of the technical proposals.

4. The Bidder commits himself to take all measures necessary to prevent corrupt practices, unfair means, and illegal activities during any stage of his bid or during any pre-contract or post-contract stage to secure the contract or in furtherance to secure it

3.16. Right to Terminate the Process

1. Capital Region Urban Transport (CRUT) may terminate the RFP process at any time and without assigning any reason before sign of the Agreement. Capital Region Urban Transport (CRUT) makes no commitments, expresses or implied that this process will result in a business transaction with anyone.
2. This RFP does not constitute an offer by Capital Region Urban Transport (CRUT). The bidder's participation in this process may result in Capital Region Urban Transport (CRUT), selecting the bidders to engage towards execution of the contract.

3.17. Compliant proposals/Completeness of response

1. Bidders are advised to study all instructions, forms, terms, requirements, and other information in the RFP documents carefully. Submission of the bid shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.
2. Failure to comply with the requirements of this paragraph may render the proposal non-compliant and the proposal may be rejected. Bidders must:
    a) Include all documentation specified in this RFP.
    b) Follow the format of this RFP and respond to each element in the order as set out in this RFP.
    c) Comply with all requirements as set out within this RFP.
3. Bidder should not propose multiple options for any system software or other infrastructure proposed as part of the bid.
4. For all the components, wherever applicable, bidder needs to provide the data sheets of the product.

3.18. Deviations and Exclusions

Bids shall be submitted strictly in accordance with the requirements and terms & conditions of the RFP. No Deviations and Exclusions to the RFP are allowed. In the absence of any specific provision in the agreement on any issue, the decision of the Capital Region Urban Transport (CRUT) shall be final.

3.19. Modification and Withdrawal of Bids

1. No bid shall be altered / modified after submission to the Capital Region Urban Transport (CRUT). Unsolicited correspondences in this regard from Bidders shall not be considered.
2. No bid shall be withdrawn in the interval between the last date for receipt of bids and the expiry of the bid validity period specified by the Bidders in the Bid.
3. Withdrawal of a bid during this interval shall result in the Bidders forfeiture of its EMD.

4. Prices in any form or for any reason before opening the Commercial Bid should not be revealed. If price change is envisaged due to any clarification, revised financial Bid can be called from all the bidders by Capital Region Urban Transport (CRUT).

3.20. Submission of the Bid Documents:

1. For submission of Bids through the E-Procurement Portal, the bidder shall upload the scanned copy/copies of document in prescribed format wherever warranted in support of document fee, EMD, eligibility criteria and qualification information.
2. The Bidders shall download the tender document from the website as mentioned in the Proposal Data Sheet.
3. The bid must be submitted online only through the Government of Odisha e-Procurement portal (https://tendersodisha.gov.in). Interested bidders are required to enroll on the portal with a valid Digital Signature Certificate (DSC) of the authorized signatory. Bidders must carefully follow the instructions available on the website for online bid submission.
4. The bid shall consist of two parts: (i) Technical Bid and (ii) Financial Bid. The Technical Bid containing all required documents, certificates, and compliance details must be uploaded in the prescribed format. Each page should be page numbered and in confirmation to the eligibility qualifications and clearly indicated using an index page.
5. The Financial Bid shall be submitted separately in the designated format in the RFP. Bidders are advised to ensure that both parts are uploaded correctly and submitted before the due date and time.
6. It is the responsibility of the bidder to ensure that the bid is submitted successfully and acknowledged by the system. For any technical assistance during the process, bidders may contact the 24x7 Help Desk of the e-Procurement portal.
7. Evaluation of the proposals shall be made as per the evaluation criteria mentioned in the RFP prior to opening of financial proposal.
8. Any deviation from the prescribed procedures /information/ formats/ conditions shall result in out-right rejection of the proposal. All the pages of the proposal must be sealed and signed by the authorized representative of the bidder. Bids with any conditional offer shall be outrightly rejected. Any conditional bids will be rejected.
9. The Capital Region Urban Transport will not consider any proposal that upload after the deadline as prescribed in the Bidder Data Sheet. Any Proposal received online after the deadline will be outrightly rejected by the authority.
10. The Bidders are required to submit the original copy of demand draft of **the EMD and Tender fee** in envelope superscribed with the RFP title "Request for Proposal for Selection of System Integrator (SI) for Design, Development, Supply, Installation, Integration, Testing & Commissioning including Operation and Maintenance of Intelligent Transport Management System for Capital Region Urban Transport."
    The Envelope must be submitted timely before due date to the address:
    The General Manager (P&A)
    Capital Region Urban Transport
    Plot no-548/1452, Patia, Kalarahanga, Bhubaneswar, Odisha 751024

11. CRUT reserves the right to accept or reject any bid without assigning any reason, and to annul the bidding process and reject all proposals at any time prior to award of contract. The tenders are liable to be canceled at any stage without assigning any reason(s). CRUT will not

be responsible for any liability to the affected bidder or bidders. CRUT doesn't have any obligation to inform the affected bidder or bidders of the grounds for CRUT's action.

3.21. Late Bids

1. Original EMD and Tender Fees as Demand Draft received after the due date and the specified time (including the extended period if any) for any reason whatsoever, shall not be entertained.
2. The bids submitted by e-mail, or any other mode, shall not be considered. No correspondence will be entertained on this matter.
3. Capital Region Urban Transport reserves the right to modify and amend any of the above-stipulated conditions/criteria depending upon project priorities vis-vis urgent commitments.

4. Bid Opening and Evaluation Process

4.1. Opening of Bids

1. The bids that are submitted successfully shall be opened as per date and time given in Proposal Data Sheet, as per the procedure of e-tender portal https://tendersodisha.gov.in/
2. Total transparency will be observed and ensured while opening the Proposals/Bids.
3. Capital Region Urban Transport (CRUT) reserves the right to postpone or cancel the Bid opening schedules.
4. Bid opening will be conducted in two stages.
    a) In the first stage, Pre-qualification Proposals would be opened. The EMD of the Bidders will be opened on the same day and on which the Pre-qualification Proposal is opened. Technical Proposals of Bidders who fulfil the Pre-qualification criteria will be opened.
    b) In the second stage, Commercial Proposal of those Bidders whose Technical Proposals qualify, would be opened.
    c) In the event of the specified date of Bid opening being declared as Government holiday, the bids shall be opened at the same time and location on the next working day. In addition to that, if the representative(s) of any Bidder remain(s) absent, Capital Region Urban Transport (CRUT) will continue the process and open the bids of all the other Bidders, whose representatives are present.

4.2. Evaluation of Bids

1. Capital Region Urban Transport (CRUT) will constitute a Proposal Evaluation Committee to evaluate the responses of the bidders.
2. The Proposal Evaluation Committee constituted by Capital Region Urban Transport (CRUT) shall evaluate the responses to the RFP and all supporting documents / documentary evidence. The Bidders' technical solution will be evaluated as per the requirements and evaluation criteria as spelt out in the RFP document.
3. The Committee may seek input from their professional and technical experts in the evaluation process.
4. Capital Region Urban Transport (CRUT) reserves the right to do a reference check of the past credentials stated by Bidder. Any feedback received during the reference check shall be considered during the technical evaluation process.
5. The decision of the Proposal Evaluation Committee in the evaluation of responses to the RFP shall be final. No correspondence will be entertained in this regard.
6. The Proposal Evaluation Committee reserves the right to reject any or all proposals based on any deviations without assigning any reason thereof.
7. Proposal Presentations: The proposal evaluation committee may invite each pre-qualified Bidder to make a presentation at Capital Region Urban Transport (CRUT) at a date, time and venue decided by Capital Region Urban Transport (CRUT). The purpose of such presentations would be to allow the Bidders to present their proposed solutions to the Committee and orchestrate the key points in their Proposals.
8. Unnecessarily elaborate brochures or other promotional materials beyond those sufficient to present a complete and effective proposal are considered undesirable and may be construed

as an indication of the bidder's lack of cost consciousness. Capital Region Urban Transport (CRUT)'s interest is in the quality and responsiveness of the proposal.

4.3. Clarification on Bids

1. During the bid evaluation, Capital Region Urban Transport (CRUT) may at its discretion ask the bidder for clarification of its bid. The request for clarification and the response shall be in writing, and no change in the price or substance of the bid shall be sought, offered, or permitted. Capital Region Urban Transport (CRUT) may ask for clarifications as many times as possible from the bidders to the satisfaction of the Technical Evaluation committee.
2. If the bidder fails to provide the clarification or any additional information sought, the information provided in the technical proposal only will be used for evaluation. It is clearly understood that the additional information or clarification on the technical proposal provided by the bidders will not be the basis for affecting any changes in the Commercial Proposal already submitted by the bidders.

4.4. Preliminary Examination of Bids

Office of the Capital Region Urban Transport (CRUT) will examine the bids to determine whether they are complete, whether the required EMD has been furnished, whether the documents have been properly signed, and whether the bids are generally in order. Any bids found to be non-responsive for any reason or not meeting the criteria specified in the RFP, will be rejected by Capital Region Urban Transport (CRUT) and shall not be included for further consideration. Any deviations in proposal response may make the bid liable for rejection. Initial Bid scrutiny will be held, and bids will be treated as non-responsive, if bids are:

a) Not submitted in format as specified in the RFP document Received without the Letter of Authorization (Power of Attorney) Found with suppression of details.
b) With incomplete information, subjective, conditional offers, and partial offers submitted.
c) Submitted without the documents requested.
d) Non-compliant with any of the clauses mentioned in the RFP.
e) With lesser validity period.

4.5. Pre-Qualification

The bidders shall be evaluated based on the Pre-Qualification criteria mentioned below. The bidders should fulfil all the following eligibility criteria, as per details mentioned below. Bidders who fulfil all the Eligibility criteria, will be considered for further Technical Evaluation. The proposal failing to meet all the below pre-qualification eligibility criteria shall be disqualified and shall not be considered for technical evaluation process. Decision of Authority shall be final in this matter and would be binding upon the bidder.

Sr. No	Criteria	Pre-qualification Criteria description	Supporting Document
PQ-1	Legal Entity	The Bidder Should be:	Bidder shall submit: • Copy of Certificate of

Sr. No	Criteria	Pre-qualification Criteria description	Supporting Document
		• A Companies Act, 1956 or 2013; or Limited Liability Partnership (LLP) Act, 2008; or a Partnership Firm under the Indian Partnership Act. • In operation in India for a period of at least 5 years as on publication of bid. **Note: Consortium / Joint venture is not allowed.**	Incorporation / Registration under Companies Act 1956/ 2013 /LLP act 2008 / Partnership firms. • Memorandum and Articles of Association (as applicable) • GST Registration Certificate • Document proof for operations in India for a period of at least 5 years as on publication of bid.
PQ-2	Annual Turnover	The bidder should have an average annual turnover of **INR 100.00 Crores** in any last 3 consecutive financial years i.e., (FY 2022-23, FY 2023-2024, FY 2024- 2025)	Bidder shall submit: • Audited statement for last 3 financial years • Certificate from the Statutory auditor / Independent Chartered Accountant with seal and signature clearly specifying the average annual turnover for the specified years.
PQ-3	Net Worth	Bidder should have positive net worth in each of the last 3 audited financial years. (FY 2022-23, FY 2023-2024, FY 2024-2025)	Bidder shall submit: • Audited statement for last 3 financial years. • Certificate from the Statutory auditor / Independent Chartered Accountant with seal and signature clearly specifying the average annual turnover for the specified years.
PQ-4	Bidder's Experience in Implementation of the ITMS Project	Bidder should have experience of successful design, development, implementation of the ITMS project (as per below criteria) in any Central or State Government Agencies/ Urban Local Bodies/ Public Transport Undertaking/ Smart Cities India in last 7 years as on date of RFP Published.	Copy of Work Order/agreement having the scope of work, client details

Sr. No	Criteria	Pre-qualification Criteria description	Supporting Document
		• One (1) Successful Transport Management System project with not less than the amount equal to INR 8.0 Crores. **OR** • Two (2) Successful Transport Management System project with not less than the amount equal to INR 5.0 Crores. **OR** • Three (3) Successful Transport Management System project with not less than the amount equal to INR 4.0 Crores. **Note:** A qualifying successful ITMS project means a single system integrator work consisting of both software and hardware as below. **i. Software** a) Automatic Fare Collection System b) Automatic Vehicle Location System (AVLS) c) Vehicle Planning Scheduling and system (VPSD) d) Passenger Mobile Application. **ii. Hardware** a) Electronic Ticketing Machine	
PQ-5	Blacklisting	The bidder/OEM should not have been blacklisted/banned by any State/Central Government in India as on release date of this RFP for corrupt, fraudulent or any other unethical business practices or for any other reason.	Bidder shall submit: • Undertaking on the letter head as per Annexure:
PQ-6	Local Presence	The bidding firm should have its offices in Odisha	Document in support of address proof of office premises in Odisha. **OR**

Sr. No	Criteria	Pre-qualification Criteria description	Supporting Document
			Undertaking to open a project office in Odisha within a period of one month from signing the agreement
PQ-7	ISO Certifications	The bidder should have valid ISO 9001:2015 and ISO/IEC 27001 27001 Certification at the time of submission of bid.	Copies of the Valid certificates in the name of bidder.
PQ-8	ONDC Registration	The bidder must be registered as a seller on the ONDC platform.	Supporting documentation of the registration shall be submitted along with the bid.

4.6. Technical Bid Evaluation

1. This shall be the second stage of the evaluation. Only those bidders who qualify for as per the pre-qualification shall be considered for technical evaluation.
2. In case of no response by the bidder to any of the requirements about the contents of the Technical Bid, he shall not be assigned any marks for the same.
3. Technical bid of the bidder shall be opened and evaluated for acceptability of Techno-functional requirements, deviations, and technical suitability. The bidders shall respond to the requirements as explained below for their evaluation of experience and qualifications. Also, the bidder shall refer and respond to all technical requirements as mentioned in the RFP document.
4. The evaluation process would also include a presentation of technical proposals by the bidder.
5. Method of evaluation of selection of successful Bidder and award of Contract to bidder shall be on QCBS basis. All the bidders who secure overall minimum of 70% will be considered technically qualified Technical Bidders.
6. The Evaluation Committee shall indicate to all the bidders the results of the technical evaluation through written communication. The technical scores of the Bidders will be announced prior to the opening of the Commercial Proposals.
7. The technical qualification criteria are based on the following components.

Sr. No	Criteria	Parameter	Maximum Mark	Supporting Document	Marking Criteria
A. Financial Competency					
A1	Financial Competency	The bidder should have an average annual turnover of INR 100.00 Crores in any last 3 consecutive	10	• Audited statement for last 3 financial years • Certificate	• Above 100 Crores up to 110 Crores – 5 Marks • Above 110 Crores up to 120 Crores – 7 Marks

Sr. No	Criteria	Parameter	Maximum Mark	Supporting Document	Marking Criteria
		financial years i.e., (FY 2022-23, FY 2023-2024, FY 2024- 2025)		from the Statutory auditor / Independent Chartered Accountant with seal and signature clearly specifying the average annual turnover for the specified years.	• Above 120 Crores – 10 Marks (Maximum)
B. Relevant Project Experience					
B1	Implementation Experience	The bidder should have experience of implementing Intelligent Transport Management system for minimum 100 public transport buses in a single project for any State Government Transport Undertaking / ULB/ SPV in India during last 5 years. Note: A qualifying successful ITMS project means a single system integrator work consisting of both software and hardware as below. **i. Software** e) Automatic Fare Collection	20	Copy of Work Order/agreement having the scope of work, client details	Bidders will be evaluated based on the number of projects. • 1 Project = 10 Mark • 2 Projects = 15 Marks • 3 Projects or above = 20 Marks

Sr. No	Criteria	Parameter	Maximum Mark	Supporting Document	Marking Criteria
		System f) Automatic Vehicle Location System (AVLS) g) Vehicle Planning Scheduling and system (VPSD) h) Passenger Mobile Application. **ii. Hardware** b) Electronic Ticketing Machine			
B2	Mobile Applications	The bidder should have experience of implementing at least one mobile application (Android and iOS) for commuter based public transit with ETA with electronic ticketing system for any Government Transport Undertaking/ ULB/ SPV for City Bus services in India during last 5 years.	10	Copy of Work Order/agreement having the scope of work, client details, platform certificate from Android and iOS clearly indicating the downloads.	Bidders will be evaluated based on the number of downloads of their app. • 10 Lakhs downloads: 5 Marks • 15 Lakhs downloads: 7 Marks • More than 15 Lakhs downloads: 10 Marks
B3	Implementation of National Common Mobility Card/Smart Card	The bidder must have experience in implementing NCMC (National Common Mobility Card) cards under an ITMS (Intelligent Transport	15	All are mandatory: • Copy of Work Order/agreement having the scope of work, client details. • Satisfactory	Bidders will be evaluated based on the number of NCMC card implementation. • 1 Project = 5 Marks • 2 Projects = 10 Marks

Sr. No	Criteria	Parameter	Maximum Mark	Supporting Document	Marking Criteria
		Management System) project in the last 5 years for any Government Transport Undertaking/ ULB/ SPV for City Bus services in India during last 5 years.		client certificate.	• Above 3 Projects = 15 Marks
C. Compliances					
C1	Software Development Company	The Bidder should have the following quality certification: • CMMI Level 3 or higher • ISO 9001:2015 and ISO/IEC 27001 27001 Certification	5	Valid Certification copy. The certification date should be prior to RFP release date	Valid Certification copy. • ISO 9001:2015 – 1 Mark • ISO/IEC 27001 27001 Certification – 1.5 Marks • CMMI Level 3 or higher – 2.5 Marks
C2	Resources Strength	The bidder should have employee strength of minimum 25 employees on payroll of the company as on date of release of RFP	5	Declaration of HR on the Company Letter head.	• 25 or above employees – 2.5 Marks • Above 50 employees- 5 Marks
D. Technical Presentation and Live Demo					
D1	Live Demo	Demonstration and Proof of Concept (PoC)	20	Bidders need to show proposed product demo to evaluation committee	• Demonstration the level of understanding, the scope of work and all aspect.
D2	Presentation	Presentation	15	Evaluated by the Evaluation Committee Members	• Approach and Methodology for leveraging the existing technology. • Proposed solution design and architecture

Sr. No	Criteria	Parameter	Maximum Mark	Supporting Document	Marking Criteria
					• Strategy for risk mitigation and SLA Management
TOTAL			100		

Note: The bidders who secure overall minimum of 70% will be considered technically qualified Technical Bidders.

4.7. Commercial Bid Evaluation

1. The commercial bids shall not be opened by Capital Region Urban Transport (CRUT) until the evaluations of technical bids have been completed. The technically shortlisted Bidders will be informed of the date and venue of the opening of the Commercial Proposals through email or written communication.
2. Prices quoted indicating total prices for all the deliveries and services shall be fixed and final and shall remain constant throughout the period of the contract and shall not be subject to any upward modifications, on any account whatsoever. The Bid Prices shall be indicated in Indian Rupees (INR) only and payments shall be made to successful bidders in Indian currency only.
3. The bid should clearly indicate the price to be charged without any qualifications whatsoever and should include all taxes, duties, fees, levies, works contract tax and other charges as may be applicable in relation to the activities proposed to be carried out. Capital Region Urban Transport (CRUT) reserves the right to ask the Bidder to submit proof of payment against any of the taxes, duties, levies indicated.
4. The taxes quoted in the offer should be as per the prevailing tax rates. Any subsequent increase in the tax rates or introduction of new tax will be paid by Capital Region Urban Transport (CRUT). Similarly, any benefits arising due to downward revision in tax rates, or any exemptions availed by the Bidders organization should be passed on to Capital Region Urban Transport (CRUT).
5. The individual cost components as detailed later in the RFP shall be submitted in the commercial envelope. The summary of all components shall be provided as BoQ format in excel.
6. An adjustable price quotation or conditional proposal shall be treated as non-responsive, and the bid may be rejected.
7. Bidders are advised to exercise adequate care in quoting the prices. No excuse for corrections in the quoted figures will be entertained after the commercial proposals are received.
8. Errors & Rectification: Arithmetical errors will be rectified on the following basis:
    a) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.
    b) If there is a discrepancy between words and figures, the amount in words will prevail.
9. Bidder should provide all prices as per the prescribed format provided in Volume I of the RFP
10. Bidders shall indicate the unit rates and total Bid Prices of the equipment/ services, it proposes to provide under the Contract. Prices should be shown separately for each item as required in the RFP.

11. Bidder should not leave any field blank. In case the field is not applicable, Bidder must indicate "0" (Zero) in all such fields.
12. If there is no price quoted for certain material or service, the bid shall be declared as disqualified.
13. The Bidder needs to account for all Out-of-Pocket expenses related to Boarding, Lodging and other related items in the commercial bids. Any additional charges shall be borne by the bidder. Regarding the evaluation of Commercial Bids, Capital Region Urban Transport (CRUT) shall make appropriate assumptions as mentioned below to arrive at a common bid price for all the Bidders. This however shall have no co-relation with the Contract value or actual payment to be made to the Bidder.
14. The price quoted in the Commercial Proposal shall be the only payment, payable by Capital Region Urban Transport (CRUT) to the successful Bidder for completion of the contractual obligations by the successful Bidder under the contract, subject to the terms of payment specified as in the proposed commercial bid or the one agreed between Capital Region Urban Transport (CRUT) and the Bidder after negotiations.
15. The bid amount shall be inclusive of packing, forwarding, transportation, insurance, delivery charges and any other charges as applicable. Any other charges as applicable shall be borne by the bidder.
16. Percentage (%) of taxes etc. if any, to be claimed shall be indicated in the Price bid, otherwise it will be presumed that rates are inclusive of all taxes, and no plea would be accepted in this regard after opening of the tenders and during the validity of the contract.

4.8. Award Criteria

1. Evaluation criteria proposed to be adopted will be Quality cum Cost Based System (QCBS). A weightage of 70% shall be awarded for Technical Bid Score and a weightage of 30% shall be awarded for Commercial Bid Score.
2. The bidder would be technically evaluated out of 100 marks. All the bidders who secure overall minimum of 70% (70 Marks out of 100 across all the components together) will be considered as technically qualified. Technical score of all bidders shall be calculated on the basis of the following formula:
3. Technical Score of bidders (TS) = Technical Marks received by the bidder x 70%
4. The Bid having the Lowest Commercial Quote shall be termed as the Lowest Evaluated Bid and will be awarded 100 marks. and a Commercial Score of 30. Commercial score of all the other bidders will be calculated on the basis of the following formula:
5. Commercial score of bidders (CS) = $\frac{\text{Commercial Quote of the lowest bidder x 100 x 30\%}}{\text{Commercial Quote of the bidder}}$
6. Final Score of the bidder: Final Score of each bidding party will be computed by adding the technical score and Commercial Score on the basis of the following formula:
7. Total Score = TS + CS
8. The bidder whose bid has secured the "Highest Total Score" out of 100 as per above evaluation will be considered as Most responsive bid.
9. In case of a tie where two or more bidders achieve the same highest overall score, the bidder with the higher technical score will be invited first for negotiations.
10. Capital Region Urban Transport (CRUT) is not bound to accept the Most responsive bid or any bid and reserves the right to accept any bid, wholly or in part.

4.9. Notification of Award

1. Prior to the expiration of the validity period, Capital Region Urban Transport (CRUT) will notify the successful bidders in writing or by fax or email, that its proposal has been accepted. In case the tendering process / public tender process has not been completed within the stipulated period, Capital Region Urban Transport (CRUT) may like to request the bidders to extend the validity period of the bid. Upon the selected bidder's furnishing of Performance Bank Guarantee, the Authority will notify all other bidders who are not selected.
2. At the time, Capital Region Urban Transport (CRUT) notifies the successful bidder that its bid has been accepted by sending the proforma of contract, incorporating all clauses/ agreements between the parties.

4.10. Contract Finalization and Award

1. The written advice for any change shall be issued by Capital Region Urban Transport (CRUT) to the selected bidder within 4 (four) weeks prior to the due date of commencement of services.
2. The selected Bidder should convey acceptance of the award of contract by returning duly signed and stamped two sets of agreement within 7 days of receipt of the communication.
3. Upon notification of award to the successful Bidder, Capital Region Urban Transport (CRUT) will promptly notify each unsuccessful Bidder.

4.11. Performance Bank Guarantee

1. The PBG (5% of total contract value) shall be submitted within 30 days of notification of award done through issuance of the Work Order/ Letter of Acceptance valid for the entire period of the project. Capital Region Urban Transport (CRUT) shall facilitate the signing of contract within the period of 30 days of notification of award. However, it is to be noted that the date of commencement of project and all contractual obligations shall commence from the date of issuance of Work order/ letter of acceptance, whichever is earlier. All reference timelines as regards execution of project and payments to bidder shall be considered as beginning from date of issuance of Work Order/ letter of acceptance, whichever is earlier.
2. An amount equivalent of 5% of total contract value shall be payable by the bidder for five years and six months. All charges whatsoever such as commission, etc. with respect to the Performance Bank guarantee shall be borne by the bidder. Post completion of Project, this bank guarantee shall be returned subject to work carried out to the satisfaction of the Capital Region Urban Transport (CRUT) Officers.
3. The Performance bank guarantee may be discharged / returned by Capital Region Urban Transport (CRUT) upon satisfactory completion of project as per the RFP and contract. However, no interest shall be payable on the PBG. The selected bidder shall be responsible for extending the validity date and claim period of the Performance Bank Guarantee as and when it is due on account of non-completion of the project and warranty period. In case the selected bidder fails to submit performance bank guarantee with the time stipulated, Capital Region Urban Transport (CRUT) at its discretion may cancel the work order placed with the selected bidder.

4. Capital Region Urban Transport (CRUT) shall invoke the performance guarantee in case the selected bidder fails to discharge their contractual obligations during the period, or if the Authority incurs any loss due to bidder's negligence in carrying out the project implementation, as per the agreed terms & conditions. Notwithstanding and without any prejudice to any rights whatsoever of Capital Region Urban Transport (CRUT) under contract, the proceeds of PBG shall be payable to Capital Region Urban Transport (CRUT) as compensation, for any loss resulting from bidder's failure to complete its obligations under the Contract. Capital Region Urban Transport (CRUT) shall notify the bidder in writing, of the exercise of its right, to receive such compensation within 14 days, indicating the contractual obligations for which the bidder is in default.
5. The Authority shall also be entitled to make recoveries, from the bidder's bills, PBG, or from any other amount due to the bidder, the equivalent value of any payment made to the bidder due to inadvertence, error, collusion, misconstruction, or misstatement.

4.12. Signing of Contract

1. After the Capital Region Urban Transport (CRUT) notifies the successful bidder that their proposal has been accepted, Capital Region Urban Transport (CRUT) shall enter a contract, incorporating all clauses, pre-bid clarifications and the proposal of the bidder, between Capital Region Urban Transport (CRUT) and the successful bidder. The Draft Legal Agreement is provided as a separate document as a template.
2. After completing negotiations, the Authority shall issue a Letter of Intent to the selected bidder and promptly notify all other bidders who have submitted proposals about the decision taken.

4.13. Failure to Agree with the Terms and Conditions of the Agreement

1. Failure of the successful bidders to agree with the terms and conditions of draft Agreement and RFP shall constitute sufficient grounds for the annulment of the award, in which event Capital Region Urban Transport (CRUT) may award the contract to the next Most responsive bid or call for new proposals from the interested bidders.
2. In such a case, the Capital Region Urban Transport (CRUT) shall forfeit the PBG of the successful bidder.

4.14. Establishment of Local Office and State GST Registration

1. The successful bidder shall establish a local office within 30 (thirty) days from the date of issuance of the Letter of Award (LoA). The office address along with a valid rent/lease agreement must be submitted in writing to the CRUT office for official records. All future communications from the Authority shall be made to the address provided.
2. Additionally, the successful bidder must obtain Odisha State GST registration prior to submission of the first invoice. No bill shall be processed for payment by the Authority without the submission of a valid Odisha State GST number.

5. Special Terms and Conditions

5.1. Obligations of the selected agency(s)

The Selected Bidder shall perform the Services and carry out its obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and employ appropriate advanced technology and safe and effective equipment, machinery, materials and methods. The Selected Bidder shall always act, in respect of any matter relating to this Agreement or to the Services, as a faithful advisor to the Capital Region Urban Transport (CRUT) and shall always support and safeguard the Capital Region Urban Transport (CRUT)'s legitimate interests in any dealings with any Sub-Contractor or Third Parties, if involved.

5.2. Breach of Agreement

The SI shall not have a Conflict of Interest, and any breach hereof shall constitute a breach of the Agreement.

5.3. SI and Affiliates not to be otherwise interested in the Project.

The SI agrees that, during the term of this Agreement and after its termination, the SI or any Associate thereof, as well as any Sub-Contractor and any entity affiliated with such Sub-Contractor, shall be disqualified from providing goods, works, services, loans or equity for any project resulting from or closely related to the Services or the Project and any breach of this obligation shall amount to a Conflict of Interest; provided that the restriction herein shall not apply after a period of three years from the completion of this assignment or to consulting assignments or services granted by banks/ lenders at any time; provided further that this restriction shall not apply to consultancy/ advisory services provided to the Capital Region Urban Transport (CRUT) in continuation of this Project or to any subsequent Project/ advisory services provided to the Capital Region Urban Transport (CRUT) in accordance with the prevailing rules and requirements of the Capital Region Urban Transport (CRUT). For the avoidance of doubt, an entity affiliated with the SI shall include a partner in the firm of the SI or a person who holds more than 5% (five per cent) of the subscribed and paid-up share capital of the SI and any Associate thereof.

5.4. Prohibition of conflicting activities

i. Neither the SI nor its partners nor the Personnel or either of them shall engage, either directly or indirectly, in any of the following activities:
ii. during the term of the Agreement, any business or professional activities which would conflict with the activities assigned to them under this Agreement.
iii. after the termination of the Agreement, such other activities as may be specified in the Agreement; or at any time, such other activities as have been specified in the RFP as Conflict of Interest.

iv. Neither the SI nor its partners nor the Personnel or either of them shall engage, either directly or indirectly, in any of the following activities:

v. during the term of the Agreement, any business or professional activities which would conflict with the activities assigned to them under the Agreement.

vi. after the termination of the Agreement, such other activities as may be specified in the Agreement; or at any time, such other activities as have been specified in the RFP as Conflict of Interest.

5.5. SI does not benefit from commissions discounts, etc.

The remuneration of the SI shall constitute the SI's sole remuneration in connection with the Agreement or the Services and the SI shall not accept for its own benefit any trade commission, discount or similar payment in connection with activities pursuant to this Agreement or to the Services or in the discharge of its obligations hereunder, and the SI shall use its best efforts to ensure that any Sub-Contractor, as well as the Personnel and agents of either of them, similarly shall not receive any such additional remuneration.

5.6. Prohibited Practices

The SI and its Personnel shall observe the highest standards of ethics and not have engaged in and shall not hereafter engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice (collectively the "Prohibited Practices"). Notwithstanding anything to the contrary contained in the Agreement, the Capital Region Urban Transport (CRUT) shall be entitled to terminate the Agreement forthwith by a communication in writing to the SI, without being liable in any manner whatsoever to the SI, if it determines that the SI has, directly or indirectly or through an agent, engaged in any Prohibited Practices in the Selection Process or before or after entering into of this Agreement. In such an event, the Capital Region Urban Transport (CRUT) shall forfeit and appropriate the Performance Security, if any, as mutually agreed genuine pre-estimated compensation and damages payable to the Capital Region Urban Transport (CRUT) towards, inter alia, time, cost, and effort of the Capital Region Urban Transport (CRUT), without prejudice to the Capital Region Urban Transport (CRUT)'s any other rights or remedy hereunder or in law.

5.7. Rights of Capital Region Urban Transport (CRUT)

Without prejudice to the rights of the Capital Region Urban Transport (CRUT) and the other rights and remedies which the Capital Region Urban Transport (CRUT) may have under the project, if the SI is found by the Capital Region Urban Transport (CRUT) to have directly or indirectly or through an agent, engaged or indulged in any Prohibited Practices, during the Selection Process or before or after the execution of this Agreement, the SI shall not be eligible to participate in any RFP or RFP issued by Capital Region Urban Transport (CRUT) or Govt. of Odisha during a period of 2 (two) years from the date the SI is found by the Capital Region Urban Transport (CRUT) to have directly or indirectly or through an agent, engaged or indulged in any Prohibited Practices

5.8. Liability of the SI

a) The SI's liability under the project shall be determined by the Applicable Laws and the provisions hereof.
b) The SI shall, subject to the limitations specified in the document, be liable to the Capital Region Urban Transport (CRUT) for any direct loss or damage accrued or likely to accrue due to deficiency in Services rendered by it.
c) The Parties hereto agree that no negligence or willful misconduct will be carried out on the part of SI or on the part of any person or firm acting on behalf of the SI in carrying out the Services. The Project, the SI, with respect to damage caused to the Capital Region Urban Transport (CRUT)'s property, shall not be liable to the Capital Region Urban Transport (CRUT):
    a. For any indirect or consequential loss or damage; and
    b. For any direct loss or damage that exceeds the Agreement Value set forth in clause of the Agreement

5.9. Accounting, Inspection and Auditing

The SI shall:

a) Keep accurate and systematic accounts and records in respect of the Services provided under this Agreement, in accordance with internationally accepted accounting principles and standards such as Indian Accounting Standards, GAAP, etc. and in such form and detail as will clearly identify all relevant time charges and cost, and the basis thereof (including the basis of the SI's costs and charges); and
b) In case required by the Capital Region Urban Transport (CRUT), the SI shall provide copies of such records up to one year from the expiration or termination of this Agreement.

5.10. SI's actions require the Capital Region Urban Transport (CRUT)'s prior approval.

The SI shall obtain the Capital Region Urban Transport (CRUT)'s prior approval in writing before taking any of the following actions:

a) Appointing such members of the professional personnel as are not listed.
b) Changing, replacing, or removing the key personnel of the project as listed.
c) To remove from the site any product and other goods that are defective, if the nature of the defect, and/or any damage to the System caused by the defect, is such that repairs cannot be expeditiously carried out at the site.
d) Entering a subcontract for the performance of any part of the Services, it being understood
e) that the selection of the Sub-Contractors and the terms and conditions of the subcontract shall have been approved in writing by the Capital Region Urban Transport (CRUT) prior to the execution of the subcontract, and
f) that the SI shall remain fully liable for the performance of the Services by the Sub-Contractor and its Personnel pursuant to this Project; or
g) Any other action that is specified in the Project.

5.11. Reporting obligations

a) The SI shall submit to Capital Region Urban Transport (CRUT) the reports and documents specified in the Agreement, in the form, in the numbers and within the times set forth therein for the entire duration of project.
b) All reports shall be delivered in digital format (compact disk or any other means required by the Capital Region Urban Transport (CRUT)) in addition to the hard copies specified in said Contract.

5.12. Documents Ownership

Documents prepared by the SI will be property of the Capital Region Urban Transport (CRUT). All reports and other documents (collectively referred to as "Project Documents") prepared by the SI (or by the Sub- Contractor or any Third Party or any partner) in performing the Services shall become and remain the property of the Capital Region Urban Transport (CRUT), and all intellectual property rights in such Project Documents shall vest with the Capital Region Urban Transport (CRUT). Any Project Document, of which the ownership or the intellectual property rights do not vest with the Capital Region Urban Transport (CRUT) under law, shall automatically stand assigned to the Capital Region Urban Transport (CRUT) as and when such project Document is created and the SI agrees to execute all papers and to perform such other acts as the Capital Region Urban Transport (CRUT) may deem necessary to secure its rights herein assigned by the SI.

5.13. Project document Delivery

The SI shall not later than termination or expiration of this Agreement, deliver all Project Documents to the Capital Region Urban Transport (CRUT), together with a detailed inventory thereof. The SI shall not retain any of such Project Documents. The SI, its Sub-Contractor or a Third Party or any partner shall not use these Project Documents for purposes unrelated to this Agreement without the prior written approval of the Capital Region Urban Transport (CRUT).

5.14. Indemnity

The SI shall hold the Capital Region Urban Transport (CRUT) and its employees and officials harmless and indemnified for any losses, claims, damages, expenses (including all legal expenses), awards, penalties or injuries (collectively referred to as "Claims") which may arise from or due to any unauthorized use of such Project Documents, or due to any breach or failure on part of the SI or its Sub-Contractor or a Third Party or any partner to perform any of its duties or obligations in relation to securing the afore mentioned rights of the Capital Region Urban Transport (CRUT).

5.15. Materials furnished by the Capital Region Urban Transport (CRUT)

Materials made available to the SI by the Capital Region Urban Transport (CRUT) shall be the property of the Capital Region Urban Transport (CRUT) and shall be marked accordingly. Upon termination or expiration of this Agreement, the SI shall furnish forthwith the Capital Region Urban

Transport (CRUT), an inventory of such materials and shall dispose of such materials in accordance with the instructions of the Capital Region Urban Transport (CRUT).

5.16. Providing access to Project Office and Personnel

The SI shall ensure that the Capital Region Urban Transport (CRUT), its officials, and other government department/agencies/office as approved by Capital Region Urban Transport (CRUT) provided unrestricted access to the office of the SI and to all Personnel during office hours or whenever required.

The Capital Region Urban Transport (CRUT) and other officials shall have the right to inspect the Services, the Project in progress, interact with Personnel of the SI and verify the records relating to the Services or the Project.

5.17. Accuracy of Documents

The SI shall be responsible for accuracy of the documents drafted and/ or vetted and data collected by it directly or procured from other agencies/authorities, estimates and all other details prepared by it as part of these services. Subject to the provisions of appropriate clause, it shall indemnify the Capital Region Urban Transport (CRUT) against any inaccuracy in its work which might surface during implementation of the Project, if such inaccuracy is the result of any negligence or inadequate due diligence on part of the SI or arises out of its failure to conform to good industry practice. The SI shall also be responsible for promptly correcting, at its own cost and risk, the documents including any re-survey / investigations.

5.18. Commitments and Undertakings by the System Integrator (Selected Bidder)

The Selected Bidder commits and undertakes to take all measures necessary to prevent malpractices & corruption. Bidder commits to observing the following principles during his participation in the bidding process and during the execution of the contract.

- The Selected Bidder undertakes not to, directly or through any other person or firm offer, promise or give or influence to any employee of Capital Region Urban Transport (CRUT) associated with the bidding process or the execution of the contract or to any third person on their behalf any material or immaterial benefit which he/she is not legally entitled, to obtain in exchange any advantage of any kind whatsoever during the bidding process or during the execution of the contract.
- The Selected Bidder undertakes not to enter into any undisclosed agreement or understanding, whether formal or informal, with other Bidders. This applies to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other action to restrict competitiveness or to introduce cartelization in the bidding process.
- The Selected Bidder undertakes not to commit any offence under the relevant Anti-Corruption Laws of India; further the Selected Bidder will not use improperly, any information or document provided by Capital Region Urban Transport (CRUT) as part of the business relationship, regarding plans, technical proposals, and business details, including information

contained or transmitted electronically for purposes of competition or personal gain and will not pass the information so acquired on to others.

- The Selected Bidder will, when presenting his bid undertakes, to disclose all payments made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- The Selected Bidder will not instigate and allure third persons/parties to commit offences outlined above or be an accessory to such offences.

5.19. Progress review meeting

The Selected Bidder shall attend all periodic progress review meetings organized by the Capital Region Urban Transport (CRUT), or its officials. The deliberations in the meetings shall inter-alia include the scheduled program, progress of work achieved (including details of manpower deployed by the Selected Bidder vis-a-vis agreed Work Schedule), inputs to be provided by Capital Region Urban Transport (CRUT), delays, if any, and recovery-program, specific hindrances to the work and work instructions by Capital Region Urban Transport (CRUT).

5.20. Use of Contract Documents and Information

The SI shall not, without prior written consent from Capital Region Urban Transport (CRUT), disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Capital Region Urban Transport (CRUT) in connection therewith, to any person other than a person employed by the SI in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance.

The SI shall not, without prior written consent of Capital Region Urban Transport (CRUT), make use of any document or information made available for the project, except for purposes of performing the Contract.

All project related documents issued by Capital Region Urban Transport (CRUT), other than the Contract itself, shall remain the property of the Capital Region Urban Transport (CRUT) and shall be returned (in all copies) to the Capital Region Urban Transport (CRUT), on completion of the SI's performance under the Contract if so, required by the Capital Region Urban Transport (CRUT).

5.21. Insurance Requirement

The agency at its cost shall arrange, secure, and maintain all insurance as may be pertinent to the work and obligatory in terms of law to protect its interest and interest of the Capital Region Urban Transport (CRUT) against all perils. The form and the limit of such insurance as defined herein together with the underwriter in each case shall be acceptable to the Capital Region Urban Transport (CRUT). However, irrespective of such acceptance, the responsibility to always maintain adequate insurance coverage during the period of contract shall be of selected bidder alone without any liability of Capital Region Urban Transport (CRUT). SI's failure in this regard shall not relieve him of any of his contractual responsibilities and obligations. The insurance cover to be taken by SI shall be in the joint name of the Capital Region Urban Transport (CRUT) and SI. The SI shall, however, be

authorized to deal directly with Insurance Company or companies and shall be responsible for maintaining all insurance covers. Further, the insurance should be in freely convertible currency.

The Selected Bidder shall take necessary insurance against loss, damage, theft, pilferage, fire, accident and damages during transit and installation from stores to site for all the materials/good either belonging to him or issued to him by Capital Region Urban Transport (CRUT) for execution of work. The insurance shall also cover loss, damage, accidents occasioned by the Selected Bidder during the operation carried out by him to comply with his contractual obligations thereof. The insurance shall cover the entire cost of materials.

It will be the responsibility of SI to lodge, pursue and settle all claims (for all the equipment) with the insurance company in case of any damage, loss, or fire and the Capital Region Urban Transport (CRUT) shall be kept informed about it. The losses, if any, will have to be borne by SI if the claims are not lodged and pursued properly in time or if the insurance company does not settle the same.

The SI shall replace the lost/damaged materials promptly irrespective of settlement of the claims by the underwriters and ensure the work progresses as per the agreed schedule(s).

The SI shall also ensure the following: -

a) Deductible franchise should be minimum as per insurance rules. In case of any loss to the extent of deductible franchise, the same shall be borne by the agency.
b) The insurance should be valid from the date of start of work and shall remain valid up to 30 days after the date of expiration/termination of the contract.

5.22. Liquidated Damages

In the event SI fails to provide the Services in accordance with the Service Standard, SI shall be liable for penalty capped to 10% of the amount on milestone deliverables or as per the terms and conditions of Service Level Agreements (SLAs) to be agreed between the SI and Capital Region Urban Transport (CRUT). Due to the criticality of the availability of the information, the solution should consider reliability, redundancy in hardware configuration and fail-safe design. No data loss/interface failure is permitted, and any recovery procedures should take into consideration this factor.

5.23. Limitation of Liability

Except in cases of gross negligence or willful misconduct:

a) Neither party shall be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the SI to pay liquidated damages to the Authority; and
b) The aggregate liability of the SI to the Authority, whether under the Contract, in tort, or otherwise, shall not exceed the amount specified in the Contract Price. Provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Supplier to indemnify the Authority with respect to patent infringement.

6. Commencement, Completion, Modification and Termination of Contract

6.1. Commencement of Contract

The Capital Region Urban Transport (CRUT) will notify the successful bidder in writing to finalize the contract conditions. The successful bidders will be asked to sign the Contract Agreement within 15 working days of the notification. However, the engagement of the System Implementer (SI) will start from the date of team mobilization by the bidder. The SI shall begin carrying out the Services not later than seven days from the date of signing of Contract.

6.2. Modification or Variation

Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by written agreement between the Parties. However, each Party shall give due consideration to any proposals for modification or variation made by the other Party.

6.3. Termination

Termination for Default

A. The Authority may, without prejudice to any other remedy for breach of Contract, by Notice of default sent to the SI, terminate the Contract in whole or in part:
   i. if the SI fails to deliver any of its solution or related Services and performance within the period specified in the Contract, or within any extension thereof granted by the Capital Region Urban Transport (CRUT).
   ii. if the SI, in the judgment of the Capital Region Urban Transport (CRUT) has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract.
   iii. Any representation made by the bidder in the proposal is found to be false or misleading.
   iv. If the SI commits any breach of the Contract and fails to remedy or rectify the same within the period of 24 Hours. or such a longer period as the Capital Region Urban Transport (CRUT) in its absolute discretion decides.

B. In the event the Capital Region Urban Transport (CRUT) terminates the contract in whole or in part, Capital Region Urban Transport (CRUT) may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services like those undelivered or not performed, and the SI shall be liable to Capital Region Urban Transport (CRUT) for any additional costs and / or payment adjustments for such similar Goods or Related Services.

Termination for Insolvency

The Capital Region Urban Transport (CRUT) may at any time terminate the contract by giving notice to SI, if SI becomes bankrupt or otherwise insolvent. In such an event, termination will be without compensation to the SI, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Authority.

Termination for Convenience

A. The Authority, with 60 days of written notice sent to SI, may terminate the contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Authority's convenience, the extent to which performance of the SI under the contract is terminated, and the date upon which such termination becomes effective.
B. The goods that are complete and ready for shipment within thirty (30) days after the SI's receipt of the notice of termination shall be accepted by the Authority at the contract terms and prices. For the remaining Goods, the Authority may elect:
    i. To have any portion completed and delivered at the Contract terms and prices; and/or
    ii. To cancel the remainder and pay to the SI an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by SI.
C. If the SI failed to rectify the deficiencies or shortcomings within 7 Days, the agreement shall be terminated along payment of penalty.

Consequences of Termination

Upon Termination of the Contract, the SI shall:

i. Prepare and present a detailed exit plan within five calendar days of termination notice receipt to the client.
ii. The Authority will review the Exit plan. If approved, SI shall start working on the same immediately. If the plan is rejected, SI shall prepare alternate plan within two calendar days. If the second plan is also rejected, the Authority will provide a plan for SI, and it should be adhered by in totality.
iii. The Exit Plan should cover at least the following: -
    a. Execute all documents that may be necessary to effectively transfer the ownership and title, including OEM warranties in respect of all equipment.
    b. Handover all developed codes, related documentation and other Configurable items, if any in his possession.
    c. Handover the list of all IT Assets, Equipment's, any tangible products, passwords for all locations to the Authority.
iv. The list of documents that should be provided by the SI during the exit management phase are as follows. All these lists of project documents which are not exhaustive and include more based on requirement should confirm the standards of software engineering.
        - Detailed business process documents
        - Functional design documents
        - Technical design documents
        - UI design specification
        - Integration design specification
        - Data design documents including ER- Diagrams
        - Integration and performance test scenarios, test scripts and test results
        - Training manuals
        - Error message & corrective actions
        - Configured and customized scripts

v. The Authority will sign a completion certificate at the end of successful completion (all points tracked to closure) of the Exit Plan.

Definitions: It is the SI's policy to require that SI as well as its representatives observe the highest standard of ethics during the execution of the Contract. In pursuance of this policy, the Employer defines, for the purpose of this provision, the terms set forth below as follows:

a. "Corrupt practice" means the offering, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the selection process or in contract execution.
b. "Fraudulent practice" means a misrepresentation or omission of facts in order to influence a selection process or the execution of a contract
c. "Collusive practices" means a scheme or arrangement between two or more agencies, with or without the knowledge of the Employer, designed to establish prices at artificial, noncompetitive levels.
d. "Coercive practices" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a tender process or affect the execution of a contract.

6.4. Expiration of Contract

Unless terminated earlier, this Contract shall expire at the end of such time period after the Effective Date as specified in the RFP Documents or subsequently amended in the Contract Document or as decided by Capital Region Urban Transport (CRUT).

6.5. Notices

Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing by official email, post or by telex, cable or facsimile and confirmed in writing to the party's address. A notice shall be effective from the date when delivered, tendered, or affixed on notice board whichever is earlier.

6.6. Licenses

If the project demands so, the required and essential licenses to be deployed as part of the project would be in the name of the Capital Region Urban Transport (CRUT), and the successful bidder at the Capital Region Urban Transport (CRUT)'s office shall deposit the original copy before the installation of the IT product at any of the sites.

The SI shall ensure patches to the software/application product including the automation solution software, operating system, databases, and other applications.

The OEM of the proposed automation solution declares that they are the rightful owners (copyright, patent rights or Intellectual property right,) of the solution and have the rights/authority to license the solution to Capital Region Urban Transport (CRUT).

The SI should ensure that the licenses are transferable to any entity currently present/ created in the future that is related to Capital Region Urban Transport (CRUT).

6.7. Patent / Intellectual Property Rights (IPR) / Copy Rights

If the bidder intends to use any third-party tools or methodology or any proprietary tools, during the Project, for the project, the bidder is required to confirm that there are no infringements of any Patent or intellectual and industrial property rights or copyrights as per the applicable laws of relevant jurisdictions. During the Operation phase, the responsibility to maintain the IPR of the Application(s) provided by the selected SI would lie with the selected SI and the SI will transfer the IPR to Capital Region Urban Transport (CRUT) during the Transfer stage and after the association with Capital Region Urban Transport (CRUT) ends after complete project duration or intermediary due to unavoidable circumstance like poor delivery, no progress showstopper etc. If there is transfer of IPR for the application from Capital Region Urban Transport (CRUT) to any other firm/corporate/PSUs/Govt. Departments, the same can be transferred after mutual discussion.
Following conditions will also apply:

- Ownership and Title: Title to the minor enhancements, point updates and documentation, including ownership rights to patents, copyrights, trademarks, and trade secrets therein shall be the exclusive property of Capital Region Urban Transport (CRUT).
- Confidentiality: The Bidder hereby acknowledges that the minor enhancements, point updates, and documentation may contain information that may be trade secret and proprietary to the Capital Region Urban Transport (CRUT). The Bidder hereby agrees not to disclose such information except to people and organizations expressly authorized by the Authority to receive such information. The Bidder shall not remove or alter any copyright notices or proprietary legends affixed by the Authority to such minor enhancements, point updates or documentation.
- Copies: The Bidder shall make available to the Authority an additional copy of the minor enhancements, point updates and documentation for back-up use on the computer.
- Limitation of Damages: The Bidder shall not be liable for any failure to perform its services because of circumstances beyond the control of Bidder, where such circumstances shall include (without limitation) wars or revolutions, fires, natural disasters, terrorism, declarations of governments, epidemics, quarantine restrictions and freight embargoes, and misuse of the Software by the Capital Region Urban Transport (CRUT).

The System Integrator along with Software OEM will be responsible to provide full documentation and sample codes used in the project by way of open APIs, SDKs and other tools, documentation etc. so that the customer/nominated agency on their behalf can carry out any customization, software development, changes in UI/UX etc. as may be needed as per their needs. In addition, the System Integrator along with Software OEM must provide an undertaking to enter into a software escrow agreement without any pre- conditions which is to cover server & client-side codes as below –

a. Server software: Source code of the dataflow of the software architecture including interconnects of all the necessary kernel modules and model files for customization.
b. Authority software: Source code of the Authority software to interface for GUI customization.

Similarly, The Source code of all the software code, data, algorithms, documentation, manuals, any other documents generated as a part of implementation of this project shall solely vest with the Capital Region Urban Transport (CRUT). Clients shall have rights to use the Source Code of ITMS project. This would be restricted to internal use by client only. Entire source code would be handed

over to Authority after completion of entire project and before final payments has been made to SI. The SI must take the approval of this Authority if it wants to use the source code that has been developed specifically for this Authority even after the expiration of contract agreement or period.

All IPR including the source code and materials developed or otherwise obtained independently of the efforts of a Party under the Agreement including any enhancement or modification thereto, remain the sole property of that Party. During the performance of the services for the agreement, each party grants to the other party (and their sub-contractors as necessary) a non-exclusive license to use, reproduce and modify any of its pre-existing work provided to the other party solely for the performance of such services for duration of the Term of the Agreement. Except as may be otherwise explicitly agreed to in a statement of services, upon payment in full, the Implementation Agency should grant Authority a non- exclusive, perpetual, fully paid-up license to use the pre-existing work in the form delivered to Authority as part of the service or deliverables only for its internal business operations. Under such license, either party will have no right to sell the pre-existing work of the other party to a Third Party. Authority's license to pre-existing work is conditioned upon its compliance with the terms of the Agreement, and the perpetual license applies solely to the pre-existing work that bidder leaves with Authority at the conclusion of performance of the services.

7. Exit Management

7.1. Purpose

This clause sets out the provisions, which will apply on expiry or termination of the "Contract Agreement". In the case of termination of the Contract Agreement due to any illegal activity performed by the SI during or as part of the activities and deliverables related to the project, the Capital Region Urban Transport (CRUT) shall have the right to, at its sole discretion; apply this clause with or without seeking an appropriate remedy from the SI.

The Parties shall ensure that their respective associated entities, in the case of the Capital Region Urban Transport (CRUT) and in case of the SI carry out their respective obligations set out in this Exit Management Clause.

7.2. Exit Management Plan

- The SI shall provide the Authority with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the project and in relation to the Project Implementation, the Operation and Management SLA and Scope of Work (SoW).
- A detailed program of the transfer process that could be used in conjunction with a replacement SI including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer; and
- Plans for communication with such of the SI's staff, suppliers, customers and any related third party or partners as are necessary to avoid any material detrimental impact on Capital Region Urban Transport (CRUT)'s operations because of undertaking the transfer; and If applicable, proposed arrangements for the segregation of the SI's networks from the

networks employed by Capital Region Urban Transport (CRUT) and identification of specific security tasks necessary at termination; and

- Plans for provision of contingent support to the Authority and replacement SI for a reasonable period after transfer for the purposes of providing service for replacing the Services.
- During the exit management period, SI shall make its best efforts to deliver the services.
- Payments during the Exit Management period shall be made in accordance with the Terms of Payment Clause and based on goods and services delivered by and discretion of Capital Region Urban Transport (CRUT).

7.3. Cooperation and Provision of Information (During the exit management period)

- The SI will allow Capital Region Urban Transport (CRUT) to request information reasonably required to define the current mode of operation associated with the provision of the services to enable it to assess the existing services being delivered.
- Promptly on has request by the Capital Region Urban Transport (CRUT), the SI shall provide access to, and copies of all information held or controlled by it which it have prepared or maintained in accordance with the automation implementation project, the Operation and Management SLA and SOWs relating to any material aspect of the services. Capital Region Urban Transport (CRUT) shall be entitled to copy all such information. Such information shall include details pertaining to the services rendered and other performance data. The SI shall permit the Capital Region Urban Transport (CRUT), to have reasonable access to its employees and facilities as reasonably required to understand the methods of delivery of the services employed by the SI and to assist appropriate knowledge transfer.

7.4. Transfer of certain agreements

On request by the Authority, the Bidder shall affect such assignments, transfers, innovations, licenses and sub-licenses as the Authority may require in favor of Capital Region Urban Transport (CRUT) in relation to any maintenance or service provision agreement between SI and third- party lessors, SI's, or SI, and which are related to the services and reasonably necessary for the carrying out of replacement services.

7.5. Right of Access to Premises

a) At any time during the exit management period, where assets are located at Bidder's premises, Bidder will be obliged to give reasonable rights of access to (or, in the case of assets located on a third party's premises, procure reasonable rights of access to) Capital Region Urban Transport (CRUT) to inventory the assets.
b) The Bidder shall also give the Capital Region Urban Transport (CRUT) access to the Bidder's premises and shall procure the Capital Region Urban Transport (CRUT) rights of access to relevant third-party premises during the exit management period and for such period following termination or expiry of the Contract as is reasonably necessary to migrate the services to Capital Region Urban Transport (CRUT).

7.6. Confidentiality

The SI shall not use or disclose to any third party, except for the purpose of the observance of these terms and Conditions any confidential information of the Capital Region Urban Transport (CRUT), without prior written approval and confirmation from Capital Region Urban Transport (CRUT).

The information provided by the bidder, like the names of the customers of the bidder or any proprietary information about the bidder etc. will be treated as confidential information, unless asked to disclose by the orders of the court of law or the Information Commission (under the RTI Act).

Capital Region Urban Transport (CRUT) is not restricted in its rights to use or disclose any or all the information contained in the proposal and can do so without compensation to the bidder. Capital Region Urban Transport (CRUT) shall not be bound by any language in the proposal indicating the confidentiality of the proposal or any other restriction on its use or disclosure. The Selected Bidder, and the Personnel of them shall not, either during the term or within three years after the expiration or termination of this Agreement disclose any proprietary information, including information relating to reports, data, drawings, design software or other material, whether written or oral, in electronic or magnetic format, and the contents thereof; and any reports, digests or summaries created or derived from any of the foregoing that is provided by the Capital Region Urban Transport (CRUT) to the Selected Bidder, and the Personnel; any information provided by or relating to the Capital Region Urban Transport (CRUT), its technology, technical processes, business affairs or finances or any information relating to the Capital Region Urban Transport (CRUT)'s employees or officers and any other information which the Selected Bidder is under an obligation to keep confidential in relation to the Project, , without the prior written consent of the Capital Region Urban Transport (CRUT).

Notwithstanding the aforesaid, the Selected Bidder, and the Personnel of either of them may disclose Confidential Information to the extent that such Confidential Information:

a. Either was in the public domain prior to its delivery to the Selected Bidder, and the Personnel of them becomes a part of the public knowledge from a source other than the Selected Bidder.
b. was obtained from a third party with no known duty to maintain its confidentiality.
c. is required to be disclosed by Applicable Laws or judicial or administrative or arbitral process or by any governmental instrumentalities, provided that for any such disclosure, the Selected Bidder, its Sub-Contractor, and the Personnel of either of them shall give the Capital Region Urban Transport (CRUT), prompt, prior written notice to enable Capital Region Urban Transport (CRUT) to obtain an injunction against such disclosure, and use reasonable efforts to ensure that such disclosure is accorded confidential treatment; and
d. is provided to the professional advisers, agents, auditors, or representatives of the Selected Bidder, as is reasonable under the circumstances; provided, however, that the Selected Bidder or its Sub- Contractors or Personnel of either of them shall require their professional advisers, agents, auditors, or its representatives, to undertake in writing to keep such Confidential Information, confidential and shall use its best efforts to ensure compliance with such undertaking.

7.7. Inspection & Test

The hardware delivered by the bidder shall undergo inspection and test by Capital Region Urban Transport (CRUT) or nominated agencies by Capital Region Urban Transport (CRUT) at mutually agreed place, time, and site. Capital Region Urban Transport (CRUT) and/or its representative reserve the right of inspection and testing of the hardware/IT components after delivery or during commissioning at the site, or at any time during the period of the contract.

The Authority reserves the right to have any inspection of special test of a reasonable nature in addition to those prescribed in applicable standards and the enclosed technical specification.

The Authority reserves the right to reject all, or any part of the equipment's supplied, due to any defect or deviations from the standard specifications prescribed as observed during the Inspection. In case of any dispute or difference for specification, opinions, in this regard the decision of the Capital Region Urban Transport (CRUT) shall be final and binding.

Capital Region Urban Transport (CRUT) reserves the right to inspect, test and, wherever necessary, reject the hardware/IT components after the arrival at Project Site. This will in no way be limited or waived due to the hardware/IT components having previously been inspected, tested, and passed by Capital Region Urban Transport (CRUT) or its representative prior to the hardware/IT components shipment.

7.8. Delivery & Documents

Delivery of Solutions shall be made by the selected Bidder strictly in accordance with the specifications of the RFP document or in case of deviations, the specifications approved and accepted by Capital Region Urban Transport (CRUT) of higher grade & version only catering to desired requirements.

7.9. Third Party Claims

The selected SI(s) shall indemnify Capital Region Urban Transport (CRUT) against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

7.10. Ownership of Equipment

Capital Region Urban Transport (CRUT) have the right to use all the equipment provided by the SI during the contract period and the ultimate ownership of the equipment lies with Capital Region Urban Transport (CRUT). The SI will therefore not shift, move, or transfer the equipment without the prior consent of Capital Region Urban Transport (CRUT). Such a request by the SI should be made with suitable justification and reasoning. However, the SI will be allowed to carry out normal maintenance activities as scheduled. It should be noted that if equipment must be replaced, the replacement must have a manufacturing date later than the equipment being replaced and the configuration of the replacement should be same or higher. Information about all such replacements

along with reasons for should be provided in writing to Capital Region Urban Transport (CRUT), Odisha.
Ownership of all the data created during the period of contract shall be the property of Capital Region Urban Transport (CRUT), however, the responsibility of its maintenance, updation, correctness and backup would be that of SI.

No third-party interest in any form (lien, mortgage, hypothecation etc.) without the prior approval and consent of Capital Region Urban Transport (CRUT), can be created on the assets, equipment etc. installed by the SI.

7.11. Prevention of Corrupt or Fraudulent Practices

The bidders and their respective officers, employees, agents, and advisers shall observe the highest standard of ethics during the Selection Process. Notwithstanding anything to the contrary contained in this RFP, Capital Region Urban Transport (CRUT) shall reject a Proposal without being liable in any manner whatsoever to the bidder, if it determines that the bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the "Prohibited Practices") in the Selection Process. In such an event, Capital Region Urban Transport (CRUT) shall, without prejudice to its any other rights or remedies, forfeit and appropriate the Performance Security, if available, as mutually agreed genuine-estimated compensation and damages payable to Capital Region Urban Transport (CRUT) for, inter alia, time, cost and effort of Capital Region Urban Transport (CRUT), regarding the RFP, including consideration and evaluation of such bidder's Proposal.

For the purposes of this condition on prohibited practices, the following terms shall have the meaning hereinafter, respectively assigned to them as follows:

a. "corrupt practice" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any person connected with the Selection Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of Capital Region Urban Transport (CRUT) who is or has been associated in any manner, directly or indirectly with the Selection Process or the LOA or has dealt with matters concerning the Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of Capital Region Urban Transport (CRUT), shall be deemed to constitute influencing the actions of a person connected with the Selection Process; or (ii) save as provided herein, engaging in any manner whatsoever, whether during the Selection Process or after the issue of the 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 Agreement, who at any time has been or is a legal, financial or technical consultant/ adviser of Capital Region Urban Transport (CRUT) in relation to any matter concerning the Project
b. "fraudulent" practice means a misrepresentation of facts to influence a tender process or the execution of a contract to the detriment of Capital Region Urban Transport (CRUT) and includes collusive practices among Bidders (prior to or after bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the Authority of the benefits of free and open competition.

c. "Coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person's participation or action in the Selection Process.
d. "Unfair trade" practices mean supply of goods or services (computer hardware, software, printers, networking equipment, etc.) different from what is mentioned in the bid documents, and includes change of parts/components, use of refurbished/repaired/substandard/ duplicate parts instead of genuine new parts or change the specifications and/or make of the company for which the supply order was given by Capital Region Urban Transport (CRUT)
e. "Undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by Capital Region Urban Transport (CRUT) with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or (ii) having a Conflict of Interest; and
f. "Restrictive practice" means forming a cartel or arriving at any understanding or arrangement among bidders with the objective of restricting or manipulating a full and fair competition in the Selection Process.

7.12. Interpretation of Clauses

All the clauses and content in this RFP have been prepared in accordance with the requirements specified for the development of application for Capital Region Urban Transport (CRUT). The interpretation onus lies with the bidder and discuss with Capital Region Urban Transport (CRUT), for any recommended changes. However, the decision of Capital Region Urban Transport (CRUT) remains binding on the bidder throughout the duration of the project.

7.13. Solution Acceptance

The primary goal of Acceptance Testing and Certification is to ensure that the Project (including all the project components as discussed in the scope of work) meets requirements, standards, specifications, and performance, by ensuring that the following are associated with clear, quantifiable metrics for accountability:

- Functional requirements
- Infrastructure Compliance Review
- Availability of the project Services in the defined locations
- Performance
- Security
- Manageability
- SLA Reporting System
- Project Documentation (Design, development, configuration, training and administration manuals etc.)

As part of Acceptance testing, performed through a third-party agency or a committee may be formed for the purpose. Capital Region Urban Transport (CRUT) shall review all aspects of project development and implementation covering software, hardware and networking including the processes relating to the design of systems and sub-systems, coding, testing, business process description, documentation, version control, change management, security, service-oriented

architecture, performance in relation to defined requirements, interoperability, scalability, availability and compliance with all the technical and functional requirements of the RFP and the agreement.

The procedures and parameters for testing will be laid down by the Third-Party Agency/PMC after approval from Capital Region Urban Transport (CRUT), the solution deployed by the bidder must satisfy third party acceptance testing upon which the system shall go-live, subject to Capital Region Urban Transport (CRUT) approval.

All identified gaps shall be addressed by the bidder immediately prior to Go-live of the solution. Capital Region Urban Transport (CRUT) will establish appropriate processes for notifying the selected bidder of any shortcomings from defined requirements at the earliest instance after noticing the same to enable the selected bidder to take corrective action.

Such an involvement of the Acceptance Testing and Certification agency, nominated by Capital Region Urban Transport (CRUT) will not, however, absolve the bidder of the fundamental responsibility of designing, developing, installing, testing, and commissioning the various components of the project to deliver the services in perfect conformity with the SLAs.

It is to be noted that: Capital Region Urban Transport (CRUT) may get the solution audited through a Third Party before Go-Live and periodically after Go-Live to ensure the success of the project. Such third-party agency for carrying out the acceptance testing, and certification of the entire solution will be nominated by the Capital Region Urban Transport (CRUT)

7.14. Infrastructure Compliance Review

Capital Region Urban Transport (CRUT) or any authorized party/agency shall perform the Infrastructure Compliance Review to verify the conformity of the infrastructure supplied by the selected SI against the requirements and specifications provided in the RFP and/or as proposed in the proposal submitted by the selected SI. Compliance review shall not absolve SI from ensuring that proposed infrastructure meets the SLA requirements.

7.15. Security Review

The software / application developed shall be audited by the CERTIN empaneled agencies by the selected bidder for a security and controls perspective. Such audit shall also include the IT infrastructure and network deployed for the project.

The following are the broad activities to be performed by the Agency as part of the Security Review. The security review shall subject the solution to at least the following activities.

- Audit of Network, Server, and Application security mechanisms.
- Assessment of authentication mechanism provided in the application /components/modules.
- Assessment of data encryption mechanisms implemented for the solution.
- Assessment of data access privileges, retention periods and archival mechanisms.
- Server and Application security features incorporated etc.

7.16. Performance

Performance is another key requirement for the project, and the agency shall review the performance of the deployed solution against certain key parameters defined in SLA. Such parameters include request- response time, workflow processing time, concurrent sessions supported by the system etc., Disaster Recovery drill etc. The performance review also includes verification of scalability provisioned in the solution for catering to the project requirements.

7.17. Availability

The solution should be designed to remove all single point failures. Appropriate redundancy shall be built into all the critical components to provide the ability to recover from failures. The agency shall perform various tests including network, server, security, fail-over tests to verify the availability of the services in case of component/location failures. The agency shall also verify the availability of the project services to all the users in the defined locations.

7.18. Manageability Review

The SI shall verify the manageability of the solution and its supporting infrastructure. The manageability requirements include requirements such as remote monitoring, administration, configuration, inventory management, fault identification etc.

7.19. Patents

The selected Bidder shall indemnify Capital Region Urban Transport (CRUT) against all third-party claims of infringement of patent, trademark or industrial design and intellectual property rights arising from the use of equipment and services or any part thereof.

7.20. Currency of Payment

Payment shall be made in Indian Rupee (INR) only.

8. Contract Finalization and Award

1. Key Personnel involved in the project shall be on the payrolls of the Lead Bidder.
2. The bidder should have a defined hierarchy and reporting structure for various teams that would be part of the project.
3. All the staff concerned should log in daily at their respective reporting location.
4. The bidder shall ensure that all the personnel identified for this project have high level of integrity. The bidder shall undertake necessary due diligence to ensure that the personnel have high standard of trustworthiness. The bidder should obtain an undertaking from each of the personnel assigned and the same should be submitted to the Capital Region Urban Transport (CRUT) as and when requested by Capital Region Urban Transport (CRUT) or its nominated agencies/ partners. In addition, Capital Region Urban Transport (CRUT) could also get background verification checks of the bidder personnel. Any information needed for

this activity by Capital Region Urban Transport (CRUT) should be provided immediately by bidder.

5. Bidder can provide additional manpower based on their estimate of effort required to complete the scope of work given in of the RFP.
6. The bidder should provide sufficient Non-Key Personnel to complete the scope of work. Bidder need not submit the names of such Non-Key Personnel along with the RFP.
7. Bidder can offer more than one key personnel for a role to improve the quality of key personnel keeping in mind the scope of work as provided in the RFP.
8. For a project of such a large scale and complexity, it is imperative that the bidder should deploy Capital Region Urban Transport (CRUT) of class professionals to ensure successful execution of this project. The bidder will in its proposal include the names and detailed curriculum vitae of their key personnel who will be working full-time on this project. For successful completion and execution of project the bidder shall have to deploy resources
9. The bidder team is expected to bring their own laptops and data cards (as required).

9. Detailed Scope of Work

The bidder shall deliver an ITMS solution for Capital Region Urban Transport to enhance public transportation across multiple cities in the state of Odisha. The proposed ITMS solution shall be comprised of:

- Automatic Vehicle Location System (AVLS)
- Automatic Fare Collection System (AFCS)
- Electronic Ticketing Machine (ETM)
- Mobile Application (Android & iOS)
- Enterprise Management System (EMS)

The proposed ITMS solution is expected to

- offered as a service.
- enable easy adoption of ITMS by cities.
- give rise to interoperable ecosystem.
- result in technology democratization through Digital Public Good
- build implementation capacity and city capability.

1. This proposed ITMS solution should be designed to be deployed for the cities for the period of 5 (Five) years on multi-tenant software as a service architecture, having web-based interface and shall be developed on preferably open-source technologies.
2. The bidder shall be required to deliver and manage the source code via open-source code management tool. The bidder should also manage community engagement for such open-source code repository, subject to instructions from CRUT.
3. Provision and configure cloud infrastructure to facilitate the testing, deployment, operations and maintenance of the ITMS solution.
4. The solution should be scalable to accommodate an increasing number of buses. i.e., 1,000 (One thousand) buses as part of the project and going up to 1,500 (One thousand five hundred) buses during the contract duration, ensuring high availability and uptime with failover mechanisms for uninterrupted operations in the cities.

5. It shall incorporate robust security measures, including strong authentication mechanisms and encryption for data both in transit and at rest.
6. The bidder is expected to develop APIs suites to cater city specific ITMS requirements with third-party integrations complying with open-data guidelines.
7. To ensure concurrent implementation in cities the bidder shall preferably onboard implementation partners to activate cities and buses.
8. The bidder shall undertake capacity building by arranging training for Depot, Cities, CRUT and its nominated agencies including implementation partners during the entire contract tenure.
9. The bidder shall be responsible for supply, testing, commissioning and maintenance of e-ticketing machines (on 1:2 per bus ratio for ETM); refer clause 9.8 for hardware / technical specifications for ETM of the RFP.

Following are detailed scope of work:

9.1. Project Planning Phase

The Service Provider / System Integrator shall be responsible for preparation of a detailed project plan for the implementation of the ITMS in synergy with the CRUT's existing operational process.

- Define an organized set of activities for the project and identify the interdependence between them.
- Establish and measure resource assignments and responsibilities.
- Highlight the milestones and associated risks.
- Communicate the project plan to CRUT with meaningful reports.
- Measure project deadlines and performance objectives.
- Project Progress Reporting: This report will be presented in the steering committee meeting to CRUT. The report should contain at the minimum the undermentioned:
    - Results accomplished during the period (weekly).
    - Cumulative deviations from the schedule date as specified in the finalized Project Plan.
    - Corrective actions to be taken to return to planned schedule of progress.
    - Plan for next week.
- Identify the activities that require the participation of client personnel and communicate their time requirements and schedule early enough to ensure their full participation at the required time.
- The solution proposed by the service provider should comply with the design considerations requirements as mentioned therein.
- Solution Should provide but not limited to the survey observation, analysis, and discussion with the CRUT or any other key stakeholders, the service provider shall submit a Detailed Design Report. The detailed design report shall include end-to-end design validation for the project including any project understanding, analysis, detailed design, integration plan, and for-construction drawings.
- A complete set of designs and drawing including method of installation as applicable shall also be included in the Detailed Project Report, UAT, FRS and SRS.
- All technical data sheets of the products shall be submitted ahead of time by the service provider.

9.2. AS-IS assessment of the existing IT infrastructure.

The Service Provider / System Integrator shall be responsible for conducting the survey of the existing IT Infrastructure at CRUT depots, stations, OD terminal, head office, etc.

- The bidder shall understand the administrative and operational procedures of the CRUT and same shall be incorporated under the AS-IS and further design documents of the ITMS project.
- The System Integrator shall be responsible for understanding the different types of GPS protocol and data structure and integrating the same with the proposed ITMS sub-systems.
- The SI shall conduct assessment of the existing available infrastructure's functional status and submit the same to CRUT for finalization of the BoQ.
- The bidder shall submit the Survey Report to CRUT. Survey Report shall be approved by CRUT officials for hardware components.
- The quantity of the BoQ shall be finalized by CRUT on completion of the Survey by selected bidder.

9.3. System Requirements Gathering & Design Phase

- Requirement gathering for Development of Software systems, etc.
- SI shall be responsible for surveying all the geo-locations of the CRUT station, premises, depot, and other locations and plot the same on the proposed ITMS Solution.
- The SI shall be responsible for submitting the observation, analysis, and discussion with the CRUT or any other key stakeholders, the SI shall submit a Detailed Design Report and other reports. The detailed design report shall include end-to-end design validation for the project including any project understanding, analysis, detailed design, integration plan.
- A complete set of System and Application design including method of installation as applicable shall also be included in the Detailed Project Report. Development details shall accurately reflect actual Project status.
- Bidder shall carry out the detailed assessment of the functional requirements for ITMS software applications and systems required to deploy at backend in environment after due integration with all sets of the hardware. Further, the Bidder shall prepare the detailed design report, SRS which shall broadly include mapping of functional requirements of the RFP with the desired components, solution architecture, process flow mechanism (common flow and for each tenant/user flow), wireframes and application design in consultation with Authority.
- The entire solution study must have a clear illustration of the approach and process to be followed for CRUT. The deliveries prepared by the Bidder shall be submitted to the Authority for its review and approval.

9.4. Supply, Installation and Commissioning of the Components under ITMS System

- After the approval of the technical data sheets & final BoQ by CRUT, SI shall provide all

the material presented in the Detailed Design Report to CRUT for its review and approval.

- Supply, Installation, Testing & Commissioning of all ITMS Software and applications with its integration with all frontend hardware procured and already available with CRUT.
- System shall be capable of complying with design requirement of open standards, API based, interoperable, scalable, and flexible to provide data i/o in standard formats for using in the backend ITMS Software applications as per the current/future business requirements of authority.
- Design, development, and customization of ITMS backend system with all functional modules in open architecture that can cater to the need of each of the CRUT Operation as per their business rules.
- The system should have provisions to share data in format as required by the Authority for the purpose of journey planning application. This interface may also be shared with any other third party as desired by the Authority.
- SI shall be responsible for the procurement and supply of all components as part of the project to meet the technical, functional, business and performance requirements of this RFP. No deviations from these requirements shall be acceptable by CRUT.
- Any additional hardware or software component required to meet the technical and performance requirement of the project and not specified as part of this document but required to meet the overall requirements of the project shall be factored in as part of the Bid and provided by the SI.
- SI shall be responsible for all procurement, supply, storage, and handling of the material provided as part of the bidding document.
- The SI shall provide all material required for the commissioning of components such as necessary civil substance for design improvement of with all fitments and accessories.
- The SI shall be responsible for arranging the transport and freight of the goods to the project site.
- The SI shall be responsible for arrangement of warehouse/storeroom for building and storage of goods/field equipment before commissioning.
- The SI shall have to submit the certificate from the OEM that procures application, and its licenses shall be in the name of CRUT only. All the required licenses of the application shall be full tenure of the contract.
- The SI shall be responsible for end-to-end Installation & Commissioning of component, Field equipment as per BoQ. During installation & commissioning of components, SI shall ensure all safety precautions to safeguard commuters.
- Electrical installation and wiring shall confirm to the electrical codes of India.
- The electricity meters, if there is any, should be placed inside a power cabinet.
- If there is removal/change of any existing material during installation process and belongs to the CRUT, the material shall be handed over to the CRUT.
- SI shall also be responsible for reinstating any site in the project limits at no additional cost to CRUT. It shall be SI's responsibility to supply and install all hardware in compliance with the requirements of the RFP.
- SI shall be responsible for all implementation works on the project including any civil, structural, electrical (if any). works required to meet the requirements of the project.
- The SI shall be responsible for installation and commissioning of all equipment including all kinds of welding, riveting, nut bolting, erection equipment, tools and tackles, all kinds of mechanized equipment and tools, all material and labor and supporting arrangement.

- The SI shall be responsible for development and deployment of all software required to meet the requirements of the project and CRUT. SI shall be fully responsible for developing and implementing all software required for the project. This software should be developed based on the approved software and functional requirements specifications. The technology platform chosen for all software shall be based on industry standards and shall be secure.
- The SI shall ensure that full support from the OEM's is provided during the contract. SI shall be responsible for providing any upgrades, patches, and fixes to the software during the contract at no additional cost to the CRUT.
- All licenses for the software shall be perpetual and CRUT may purchase any additional licenses at the stated cost (as per commercial price bid of the SI) during this course of the contract.

9.5. User Acceptance Test & Go-Live of the System

- The SI shall design and successfully complete tests to demonstrate that all equipment, materials, and systems furnished and installed function in the manner intended and in full compliance with the requirements outlined in the RFP and the approved detailed design of the SI.
- SI shall be responsible for the integration of all hardware and software supplied as part of this Project as per the technical and its existing available infrastructure / equipment performance requirements of this bid document.
- The system integration scope also includes integration of the Project components with the components provided by other sub-systems as per the details of the RFP or as per direction of CRUT.
- SI shall be responsible for providing any upgrades required to meet the integration requirements at no additional cost to the CRUT unless otherwise agreed by CRUT.
- It shall be the responsibility of SI to obtain approval of the CRUT for the Integration of the overall system as per the bid document. Post systems integration, CRUT shall review and approve the overall performance of the integrated system as per the requirements of the bid document.
- SI shall be responsible for fixing any requirements that are not found in compliance with the original bid requirements and approving detailed design at no additional cost to the CRUT.
- SI should carry out any modification in the report at no extra cost as and when required by CRUT even after the go-Live. The same must be provided within 7 working days.
- SI should design and deliver self-service Ad-hoc reporting and BI tool.
- SI would be responsible for making modifications in Ad-Hoc reporting and BI tool on request of CRUT.
- SI should provide any required data from the system within 1 working day as and when requested by the CRUT. This data is not limited to the data available in production as Live data.
- Successful completion of the above phases and approved system with completion of Gap analysis will be put into service and its performance monitored for a period of thirty (30) consecutive calendar days for the purpose of verifying system reliability in an operating environment.

- The User Accept Phase shall be started after successful completion of service and its performance monitoring period. Post the completion of User Acceptance phase, System shall be considered for Operational System Acceptance.
- Issuance of the User Acceptance Certificate is a basis for the start of the Warranty period for the Systems.
- SI shall provide test cases and test results during the User Acceptance phase.
- SI shall implement automation testing for all the test cases.
- Bidder shall perform and produce load testing results for the delivered applications.
- Bidder shall maintain production and beta environment separately.
- Any changes or testing shall be performed in the test environment first and on successful testing/acceptance of the same only changes will be deployed to the production.
- SI shall ensure that Ad-Hoc testing is done, and the system is working fine after the changes deployment.
- SI shall ensure that Release Notes and User manuals are updated.
- If required SI shall conduct training to the CRUT stakeholders for the updates to the system.
- SI shall hand over detailed documentation that describes the site conditions, system design, configuration, training, as-built conditions, operation, and maintenance.
- All documentation shall be in English, Hindi and Odia (as agreed with the CRUT), shall utilize metric measurements, and shall be submitted directly to CRUT in paper hardcopy and electronically in Word/AutoCAD/Excel/Project and Adobe Acrobat.
- UAT will be conducted on all operational vehicles, PIS, and routes of the CRUT.

9.6. Operation & Maintenance

9.6.1. Ongoing Support and Updates

- Schedule routine maintenance windows to implement changes, updates, and enhancements to the ITMS solution.
- Maintenance activities may include patching security vulnerabilities, applying software updates, optimizing performance, and addressing bugs or issues identified through proactive monitoring.
- Prior notification shall be provided to stakeholders regarding planned maintenance windows to minimize disruption to operations and ensure preparedness for any temporary service interruptions.
- Undertake mobile device management including but not limited to policy and firmware updates, configurations and troubleshooting, etc. for field devices.

9.6.2. Maintenance of Cloud Infrastructure

- Maintenance of the cloud infrastructure and Implementation of auto-scaling and load balancing mechanisms for demand based dynamic resource allocation for the cities.
- Conduct regular security audits to assess system vulnerabilities and compliance with cybersecurity standards.
- Engage CERT-In empaneled agencies to perform vulnerability assessment and penetration test every year before entering next year of O&M phase without any extra cost to CRUT.

- Implement security patches based on the recommendations of the security auditors.
- Conduct DR drill for two days at the interval of every six months of operation wherein the Primary DC must be deactivated, and complete operations shall be carried out from the DR Site to validate backup and recovery mechanism and ensure business continuity.
- Data retention requirements:
    - Operations data (OBU, ETM etc.) should be retained throughout the contract period and CCTV feed should be retained for 1 year from the date of incident. This data shall be archived to external storage if requested by CRUT.
    - Audit trails shall remain available throughout the contract tenure.

9.6.3. Deployment of Manpower

The SI is required to deploy key personnel for operations and maintenance phase as specified in this RFP.

9.6.4. Training and Capacity Building

SI will provide training related to bus operations as well as the proposed ITMS (Integrated Transport Management System) solution. Conduct quarterly refresher training sessions and workshops for CRUT, cities and implementation partners. Develop/update training materials aligned with user roles and updated system functionalities. Prepare and update user-manual and SOPs for effective use of proposed solutions, i.e. all software modules and ETMs as per city specific operations.

9.6.5. Integration with existing/new systems

Integrating the ITMS with existing or new hardware or software systems including but not limited to existing ITMS implemented in the cities, existing/new hardware devices procured during the term of the contract. Collaborate with third parties including ATVM SI (but not limited too) to develop and test APIs as per the requirement of the CRUT. Conduct end-to-end testing and prepare integration documents for future references.

9.6.6. Performance Monitoring and Reporting

SI will set up Enterprise Management System (EMS) with SLA monitoring mechanism for penalties calculation specified in this RFP. The EMS shall be recording logs/alerts where the performance of the application/module/platform breaches the defined thresholds.

The EMS is expected to have detailed dashboard containing city-wise and module-wise performance and monitoring reports to track system usage, performance against KPIs and identify optimization opportunities.

9.7. Software Component

9.7.1. Automated Vehicle locator System (AVLS)

The Automated Vehicle Locating System (AVLS) shall primarily use GPS /OBU devices mounted on the vehicle as primary source of data for tracking purposes. The AVLS shall also act as a source of information to Command Control Centre (CCC) for real time on field operations and equip them with the details log for drill down of the critical events.

The AVLS shall essentially comprise of following components:

- Bus Mounted GPS Devices/On board ITS devices (Available on the buses)
- Driver Display Unit (Available on the buses)
- Controller (For controlling on bus equipment already available on the buses)
- ADAS & DFMS (Available on buses)
- Passenger Information System (PIS)
- On-Board CCTV Integration
- Emergency Panic Button
- AVLS software & Integration with existing hardware (Like APC and VHMD parameters)
- Monitoring Graphical Dashboard with Management information System (MIS)
- Capability of integration of atleast 400 vehicles as per CRUT requirements.

The AVLS system should enable operations teams to monitor vehicle movement in real-time and synthesize the AVLS field data to deliver the same on the public information system devices installed on Bus Stops, Terminals, Buses, Customer portal and mobile information delivery systems. The proposed AVLS solution should be designed to deploy for the multicity operations, multi-tenant software, Architecture having mobile and web-based interface and shall be deployed on preferably open-source technologies. The bidder shall require delivering and managing the source code via open-source code management tool. The bidder should also manage community engagement for such open-source code repositories, subject to instructions from CRUT.

1. The solution shall be scalable to accommodate an increased number of buses i.e.,…… Vehicles as part of the project and going up to …… vehicles during the contract duration, ensuring high availability and up time with failover mechanism. It shall incorporate robust security mechanism including strong authentication and encryption method for data both in transit and at rest.

2. The bidder is expected to develop APIs suites to cater city specific ITMS requirements with third-party integrations complying with open-data guidelines.

3. To ensure concurrent implementation in cities the bidder shall preferably onboard implementation partners to activate cities and buses.

4. The bidder shall undertake capacity building by arranging training for Cities, CRUT and its nominated agencies, including implementation partners during the entire contract tenure.

9.7.2. Automatic Fare Collection System (AFCS)

The requirements of the system are detailed in this section and are aimed to explain the various scenarios the AFCS system must be designed for the project. The ITMS Bidder shall comply with all these operations concepts detailed in this section while submitting the bid. The basis of the AFCS concept shall be designed to meet the fare collection of all the buses.

Below are the broad objectives of the AFCS system for CRUT:

Primary Objectives:

- Customer convenience
- Revenue accountability and realization
- To meet the operational requirements of CRUT
- Minimizing revenue leakage

AFCS integration:

- Fare integration between interoperable (NCMC), ATVM, Mobile App, ONDC Platforms etc. for city bus services
- Auditability
- Automatic Passenger Counting System (APCS)

Ancillary Objectives:

- To design an AFCS system that shall help in popularizing the CRUT city bus service by adopting passenger benefit programs and frequent rider programs
- To enable travellers to take advantage of the telescopic fare system when transferring between feeder and City bus services

Broadly the AFCS system shall cater for the following major requirements:

- **Fare structure:** Distance based fare
- **Bus Operations:** CRUT (trunk) corridor, the city bus services will operate in the "open system".
- **Fare Validation:** From all sources of ticketing (Mobile App, ATVM, Open/Closed loop cards, ONDC Platforms Digital passes, etc.) through handheld ticketing machines on the buses running in open environment.
- Enable off-board fare collection system for the CRUT buses running on the project corridor by using Smart cards and bar-coded paper tickets for cash users.
- Adhere to the "Guidelines for issuance and operation of Prepaid Payment Instruments in India" issued by Reserve Bank of India (RBI) while designing the AFCS solution for the project.

Online recharge: The Purchaser intends to have online recharge functionality for Open & Closed loop cards issued to the commuters. For this purpose, the AFCS system shall be integrated with the selected payment gateway (s) which shall be finalized by the Purchaser in consultation with the successful bidder during the design stage. There should be required checks in the system for not allowing recharging of any blacklisted/suspended smart card accounts.

9.7.3. Mobile Application (Android & iOS)

The Mobile Application Module is a critical component of the Integrated Transport Management System (ITMS), designed to provide a user-friendly and efficient way for passengers to access transportation services. The Mobile App shall provide a seamless and user-friendly interface for commuters to plan journeys, pay fares, and access real-time bus information. This comprehensive mobile application aims to enhance the convenience and efficiency of bus services by allowing commuters to view bus routes, schedules, and live location, Multi-Modal Trip Booking, City Guide updates and receive notifications about service changes or disruptions. The app ensures that commuters have accurate and up-to-date information at their fingertips, improving their travel experience

- **Journey Planning:** Allow passengers to plan their journeys, including route planning, scheduling, and fare calculation.
- **City Guide:** The app must have feature to guide the users about places of attraction within the city.
- **Real-time Information:** Provide real-time information on bus arrival times, service disruptions, and other relevant updates.
- **Multi-Modal Trip Booking (E-Rickshaw, Bus, Train, Metro ,Cabs etc.) and Payment:** The app must allow a user to book and pay for a E-Ride (Electric Rickshaw) directly within the app, specifically for the "first-mile/last-mile" connection between their home/destination and the nearest bus stop and enable passengers to book and pay for their journeys using various payment methods, including mobile payments.
- **Digital Ticketing & Passes:** Issue digital tickets/passes to passengers, eliminating the need for physical tickets.
- **Route and Schedule Information:** Provide passengers with access to route and schedule information, including maps and timetables.
- **Service Alerts and Notifications:** Send push notifications to passengers about service disruptions, delays, or other important updates.
- **Feedback and Support:** Allow passengers to provide feedback and access support services, including customer care and helpdesk.

9.7.4. Enterprise Management System (EMS)

- **Network Fault Management System -** Provides fault and performance management of the network infrastructure that various services operate in. It provides Network Discovery & Reporting, Fault Analysis, Configuration Management, Advance IP Services Management, Service Management, and Integrations with other modules.
- **Integrated Performance Management System -** Provides comprehensive end-to-end performance management across key parts of the IT infrastructure. It allows identifying trends in performance in order to avert possible service problems and consists of:
- **Network Performance Monitoring -** The Network Performance Management consoles provides a consistent report generation interface from a single central console. This central console also provides all required network performance reports (including latency, threshold violations, packet errors, availability, bandwidth utilization etc.) for the network infrastructure.

- **Integrated Network Traffic Analysis System -** provides details of applications, hosts, and conversations consuming WAN bandwidth to isolate and resolve problems. Traffic monitoring system is able to track 100% of all flow traffic on the network and identify malicious behavior with all IP conversations. It uses non-intrusive monitoring to reduce the impact on the monitored network and improve scalability.
- **Server Performance Monitoring -** integrates network performance management systems and give the unified performance state view in a single console. The performance state of the entire network and server infrastructure is visible in an integrated console.
- **Database Performance Monitoring -** integrates network and server performance management systems and provides a unified view of the performance state in a single console. It automates the monitoring, data collection and analysis of performance from single point.

Application Performance Management System-

- **Application Transaction Performance Monitoring System -** Determines if the root cause of performance issues is inside the monitored application, in connected back-end systems or at the network layer from a single console view. It proactively monitors 100%of real user transactions; detect failed transactions; gather evidence necessary for triage and diagnosis of problems that affect user experiences and prevent completion of critical business processes.
- **End-user Experience Monitoring System -** Measures the end users' experiences based on transactions without the need to install agents on user desktops. It detects user impacting defects and anomalies and reports them in real-time: Slow Response Time, Low Throughput, Partial Response, Missing component within transaction
- **Integrated Helpdesk Solution -** An ITIL v3 based Helpdesk Management Solution improves quality and responsiveness of IT support by automating help desk, self-service, knowledge management and root cause analysis. It provides flexibility of logging, viewing, updating and closing incident manually via web interface. The helpdesk solution integrates with EMS event management and support automatic problem registration, based on predefined policies and supports request management, problem management, configuration management and change order management.
- **Management of Infrastructure at Client-side locations -** Under the proposed ITS, there will be a number of client-side IT infrastructure components, (Desktops, Servers, Laptops, Printers etc.) that will need to be managed from various aspects like asset management, software delivery, patch management, remote control for support issues etc. Specific management solutions should be provisioned to carry out Asset Management, Software Delivery & Remote-Control System for Desktops, Servers and Laptops at client-side locations and central data center.
- **Data Security & Audit -** All data transmitted or stored in the ITMS system must be encrypted using industry-standard encryption protocols, such as SSL/TLS and AES. Implement role-based access control to restrict access to sensitive data, ensuring that only authorized personnel can view or modify data. Ensure regular backups of critical data and have a disaster recovery plan in place to minimize data loss in case of system failure. Implement firewalls, intrusion detection and prevention systems, and other security measures to protect the system from cyber threats. Maintain detailed audit trails of all system activities, including user actions, data modifications, and system changes. Ensure compliance

with relevant data protection regulations, such as the Information Technology Act 2000,DPDP Act of GoI and other applicable laws. Regularly update security patches and software updates to prevent vulnerabilities.

- **Security Certifications and Compliance -** Obtain ISO 27001 certification for the ITMS system, demonstrating compliance with international security standards.Ensure compliance with industry standards for data security, such as PCI-DSS for payment card data.

End-User Experience Management System

- The proposed solution should measure the end users' experiences based on transactions without the need to install agents on user desktops.
- The solution should be deployable as an appliance-based system acting as a passive listener on the network thus inducing zero overhead on the network and application layer.
- The proposed system must be able to detect user impacting defects and anomalies and reports them in real-time:
    - Slow Response Time
    - Fast Response time
    - Low Throughput
    - Partial Response
    - Missing component within transaction
- The proposed system must be able to provide the ability to create user groups based on application criteria or location and link user ids to usernames and user groups.
- The proposed system must be able to provide user usage analysis and show how user's success rate, average time and transaction count has changed over a specific period of time such as current week versus previous week.
- The proposed system must be able to provide the ability to detect and alert when users experience HTTP error codes such as 404 errors or errors coming from the web application.
- The proposed system must be able to provide root-cause probability graphs for performance problems showing the most probable root-cause area within application infrastructure.

SLA Penalty Management

- The Enterprise Management System (EMS) shall include a robust SLA (Service Level Agreement) monitoring and penalty calculation module to ensure compliance and accountability. The system must:
    - Continuously monitor service performance against defined SLA parameters (e.g., response time, resolution time, uptime).
    - Capture real-time data from ITMS components for accurate SLA adherence reporting.
    - Automatically compute SLA penalties based on predefined rules and thresholds.
    - Support configurable penalty formulas (e.g., fixed amount, percentage of monthly billing, tiered penalties).
    - Allow customization for different service categories and priority levels.
    - Enable administrators to define SLA metrics, acceptable limits, and penalty structures.
    - Support multiple SLA types (incident, problem, change, availability, etc.).
    - Generate detailed SLA compliance reports and penalty summaries for stakeholders.
    - Maintain a secure audit trail of SLA breaches and penalty calculations for transparency.
    - Integrate with ITMS modules for seamless data flow.

Provide automated alerts for SLA breaches and penalty imposition

9.8. Hardware Component

9.8.1. Electronic Ticketing Machine

The ETMs must facilitate the issuance and / or validation of tickets, passes, and other fare products via the following Fare media:

a. QR Tickets
b. NCMC cards
c. other media as may be required.

The ETM's shall be connected to the BackOffice system though mobile network and the Bidder shall bear all cost for such connection during the entire contract period.
The ETM shall consist of but not limited to Card reader, QR Reader, printer, mobile network, user interface (e.g. touch screen or screen with keypad), on board data storage and battery power supply.

The user interface shall allow a conductor to issue a ticket in less than four (4) seconds. The ETM Application shall be easy to use for the Conductors. The Conductors shall be able to issue tickets using minimum keystrokes. Any transaction shall have the capability of being updated at all nodes within 60 seconds after transaction completion. The system shall provide the capability of updating the data (individual or bulk transactions) back to the BackOffice at user configurable periods.

The ETM machine shall have an integrated display that can be easily read under all conditions of ambient light throughout the day and night. It shall be possible to upgrade the firmware/software from the Backoffice, configuration list such as routes along with fare and other related details, etc, data from and to the Backoffice Over The Air (OTA) using the mobile network on the device remotely or using wired communication.

The ETM must be able to record and print various types of tickets such as general ticket, group ticket (adult + child + concession), other concession tickets, differential fare ticket, various schemes tickets, luggage ticket, package ticket etc. The ETMs should be able to issue refunds of fare in case of change in service type or full / partial cancellation of service. Validate the details of passengers travelling on a valid ticket, such as QR ticket, mobile ticket holders, smart card pass holders, monthly / quarterly pass holding passengers, employee duty pass holders, etc.

Tickets and passenger information should be encrypted and relayed in real-time to the AFCS without data loss, and available in batches for reconciliation and settlement as per operational cycles, e.g. for each trip, for each shift, at the end of each day, etc. In the case of loss of data connection, transactions must be stored locally and then transmitted to the AFCS upon re-establishment of the data network. All tickets functions must work in offline mode in the case of loss of data connection and then to be settled by batch mode as required. Tickets shall be available in multiple languages for printing. At the end of each trip, the ETM should be able to print a Shift end and trip summary report.

Access to ETM: A unique user id and pin (a combination of username + password (ID + PIN)) will be issued to each Conductor to login into ETM application. Only after successful login, allocated to him; other roles (Ticket Checkers) may be required to login to the device based on varying operational needs.

Provision to print conductor ID, Depot name, issue date and time, fare, origin & destination, Fare Product type, Distance KM, Bus Registration No., transaction number and any custom message if required on each ticket. System to be able to incorporate other details at as per the requirement. The ETM shall have sufficient memory to store a minimum of one week transaction records apart from other mandatory parameters, software/ firmware etc. The ETM shall have a validation functionality whereby when a smart card is brought in proximity to the reader or when a QR code is scanned with the ETM's camera, the ticket details including the ticket origin and date/time and other necessary details for the conductor to verify are displayed on the ETM display.

Upon successful completion of the transaction the ETM shall transmit transaction data to the Backoffice. Upon successful completion of the transaction the ETM shall indicate successful completion via the interface, using both the display and a distinct audio message. The ETM shall store all required transaction data on-board, included but not limited to: Date and time of transaction, Device ID, Employee ID of Conductor, Fare-tables, Transaction number, Origin and destination, Fare, Activity performed such as Ticket sale & validated, Smart Card serial number (if applicable); Transmission Status (i.e. successfully transmitted/ not successfully transmitted); Vehicle number; Conductor ID and duty / shift details and other details such as schedule time, departure time, bus service type, stage and fare table of routes operated, concession fare charging rules, other fare rules etc.

Only successfully transmitted transaction data records shall be overwritten by new transaction data records. Shift details shall be transmitted to the Backoffice, along with associated Date/ Time and conductor ID.The ETM shall provide the functionality to add a configurable fine to a ticket. There shall be a provision to download daily/weekly/monthly transaction data from ETM through USB cable, in case the data is not communicated to Backoffice.The ETM shall ensure security and shall be protected from internal as well as external threats.

Minimun Hardware Specifications of ETM are as follows:

Sl. No.	Parameter	Minimum Specification
1	Display	• Capacitive touchscreen with minimum of 1024X768 pixel resolution colour display. • Minimum of 5" rugged LCD touch screen display or better with Virtual Keypad OR Minimum 4" rugged LCD touch screen display or better along with Physical Keypad. • Display should be with anti-glare tough glass and screen guard. • Capable of displaying graphical images /Icons/ Any Response Code etc • ETIM Should support multi language display. • ETIM Should have good readability even during day/night with proper sunlight/ backlight. • Display should be scratch and tamper resistant. • Display should work from outer cover/ pouch with transparent screen guard. • Automatic adjustment of backlight brightness to optimize battery usage.
2	Keypad	Virtual Keypad / Touch Screen with Soft Keys.
3	Processor	ARM, Dual Core or higher, speed Minimum 1 GHz or higher.

4	RAM/ Memory/ Storage	• Minimum 1 GB RAM. • Minimum 8 GB inbuilt flash memory • Extendable Memory to support minimum 16 GB.
5	OS	Android 7.0 or Higher with facility upgraded with latest version of OS.
6	Printer	• Ultra-fast 2-inch inbuilt thermal printer with minimum 60 mm/sec speed. • Paper Width 57 mm. • Paper roll cage of minimum 40 mm diameter. • Easy paper roll loading mechanism, without using paper-feed-key. • "Paper Empty" indicator. • "Paper cover open" indicator. • Printer should support printing text in multi-language and also images, symbols, numerals etc.
7	Battery	Battery should be compliant with IEC 62133, ISO 12405 & all other Battery Cell Safety Standards and Regulations to be followed as and when revised. **a)** 3000 mAh to 5500 mAh **b)** 3.5 V to 7.4 V **c)** Capable enough to operate all features of Smart ETMs for 18 hrs. which includes 72 hours of sleep/ power saver mode without putting it on flight mode and printing 2500+ tickets minimum on a single charged (Fully). **d)** Quick/fast Charge **e)** Quick/Fast rechargeable in-built battery charger with over-charge/ over-voltage/ over-current protection. Status of charging and Battery Full indications display in machine. Minimum of 300 full recharge Life Cycle for Battery.
8	Battery Charger	AC Charger (working from 100 V to 280 V, 50 Hz) Chargers should have the capacity to charge the battery fully within 3 to 4 hours.
9	Terminal Weight/ Dimensions	**a)** Ergonomically designed for easy holding **b)** ETM should weigh appx. 500 - 600 gm with battery and thermal paper roll. **c)** Should be tamper proof design for fraud prevention **d)** Should be a rugged and compact design, water and dust resistance
10	Network	4G LTE or higher
11	Wireless	**a)** Wireless (Wi-fi) GSM/ GPRS on 850/900/1800/1900 MHz; **b)** GPRS modem to suit Indian Frequency band, **c)** Bluetooth NFC **d)** GPS
12	USB Port	USB / Micro USB / C Type USB
13	SAM Slots	**a)** Minimum of 1 SIM Slot and 2 SAM Slots or SE compliant to ISO Standards 7816. **b)** Cryptographic methods for card data security.

14	Card readers	**a)** Inbuilt contactless card reader **b)** IEC/ISO 14443A, Type A & B compliant **c)** Read/ Write Capability **d)** Reading range at least 50mm **e)** EMV contactless **f)** NCMC
15	EMV Certification (Mandatory)	**a)** EMV & Rupay Level 1 compliance, Level 2 **b)** Certified PCI PTS 5.x (or higher), EMV certified. **c)** MasterCard, Visa, Rupay, TQM, Paypass, Paywave. **d)** RuPay, qSPARC certified for NCMC.
16	Environmental compliance	Operational Temperature: 0˚C to 55˚C
17	Operational humidity	Operational humidity: 99%
18	Language	Support multi-language display and printing including English, Hindi and Odia
19	Carry bag	**a)** Each ETM must be provided with carry bag. **b)** Device cover shall be water and dust resistance
20	ETM Software Development Kit (SDK)	The supplier/OEM shall provide ANDROID ETM SDK for the ANDROID ETM firmware
21	Certification	RoHS
22	Crash Test	Min 1 meter falling test
23	Tumble Test	Min tumble 500 times
24	Anti-Static	+/- 8 KV Contact Discharge; +/- 15 KV air discharge
25	Ingress Protection	IP 54 compliance
26	Other Requirements	All related charges are to be borne by the Bidder including Paper roll, SIM cards, internet charges & SAM cards etc. Covers to be replaced in case damage / torn. Cities will not provide the paper roll for ETMs. Batteries in the ETMs should be replaced immediately, if the battery is not functioning to the operational requirement. Bidder shall ensure smooth functionality, without causing any inconvenience to the conductor while issuing tickets during entire schedule operation. SI will be responsible for supply of ETM charging infrastructure including charger, charging dock/rack. Cities will provide single power connection and will bear the cost of electricity.

9.9. Minimum Technical & Functional Specifications

9.9.1. Automated Vehicle locator System (AVLS)

#	Minimum Functional Specifications
A. General Requirement	
1.	The AVLS central application shall be web-based solution which access from anywhere with the appropriate credentials of access.
2.	The AVLS central application shall be either commercial off the shelf (COTS) software or Be-spoke or Open-Source software with required customization of the CRUT.
3.	All the required proposed customized software and firmware shall be with the latest version with all latest functions available and technologies in a similar market.
4.	All solution components used as part of the deployment, including, and not limited to the operating system and the database applications, shall be latest as on date of deployment.
5.	**Following devices will be part of OBITS pre-installed in the E-bus:** o Single Control Unit (SCU)/ Onboard Unit (OBU) o Driver Display Unit (DDU) o Passenger Display Boards o CCTV with mNVR o Camera based Automatic Passenger Counters (APC) o Panic Button o Amplifier o Speaker
6.	**The Module shall receive data packets from OBITS in every 5 sec (configurable) minimum for the information below:** o Vehicle Location for Lat-long, date/time, direction, speed etc. o Vehicle CAN for Charging status, charging current, BMS error, Health of BMS/PIS/ITS/VTS, motor speed, SoC-Battery etc. o Passenger count for front door people IN/OUT, back door people IN/OUT, route no. stop no. etc. o Route start for current route id, source name, destination name, expected completion time etc. Route end for current route id, current trip no. etc. o Health for storage, PIS, Camera, ignition status, digital inputs etc.
7.	GPS location data shall be updated through latest available communication technology (4G/5G) to the central solution for all the buses.
8.	AVLS module shall be able to process data received from device in batch form. At a single time, module shall be able to receive the bulk data from multiple buses (minimum 50) through Wi-Fi network after completion of operation (if available in depot).
9.	AVLS module shall be able to receive real time data from multiple devices and sources to process.
10.	If the device is not communicating for a longer period i.e., more than 1 day, it shall be possible to pull the bulk data from device through the solution. AVLS module shall be

#	Minimum Functional Specifications
	able to display information from bulk data.
11.	The module shall be able to export bus operations data in GTFS format.
B. Graphical User Interface (GUI) Requirement	
12.	The AVLS central application shall be delivered with a fully functioning Graphical User Interface (GUI). The AVLS shall have collective dashboard which gives daily operation KPIs overview to the CRUT stakeholders.
13.	The GUI should be based on standard windows controls or equivalent.
14.	The GUI shall have branded of the CRUT when access from the right credentials.
15.	All screens with non-paging data shall open and populate with data within 3 seconds. All the pages of the application shall have similar refresh timeframe for page open and populate.
16.	All screens with paging data shall open and populate with the initial data within 3 seconds & thereafter page updates shall be retrieved within 5 second.
17.	Dragging the cursor bar for a scrollable list shall cause instantaneous redisplay of the list in time with the movement of the cursor bar.
18.	All the system buses shall be shown concurrently in the GUI with both static and real-time data as parameters. Additional flexibility shall be present to select groups of buses based on criteria defined by the purchaser.
19.	Multiple configurable views of the GUI shall be available for the operator that shall be available for retrieval through a dropdown list.
20.	All the icons, branding material, logos of the application page shall be latest and in the original format.
21.	The user shall be able to configure bus services in different color for easy identification for ex. AC and Non-AC, Express, Feeder etc.
22.	The module shall allow users to select one bus/multiple bus with city wise, depot wise, division wise and service wise filters.
23.	The user shall be able to include/exclude bus/s through the module in case bus moved/transferred to other location.
24.	In case bus OBITS gets faulty, users shall be able to map new OBITS against existing bus reg. no. assigning new identifier. Audit trail for this process will be available. Users shall be able to search, view and export lists of identifiers against buses.
25.	All the buses shall be displayed concurrently in the GUI with both static and real-time data as parameters. The bus icon shall be changed according to the parameters in real time. Filters for bus reg. no., shift, date/time, driving status (driving/on-route/deviation/off-route/ /idle/parked) shall be provided to sort the buses. Definition: ○ **Driving:** If bus ignition is on and speed is more than 5 Kmph.

#	Minimum Functional Specifications
	○ **On-route:** If bus is running on scheduled path. ○ **Deviation:** If bus is deviating up to 20 mtr from scheduled route. ○ **Off route:** If bus is deviating more than 20 mtr from scheduled route. ○ **Idle:** If bus ignition is on and speed is 0 Kmph up to 20 min. ○ **Parked:** If bus ignition is off. Threshold mentioned above shall be user configurable.
26.	The module shall have a line diagram to display real time status of the bus by selecting the route. It should also provide schedule adherence for previous and current trip.
27.	All the buses reg. no., running status, last stop/location, trip progress along with timestamp shall be displayed on screen.
28.	The module shall display hourly wise data for the day including parameters like Period (peak, mid peak, off peak), Service type (feeder, express etc.), total no. of buses scheduled for the day/shift, Total no. of buses on route, availability (%) of the buses on route with respect to the total no. of scheduled buses.
29.	All the schedule km, dead km, missed km, operated km shall be captured and displayed in the module for each bus. Date, shift, monthly filter shall be available to sort the data.
30.	The AVLS module should be integrated with IMS and allow users to add comments, reason for events, incidents which should be reflected in reports.
31.	Standard interfaces shall be provided to feed incident details such as breakdown, accident, overspeed, deviations, off route etc. User shall be able to include/exclude incidents for penalty calculation. Excluded Incidents shall not be considered for SLA.
C. Panic Alerts (AIS-140 compliant)	
32.	The module shall support standard protocol for communication with OBITS devices as per AIS-140.
33.	In the event, panic button pressed in a bus, the mNVR will get the input regarding the emergency alert. mNVR will start sending the visuals to the backend along-with bus registration number, camera and time stamp. An alert shall be displayed at the dashboard and users shall be able to view CCTV feed of the bus to investigate the incident. In the absence of network, the alert can be sent through SMS.
34.	Every alert received shall be logged with detailed information including the time of alert, bus information, location, and response actions taken. This data should be easily accessible for review and for generating reports that help in assessing response effectiveness and planning improvements.
D. Route Network	
35.	All the buses added in master data shall be automatically reflected in the route network process.
36.	The module shall be able to develop the network of route operations through a standard interface:

#	Minimum Functional Specifications
	○ Scheduling Plan (General service, Night service, holidays, festival, other occasion etc.) ○ Demand based trips (basis on the ridership, adjust routes and timings to meet the requirement) ○ Frequency based trips (manage service start time and end time to connect with other service types like feeder service with express service) ○ Charter trips (hired bus services for a specific period)
37.	Users shall be able to perform following operations through a standard interface: ○ Import data (Lat-long, stop name etc.) and display on the AVLS map. Bundle import functionality shall be available. ○ Analyze identical/unique routes and stops and create unique stops. ○ Define geo-boundary for each stop/station/depot/ terminal etc. ○ Create route and define type of route i.e., route no., route name, route category (up, down etc.), service type (feeder, express etc.), route type (revenue, dead route) etc. ○ Add stops in the routes in sequence according to the direction. ○ Create schedules and define constraints i.e., shift, depot, scheduled start time, scheduled end time, trip start time, trip end time, service type, halt/break time etc. ○ Assign schedule no. and define effective start date and end date for the schedule. ○ Define adherence parameter (+/-) for each schedule and trip. ○ Add, modify, exclude, delete the schedules, trips, stops, stations, depot, division.
38.	Lat-long for each node (stop, station, depot, division etc.) shall be displayed in AVLS module.
39.	Users will create POI and Geo-Fence/points on the map for each node through AVLS module.
40.	The module should be able to calculate distances. between associated points defined as stop / terminals / depot on the GIS Maps.
41.	The module shall be able to link various nodes (stops, depot, terminals etc.) with paths to create a graphical route.
42.	The module shall be able to autofill timings for intermediate stops on a route, based on timings given for start and end stops. However, use shall be able to edit and modify it.
43.	Users shall be able to create routes with a combination of one or more routes

#	Minimum Functional Specifications
	considering operational parameters such as Peak & Non-Peak time etc.
44.	The module shall be able to create a reverse/return route with the same attributes and details as in the original route.
45.	The user shall be able to define unique route ID / name to a particular route.
46.	The module shall be able to link/unlink/add trips to the selected timetable.
47.	The module shall be able to create/modify/copy/delete timetable, adding and modification of trips, assigning the buses to the trips to prepare bus schedule considering charging requirements and infrastructure.
48.	The module shall be able to add/modify trips to timetables covering bus demand-based trips, Layover and depot time, revenue run, dead run, crew changeover.
49.	The module shall be able to create charter trips into the system. Module shall provide the entire process – Quote, Booking, Allocation, invoicing, etc.
50.	The schedule master shall have field to define information like start place, end place, starting and end time of each trip, rest time in between the trips, distance between the start and end place, distance between stops, overnight stay, crew details, bus registration number, etc.
51.	Users shall be able to define blocking and unblocking of route/road.
52.	The module shall display buses and uses available for the operations.
53.	The module shall have provisions to define minimum work hours before a meal breaks as per statutory law/GoI regulations.
54.	The module shall be able to differentiate the trips through color code.
55.	The module shall have provisions to perform scheduling parallelly of services such as express and feeder, the schedule of the express bus and the feeder bus should be synchronized to the extent possible, to minimize the transfer waiting time for passengers. The module should allow for such synchronization and calculate automatically the scheduled trips of a route/multiple routes.
56.	The module shall have provision to create and configure voice announcement file for in-bus announcements.
E. Public Information System (PIS)	
57.	The frequency and period of information to be displayed on PIS for bus schedule and other advertisements/free text messages shall be configurable from PIS module.
58.	PIS module shall be able to edit and automatic send messages to single/multiple PIS boards on a scheduled time (configurable).
59.	Following information shall be displayed at a minimum, For Mobile App:

#	Minimum Functional Specifications
	○ Current Stop name ○ Route No. and name ○ ETA for the next 5 buses (Bus Reg. No.), (number should be configurable through the application).
60.	ETA shall be calculated and displayed for the next 5 (configurable) buses by continuously receiving real-time GPS data from AVLS and predictive algorithms to estimate travel times to upcoming stops, considering traffic conditions, historical travel patterns, and current route dynamics. If a bus gets stuck in traffic and is delayed, the PIS system shall recalculate bus ETA based on the recent data such as speed, position, direction received from AVLS and display updated ETA at the Station/Stop PIS for the buses scheduled on the route. PIS shall recalculate the ETA based on the route and current stop. Each stop code shall be mapped with route, and this information shall be synced with PIS through AVLS. The PIS shall receive bus data on regular interval defined in AVLS. Similarly, ETAs for all affected buses shall be recalculated to reflect the updated information at PIS. For Example: Bus 1 ETA: 5 min Bus 2 ETA: 10 min Bus 3 ETA: 15 min Bus 4 ETA: 20 min Bus 5 ETA: 25 min In case Bus 1 gets stuck in traffic and is delayed by 5 minutes: Bus 1 updated ETA: 10 mins Bus 2 updated ETA: 15 mins (recalculated) Bus 3 updated ETA: 20 mins (recalculated) Bus 4 updated ETA: 25 mins (recalculated) Bus 5 updated ETA: 30 mins (recalculated)
61.	PIS module shall be able to maintain availability and non-availability status of PIS boards. The status shall be available in exportable format i.e. PDF, XLSX, CSV etc.
62.	Messages/information sent to the PIS boards and have not been received successfully, shall be resent automatically at configurable time intervals. Acknowledge for not receiving/ failure message at PIS shall be displayed in the PIS module to the user.
63.	Users shall have the option for manual resending of the message to the respective PIS board.
64.	If the message could not be successfully sent within certain period to PIS, they

#	Minimum Functional Specifications
	shall be marked (as non-updated) and the event shall be recorded in the log.
65.	The PIS module shall have the option to activate and deactivate the provision of ETA information (automated or manual mode) to be displayed for specific stops or routes.
66.	PIS module shall have option to configure refresh rate for PIS display, ideally 1 minute or less. (configurable)
67.	PIS module should push buses information in real time while all other information should be scheduled.
F. AVLS Central Dashboard Console Requirement	
68.	The console shall have ability to distribute control of services among controllers
69.	The Console shall have configurable dashboards for real-time view of the operation of each CRUTs. • Comparative Dashboard for CRUT based on Bus Operator Performance • Central Dashboard • Individual Operator KPI Performance Dashboard • Operation Dashboard • Fleet Type Performance Dashboard • Vector Map Dashboard
70.	The Console shall have Time Monitoring Analysis basis on the route/stoppages.
71.	The console shall have functionality of Regulating Service by Time and Frequency
72.	The basic and detailed information of the fleets on mouse overs.
73.	The Console shall have relevant schematic layouts with all nodes (GPS & PIS) connected & shown on the GUI with real-time status.
74.	Various nodes summaries shall be represented with the legends and different color codes on the console.
75.	The Console shall show the status (connected/ disconnected, faulty/ working) of all logical devices along with the Fleet status (Idle/ Running/ Standby/ Breakdown/ Preventative Maintenance) (AVL System, PIS modules etc.) connected to a particular node, when clicked on a node from the monitoring dashboard GUI.
76.	The Console access shall be specific to the privilege of the user, which can be defined in the central system & shall be specific to a group of node locations.
77.	The Console shall have ability to identify the fleets or group of fleets by operator with minimal clicks or filter on the dashboard.
78.	The Console shall display events such as schedule adherence, early/delay dispatch and arrival, bus bunching, off route, on route, trip missed, stop missed, breakdown/ maintenance, skip stop etc. for each bus. Different color/icon to be used to differentiate the event.
79.	Following minimum KPIs shall be displayed on the dashboard for daily monitoring. These include but are not limited to:

#	Minimum Functional Specifications
	1. Operation Monitoring o Reliability (No. of breakdown per 10,000 km) o Availability (Bus available for operation) o Punctuality (On-time trip start) o Frequency ((a) Cumulative completed trips travelled by bus, (b) Cumulative Bus KM travelled by all buses) o Safety of Operations (No. of accidents per 10,000 km) o Operational Infractions o Total Km (operated, dead, deviated) 2. Driver Performance o Safety (No. of accident) o Operational Efficiency (Schedule Adherence (On-time/Early/Delay)) o Total Missed KM o Total Skipped Stops o Over speeding incidents 3. ITMS Status o ITMS Solution functioning (city/depot wise) o OBITS (communicating/not-communicating) Any other parameter is required by the CRUT.
80.	The Console should provide alerts/notification required for real-time operation. These include but are not limited to: (below list may be updated during the design period) 1. Operation alerts o Bus availability o Bus running without schedule allocation o Route deviation, off route o Missed trips o Bus stopped idle for X period during the trip o Harsh Breaking o Over Speeding o Skip Stop 2. VHMD alerts o Vehicle Fault Alerts o Maintenance Alerts o Vehicle Performance Alerts o Safety Alerts o Fault Code Alerts
81.	If any node/device becomes disconnected, a notification for the same shall be displayed to take necessary action to rectify.
G. Real-Time Operation & Location Playback Requirement	
82.	The operation module shall have capability of supervision and monitoring of Fleet Positions in Real-Time along with the other parameters of driving behavior.
83.	The operation module shall have ability to showcase the live vehicle feeds as well as location playback mode to see the fleet performance over the period.

#	Minimum Functional Specifications
84.	The operational module shall track the fleets/buses with the following functionalities. • Ability to See Trips/ Fleets by different colors by operator type and bus type. • Color Legend of Vehicles/Fleets • Status Tracking of Messages Sent to GPS • Vehicles, Virtual Vehicles, Stops and Lines on Map Vehicles, Virtual Vehicles, Stops and Lines on Straight-Line.
85.	The live performance module shall have functionality to see the single, multi and all fleets performance on single view map screen.
86.	The live performance module shall also have option of bifurcation the fleets based on the depot/routes/stoppage for the view on the map.
87.	The live performance module shall have comparative analysis option for between performance of two or more fleets in real-time view.
88.	The module shall use the real time location and schedule adherence data to create a continuously updated table using standard protocols like JSON / XML or REST etc. data feed of the last reported location for all fleets and the next arrival predictions within the configurable upcoming time window for all stations/stops on map.
89.	A system report providing accuracy predictions stratified by minutes in advance of the arrival, filtered on a stop and time period basis, is a desirable alternative since it would enable accuracy assessment during and after the implementation with less need for field data collection.
90.	The module should have interface to provide extensive alerts required for real-time operational support. The Alerts at a minimum should include: • Critical Alerts (SOS) • Security • Major Alerts • Buses without Schedule on the Road Alerts • Route Deviation Alerts • Schedule Adherence Alerts – color coded by gap time. • Bus Bunching Alerts • Minor Alerts • Over Speeding • Tamper Alert • Bus Bunching • Under Speed
91.	The Alerts shall be easily identified on the map through double-clicking of the alert. Location playback features shall be available on clicking of Alerts.
92.	The operator shall be able to review on the map display the chronological sequence of reported locations for a specified vehicle over a specified time.
93.	The module shall provide controls to view the entire sequence of reported locations from the beginning of the time or to step through the sequence incrementally forwards or backwards.

#	Minimum Functional Specifications
94.	The system shall allow replay for a single fleet, selected set of fleets or all fleets on the selected map view for selected time.
95.	System shall consist of multiple features for location playback to allow variable speeds and time selections for ease of replaying.
96.	The operation module shall use the Google or equivalent map for display and represent of the CRUT buses/Fleets. All the map services and layer development shall be done within the AVLS application by the successful bidder. Below map functionalities shall be available but not limited to this only. • Road map View • Satellite Map View • Open Street Map View • Traffic Map View
97.	The operation module map shall have a functionality to showcase each of the connected nodes with the real-time status of the node.
98.	The module shall have GIS maps with layers of road, landmarks, and geographic features etc. GIS map engine must provide features such as display of multiple layers of GIS data, user selection for various data layers, zooming, panning, selection and other required features.
99.	The module should have a GIS map at a scale of resolution acceptable to the cities/authorities for their operations. [scale 1: 25,000 or better resolution overall and 1:2,500 or better resolution for cities urban areas].
100.	The map data shall be updated regularly or as per need to account for the changes in topology of City data due to new constructions, such as roads, offices etc. (new POI's).
101.	Cities shall be able to view data for their respective area/region.
102.	The module shall allow users to view the map, including a selectable combination of the source map layers and new layers, at various user-defined zoom levels.
103.	The module should incorporate maps to select individual theme layers (e.g., city, stations, stops, depots, divisions etc.). The base map must be OpenStreetMap or similar quality.
104.	The module shall have additional overlay map layers including polygons (e.g., city boundaries, service zones), lines (e.g., route traces) and points (e.g., landmarks, transfer locations, stops), with configurable color and icon/shape.
105.	Map shall refresh the bus location in every 10 seconds interval. The interval shall be user configurable at any time without code or program change.
106.	The module shall have search features to filter the data according to the defined parameters such as bus registration number, route, schedule, delay time, etc. The module shall allow users to add/customize more parameters through checkbox/dropdown menu.
107.	The module shall have line track feature to compare frequency of two or more buses on same route to determine bus bunching. For example, if two or more buses have same route running parallelly up to 1 Km (configurable) it should be considered bus bunching.
108.	On right click of the mouse, the following information of bus, at a minimum, shall display on the map in real-time: Bus Reg. Number, Crew information, Current

#	Minimum Functional Specifications
	Trip/Schedule information, Last stop, Next approaching stop, Current Bus status (running/halt), incident detail etc.
109.	The hover features shall be available to provide bus information in real-time which shall include on time/late/early, overspeed/current speed, deviation, off route, distance travel, delay/early, trip number, events and alerts etc.
110.	The module shall be able to display from where bus deviates at the defined route and show it on the map with dotted line or in different color for easy identification.
111.	The module allows users to export and print the map. The print option shall support letters A4, A3 and A2 size printouts.
112.	The user shall be able to view history run of each bus in chronological sequence of operated locations over a specified time with date/time, depot, bus registration no. filters.
113.	The module shall provide controls to view the entire sequence of reported locations from the beginning of the time or to step through the sequence incrementally forwards or backwards.
114.	The module shall allow replay for a single bus/multiple buses on the map for selected time. Filters for time, bus reg. no., depot, service type shall be provided.
115.	The route replay shall include all historical events. This historical information shall include all reported and derived data for buses (including at minimum the date/time, bus, schedule, route, trip, location, schedule adherence, headway adherence, station/stop arrival data).
116.	The module shall allow route replay at variable speeds i.e., 1x, 2x, 5x etc.
117.	The module shall allow route replay without interrupting current operational view.
118.	The module shall be able to store a playback in a universal video format such as MP4, AVI etc. that can be exported and compatible with browser or there can be a screen recording feature in the application to record playback.
H. Configuration & Master Management Requirement	
119.	AVLS module shall have master data to define and manage the critical configurable parameters of cities. Master data shall include reference data with set of values, static data, and analytical data that support the decision making.
120.	The module shall have below configuration functionalities in the proposed solution. • Map data configuration • Incident
121.	The configuration module shall have all operation parameters of the CRUT to be configured from the front end. There should not be requirement of the backend support for any configuration.
122.	The module shall cater at least following operational parameters for these configurations but not limited to: • City Master (City, Corporation name, Address, Depot, Division etc.) • Bus Master (Fleet details including make, model, vehicle identification no. (VIN), length, bus registration no., service type, OBITS details/ Id, unique identifier, Contract No. (generated through CMS) etc.)

#	Minimum Functional Specifications
	• Route part/Stoppage Configuration • Distance and Time Configuration. • Stoppage type configuration • Operation Master (driving status (driving, On-route, Deviation, Off-route, idle, parked), Period (peak, mid peak, off peak), communication/interference/lost, alerts/incident/ notification etc.) • Route Master • Schedule Master • Crew Master (name, date of birth, date of joining, age, role, type of employment, Aadhar card, PAN number, driving license number etc.) Emergency spot/Authorized spot configuration
123.	Access to the monitoring dashboard shall be specific to the privilege of the user, which can be defined in the central system & shall be specific to a group of node locations (e.g., a set of GPS and/or combination of node types) and configure from this module only.
124.	The module shall have functionality to create or code the multiple user classes with different privileges.
125.	The module shall maintain a transaction log that records all the new configurations that are implemented along with the modifications of any rules or configuration into the system along with the meta data.
126.	All the relative masters of all the proposed applications as a part of project for data management shall be available in the AVL application's configuration module. All access to the master data should be from AVL application.
127.	The configuration and master management module shall work as a nerve point for access of any master data to any internal application proposed under this project or external application of CRUT.
I. Maintenance Requirement	
128.	Device settings shall be updated including software/firmware updates through transmission via the secured communication network set up by the service provider. For reasons of security, device settings shall not be modified by field staff of the service provider/others
129.	Any device settings modifications including software/firmware updates as well as business rules such as fare settings, discounts etc. shall be done with prior authorization from CRUT. A digital log of all changes of settings on each device shall be maintained.
130.	Only authorized personnel shall be able to access maintenance mode of the device which shall allow the personnel to diagnose the faults and update the device settings directly, if required.
131.	Inventory with product serial numbers to be maintained regularly for active, standby, repaired, damaged/replaced devices.
J. Reporting Requirements	
132.	The module shall be able to generate all reports separately for different sub-systems under operation.

#	Minimum Functional Specifications
133.	The report shall be classified in following manner but not limited to this: • Performance Report • Incident Reports • Management Information Reports • Exception Report • Summary Report • Monitoring Reports • Historical Reports • SLA Reports
134.	Any portion of the transactional database shall be exportable in standard formats (such as comma separated values (.csv, xlsx files etc.) for analysis in third party programs.
135.	It shall be possible for users to build custom reports from the data in the transactional database with support tools such as MS Excel etc. The reports should be customizable for various time periods through the dashboard of the reporting system.
136.	A data dictionary shall be provided to Authority to facilitate development of custom reports.
137.	The module should provide enough summarized and detailed data, including features to generate standard report based on pre-established criteria, as well as required reports based on a user- definable set of search criteria
138.	All reports shall be generated using a query language and standard query engine that provides flexibility for future updates, and for creation of new reports.
139.	It shall be possible for users to build custom reports from the data in the transactional database with support tools such as Crystal Reports and MS Excel. The reports should be customizable for various time periods through the dashboard of the reporting system.
140.	The details of static report contents include but are not limited to this only: • Monthly summary reports broke down by bus and route type. • Bus Location by date/time, location, and other parameters • Schedule adherence reports for depot locations, bus terminals and bus stops • Bus bunching report • Driver performance report consisting of bus stop skipping, harsh acceleration, harsh deceleration, over speeding, etc. • Fraudulent activity reports with the hardware (Tampering reports) • Faults and errors • Bus trip reports. • System exceptions reports • System performance and activity reports • Financial reports SLA violation report based on the business rules specified in bus operations tender. • Travel time reports between stops Reports on events that hinder movement of buses
141.	The report module shall provide the functionality of ad-hoc reporting to user or groups of users through SMS (Summary Report) and Email (Detail Reports)
142.	Following are the tentative report list, this may be updated/added during design and implementation period:

#	Minimum Functional Specifications		
	Sl. No.	Reports	Attributes
	1	Active fleet report	Date, Depot, Total Fleet Size, Buses fit for operation, Buses under maintenance
	2	Schedule adherence at depot, bus stops/stations	Date, Depot, Total Schedules, On time departure, Delay departure, Early departure, On time departure (%), Delay departure (%), Early departure (%)
	3	Bus Schedule (Timetable)	Route No./ID, Bus reg. no., Scheduled departure time, Origin, Destination, Total Stops, Duration
	4	Routes and trip details	Route No./ID, Trip No./ID, Trip starting Time, Day type
	5	Daily bus In-shed/Out-shed report	Date, Bus Reg. No., Out-shed time, In-shed time, Status, Reason for delay out-shed/early in-shed
	6	Bus bunching report	Date, Time, Route No., Location, Scheduled Headway, Actual Headway, Bus Reg. No.
	7	Speed violation report	Date, Bus Reg. No, Driver Name/Id, Location, Speed Limit, Speed Recorded,
	8	Events and Alerts report	Date, Time, Event Type, Severity Level, Event description, Location, Action taken
	9	Missed/Cancelled/Partial Trip	Date, Trip No., Scheduled Time, Actual Time, Status, Reason for Disruption, Affected Stops,
	10	Skip stops	Date, Route No., Trip No., Scheduled Stop time, skipping stop location, reason for stop skipping
	11	Route Deviation	Date, Route No., Trip No., Scheduled Route, Deviated Location, Deviated KM, Reason for Deviation
	12	Missed/lost KM by bus	Date, Bus Reg. No, Driver Name/Id, Route name,Scheduled KM, Operated KM, Missed/Lost KM
	13	Dead KMs report	Date, Bus Reg. No, Driver Name/Id, Scheduled KM, Operated KM, Dead KM
	14	Schedule vs Actual Km operated	Date, Bus Reg. No., Route No., Shift, Schedule KM, Actual Operated KM, KM Variance
	15	Gross KM report	Date, Bus Reg. No., Operated KM, Dead KM, Deviation KM, Gross KM
	16	Reliability report	Date, Bus Reg. No., Depot, Operated KM, Breakdown No., Breakdown per 10,000KM
	17	Bus Availability report	Date, Depot, Total Planned Buses, Total Buses Available, Total Buses Not Available,

#	Minimum Functional Specifications		
			Availability Ratio (%)
	18	Punctuality report	Date, Depot, Total Trips, On Time Start, On-Time Arrival, Punctuality Ratio (%)
	19	Frequency report	Date, Total Trips Planned, Total Trips Completed, Total KM Planned, Total KM Completed, Trip Completion Rate (%), KM Completion Rate (%)
	20	Safety of operations report	Date, Bus Reg. No., Depot, Operated KM, Total Accidents, No. of Severe Accidents, Accidents per 10,000KM
	21	Operational infractions	Lost KM (Trip missed/not completed), Data unavailability
	23	Bus and crew allocation report	Date, Bus Reg. No., Crew ID, Schedule no., Route No.
	24	Driver performance report	Driver Name, Bus reg. no., Total Trips, Total Missed Trips, Total KM, Total Missed KM, Total Stops, Total Skipped Stops, over speeding incidents, Total Accidents, Performance Score (%)
	25	Device tempering report	Date, Time, Device Id, Device Detail, Action Taken
	26	Solution and device availability report	Date, Module Name/Device Id, Total Uptime, Total Downtime, Downtime (%)
143.	It shall be possible to aggregate data (filter) for reporting, at a minimum, by: • Date/Time • Origin • Destination • Location Equipment Serial Number		
144.	It shall not be necessary that values be consecutive for the purposes of aggregation (e.g., non-consecutive months).		
K. Data Retention Policy Requirement			
145.	The system shall be recorded and store the micro and macro data coming from the edge devices with the primary and secondary storage/access mechanism.		
146.	Primary data access shall be considered as Live Data which shall be available and directly access from the system from last 180 days in FIFO logic. The data transfer from primary to secondary should be through the automated process with 15 days cycle process.		
147.	All the system generated data (Edge Devices data, User data, Master Data, Metadata, and Incident data) primary and secondary data shall be available in the system for the entire contract period. Without written prior approval of the authority or subsequent user department, the data shall not be deleted or altered in the proposed system.		
148.	All the summary and detailed reports shall be directly access from the system with the		

#	Minimum Functional Specifications
	period of 30 days without any hindrance in the performance of the application.
L. System Security Requirement	
149.	The system shall maintain a transaction log that records all users that access reports, the reports accessed, edits and changes to the database and the system logon and log-off times.
150.	The security system should provide features to maintain data integrity, including error checking, error monitoring, error handling and encryption.
151.	Verification features shall be provided to ensure that all system-created files are uniquely identified, and that no files are lost or missed during data transfer.
152.	All systems, sub-systems and devices shall only allow access to authorized user classes.

9.9.2. Automatic Fare Collection System (AFCS)

#	Minimum Functional Specifications
A. General Requirement	
1.	The AFC system shall be a SaaS based, as possible, operate using open non-proprietary, industry standards and shall be a highly reliable, scalable, secure and customer-friendly facility. The security system shall include, as a minimum, protection against fraud, theft, falsification of data, falsifying accounting, external threats, denial of service, eavesdropping, loss or corruption of information, masquerading (spoofing) and unauthorized access, etc. The system shall adhere to industry recognized International and National standards and practices published and maintained by organizations such as EMVco, Rupay, PCI DSS, IEC, ISO, CEN, EN and ISI etc., as applicable.
2.	The AFC system shall integrate and synchronize seamlessly with a collection of multiple systems, like the master clock system, Electronic Ticketing Machine, FI acquirer system as per the NCMC & ONDC Interface specifications and report management.
3.	The mobile application should be integrated with the AFCS back-office system for ticketing.
4.	The AFC System should allow top-up and recharge of NCMC cards and wallets via all the payment modes such as Net banking, Credit and Debit cards and UPI etc.,
5.	The system will be able to provide multi-issuer environment where all NCMC complied cards from any FI will be accepted.
6.	Develop and implement interfaces to integrate with FI issuance and acquiring switch system for NCMC cards transaction and settlements, perform reconciliation of the transactions and other FI requirements.
7.	The scope includes the design, supply, installation, test, commission and maintaining the equipment hardware, software and all other interfaces required to complete the ecosystem for Automatic Fare Collection System as per the requirement.
8.	The AFCS Provider shall design, develop and be responsible for the maintenance and management of AFC devices, Central AFC System and revenue reconciliation.
9.	The AFC system shall be designed to process NCMC cards, QR codes tickets and ETM Tickets. All mandatory certifications shall be required to be obtained for commercial

#	Minimum Functional Specifications
	operation and for handling NCMC transactions.
10.	The system needs to be flexible and configurable designed to allow future adaptation in a multi-operator environment and government policies.
11.	The AFC system must operate in compliance with the requirements outlined in the CRUT/City Business Rules (BR) and should be designed to readily accommodate future modifications to these Business Rules.
12.	The system should support inter-operability for smart card & NCMC with different operators using the same smart card as per CCHS interface requirements.
13.	The AFC System should also provide automated inventory management utility for managing ETM's, paper tickets, smart card and NCMC.
14.	The AFC System shall be having utmost security standards which can withstand any level of security attack and protect user data.
B. Central AFC System	
15.	Central computer: Central computer shall be the minimal central level AFC management application responsible for monitoring equipment, Issuing and validating the QR codes, generating of reports, sending control command.
16.	The Central AFC Application hosted centrally on the cloud, and it should include other necessary hardware and software components for configuring data, applications, and keys across all AFC devices and equipment. Additionally, it should efficiently handle transaction processing, generate detailed summary reports for ticketing management, and provide functionalities for controlling and monitoring the AFC ecosystem.
17.	The AFC Backoffice software should be web-based, accessible from anywhere and at any time by authorized users with proper authentication and authorization.
18.	Development of QR Engine for generation of QR code-based tickets. This can include single-use codes for individual trips or reusable codes for season passes. The QR must have minimum information such as fare information, validity period, and user details.
19.	The bidder shall work together with CRUT and Cities during the design stage to establish all configurable parameters. Parameters necessary for operating features of the AFC system must be easily configurable to facilitate modifications as needed throughout the system's lifetime. Such changes should be implemented at the Central AFC BackOffice System, with provisions for them to be applied to the Cities server and become effective at a specified future date.
20.	The key management mechanism includes all the devices belonging to AFC system to download payment scheme specific parameters, Acquirer Terminal configuration parameters, hotlist, Certificates, Keys, Card range parameters and Issuer Card parameters.
21.	**Key & Certificate Management shall comprise of following, as a minimum:** ○ The bidder shall provide Key and Certificate Management System for management of keys and certificates throughout the lifetime of this contract tenure. ○ The Key Management System is responsible for the generation, maintenance, secure storage and distribution of all cryptographic keys, system key materials and security variables.

#	Minimum Functional Specifications
	○ The Key Management System also performs the initialization, including key injections of security components through a remote system without the need to make any hardware or onsite upgrades through Remote Key Loading (RKL). ○ A facility should be provided to upgrade keys through the network and to change keys periodically, or when keys are compromised. ○ A Hardware Security Module (HSM) securely manages the encryption and transmission of data.
22.	The central AFC system should be capable of distributing global Equipment Operating Data parameters to ensure smooth and uniform operation of the system concerning system performance, design functionality, passenger traffic, etc.
23.	The system must retain in memory at least the five most recent versions of configuration parameters. It should also allow switching back to a previous version of Equipment Operating Data when necessary. In case of a calendar expiration, the system should notify us on the expiry date, and the system should continue to operate using the latest set of parameters.
24.	The application software design must be highly flexible and easy to implement to readily accommodate future changes to the business rules, including specific requirements for integration with additional Cities as part of CRUT. The optimization of business rules shall be done in collaboration with CRUT.
25.	The business rules related to time stamping and telescopic fare benefit shall be user configurable.
26.	The Central AFC BackOffice System must include functionality to blacklist/Un blacklist RuPay and EMV CSC. Provision is required to enter blacklisted tickets as a series. AFC Validators and ETMs shall reject blacklisted tickets for add value functions and display the reason to inform the operator. Each detection of a blacklisted ticket must be recorded in the Central AFC BackOffice System.
27.	Blacklist and un blacklist shall be sent automatically and frequency of sending blacklist parameter should be configurable. The BackOffice must have the capability to generate and update blacklists for all relevant fare media and distribute them to the devices.
28.	The central AFC System shall support the management of fare tables according to the specific requirements of cities.
29.	The central software shall be capable of providing over-the-air business rules such as fare media parameters and fare table information updates, firmware & software updates to the Validators and Electronic ticketing devices apart from other immediate critical updates.
30.	Any exception in the normal process shall be flagged separately for auditing and reports should reflect this condition. Mechanisms should be provided to help audit such exceptions.
31.	The system should have provision for data transfer from the ETM machines to the central system and Backoffice once the ETM is "UP" and running, preferably using wired transfer authenticated by a registered user. In no case, there should be any duplicity and missing transactions/data in the central database.
32.	The BackOffice system must generate necessary management reports based on fare media transaction information received from the devices.

#	Minimum Functional Specifications
33.	The BackOffice System should establish communication with each device to process received data for audit, statistical, and operational purposes.
34.	Data transferred from the devices to the BackOffice shall include, at a minimum, information such as device commissioning usage, various transactions, End-of-Day (EOD) shift summaries, ridership numbers, ETM shift revenue, and fault reports.
35.	The Central BackOffice should be capable of generating reports for CRUT and each City through authorized logins.
36.	In the event of BackOffice system failure, control will be handed over to redundant Cloud Backoffice systems. In case of network failure, devices will independently record all transactions and alarm data for a minimum of seven days, with all stored data transmitted to the Central BackOffice System upon full system restoration, the devices should also have feature to export the data and import at Backoffice.
37.	The BackOffice must comply with latest PCI DSS standards for PCI compliance.
38.	User shall be able to assign Waybill number, duty and issuance of ETM to conductor.
39.	The module shall facilitate cash-ups for conductors.
40.	ETMs transactions shall be automatically displayed in order to match with the cash deposited by conductor.
41.	The module shall display alert in case there is difference in ETMs transaction data and cash deposited by conductor.
42.	The module shall mark shortage/excess amount deposited by conductor in order to recover the same. (for shortage)
43.	The module shall have feature to differentiate cash and other payment modes data.
44.	The module shall have reconciliation features for the deposited amount.
45.	The module shall be able to generate shift end report detailing cash collected by conductor, waybill no., ETM etc.
C. Electronic Ticketing Machine	
46.	The ETMs must facilitate the issuance and / or validation of tickets, passes, and other fare products via the following Fare media: a. QR Tickets b. NCMC cards c. other media as may be required.
47.	The ETM's shall be connected to the BackOffice system though mobile network, and the Bidder shall bear all cost for such connection during the entire contract period.
48.	The ETM shall consist of but not limited to Card reader, QR Reader, printer, mobile network, user interface (e.g. touch screen or screen with keypad), on board data storage and battery power supply.
49.	The user interface shall allow a conductor to issue a ticket in less than four (4) seconds.
50.	The ETM Application shall be easy to use for the Conductors. The Conductors shall be able to issue tickets using minimum keystrokes.
51.	Any transaction shall have the capability of being updated at all nodes within 60 seconds after transaction completion. The system shall provide the capability of

#	Minimum Functional Specifications
	updating the data (individual or bulk transactions) back to the BackOffice at user configurable periods.
52.	The ETM machine shall have an integrated display that can be easily read under all conditions of ambient light throughout the day and night.
53.	It shall be possible to upgrade the firmware/software from the Backoffice, configuration list such as routes along with fare and other related details, etc., data from and to the Backoffice Over the Air (OTA) using the mobile network on the device remotely or using wired communication.
54.	The ETM must be able to record and print various types of tickets such as general tickets, group tickets (adult + child + concession), other concession tickets, differential fare tickets, various schemes tickets, luggage tickets, package tickets etc.
55.	The ETMs should be able to issue refunds of fare in case of change in service type or full / partial cancellation of service.
56.	Validate the details of passengers travelling on a valid ticket, such as QR ticket, mobile ticket holders, pre-paid smart card pass holders, monthly / quarterly pass holding passengers, employee duty pass holders, etc.
57.	Tickets and passenger information should be encrypted and relayed in real-time to the AFCS without data loss, and available in batches for reconciliation and settlement as per operational cycles, e.g. for each trip, for each shift, at the end of each day, etc.
58.	In the case of loss of data connection, transactions must be stored locally and then transmitted to the AFCS upon re-establishment of the data network.
59.	All tickets' functions must work in offline mode in the case of loss of data connection and then to be settled by batch mode as required.
60.	Tickets shall be available in multiple languages for printing.
61.	At the end of each trip, the ETM should be able to print a Shift end and trip summary report.
62.	**Access to ETM:** A unique user id and pin (a combination of username + password (ID + PIN)) will be issued to each Conductor to login into ETM application. Only after successful login will the conductor be able to start duty/trip as per the duty allocated to him. Other roles may be required to login to the device based on varying operational needs.
63.	Provision to print conductor ID, Depot name, issue date and time, fare, origin & destination, Fare Product type, Distance KM, Bus Registration No., transaction number and any custom message if required on each ticket. System to be able to incorporate other details as per the requirement.
64.	The ETM shall have sufficient memory to store a minimum of one week transaction records apart from other mandatory parameters, software/ firmware etc.
65.	The ETM shall have a validation functionality whereby when a smart card is brought in proximity to the reader or when a QR code is scanned with the ETM's camera, the ticket details including the ticket origin and date/time and other necessary details for the conductor to verify are displayed on the ETM display.
66.	Upon successful completion of the transaction the ETM shall transmit transaction data to the Backoffice.
67.	Upon successful completion of the transaction the ETM shall indicate successful

#	Minimum Functional Specifications
	completion via the interface, using both the display and a distinct audio message.
68.	The ETM shall store all required transaction data on-board, included but not limited to: Date and time of transaction, Device ID, Employee ID of Conductor, Fare-tables, Transaction number, Origin and destination, Fare, Activity performed such as Ticket sale & validated, Smart Card serial number (if applicable); Transmission Status (i.e. successfully transmitted/ not successfully transmitted); Vehicle number; Conductor ID and duty / shift details and other details such as schedule time, departure time, bus service type, stage and fare table of routes operated, concession fare charging rules, other fare rules etc.
69.	Only successfully transmitted transaction data records shall be overwritten by new transaction data records.
70.	Shift details shall be transmitted to the Backoffice, along with associated Date/ Time and conductor ID.
71.	The ETM shall provide the functionality to add a configurable fine to a ticket.
72.	There shall be a provision to download daily/weekly/monthly transaction data from ETM through USB cable, in case the data is not communicated to Backoffice.
73.	The ETM shall ensure security and shall be protected from internal as well as external threats.
D. Graphical User Interface	
74.	The AFCS application software should be easy to operate, with a variety of features for the Graphical User Interface.
75.	Provide an interactive, user-friendly graphical user interface for ticket and card issuance, card top-ups, and obtain fare-related information.
76.	The GUI should be designed in a highly logical and easy-to-understand manner, requiring a minimal number of selections to perform user functions.
77.	GUI displays should provide high clarity in variable lighting conditions and include automatic brightness control.
78.	Keys should be designed for ease of use, including for visually impaired and hearing-impaired individuals.
79.	The GUI design should prioritize user-friendliness, and fonts used should be easily readable.
80.	Offer a user-friendly and intuitive interface to enhance system use, productivity, and minimize the need for training.
E. Configuration Management	
81.	The system shall define the parameters and classify them as local or global to meet the overall functionality requirement. The exact list will be finalized during design phase considering the parameters used in existing system and submitted to employer for approval.
82.	The Configuration Management system should be capable of adding, removing, editing, and updating. It should configure transit products with parameters such as Product ID, Name, Expiry Date/Time, Number of Days in a Week, Start and End Time, Service Provider, Route/Stop, Device Type, Fare, Discounted Fare, Profile, etc.
83.	Product configuration should enable the setup of transit products for peak hour and

#	Minimum Functional Specifications
	non-peak hour fares, routes/stops, device types, etc. Product Configuration Management should create any number of products as per Cities requirements by adjusting business parameters defined in the business rules.
84.	The Business Rules shall define the use of the fare collection system, including but are not limited to the following aspects: o Operating hours and days. o Fare structure, whether flat, distance-based, stage-based, or KM-based. o Fare products, encompassing the range of tickets available for purchase by commuters, such as single journey, return journey, daily, weekly, and monthly season tickets. o Fare details include the price of each fare product, concession fares, and any usage restrictions, such as outside rush hour. o Payment options available for product purchase, such as cash, credit, prepaid, and debit card. o Locations where fare products may be purchased. o Policies on penalties, administrative charges, and other fees. o Exceptions related to fare media performance and transaction errors. o Rules for issuing and initializing fare products. o Refunds, deposits, receipts, charges, discounts, and penalties. o Categories of commuters with appropriate rules, such as for employees, children, senior citizens, etc. o Interoperability with other modes of transport. o Handling of degraded and emergency operation, etc.
85.	The system should allow us to configure fares for Onward journey tickets, return journey tickets, and group tickets as specified in the business rules document.
86.	The system should configure fares for NCMC, and other ticketing media as outlined in the business rules document.
87.	The system configuration should allow both stages and KM.
88.	Upon fare updates, the fare table should synchronize automatically with the devices.
89.	Scheduled updates to devices should be downloaded and updated locally, with the status updated in Central System.
90.	System configuration should enable configuring device configuration parameters.
91.	System configuration should allow selecting a device and initiating a remote command.
92.	System configuration should allow updating selected device types, groups, and individual devices.
93.	The system should allow selecting individuals or groups of devices for configuration management.
94.	The system should enable selecting and updating or connecting to sync devices for fare, user, terminal parameters, keys, certificates, and software updates.
95.	Parameters shall have an effective date and time which may be any time in the future or in the past such that they are applied with immediate effect. If the effective date and time is set in the future, these parameters shall take effect on the specified date and time without further operator intervention.

<table>
<tr><th>#</th><th>Minimum Functional Specifications</th></tr>
<tr><td>96.</td><td>During the parameter download, the equipment's shall be able to operate normally and the transitioning time to switch to new operational parameters shall not affect normal operations.</td></tr>
<tr><td>97.</td><td>The back-office system will include City-wise Equipment Management functions enabling CRUT to add, remove & configure Cities and new devices for the system.</td></tr>
<tr><td>98.</td><td>Equipment shall manage and initialize all devices.</td></tr>
<tr><td>99.</td><td>Equipment Management should track the complete lifecycle of devices from commissioning to faulty replacement/removal.</td></tr>
<tr><td>100.</td><td>The system should process, manage, and display alarms/alerts raised by the equipment.</td></tr>
<tr><td>101.</td><td>Alarms/Alerts of failures should be captured and reported to Central BackOffice system.</td></tr>
<tr><td>102.</td><td>Notifications like recharge required (low balance), remaining balance, ticket used, etc. to be provided in the mobile application.</td></tr>
<tr><td>103.</td><td>Notification/ Alerts such as Top-up, Recharge, and promotional fare are sent to the users through SMS and email.</td></tr>
<tr><td>104.</td><td>The Equipment should enable generating reports on equipment, alerts/alarms, equipment downtime, and incident lifecycle.</td></tr>
<tr><td colspan="2">F. Transaction Management</td></tr>
<tr><td>105.</td><td>The Transaction Management system shall acquire and process all the transactions from all fare media issued at acceptance infrastructure.</td></tr>
<tr><td>106.</td><td>Transaction Management system should acquire and process all the transactions from all the issuance channels for top-ups, update transit products, refund, renew, reissue cards etc.</td></tr>
<tr><td>107.</td><td>Transaction shall process all transaction types defined by business rules.</td></tr>
<tr><td>108.</td><td>The Transaction Management shall, in future, share the details with the settlement and clearing system of the transactions.</td></tr>
<tr><td>109.</td><td>The System shall be capable of uploading transactions to financial institutions for reconciliation.</td></tr>
<tr><td>110.</td><td>The Transaction Management system shall actively update its Contactless Smart Media Blacklist Table by adding/ removing Contactless Smart Media IDs when the Contactless Smart Media has been blocked physically by the issuer Bank.</td></tr>
<tr><td>111.</td><td>Transaction Management should post all the transit transactions performed either online or through batch processing for transactions performed offline.</td></tr>
<tr><td>112.</td><td>Transaction Management system should be able to process transactions from other transit operator systems.</td></tr>
<tr><td colspan="2">G. Fare Media & Products</td></tr>
<tr><td>113.</td><td>Every transit operator must address fare policy, fare structure, and fare types for transit ticketing. Emerging digital technologies, Smart cards and Paper tickets facilitate the consideration of payment options. Following shall be the minimum Fare Media options for ticketing:
<table>
<tr><th>Sl. No.</th><th>Fare Media</th></tr>
<tr><td>1</td><td>Paper Ticketing</td></tr>
<tr><td>2</td><td>Pre-Printed Ticketing (ATVM)</td></tr>
</table>
</td></tr>
</table>

#	Minimum Functional Specifications	
	3	Smart Cards (Open & Closed Loop)
	4	Mobile Ticketing & Passes

Sl. No.	Fare Products
1	Single Journey
2	Return Journey (Multi-Usable)
3	Concessions
4	Passes
5	Group Ticket

H. Settlement and revenue reconciliation	
114.	The central system must feature automatic generation of daily, monthly, and yearly reports for revenue reconciliation utilizing revenue data including transactions, audit registers, and cash amounts. Reports should be generated globally, station-wise, operator-wise, and shift-wise.
115.	The functionality should offer flexibility to address any manual entry errors. Provision for entry correction (with reasons stated) within a defined period should be included.
116.	It should provide a transparent account of revenue figures. Any discrepancies highlighted in revenue figures reconciliation should be visible in detailed reports.
117.	AFC Backoffice system shall be capable of checking and handling exceptions, missing, duplicate, delayed, and fabricated data, and shall post all the transit transactions performed either online or through batch processing for transactions performed offline.
118.	The maintenance and management of smart card host and Central Clearing House System (CCHS).
119.	The system should reconcile with collected cash/payment and revenue reports from the device at every End of Day (EOD), with a reconciliation report generated for each device at EOD.
I. Inventory Management	
120.	The module shall be able to maintain inventories for all items such as ETMs, chargers, battery banks, ETM paper rolls, pre-printed tickets, smart cards etc.
121.	User shall be able to issue items/devices to the crew with complete history track.
122.	The module shall be able to send alert in case available stock quantity going below from the user defined threshold.
123.	The module shall be able to predict stock consumption based on history.
124.	The module shall allow stock transfer from one division/depot to another.
J. Audit Trail	
125.	The AFC machines and system shall provide a complete audit trial of all transactions, transfers of cash and other payments.
126.	Non-resettable transactions and audit registers shall be provided in ETM, Validators and any ticketing machine to record essential information sent to the central Backoffice.
127.	Unique ticket id - Fail-safe features shall be incorporated to check that no duplicate ticket ids are introduced in the system, either through hardware or software failures. System shall address any other fraud mechanism for revenue erosion from automatic

<table>
<tr><th>#</th><th>Minimum Functional Specifications</th></tr>
<tr><td></td><td>fare collection and accounts system. Sufficient security should be provided to prevent an increase in the remaining value of the ticket except for machines having revaluation function.</td></tr>
<tr><td>128.</td><td>An anti-fraud management system shall be implemented to analyze and collect sales and transaction data and provide intelligence for any possible loss of revenue due to software bugs or fraud.</td></tr>
<tr><td colspan="2">K. MIS Reports</td></tr>
<tr><td>129.</td><td>MIS Reporting is used to perform day-to-day monitoring of the ticketing operations and be responsible for generation of MIS reports.</td></tr>
<tr><td>130.</td><td>The Back office generates reports automatically at end of day. The Back office collate, format and enable end of day and ad-hoc reports to be printed from the data transmitted by the various devices. Data will be stored in a relational database structure to permit ad-hoc and detailed log reporting.</td></tr>
<tr><td>131.</td><td>MIS reporting should be capable of extracting reports from the day of operations.</td></tr>
<tr><td>132.</td><td>Details of the parameters of report will be finalized during the design phase.</td></tr>
<tr><td>133.</td><td>Any data of the database shall be exportable in standard formats (such as .csv, .xls, .xlsx files, etc.) for analysis.</td></tr>
<tr><td>134.</td><td>Daily reports on AFCS devices not communicating to FI host systems at EOD settlement processes.</td></tr>
<tr><td>135.</td><td>All reports shall be generated with configurable time parameters, including as a minimum annual, monthly, weekly, daily, hourly and with user defined start-end date and time ranges.
<table>
<tr><th>Sl. No.</th><th>Report name</th><th>Attributes (indicative)</th></tr>
<tr><td>1.</td><td>Daily sales Summary Report</td><td>Date, Ticketing, financial transactions / cash received or refunded, Depot wise, ticket wise.</td></tr>
<tr><td>2.</td><td>Daily ridership summary report</td><td>Date, Transit transaction, City wise</td></tr>
<tr><td>3.</td><td>Ridership report</td><td>Date, Transaction data ticket wise, depot wise, Route wise</td></tr>
<tr><td>4.</td><td>Log reports</td><td>Date, time, activity logs</td></tr>
<tr><td>5.</td><td>Inventory reports (issuance)</td><td>ETM, Charger, battery bank Paper rolls, pre-printed tickets, Smart cards/NCMC cards</td></tr>
<tr><td>6.</td><td>Equipment Inventory</td><td>ETMs, Validators, charger, battery Bank</td></tr>
<tr><td>7.</td><td>Fare media report</td><td>ETMs, Smart cards, Mobile ticket etc.</td></tr>
<tr><td>8.</td><td>Financial reconciliation and settlement reports</td><td>Date, Time, Recon files, Transaction details</td></tr>
<tr><td>9.</td><td>Transaction reports are media wise</td><td>Date, Time, Transaction details, ETMs, Validators, smart cards and Mobile App and available from all sources</td></tr>
</table></td></tr>
</table>

#	Minimum Functional Specifications		
	10.	Transaction reports by location	Date, Time, Transaction details, cities.
	11.	Fare media replacements, adjustments, or refunds by fare media type	Date, Time, Transaction details, ETMs, Validators and Mobile App.
	12.	Blocked smart card reports	Date, Time and Validators.
	13.	Shift end Reports	Date, Time, Transaction details, ETMs.
	14.	Concessional tickets	Date, Time, Transaction details and location.
	15.	Passes	Date, Time, Transaction details and location.
	16.	Conductor Shift details	Date, Time, Conductor ID, ETM No., Shift start time, Shift end time, Route details, Transaction details.
	17.	ETM availability report	Date, Time, ETM No., Location, ETM Status, Shift start time, Shift end time, total operated hours.
	18.	Daily cash collection report	Date, Time, ETM No., Conductor ID, Route information, Location, ETM Status, Total transactions, Total cash collection.
	19.	Conductor-wise shortage / excess report	Date, Time, ETM No., Conductor ID, Conductor Name.
	20.	Reconciliation report should be generated at EOD for each ETM Device	Date, Time, ETM No., Location, ETM Status, revenue collected.

9.9.3. Mobile Application (Android & iOS)

#	Minimum Functional Specifications
A.	**Design**
1.	The app must allow users to register using mobile number/email, manage a personal profile, and securely store payment and travel card details.
2.	The mobile app should be compatible with Android and iOS platform to publish on Google Play Store and Apple App Store.
3.	The app should support English, Hindi and Odia language.
4.	The app should be ultra-light model. The app shall use minimal resources, have smaller file size, requires less memory to provide seamless and efficient performance.
5.	The app should have role-based access. (for commuters, crew etc.)
6.	The app must have capability to store and manage user data, transportation options and other app-related information.
7.	The app shall have OpenStreetMap / any other similar GIS based map for real time bus

#	Minimum Functional Specifications
	location.
8.	The app must allow users to search and Calculate for the fastest/cheapest trip options by selecting an Origin and Destination (O-D).
9.	The app shall be able to integrate with payment gateway to support various payment modes such as NCMC/ debit/credit card, wallet, UPI etc.
10.	The app must allow a user to book and pay for a E-Ride (Electric Rickshaw) directly within the app, specifically for the "first-mile/last-mile" connection between their home/destination and the nearest bus stop and enable passengers to book and pay for their journeys using various payment methods, including mobile payments.
11.	The must allow to Issue digital tickets/passes to passengers, eliminating the need for physical tickets.
12.	The app shall be able to integrate with SMS gateway for OTP and other information.
13.	The app shall use secure authentication methods for user signup and login (such as OTP based login).
14.	The app should maintain a responsive user interface with minimal loading times.
15.	The app should be capable of publishing and consuming data through open mobility protocols to integrate with open mobility networks/platforms for seamless information interchange.
16.	The app shall receive regular updates to fix bugs, address security vulnerabilities, and incorporate new features and improvements.
17.	The app shall be integrated with AFCS and AVLS to obtain real-time transportation data, such as bus locations, estimated fare and estimated arrival times.
18.	The app shall have facility to integrate with AFCS module to generate QR code-based tickets. The app must generate a dynamic, non-transferable QR Code for purchased tickets and passes, which can be validated by the on-board ETM/conductor scanner
19.	The commuter will be able to book and cancel the tickets.
20.	The app shall display in-app notification, including details such as ticket number, journey details, and QR code.
21.	The app shall allow booking cancellation and display in-app notification, including details of the refund amount and transaction ID. Integrate with payment gateway for refund transaction amount.
22.	The app shall have feature to flash important information/circulars in scroll, pagination, static form.
23.	The app must be compatible with Department of Telecom (DoT)regulations. Access to users with complete/partial hearing and visibility disorder.
24.	The app must have feature to guide the users about places of attraction within the city.
25.	Crews shall be able to mark their attendance through the app. The app shall automatically capture the current geo location and match with the duty start point of crew for validation purposes.This data shall be synced with AVLS.
26.	Crews shall be able to view and accept and decline their assigned duties in the app. In case of duty decline, crew from spare shall be assigned on the duty.
27.	The app must feature a dedicated section where users can:

#	Minimum Functional Specifications
	○ Report on an item lost on a specific bus/route with a timestamp ○ View a searchable list of items found by CRUT staff, with contact details for retrieval.
28.	The app should allow a user to set a specific destination stop. The app will then send an audio/vibrational alert 1-2 stops before the destination stop is reached, ensuring the commuter doesn't miss their stop while distracted.
29.	The app must serve as a central hub for CRUT's non-transit services, displaying real-time information on: Bus Queue Shelter (BQS) facilities (e.g., washroom availability, ATM presence).
30.	The app must include an SOS button that, when pressed, instantly sends the user's real-time GPS location and trip details to 2 pre-configured emergency contacts and the CRUT control room, with an option to notify Police/Emergency services.
31.	The app must display the current occupancy status of an approaching bus (e.g. 'Seats Available', 'Standing Room Only', 'Full') in graphical based on data from the AVLS.
B.	**Graphical User Interface (GUI)**
32.	The app shall have journey planning functionality. Commuters shall be able to view bus connectivity between two points (O-D). For example, if commuters want to travel from point A to C and A to B have feeder service and further B to C have express service, then app should be able to display connectivity and schedule of buses.
33.	The app shall display estimated travel time between source to destination.
34.	The app shall display ETA of buses at station/stop (buses arrive in next 30 minutes (configurable)) based on the input provided by the commuter.
35.	The app shall display nearest bust stop based on the commuter input or by his/her live location.
36.	The app shall display the list of all the stops in the route selected by commuter. Also, it should be shown in digital cartography (Open Street Map or similar) the area and the route of the line.
37.	The app shall display the buses passing the bus stop at various intervals for the day. (buses timetable)
38.	The app shall have search feature for bus stops, buses between two stops, route no. etc.
39.	The app shall be integrated with IMS for commuters to raise and track their concern/provide feedback pertaining to Booking experience, journey, fare, crew behavior, cleanness, improper stoppage etc.
40.	Users (Cities) shall be able to provide resolution on the raised ticked and closed accordingly.
41.	Commuter shall be able to see his/her journey history.
42.	Commuters shall be able to choose his/her favorite or frequent journeys to quickly retrieve the buses arriving at his/her favorite bus stop.
43.	The app shall be able to display relevant alert messages and push notifications.

9.9.4. Enterprise Management System (EMS)

#	Minimum Functional Specifications
A. General Functions	
1.	For effective operations and management of IT Operations, there is a need for an industry-standard Enterprise Management System (EMS). Given the expanse and scope of the project, EMS has become very critical for IT Operations, IT Service Management and SLA Measurement. Some of the critical aspects that need to be considered for operations of IT setup are Network Fault Management, Network Performance Management, Centralized and unified Dashboard, Centralized and customizable service level reporting, IT Service Management Ticketing tool, Asset Management.
2.	The Monitoring solution should provide Unified Architectural design offering seamless common functions including but not limited to: Event and Alarm management, Auto-discovery of the Network environment, Correlation and root cause analysis, Reporting and analytics.
3.	The OEM of the proposed monitoring solution shall be present in latest Gartner's Market Guide Report for the year 2025. The documentary proof must be enclosed with the bid.
4.	There should be a tight integration between infrastructure metrics and logs to have the single consolidated console of Infrastructure & security events.
5.	Consolidate IT event management activities into a single manager of manager that allows operator to quickly identify the cause of the IT incident, reduces duplication of effort and decreases the time it takes to rectify IT issues.
6.	The Operator should be able to pull up security events related to a given Configuration Item, from a single console which also has NOC events, and use the security events to triage the problem. This way the Operator gets consolidated system/network event details and security events (current and historical) from the same console and save time in troubleshooting / isolating the issue.
7.	The solution should have capability to perform cross domain correlation with alarm correlation built-in algorithms from Network, Systems and other domain events as well as KPI patterns, also correlation should not be limited to only parent-child or service mapping relationships.
8.	The operator should be able to build correlation rules in a simple GUI based environment where the Operator should be able to correlate cross domain events.
9.	Scalability – The system should be capable of supporting at least 15 thousand network flow per second on single server with capability to capture each unique traffic conversations.
10.	The solution shall provide future scalability of the whole system without major architectural changes.
11.	The solution shall be distributed, scalable, and multi-platform and open to third party integration such as Cloud, Virtualization, Database, Web Server, Application Server platforms etc.
12.	The monitoring module of proposed solution must not use any third-party database to store data to provide full flexibility and control on collected data.
13.	The proposed solution allows Correlated events to be generated by multi-KPI alerts, correlation searches, and anomaly detection algorithms.

#	Minimum Functional Specifications
14.	The Correlated events view provides filters and tools to help you organize notable events, examine the details of events, investigate the cause of the event, and then resolve and close the notable event.
15.	The Anomaly event configuration engine can be configured to perform actions on anomaly events, including running a script, sending an email, creating a ticket in 3rd party ticketing tools, adding a link to a ticket in an external system, and any other custom actions that are configured.
16.	The proposed solution must support anomaly and correlated event aggregation automatically or through a user defined aggregation policy that helps to group notable events to organize them in the Notable Events Review.
17.	The proposed solution must provide an aggregation policy to employ machine learning algorithms to groups of polled data or KPIs.
18.	The proposed solution must provide a customizable anomaly, baseline and static event aggregation policies that group notable events based on the following criteria: o A field matches a string does not match sum of occurrences o A Sum of occurrences of the field and value o A field value sum greater than a size or less than a size o A field matches a string before filter and after filter
B. Log management	
19.	The proposed solution must provide a customizable control of grouping of log events in the following ways: o Split events and log into multiple groups by one or more fields, such as source or host. Show nearby and surrounding events based on time o Extract all the fields and list them to filter data based on data indexed in each field such as top 5 values of data indexed in columns
20.	The proposed solution must allow customization of visualizations of IT data and key business metrics, and map KPIs to these visualizations to easily view the health and performance of what matters most.
21.	Show unique log event patterns from collected data and allow drill down on these events for faster troubleshooting and investigation.
22.	Configure a shape or icon in the dynamic dashboard to act like a KPI or adhoc search widget.
23.	Configure threshold to determine the color of the widget which indicates the status of the metric.
24.	Configure cross domain data search widgets in dynamic dashboards & Configure drilldowns to other dynamic dashboards or a custom URL.
25.	The proposed log management solution should include out-of-the-box parsers for various operating systems, databases, applications, network devices, and system logs. Additionally, if any collected logs cannot be parsed then the console must provide seamless automation to extract fields from collected logs via drag and drop functionality to avoid log parsing complexity of collected logs from various syslog/ windows/ application sources.
26.	Proposed solution must provide options to download the raw logs onto a csv format. (For a given IP or a complete application group or an application instance type).

#	Minimum Functional Specifications
27.	Proposed solution should have features for logical grouping of server instances based on applications onboarded/ type of OS/ type of Databases/ type of devices in the log management solution.
28.	Proposed solutions include powerful search engines to find the pattern or key word from the logs stored for a specific IP/server or an application group or a similar application instance deployed for multiple eco systems. E.g., (If user wants to search the logs for a specific IP Range in the web server logs. Search should support with required filters to search from specific servers; multiple webservers belong to the same application and webservers deployed for multiple applications).
29.	The proposed solution must have the capability to provide live log tail to access all log events in real-time from any source in the infrastructure, support keyword-based search capability from the live log tail and highlight the log tail based on keywords for quick live log troubleshooting.
30.	Proposed solution should have custom logging features to ensure that only if certain logs to be logged as required. For example, for application logging bank may want to capture only errors or warnings using certain keywords excluding information events.
31.	The system should have dashboards out of the box, alerts and reports for the errors, in log collection, storing and system should be able to alert through different channels such as SMS, Email and chat whenever the threshold is breached. The ticket should be created in ITSM portal for breached event.
32.	The proposed solution must provide anomaly overlays to view these baselines and track anomalous trends in the KPI data by enabling anomaly detection and forecast algorithms that detect statistical outliers in KPI search results.
33.	The proposed product must provide user-friendly dashboards and reports featuring intuitive chart types such as gauge, grid, heat map, donut chart, and others for effective monitoring of operations. It should include out-of-the-box dashboards and reports, along with support for easily creating and maintaining custom dashboards. The dashboard and report builder must be simple and intuitive to use, offering real-time visualization during the creation process to ensure quick, accurate, and efficient design.
34.	The system shall be capable of operating at a sustained 5000 EPS per collection instance from day one. The system shall provide the ability to scale higher event rates by adding multiple collection instance.
C. Application Performance Monitoring	
35.	Platform should support both Linux or Windows flavors for the deployment of its core components (such as management server) and should not require any kind of "root access" or "root privilege" to deploy agents in the monitored applications.
36.	Platform Should have out of the box support for automatic baselining wherein the solution can automatically learn the behavior of monitored applications and set baseline thresholds automatically for all the monitored metrics, including: o Server metrics o End User metrics o Custom metrics o Business metrics o Database metrics

#	Minimum Functional Specifications
	○ VM Metrics (CPU, Memory, disk I/O latencies, etc.) The solution must also provide an option of fixed as well as rolling time periods to calculate these thresholds. There should not be any limit to number of metrics being auto baselined.
37.	Platform Shall provide an auto-discovered dynamic visual representation of the application topology comprising components and activities in the monitored application environment. The discovered topology visualization (map) must clearly depict the following information: ○ Round trip time of the request between components (including network and backend time). ○ Baseline indicators for requests between components the solution should also provide options to manage/configure/customize the visualization (map) to suit the monitoring needs.
38.	Platform Should be automatically discovered end-to-end, cross component processing paths used to fulfil a request for all services provided by the monitored application, without requiring any changes to the existing application code. After discovering the transactions, the solution should be able to further categorize the transactions into below buckets automatically, based on their behavior: ○ Normal ○ Slow ○ Very Slow ○ Stalled ○ Errors ○ VM details (Over provisioned, under provisioned). The solution must be able to automatically segregate and sort these transactions based on load, errors, response times, health violations as well as percentage contribution to overall application average response time.
39.	Platform Should also have an option to identify network performance bottlenecks and app/network-interaction bottlenecks using an agent that resides on the application instance without needing any kind of network tapping or data capture appliances. The solution should be able to detect load balancers, TCP endpoints etc. and depict it on a dynamic network map. The solution should also be able to capture network KPIs such as throughput, latency, TCP Loss, SYN/FIN errors, client limited, client zero, TCP retransmission timeouts, server limited, server zero etc. in-context to the problematic application transaction with a provision to drill down from the application transaction to any correlated or contextual network metric.
40.	Platform Should be able to provide database monitoring in context, supporting wide array like RDBMS, MySQL, NoSQL etc. **The solution should be able to report:** ○ top database activities (e.g. Top SQL, Top Users, Top Programs). ○ database activity profile overtime (identify patterns). ○ Collect and store all database wait events and correlate with SQL/Stored Procedures. ○ Collect and store SQL/Stored Procedure Key Performance Indicators (CPU, Count, Reads/Writes)

#	Minimum Functional Specifications
	○ Collect and store database instance level statistics (table size, row count, indexes) ○ Collect and store database server/host Key Performance Indicators (CPU, Memory, …) ○ breakdown of latency of stored procedure components ○ Collect SQL Explain & Execution plans ○ Collect and store performance data on database Objects (Schemas, tables, indexes).
41.	Platform Shall provide comprehensive coverage for container based microservices monitoring along with container orchestration layer monitoring support. The solution should be able to monitor the container images and the services running on those images. The solution should also be capable of pulling information from the orchestration layers like Kubernetes/open shift and presenting relevant metrics like pod metrics, node metrics, deployment metrics, endpoint metrics etc.
42.	Platform Should be ITIL v4 certified with 12 practices and with all modules from the same OEM to avoid any integration conflicts / challenges.
43.	Platform Should have a unified agent to collect the metric, telemetry and traces data from the target server. The agents should set polling interval as low as 1 second with low overhead on target server infrastructure, platform should support both Linux or Windows flavors for the deployment of its core components (such as management server) and should not require any kind of "root access" or "root privilege" to deploy agents in the monitored applications.
D. Network Performance Management	
44.	The solution must provide discovery & inventory of heterogeneous physical network devices like Layer-2 & Layer-3 switches, Routers and other IP devices and do mapping of LAN & WAN connectivity with granular visibility up to individual ports level.
45.	The solution must support custom device templates to support Generic SNMP devices as well as expensive support on traffic encryption including SNMP v3 with AES-256 encryption.
46.	The solution must automatically discover, map, and visualize the full network path between source and destination nodes, including all intermediary hops, while providing granular hop-by-hop performance metrics (latency, packet loss, availability) with threshold-based alerting, as well as end-to-end aggregate metrics (with historical retention for trend analysis) to comprehensively assess path health and performance.
47.	The system must correlate hop-level degradations with service-impacting incidents, enrich paths with node metadata (hostname, IP, geo-location, ISP/ASN details, and contact information), enforce customizable performance policies for proactive violation alerts, and deliver an interactive visualization interface—enabling drill-down into per-hop metrics, logs, and business-context tags for detailed analysis and operational troubleshooting.
48.	The EMS should provide very powerful event correlation platform/engine and thus must filter, correlate & process the events that are created daily from network devices. It should assist in root cause determination and help prevent flooding of non-relevant console messages.
49.	It shall provide Real time network monitoring and Measurement offend-to-end Network performance & availability to define service levels and further improve upon them.

#	Minimum Functional Specifications
50.	The Network performance operator console should provide operators with seamless transitions from fault data to performance data. For example - select a EMS fault event and fault drill down must also provide historical, near real time and correlated data without switching the page.
51.	The solution should have the ability to do "baseline" performance metrics and determine normal operating values and patterns by self-learning algorithms on a day, week, month, etc. and ability to configure threshold on these values. The solution should also have built algorithms to start the monitoring with zero threshold configurations.
52.	The proposed system should be able to auto-calculate resource utilization baselines for the entire managed systems and networks and allow user choose algorithms that are more relevant to specific KPI in case of false positive.
53.	The agents should be extensible and customizable, allowing incorporation of any required monitoring source not included in the out-of-the-box monitoring policies. With capabilities to collect and analyze performance data from the operating system and installed applications and use historical patterns to establish performance baselines.
54.	All baseline thresholds should have lower bound, higher bound, polarity, deviation set point and reset point for ease of use.
55.	Systems should have anomalies detection, outlier detection and stop alarm flooding with these dynamic thresholds.
56.	The solution should be capable of performing prediction- based anomaly detection to identify unusual or unexpected events and measurements within the monitored environment.
57.	The solution should provide AI and ML capabilities to help in preventing of Network problems before they occur the solution should include unsupervised learning module to gather real-time network data and which learns the behavior of devices, applications, and users on the network It should be capable to bring together and correlate network and application data to predict anomaly and performance issues.
58.	The solution must provide agentless and agent-based methods for managing the nodes and have the capability of storing events / data locally if communication to the management server is not possible due to some problem. This capability will help to avoid losing critical events.
59.	The EMS admin console must provide the ability to start, stop and restart the agent on target server infrastructure and the agent should provide collection capabilities not limited to just KPIs but also support collecting raw logs as well as packets.
60.	The proposed solution must provide agentless as well as agent-based monitoring for server infrastructure. The agents should set polling interval as low as 1 second with low overhead on target server infrastructure.
61.	The proposed solution should include a distributed search engine data-store to ingest various types of textual, numerical, geospatial, structured and unstructured data.
62.	The EMS admin console must provide operators with seamless automation to extract fields from collected logs via drag and drop functionality to avoid log parsing complexity of collected logs from various syslog/ windows/ application sources.
63.	It shall provide Real time network monitoring and Measurement offend-to-end Network performance & availability to define service levels and further improve upon them.

#	Minimum Functional Specifications
64.	The EMS solution shall keep historical rate and protocol data for a minimum of 30 days (most recent) in its long-term operating database. All data in that database shall have a minimum 5-minute window granularity.
65.	The proposed system should be able to administer configuration changes to network elements by providing toolkits to automate the following administrative tasks of effecting configuration changes to network elements: ○ Capture running configuration. ○ Capture startup configuration ○ Upload configuration. ○ Write start-up configuration. ○ Upload firmware
66.	The platform should be able to detect vulnerabilities for Linux and Windows server The Monitoring platform must integrate seamlessly with the NVD to automatically import and update vulnerability information. The platform should contextualize NVD data with additional information such as asset criticality, network exposure, and exploitability and help create custom prioritization.
67.	The platform should have unified agents to collect telemetry data like Metric, log and vulnerability details.
68.	The platform should provide comprehensive OOTB organization wide vulnerability dashboard which should help identify actionable vulnerabilities to remediate.
E. Network Flow-based Traffic Analysis	
69.	The proposed traffic monitoring system must be able to track all network flow (including NetFlow v1-v9, Jflow, Sflow and IPFix) of traffic on the network and identify malicious behavior with all IP conversations.
70.	The NetFlow analyzer must be capable of automatically identifying and classifying globally recognized applications (like YouTube, Skype, WhatsApp, Dropbox) and cloud services (such as AWS, Azure, Google Cloud, Microsoft 365, Salesforce, etc.) based on flow data. In case of unknown application, the solution should provide CSV import support to resolve the DNS.
71.	The proposed system must provide details of applications, hosts, and conversations consuming WAN bandwidth to isolate and resolve problems.
72.	The proposed system must provide baseline network flow policy to detect anomaly in traffic usage behaviors.
73.	The solution must provide flow data explorers with capability to analyze extracted data using multiple columns, chart type, group by operators and filters. System must also provide dashboard to flow data explorer drill down capability.
74.	The proposed solution must be able to monitor and report on a variety of unique protocols (used in the overall deployed solutions) per day and display utilization data for each protocol individually. This capability must be available for each monitored interface uniquely.
75.	The proposed solution must keep historical rate and Ip to Ip, Ip to protocol, protocol to protocol conversation data for a minimum of 3 months (most recent) in its current long term operating database. All data in that database must have a maximum 15-minute window granularity.

#	Minimum Functional Specifications
76.	The proposed solution should include a distributed search engine data-store to ingest various types of textual, numerical, geospatial, structured and unstructured data.
77.	Should support use of policies that can detect violations based on blacklist/whitelist matches.
78.	The proposed solution must keep historical rate and protocol data for a minimum of 60 days (most recent) in its short-term operating database. All data in that database must have a minimum 5-minute window granularity with option change retention period"
79.	The system must support the ability to create reports that allow the user to search all IP traffic over a specified historical period, for a variety of conditions. ○ Search for any traffic using a specific configurable destination port or port range. ○ Search for any protocol in use by a specific host, interface or list of hosts or interfaces.
80.	The proposed solution should have at least 3 deployments (in state/central Government/ PSU) in India with 10,000 devices or more being monitored in each of these deployments in last 5 years. Reference PO copy and completion/ sign-off document need to be submitted at the time of bid submission.
81.	The OEM of the proposed Network Monitoring solution should have presence of min. 10+ years in market in India. The documentary proof should be submitted at time of the bid submission.
82.	The proposed EMS solution must comply with the following standards: CIS certification, ISO 27034-1 for application security or equivalent, ISO 27001:2022 for information security management or equivalent, GDPR for data privacy, SOC 1, SOC 2 Type I & II and SOC 3 for service organization controls. This ensures robust security, regulatory compliance, and comprehensive data protection across all managed network operations. Valid supporting documents must be submitted with the bid.
F. Asset Management	
83.	A configuration management database shall be established which stores unique information about each type of Configuration Item (CI) or group of CI.
84.	The proposed solution allows scheduling periodic reports to check current software and hardware inventory.
85.	The proposed solution must allow attaching CI records to generated service tickets.
86.	The Proposed solution should provide end to end Asset Life Cycle Management: Makes it easier to handle the complete life cycle of an asset, that is, all stages/modules from procurement to disposal.
87.	The Proposed solution should support maintaining AMC/Warranty Information with Alerting when about to expire also provide Asset Deletion capabilities enabled with workflow engine.
88.	The Proposed solution should support Software License Metering: Helps to understand the software license compliance and the use of unauthorized software in the organization and helps to act proactively to curb illegal usage and problems associated with it.
89.	The proposed solution should provide Asset Dashboards/Reporting: Graphical representation of all the assets based on Category, location, aging of the asset, customer, which can be further level down to the incident record ID.

#	Minimum Functional Specifications
90.	The proposed solution should provide out of the box purchase and contract management modules to support end-to-end asset life cycle.
91.	The proposed solution should be able to take remote of the Desktops and laptops. Ability to remotely do chat, voice call, video call, transfer files across machines.
92.	The proposed solution must provide assets baseline to manage and track assets effectively.
93.	For ensuring seamless integration, the proposed asset management solution should be provided by the same OEM as the service desk.

9.10. Integration Requirements

Integration is essential for proposed solutions to ensure seamless communication and data exchange between various components and stakeholders. The proposed solution or any module thereof should leverage a plug-and-play approach, with standardized APIs and a flexible framework to offer compatibility with a wide range of hardware and systems, including but not limited to:

- The proposed ITMS application suite shall have the capability to integrate the data of the existing into the agreed format of the CRUT.
- SI shall have been responsible for integration of the existing fare mechanism for all available bus operators, and CRUT's own passes into the web portal and mobile application for commuters.
- SI's proposed system shall have the capability to integrate the data as provided by the third party or CRUT into the proposed sub-systems.
- SI shall have to understand the protocol and do the required integration of the existing or upcoming PIS boards with the central application.
- Bidder shall have to provide necessary API, Data, and integration support to the CRUT as and when required during the contract period.
- Under no circumstances SI excuse on failure of integration requirement with existing or upcoming systems with any other third-party applications / acceptance on partial integration/ unforeseen challenge in integration etc. will not be acceptable by the Authority. The authority will have full right to immediately initiate termination of the contract with seizure of entire supplies made by the bidder and its monetary instruments. The bidder will be recommended for blacklisting from bidding in the state of Odisha.
- Bidder shall have to develop and integrate Open APIs such as but not limited to GTFS (General Transit Feed Service) data (Static and Real-time), ONDC (Open Network Digital Commerce) for the proposed systems, with third party application as instructed by the CRUT. The open APIs shall be plug and play basis with the standard format, relevant documentation and easy to understand and adopt by third parties.
- Bidder shall have to develop, integrate, and comply with the guidelines and initiatives issued from the relevant authority's time to time within the contract duration such as but not limited to MoHUA, MoRTH, local RTO Authorities etc.
- All the payment gateway integration responsibility pertaining to the generating of the successful Mobile based Commuter Tickets shall be under the responsibility of the SI.
- All the MDR charges shall be collected by the SI from commuters upon the fare charges

decided by the CRUT and pay to the payment gateway service provider.

- All the ticketing charges collected by the SI from the commuters must be reconciled and settled with the bus operator from set business rules by CRUT.
- The SI shall provide and integrate ITMS system with SMS, SMTP, whatsapp based systems at no additional cost to CRUT.
- The SI shall have the capability to integrate with CBT/ABT features in near future.

1. **Hardware devices such as –**
   - Bus OBITS (Provided by Bus Operator)
   - ETMs (To be supplied by the SI)
   - QR & Card Validators in Bus, etc.
   - ADAS & DFMS
   - APC (Provided by Bus Operator)

2. **Systems/platforms such as –**
   a. Internal modules
      - CMS
      - AVLS
      - AFCS
      - PIS
      - IMS / EMS
      - Mobile App
      - APC & ADAS
      - DMS / CMS
      - HRMS
      - FMS
      - BMS
      - VPSD

   b. External modules
      - Website/Mobile app
      - Bank interface
      - Automated Payment Mechanism
      - Charging Infrastructure
      - Existing ITMS module of CRUT and
      - Any other platform/solution, i.e., ERP, Command and Control Centre, Monitoring Dashboard, Payment Gateway, SMS services, Emails, social media, Open Network for Digital Commerce (ONDC), etc.

Following is the illustrative list of touchpoints and parameters to be integrated with proposed solution:

Sl. No.	Particular's	Minimum requirements for integration
1.	**Automatic Vehicle Location module**	**Internal integrations with-** 1. Depot management module for a. Run kms b. Key performance indicators such as-

		c. Number of buses available as per schedule d. Number of trips completed by the bus e. Number of breakdowns f. Number of accidents g. Adherence to schedule departure and arrival time h. Availability of VHMD data, etc. i. Vice versa too if required 2. Automatic fare collection module for a. Routes b. Bus stops (stages) **External integrations with-** 1. OBITS for a. Routes b. Bus stops c. Geo-fence data d. Ignition status e. Driver login (DDU) f. Route/Trip status g. Location data h. Timestamps i. Speed j. Incident alerts k. VHMD parameters l. Passengers counting data, etc. 2. In-bus display boards for a. Current Stop b. Next stop c. Route details d. Ad-hoc message 3. In-bus announcement for a. Current Stop b. Next stop Ad-hoc message
2.	**Automatic Fare Collection module**	**Internal integration with** 1. Automatic Vehicle Location System module for a. Routes b. Schedules c. Bus stops (stages)

		d. Crew allocation. 2. Mobile Application & Web Portal for a. Fare data. b. Tickets issue c. Tickets cancellation d. Ticket validity e. Payment Gateway and payment details etc. 3. E-ticketing machine for a. Route b. Schedule c. Bus tops d. Geo-fence data e. Fare table. f. Device ID g. Device status h. Transaction data, etc. **External integration with** 1. Validators for a. Fare table b. Configurable parameters such as bus stop codes c. Blacklisted cards d. Validity of tickets and cards e. Device ID f. Device status g. Offline & online Transaction data, etc. 2. Integration with bank interface for a. Device whitelisting and keys management. b. Issuance and acquiring for all the card functionalities according to the specifications. c. Processing NCMC transactions settlement and reconciliation, etc.
3.	**Passenger Information System**	**Internal integrations with-** 1. Automatic Vehicle Location module for a. Routes and Schedules b. Estimated time of arrival c. Estimated time of departure, etc. d. Crew details. 2. Mobile App for a. Current Stop name b. Route No. and name

		c. ETA for the next 5 buses (Bus Reg. No.), (number should be configurable through the application). **External integrations with-** 1. Passenger information system for PIS boards (terminals/depot) web portal and mobile app for a. Bus registration no. b. Routes and Schedules c. Estimated time of arrival (ETA) d. Estimated time of departure (ETD) e. Crew details. f. Current date time
4.	**Mobile Application**	**Internal integration with-** 1. Automatic Vehicle Location modules for a. Routes and Schedules b. Estimated time of arrival c. Crew duty. 2. Automatic Fare Collection modules for a. Fare data. b. Tickets / Pass issued. c. Tickets / Pass cancelled. d. Ticket / Pass validity, e. Payment details etc 3. Incident Management System for a. Commuters feedback, query **External integration with-** 4. Payment gateway for a. Payment transaction data 5. External apps such as journey planner/ticketing app/etc. a. Routes and Schedules b. Estimated time of arrival c. Fare data. d. Tickets / Passes issued. e. Tickets / Passes cancelled. f. Ticket / Pass validity, Payment details etc.
5.	**General Integration Requirements**	1. All internal and external APIs should be designed in a modular manner, allowing for incremental development and modifications without impacting existing functionality. It should also allow users to configure

		customized requests by including only the data they need for the purpose. 2. Provide documentation detailing available endpoints, request/response formats, and error codes for any other internal/external integrations. 3. Authenticate and authorize integrations using methods such as OAuth, API keys, or certificates. 4. Enable options for pushing data to external systems or allowing them to pull data as needed. 5. Support integration with standard data formats like JSON, XML, or CSV for data exchange. 6. Support widely accepted communication protocols such as HTTP/HTTPS, FTP, WebSocket's, MQTT etc. 7. Deploy tools to monitor data transfers and logs for troubleshooting and auditing purposes. 8. Providing ongoing support and maintenance for the integration capabilities. Establish API versioning strategy to manage changes and maintain backward compatibility. 9. Provision of sample codes, request/responses to help System Integrator, integrate with the API of the proposed solution or module thereof. 10. Provide a dashboard that displays real-time metrics on the number of API requests and responses and track and display error rates and types to help identify and troubleshoot issues. Integration with existing & Upcoming ITMS modules to push the data in proposed ITMS solution through API.

9.11. Cloud Data Centre and DRC Services

- The SI is expected to design and determine requirements for various ICT infrastructure components as required for functioning of the solution.
- The SI will be responsible for design and provisioning of required cloud infrastructure considering ITMS application and services procured under this RFP for the period of 60 months from date of go-live or successful UAT.
- The successful bidder will be responsible for deployment of performance monitoring tools with cloud DC and DRC to monitor Service Level Benchmark stipulated in the RFP document.
- The details of the hardware components required for executing the project shall be indicated in the proposal submitted by the SI.
- The Disaster Recovery/ Business Continuity Planning shall be done using services of Cloud.
- The SI shall be responsible for all activities regarding installation and commissioning and further maintenance ICT infrastructure which includes:

  - Software licenses and required support for servers.
  - New networking infrastructure (if envisaged) by the bidder and its maintenance.
  - Any other components required for functioning of solution.
  - Provision of appropriate internet bandwidth between DC and DR.
  - Detailed risk management plan.
  - Cloud services will be provided by SI and owned by CRUT.
- The successful bidder will be required to provide support for updates, upgrades, security patches etc. for software licenses.
- SI should inform and take approval from CRUT for any updates / upgrades in the software licenses before making any upgrades on IT infrastructure provisioned on Cloud. These updates/upgrades shall be tested by the application development teams on the existing application before applying and release of same in production.
- The Staging Infrastructure on the Cloud shall be the responsibility of the bidder only without any additional commercial implication.
- The proposed cloud DC and DRC should deploy on virtual private cloud/ Government of India Community cloud.
- SI shall offer DR as a service on cloud for all resources offered on primary Cloud DC site.
- The CRUT data is highly confidential and critical and therefore the data should be highly secured and must reside within India. Encryption capabilities in storage shall be required for maintaining the data the Successful Bidders needs to provide required support.

9.12. Training & Capacity Building

- The SI shall conduct proper need-based training to the CRUT staff and existing Command & Control Centre Staff of the CRUT.
- SI shall provide hard and soft copies of the training materials to all the trainees.
- The SI may conduct training in English language only after putting his best efforts for conducting in local (Odia) language. The decision on this may be taken by the Authority at CRUT
- The training shall be held at various office/department locations as finalized by CRUT.
- SI shall conduct quarterly refresher training for staff and deliver required training to stakeholders as and when required throughout the project tenure or Induction of any new functionalities or responsibilities.
- Upon exit management or contract termination or contract expiration, SI shall be responsible to provide the necessary training and capacity building to the CRUT staff or designated third party.

9.13. Integration with the other systems of CRUT

- The proposed ITMS application suite shall have the capability to integrate the data of the existing buses and feeder services GPS device into the agreed format of the CRUT.
- SI shall have been responsible for integration of the existing fare mechanism for all available bus operators and CRUT's own passes into the web portal and mobile application for commuters.
- SI's proposed system shall have the capability to integrate the data as provided by the third

party or CRUT into the proposed sub-systems.

- SI shall have to understand the protocol and do the required integration of the existing or upcoming PIS boards with the central application.
- Bidder shall have to provide necessary API, Data, and integration support to the CRUT as and when required during the contract period.
- Under no circumstances SI excuse on failure of integration requirement with existing or upcoming systems with any other third-party applications / acceptance on partial integration/ unforeseen challenge in integration etc. will not be acceptable by the Authority. The authority will have full right to immediately initiate termination of the contract with seizure of entire supplies made by the bidder and its monetary instruments. The bidder will be recommended for blacklisting from bidding in the state of Odisha.
- Bidder shall have to develop and integrate Open APIs such as but not limited to GTFS (General Transit Feed Service) data (Static and Real-time), ONDC (Open Network Digital Commerce) for the proposed systems, with third party application as instructed by the CRUT. The open APIs shall be plug and play basis with the standard format, relevant documentation and easy to understand and adopt by third parties.
- Bidder shall have to develop, integrate, and comply with the guidelines and initiatives issued from the relevant authority's time to time within the contract duration such as but not limited to MoHUA, MoRTH, local RTO Authorities etc.
- All the payment gateway integration responsibility pertaining to the generating of the successful Mobile based Commuter Tickets shall be under the responsibility of the SI. All the MDR charges shall be collected by the SI from commuters upon the fare charges decided by the CRUT and pay to the payment gateway service provider. All the ticketing charges collected by the SI from the commuters must be reconciled and settled with the bus operator from set business rules by CRUT.
- The SI shall provide and integrate ITMS system with SMS, SMTP, whatsapp based systems at no additional cost to CRUT.
- The SI shall have the capability to integrate with CBT/ABT features in near future.

9.14. Technical Manpower

SI shall be responsible for end-to-end project management for the implementation and maintenance of the ITMS components as well as required deployment manpower during the implementation as specified and submitted along with the technical bid and deployment of the technical resources for monitoring & operation of the ITMS applications and its outcomes. SI shall deploy a competent team of resources as per CRUT calendar and operation timings for all 365 days of years in operation and maintenance phase. The Current estimation of the resources is based on the requirement of the CRUT. However, bidder may self-assess the requirement of the resources over and above the below minimum requirement.

Sr. No	Type of Resource required for Deployment	Allocation of Manpower			
		1st Shift 06:00 AM to 02:00 PM	2nd Shift 02:00 PM to 11:00 PM	General Shift from 10:00 AM to 6:30PM	Total Resources Required
1.	Project Manager / Single Point of Contact	-	-	1	1
2.	Application/Module Experts /Developer (For Each Module)	-	-	1	4
3.	Business Analyst (MIS and Data Analyst)	1	1		2
4.	Support / Executive staff (for each depot with 100 percent Availability)	1	1		2
	Total required resources	**2**	**2**	**2**	**9**

This is a indicative requirement of technical manpower for successful management of project in monitoring & operation phase. The SI shall assess their own requirement above this and and deploy the additional required manpower for succseful implimentatiom of project.

The exact role of these personnel and their responsibilities have been defined below in indicative manner and shall monitor and amend by CRUT as and when required. SI shall be required to provide such technical resources meeting following requirements:

- All such key experts shall be without any criminal background / record. (Necessary understanding shallhave to be provided as and when deployed/ replaced the resources by the SI).
- The SI shall ensure that the above resources are available to CRUT premises as required for successful management of the project and accordingly finalize the deployment to be quoted in Technical and Commercial Bid of the project.
- CRUT reserves the right to direct the SI to carry out third party background checks of the personnel proposed on the Project for verification of criminal records, at the beginning of deployment or during deployment.
- Upon direction of the CRUT, SI shall have to replace any person, if not found suitable for the job.
- All the manpower shall have to undergo training from the SI for the working of project.
- Detail operational guideline documents shall be prepared during implementation which shall specify detailed responsibilities of these resources and their do's & don't.
- All the key experts proposed in the technical bid to be available at CRUT as and when required by CRUT.

Sr. No	Positions	Educational Qualification	Roles and Responsibility
1.	Project Manager (Project Implementation and O&M Phase)	• BE / B. Tech with M. Tech / MBA along with at least 7 years of Total work	• The designated Project Manager shall provide a single point of contact (SPOC) for the entire project for CRUT to resolve all

Sr. No	Positions	Educational Qualification	Roles and Responsibility
		experience in ITMS/Mobility Domain and 5 years of experience with project of similar nature. • Experience of project management designing and deploying multitenant IT/ICT solution in the Government & Public Sector (G&PS) in India	issues related to this Contract/Implementation of project and operation and maintenance activities. • The Project Manager shall be responsible for directing all designs and work pertaining to the Backend AVLS, AFCS, VPSD, IMS/EMS, Mobile app systems and other ITMS project modules. • The Project Manager shall be available during all significant project events, as necessary to facilitate meetings, project activities, and information flow between the internal and external Processof the project or as requested by the authority or user departments. • The Project Manager shall have a full and complete understanding of the contract documents, deliverables, and site conditions sufficiently to provide adequate direction forco -ordination of work. • The Project Manager shall have experience in design and management of Transportation Similar projects. • Project manager will manage the complete project from bidder's side to see all the roles and responsibilities are fully delivered and acts as a single point of contact for the bidder. • Certified the required assessment as required by the CRUT from the ITMS System data and provide the necessary result in the specified format of the CRUT. • Certified the monthly SLA report from the ITMS system generated

Sr. No	Positions	Educational Qualification	Roles and Responsibility
			data and specified SOP of the CRUT.
2.	Application/Module Experts /Developer	• BE/B Tech in Computer Science/ IT/ MCA or equivalent from a recognized educational institution along with Minimum 5 years' experience in ITMS/ IT Development sector. • Experience of the development of similar nature project in • latest available technologies	• Application/Module Experts /Developer shall be responsible for catering to the O&M requirement pertaining to the AVLS, PIS, VPSD and other ITMS applications from the CRUT's end. • shall be responsible for the working of the deployed solution and support in the patch work of the requirements of the CRUT. • shall be responsible for the application maintenance activity, back plan roll-out, data back-up etc. of the proposed applications. • To be responsible for creating the required new reports from the proposed system as per need of the CRUT from Business Intelligence or MIS application. • To be responsible for providing the required technical support and expertise for each module to CRUT. • To be responsible for the further integration of the proposed application in the O&M phase of the project. • To be responsible for monitoring the application on day-to-day basis in an operation phase.
3.	Business Analyst	• BE /B Tech in Computer Science/ IT/ Electronics or equivalent from a recognized • educational institution along with Minimum 3 years' experience in	• To be responsible for providing updates to CRUT (individuals) and authorities which are related to all the incidents generated or complaints received on daily basis and provide the report to CRUT. • on a weekly basis for the major incidents or complaints raised

Sr. No	Positions	Educational Qualification	Roles and Responsibility
		IT/ICT/Operation sector and proficiency in MS office.	and for which CRUT's intervention is required. • To be responsible for providing knowledge sharing sessions to CRUT personnel monthly in an O&M phase. • To ensure the incident resolution activity to be done by the support team of the SI incidents raised on high priority and coordinate for the same. • To be responsible for providing consolidated reports of the entire progress of the bus operations during the entire month. • To be accountable, providing insights related to the improvement points for the bus operations on monthly basis. • To be accountable, the primary decision-making activities related to bus operations are in ordination with CRUT's team daily. • To be responsible for applying the outcomes of the business analysis and provide measurable outcome. • To be responsible and accountable for data accuracy.
4.	Project Support / Executive staff	• Bachelor's degree in computer science / IT / Electronics / Engineering or equivalent. • Minimum 2–3 years of experience in ITMS or similar ITS projects.	• Responsible for Daily incident and complaint updates / Day to Day operational activities. • Prepare Monthly knowledge-sharing sessions. • Coordinate high-priority incident resolution. • Prepare consolidated monthly operational reports • Act as liaison between client and non-technical teams • Ensure SLA compliance • Monitor ETM device health.

Sr. No	Positions	Educational Qualification	Roles and Responsibility
			• Diagnose and resolve hardware issues. • Ensure timely replacement of faulty devices. • Perform preventive maintenance. • Deploy firmware updates and Maintain logs of device performance and downtime • Provide training to conductors on ETM usage.

9.15. Service level Agreement

The post-implementation SLAs will prevail from the start of the Operations and Maintenance Phase immediately after the go-live of all locations.

The Selected Bidder is expected to provide the following service levels including all within the scope of work in all respects namely networking, cameras, application software, system software, integration with other applications, APIs, hardware. The SLA will be governed based on overall service and not on any individual items. In case these service levels cannot be achieved as defined in the tables below, it shall result in a breach of contract and invoke the penalty clauses. Payments to the Selected Bidder are linked to the compliance with the SLA metrics laid down in the tables below. The penalties will be computed and calculated as per the computation explained herewith. During the contract period, it is envisaged that there could be changes to the SLA, in terms of addition, alteration or deletion of certain parameters, based on mutual consent of both the parties i.e., CRUT and Selected Bidder.

Following tables outline the key service level requirements for the system, which needs to be ensured by the selected bidder during the entire operations and maintenance period. These requirements shall be strictly imposed, and Office of CRUT/designated members will evaluate performance of the selected bidder against the target performance metrics as outlined in the following tables.

The objective of the Service Level Agreement (SLA) is to clearly define the expected level of services offered by the bidder to CRUT for the duration of the contract or until the SLA is amended. The SLA outlines the bidder's responsibility in ensuring the satisfactory delivery of deliverables and services, as well as their correctness, based on the performance indicators.

9.15.1. SLA Monitoring

The Bidder would have to provide Enterprise Management System (EMS) for SLA monitoring which would undertake enterprise-wide proactive monitoring and management. This system would enable proactive monitoring and reporting of any and every issue faced in the enterprise. This solution being very critical would-be set up in a high available mode. The EMS system shall be able to record performance of cloud services and applications/modules for the calculation of SLAs. The proposed EMS must have following functionalities. These include but not limited to:

- Dashboard for DC, DR and application availability and non-availability.
- Generate reports for SLA compliance.
- Provide application response time for individual modules.
- Log for application/environment changes (audit trail).

9.15.2. Automated Vehicle locator System (AVLS)

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured by	Penalty Calculation
1	Availability of Operational Vehicle Mountable Units. If GPS/OBU/Any Hardware failure, then bidder should inform and report the same with Operation in charge/Command Centre within 2 Hrs.	Daily	Critical	99.90 %	99% -to-99.90%	Network Monitoring/ Device health Monitoring report	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
2	AVLS Central System Availability	Monthly	Critical	>99.9 %	99% -to-99.90%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
3	Reliable without any loss of data, Seamless connectivity when moving between Bus Stops {GPRS Network}	Monthly	Critical	>97 %	95% -to-96.99%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
4	Each AVLS Unit should ensure maximum 10	Monthly	Critical	>97 %	95% -to-96.99%	SLA Management &	Penalty = Monthly Fee ×

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured by	Penalty Calculation
	second update time for vehicle location					Monitoring Tool	0.02 per breach (High severity)
5	Replacement Time of Malfunction AVLS Unit	Daily	Major	1 day	2 days	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.01 per breach (Medium severity)

9.15.3. Automatic Fare Collection System (AFCS)

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline minimum	Lower Performance	Measured by	Penalty Formula
1	System Uptime	Monthly	Critical	99.5%	< 98%	Monitoring Tool	Penalty = Monthly Fee × 0.02 × (Baseline % - Actual %)/0.5
2	Transaction Success Rate	Daily	Major	>= 99%	< 97%	System Logs	Penalty = Monthly Fee × 0.01 × (Baseline % - Actual %)
3	Fare Calculation Response Time	Daily	Minor	< 2 sec	> 5 sec	Performance Reports	Penalty = ₹5,000 × Number of Breach Days
4	Preventive Maintenance Completion	Monthly	Minor	100%	< 95%	Maintenance Logs	Penalty = ₹10,000 × (Number of Missed Schedules)
5	Software Patch Deployment	Quarterly	Major	Within 7 days	> 14 days	Deployment Reports	Penalty = ₹25,000 × (Number of

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline minimum	Lower Performance	Measured by	Penalty Formula
							Delayed Patches)
6	Data Backup Verification	Weekly	Critical	100%	< 90%	Backup Reports	Penalty = Monthly Fee × 0.02 × (Baseline % - Actual %)/5
7	Report Delivery Timeliness	Monthly	Minor	On Schedule	Delayed > 3 days	Report Tracker	Penalty = ₹2,000 × (Number of Delayed Reports)

9.15.4. Mobile Application (Android & iOS)

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
1	Availability of mobile APP developed for commuters, conductors, inspectors and Top Management	Daily	Critical	100%	99.90%-95%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
2	Instances of inaccurate information shared in mobile APP	Daily	Minor	0	Up to 2 Instances	SLA Management & Monitoring Tool	Penalty = ₹5,000 × Number of Instances (Low severity)

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
1	IT Infrastructure for production environment should be	Monthly	Critical	99.50%	99.49% to 97%	SLA Management &	Penalty = Monthly Fee × 0.02 per

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
	designed in such a way that the infrastructure shall be made available % without single point of failure.					Monitoring Tool	breach (High severity)
2	The system shall be operational, reliable, and available for business processes and mission-critical operations	Monthly	Critical	24*7*365	Anything below Baseline	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
3	CPU utilization must not cross beyond % at any time of processing	Monthly	Critical	75%	76% to 80%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
4	Resumption of online ITMS services (Per Event)	Monthly	Critical	<45 min	45min to 60 min	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
5	Website uptime with all the features	Monthly	Critical	99%	99% to 98%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
7	Point to Point (P2P) Communication	Monthly	Critical	98%	98% to 90%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
8	ITMS Application Availability	Daily	Critical	99%	99%-98%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
16	Availability of systems at Data Centre	Daily	Critical	99%	98.99% to 95%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
19	Availability of agreed services over the internet	Daily	Major	100%	99.99% to 95%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
20	Network availability	Daily	Critical	99%	98.99% to 98%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
21	Network Latency Average of (Milliseconds/Month)	Monthly	Critical	>75	<75% to 72%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
24	Roll out of latest anti-virus definition file on workstation and server being made available by bidder	Quarterly	Critical	98%	98% to 96%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
25	Roll out of latest updated patches/fixes, version upgrades	Quarterly	Major	98%	98% to 96%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
27	System Handling capacity for 25% additional load	Monthly	Critical	99%	99% to 97%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)

9.15.5. DC (On Cloud)

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
1	IT Infrastructure for production environment should be designed in such a way that the infrastructure shall be made available % without single point of failure.	Monthly	Critical	99.50%	99.49% to 97%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
2	The system shall be operational, reliable, and available for business processes and mission-critical operations	Monthly	Critical	24*7*365	Anything below Baseline	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
3	CPU utilization must not cross beyond % at any time of processing	Monthly	Critical	75%	76% to 80%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
4	Resumption of online ITMS services (Per Event)	Monthly	Critical	<45 min	45min to 60 min	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
5	Website uptime with all the features	Monthly	Critical	99%	99% to 98%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
7	Point to Point (P2P) Communication	Monthly	Critical	98%	98% to 90%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
							(High severity)
8	ITMS Application Availability	Daily	Critical	99%	99%-98%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
16	Availability of systems at Data Centre	Daily	Critical	99%	98.99% to 95%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
19	Availability of agreed services over the internet	Daily	Major	100%	99.99% to 95%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
20	Network availability	Daily	Critical	99%	98.99% to 98%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
21	Network Latency Average of (Milliseconds/Month)	Monthly	Critical	>75	<75% to 72%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
24	Roll out of latest anti-virus definition file on workstation and server being made available by bidder	Quarterly	Critical	98%	98% to 96%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
25	Roll out of latest updated patches/fixes, version upgrades	Quarterly	Major	98%	98% to 96%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.01 per breach

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
							(Medium severity)
27	System Handling capacity for 25% additional load	Monthly	Critical	99%	99% to 97%	SLA Management & Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)

9.15.6. Hardware (ETM)

Sr. No.	Service Level Description	Measuring Duration	Severity	Baseline Minimum	Lower Performance	Measured By	Penalty Calculation
1	Availability of ETM devices in operational condition	Daily	Critical	100%	99% to 95%	Device Health Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)
2	Replacement of faulty ETM device within stipulated time	Daily	Major	Within 24 hrs	>24 hrs	Maintenance Logs	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
3	Battery backup performance of ETM device	Monthly	Minor	>= 8 hrs	<8 hrs	Performance Reports	Penalty = ₹5,000 per breach (Low severity)
4	Timely software update on ETM devices	Quarterly	Major	Within 7 days	>7 days	Update Logs	Penalty = Monthly Fee × 0.01 per breach (Medium severity)
5	Connectivity uptime for ETM devices	Monthly	Critical	99%	98% to 95%	Network Monitoring Tool	Penalty = Monthly Fee × 0.02 per breach (High severity)

Note:

- All the SLA shall be calculated based on the report generated from EMS for which the performance will be considered based on the monthly reports submitted by SI and as observed by CRUT.

- The penalty is capped at 10% of the monthly / quarterly invoice.
- However, no cap will be applicable for consecutive months / quarters in case the threshold of 10% is met in the preceding month / quarter in the financial year.
- Exceeding this cap of 10% for 2nd consecutive month / quarter, CRUT will have the right to take appropriate penalizing actions, including termination of the Contract.
- The non-availability for application, hardware and mobile app shall be measured on monthly basis and excluding the scheduled maintenance shutdown.

10. General Requirements

10.1. System features

The proposed features of ITMS Solution for CRUT are listed below:

- ***Single Integrated, Centralized Solution:*** The ITMS solution shall have all the core functions as natively integrated applications on a single interoperable open platform and not the integration of multiple products in an overlapping middle ware. The integrated solution should have the necessary Bolt-on applications as required by CRUT, with minimal customizations. The approach shall be centralized with all available information being always current and accessible to all stakeholders (single source of truth).
- ***Cloud hosted Solution:*** The bidder shall work with a Cloud Service Provider (CSP) to host the ITMS solution on a highly secure Public Cloud environment which would be accessible to concerned stakeholders via Internet. The Cloud hosted model should be a subscription model such that CRUT shall only pay for the services and resources (network, compute, storage) utilized for seamless functioning of its ITMS solution. The bidder should ensure that the CSP provides CRUT access to detailed dashboard for services and resources utilized in real-time for its ITMS solution.
- ***Dynamic Scalability:*** One of the key requirements of the proposed cloud-hosted ITMS solution is its dynamic scalability. This scalability should be both in terms of functionality and capacity (no. of transactions, no. of users, compute, storage, etc.) without impacting the performance of the overall system. In this context, it is required that the application and deployment architecture should be modular in nature and shall provide for Scale-Up and Scale-out on the various functionalities and components of the solution.
- ***Single-Sign On:*** The solution shall enable single-sign-on so that any user once authenticated and authorized by system is not required to be re-authorized for completing any of the functions in the same session. For the employees of CRUT, the web-based application, through single-sign-on mechanism, will provide access to specific or all applications depending on their roles and responsibilities. Similarly, for external users, based on their profile and registration, the system shall enable single- sign on facility to apply for required information, checking details or status of applications/ projects, submit applications, make payments, submit queries/ complaints etc.
- ***Support for PKI based Authentication and Authorization:*** The solution shall support PKI based Authentication and Authorization, in accordance with IT Act 2000, using the Digital Certificates issued by the Registration Authorities (RA) that are approved by the CRUT. In particular, PKI based authentication and authorization shall be implemented by

the selected vendor for officials / employees involved in processing key G2B and G2C services, including issuance of notices, receipts and approvals.

- ***Accessibility:*** The ITMS solutions shall be accessible through mobile and other handheld devices like I-pad. Tablets etc. and the pages shall adjust suitably as per the devices and be responsive. There are certain functions within the department that may require access to the system through multiple channels like Tablets, PDA, Smart Phone, etc. The bidder shall design a solution that shall enable such access through devices with ease and is user friendly. Some but not exhaustive functions through the above mentioned devices are: Approve, View, Upload, Download, Reject, Add, Delete, Cancel, Edit, etc. This should confirm to W3C, WCAG and Mobile Framework Guidelines of Government of India.
- ***Integration with Third Party software:*** The bidder shall integrate the ITMS application with any third party application as and when required as a part of this RFP. Further, the bidder shall provide complete documentation and handholding support during exit management to the incoming vendor to help them understand the integration interfaces and the existing integration already done.
- The following integration related guidelines shall be followed while designing and developing the ITMS Application:
    - Use of open or industry standard based message exchange protocols to ensure interoperability between participating systems
    - As much as possible, use of portable data and exchange protocols like XML and Web Service, etc.
    - Ensure guaranteed delivery of messages by capturing the acknowledgment or confirmation of delivery and receipt of messages
    - Ensure integrity of data-in-transit through public network
    - Proper error handling mechanism and message resend capability
    - Ability to view failed messages and reason for their failure
    - Ensure proper Auditability and accountability of exchange of data between CRUT and other systems
- ***Aadhaar/UID Integration***
    - Payment Gateway, SMS Gateway and e-Mail Integrations with all required modules
    - All the modules shall be available with web-based, interactive user interface. Bidder must implement the above mentioned ITMS functional modules as per the identified business needs of CRUT. In addition, the functions will be supplemented by appropriate Workflow Management and Enterprise Portal support with interface for employees, suppliers and citizens with adequate access control and security measures such as OTP, Digital Signatures, Aadhaar Authentication.

10.2. System Security requirement and Cloud Services

- The system should be designed in a way that maximum optimal output with higher system security will be available in context of data security.
- The wider use of the system and its services in CRUT shall make the application utility sensitive in nature and Bidder shall follow all standard practices to maintain high level of system security.
- The Bidder shall have to record & store all the logs of the system as specified in the data retention policy of component.

- All types of data either created, captured, or generated such as but not limited to data of geolocations, route data, operational incident data, bus maintenance, analytics output etc. with respect to this RFP will be solely property of Authority. Bidders shall have to store and record all the data as per data retention policy. This data shall be stored in a separate database for CRUT and requires it to be handed over to the Authority post completion of contract period without creating any copy or replication for Bidder's future use.
- The Bidder's proposed system shall provide features to maintain data integrity, including error checking, error monitoring, error handling and encryption.
- The wider use of the system and its services in CRUT shall make the application usage quite sensitive in nature and Bidder shall follow all standard practices to maintain high level of system security.
- All security breach detections shall be confidential. The Bidder shall promptly take corrective action and inform promptly CRUT. All the security beaches into the system shall be logged and maintained with all the micro level data and meta data.
- The security services used to protect the solution shall include Identification, Authentication, Access Control, Administration and Audit and support for industry standard protocols.
- Security design should provide for a well-designed identity management system, security of physical and digital assets, data and network security, backup and recovery and disaster recovery system.
- The solution should provide for maintaining an audit trail of all the transactions and should also ensure the non-repudiation of audit trail without impacting the overall performance of the system.
- Compliance with ISO 27001 standards of security.
- The application design and development should comply with OWASP top 10 principles.
- Encryption Confidentiality of sensitive information and data of users and portal information should be ensured.
- Appropriate mechanisms, protocols, and algorithms necessary to protect sensitive data and information both during communication and storage should be implemented.
- Data security policies and standards to be used as per government of India guideline.
- Role based access for all the stake holders to be implemented to access and utilize the system.
- Audit trails and Audit logging mechanism to be built in the system to ensure that user action can be established and investigated if required (e.g., Logging of IP Address etc.).
- Data alterations should not happen from any authorized or unauthorized channel into the system.
- All the application patches, updates or business functions shall be recorded or documented as and when change requested by the CRUT or need of system.
- Industry practices for coding of application so as to ensure sustenance to the Application Vulnerability Assessment.
- Build a complete audit trail of all activities and operations using log reports, so that errors in system – intentional or otherwise – can be traced and corrected.
- The security of the field devices must be ensured with system architecture designed in a way to secure the field devices in terms of physical damage & unauthorized access.
- APIs should be published, and the IT systems should be running on standard protocols like JSON / XML or REST etc.

- Bidder shall get the proposed application VAPT audited from Cert-In empaneled agency and produce a certificate and report for the same before go-Live at no extra cost. The same has to be repeated each year at no extra cost.

11. Operation and Maintenance of ITMS Solutions

11.1. Application Monitoring and Compliance to Service Level Agreements

It is the responsibility of the bidder to

- Monitor CRUT's ITMS application on a day-to-day basis to ensure seamless and reliable functioning.
- Monitor application to ensure that the application does not suspend, hang, downgrades in performance etc.
- Monitor components, including but not limited to, Application servers, Web Servers, Middleware, and other Servers on an ongoing basis to ensure smooth functioning of the applications.
- Plan system maintenance in accordance as per schedule defined by Bidder and approved by CRUT.
- The Bidder shall ensure compliance to uptime and performance requirements of ITMS solution as indicated in the SLA (as mentioned in RFP) and any major changes to the software shall be planned accordingly by the Bidder with the prior approval of CRUT for ensuring the SLA requirements.
- Ensure the accuracy and timeliness of data uploaded as received.
- Resolve and report the data discrepancies to the designated CRUT persons.
- The Bidder shall submit a document on the performance of the ITMS application against the desired SLA on a Quarterly basis.

11.2. Application support includes modification and integration with future systems.

It is the responsibility of the bidder.

- Enhancement / modifications with respect to new / enhanced / enriched functionality.
- Ensure the desired functioning of the Interface / integration.
- Test scripts preparation and interim application testing
- Application installation and testing whenever required.
- Modification / development of reports
- Provide technical support on system parameters and requirements for CRUT's Enterprise Applications Software
- Manage the database administration according to the agreed standards.
- Present relevant information and training if applicable and necessary regarding the use and functions of new products and services to a defined number of relevant Users designated by CRUT.
- Provide handholding support to end users in carrying out the business process transactions.

11.3. Contingency plans for Application & Data recovery

The DR would work as the failover site in case the data center goes down. This includes an application crash, database crash, network crash or any other issues rendering the data center unresponsive. In case of Application Crash, effort will be made to bring back the application to working state through the most recent application state & configuration files from the DR and if required the backup / restore and reinstallation procedure would be used if the same is available in the backup set or as a last resort if the DR also fails. It will be taken up on a high criticality basis with round the clock support to ensure the application state is reverted to the most recent state.

In case of Database Crash – Effort must be made to retrieve as much data as possible from the dataset of the DR with the most recent copy of the data. If the last backup set also includes the most recent copy of the data, then that can also be used for restoration of the database. If required, previous backups will be used to ensure restoration. However, the Bidder needs to honor the RPO (Recovery Point Objective) & RTO (Recovery Time Objective) mentioned in the (RFP). Bidders should be on this job round the clock to restore availability.

11.4. Issue Management

Issues Management is an important activity and based on the severity level, it becomes highly critical. As the parties involved are Users/ functional team members of CRUT, Application providers and Bidder, SLAs may not be directly defined. Bidder commits involvement in resolution on 'best of efforts' basis as per requirements.

Following are the steps involved:

- Problem definition
- Context definition (through functional teams as per requirements)
- Request Analysis by Bidder
- Priority Categorization
- Logging with OEM and tracking resolution.

The Bidder shall address all the errors/bugs/gaps in the functionality offered by the ITMS solution (vis-à-vis the FRS) at no additional cost during the operations & maintenance period (i.e., 8 (1+4+3) years from the date of final GO-Live). The Bidder shall identify and resolve application problems like system malfunctions, performance problems, data corruption etc. due to which the ITMS solution is not able to give the desired performance.

The Bidder shall be responsible for the following:

- Updating all available patch/ updates to the ITMS solution.
- Providing handholding support to end users.
- Ensuring proactive and timely support in identification and provision of solutions including OEM Support for resolution.
- Timely logging of Bugs/Problems
- Daily / Weekly / Monthly Status Reports to CRUT & other Project Stakeholders.

11.5. Software Change and Version Control

- The Bidder shall define the Software Change & Version control process and obtain approval for the same from CRUT.
- The Bidder shall maintain version control and configuration information for any system documentation and application software.
- Any changes/customizations to the ITMS application performed/ identified within the period of six months post "Go-Live" are not to be considered as separate Change Requests and hence are to be carried out by the Bidder at no extra cost.
- All configuration changes or minor customizations to the ITMS application which don't involve the creation of any new development object (even if identified after the stabilization period of six months post "Go-Live") are not to be considered as separate Change Requests and hence are to be carried out by the Bidder at no extra cost.
- Only those major functional customization changes (requiring more than 3-man months effort) in the solution which have neither been mentioned in the FRS, nor included in the To-be functional solution and have not been proposed within six (6) months from "Go Live", shall be carried out through a separate Change Control Note/Notice (CCN) prepared by the Bidder (format has been provided). The effort & cost estimates shall be based on the man-month cost quoted by the Bidder for Configuration, Customization and Extension (New Modules) of ITMS System in the commercial quote (Annexure). This cost per man-month shall remain unchanged during the contract period.
- Changes in the application software which are mandatorily required for complying with any of the predefined SLA requirements, FRS or To-be Functional solution, cannot be treated as a separate Change Request, and hence are to be completed by the Bidder at no extra cost.
- All Change Requests submitted by the Bidder will contain an effort estimate, which would be discussed with and approved by CRUT. CRUT may ask the Bidder to provide justification using standard methodology like Function Point Analysis or any similar method.
- All changes during the stabilization or support & maintenance phase shall be subjected to the comprehensive & integrated testing by Bidder to ensure that the changes implemented in the system meet the desired and specified requirements of CRUT and doesn't impact any other function of the system.
- The Bidder shall submit a Quarterly Report on the changes made on the application and resolution of malfunctions carried out by the Bidder.
- Troubleshoot all possible problems, monitor erratic behavior through the Application Logs.
- All planned changes to application systems shall be coordinated within established Change Control processes to ensure that:
- Appropriate communication on change required has taken place.
- Proper approvals have been received.
- Schedules have been adjusted to minimize impact on the production environment.
- For any changes to the software, the Bidder shall submit a document indicating proposed changes, impact to the system in terms of functional outcomes/additional features added to the system etc.
- The Bidder is required to obtain prior approval from CRUT for all the proposed changes before implementing them into the production environment. Such documentation shall be reviewed at the end of each quarter of operations & maintenance support by CRUT.

- Bidder is required to keep all such documentation up to date to reflect the latest enhancements/modifications made to the application. All documentation should be prepared as per latest industry standards and should incorporate necessary version control mechanism.

11.6. Maintenance of Configuration Information & System documentation

The Bidder will provide detailed final system documentation for reference to CRUT. Bidder shall prepare the final User Manuals incorporating details of all menus and functionality provided by the System. CRUT expects the following (but not limited to) in the form of product documents mentioned in the RFP.

11.7. System Upgrades and Enhancements

After successful operational system acceptance of the system, CRUT may provide a list of changes to be made in the existing system as and when instructed by CRUT. SI is liable to accommodate the changes at no extra cost. SI should conduct and submit VAPT reports on an annual basis as applicable.

12. Other responsibilities

SI shall also be responsible for the following activities:

- Obtain relevant certifications for application security and functionality.
- Provide Standard Operating Procedures (Manuals, Forms, Process documents) to standardize the processes during O&M phase.
- Ensure that the end of support for any of the components / equipment is not reached during the concurrency of the contract.
- Ensure compliance with all mandatory government regulations as amended from time to time.
- Ensure that all the peripherals, accessories, subcomponents required for the functionality and completeness of the solution including but not limited to devices, equipment, accessories, cables, software licenses, tools, etc. are provided according to the requirements of the solution.
- CRUT shall not be responsible if the successful bidder has not provisioned some components, sub-components, assemblies, sub-assemblies as part of Bill of Materials in the RFP or bidder failed or misinterpreted the integration and interface development scope under this RFP. The successful bidder shall have to provide these to meet the solution requirements at no additional cost and time implications to purchaser.
- The Successful Bidder shall ensure there is a comprehensive onsite support arrangement for the duration of the contract with all the OEMs for respective components.
- Considering the criticality of the infrastructure, a successful bidder is expected to design the solution considering the RFP requirement of no single point of failure with high level of redundancy and resilience to meet the network uptime requirements.

12.1. Project Insurance

The SI shall get comprehensive insurance from a reputable insurance company for the project duration for all supplies (hardware/software/Services) supplied under this RFP. If any component under the ITMS project is damaged or vandalized during the contract period shall it be procure & reinstated by the SI through the claim of the insurance policy of the project.

12.2. Project Coverage

The proposed system will cover the entire state and all Buses and E-Rickshaws as handed over by CRUT from time to time and will include multiple Bus stop, Bus terminal, Bus Depot across the city.

Project Site/ Work Site: Bus Stops, Bus Terminals, Buses, E-Rickshaws, Bus Depots and Central Control Centre at CRUT area of Operation, Odisha

The System Architecture should be modular enough to augment its capacity to even higher number of locations and storage requirements, if needed, in future.

Technical Coverage

The system should be scalable and extendable to handle increase in the requirements in future. The technical components of the project will include central infrastructure, network infrastructure, IT security infrastructure and all related software. The technical solution proposed should have the following minimum features:

Scalability - All components of architecture must support scaling to provide continuous growth to meet the growing demand of CRUT.

Availability - Components of the architecture must provide redundancy and ensure that there is no single point of failures.

Security - The architecture must adopt an end-to-end security model that protects data and the infrastructure from malicious attacks, theft, natural disasters etc.

Manageability - Ease of configuration, ongoing health monitoring, and failure detection are vital to the goals of scalability, availability, and security and must be able to match the growth of the environment.

12.3. Monitoring, Administration & Management Services of Cloud

The cloud shall be centrally and remotely monitored and managed on a 24x7x365 basis. The Cloud management and maintenance services shall include:

- Proactive and reactive maintenance of services rendered on Cloud. The cost of maintenance shall be borne by the Bidder.

- The selected Bidder will ensure that the uptime commitment as per SLA is met to provide composite service availability. To provide this service, it is important for the selected Bidder to have a back-to-back arrangement with the Cloud Service Provider (CSP).
- Services that are reported to be down on a given date should be resolved within the time frame indicated in the Service Level Agreement (SLA). In case the selected Bidder fails to meet the above standards of maintenance, there will be a penalty as specified in the SLA.
- The selected Bidder shall also maintain records of all maintenance of the system and shall maintain a logbook that may be inspected by CRUT at any time.
- Systems Administration Services performed by Bidder shall ensure that CRUT's IT Environment operates smoothly, securely and consistently. It also ensures optimized use of IT resources.

Bidder shall ensure following Server Administration activities in collaboration with Cloud Service Provider for CRUT:

- Configuration of server, storage, networking & security component parameters, operating systems administration and tuning.
- Adequate hardening of the operating systems of the servers, storage & network and security to prevent and known & unknown attacks.
- Operating system administration, including but not limited to management of users, processes, resource contention, preventive maintenance and management of upgrades including migration to higher versions and patches to ensure that the system is properly updated.
- Re-installation in the event of system crash/failures.
- Performance log monitoring of servers including but not limited to monitoring CPU, disk space, memory utilization, I/O utilization, etc.
- Event log analysis generated in all the sub systems including but not limited to servers, operating systems, databases, applications, security, messaging, etc. Ensuring that the logs are backed up and truncated at regular intervals and sent to the centralized log correlation system for safekeeping and analysis.
- Periodic health check of the cloud and ITMS solution, troubleshooting problems, 142pprox.142g and implementing rectification measures.
- Troubleshooting issues in the infrastructure, network and ITMS application to determine the areas where fixes are required and ensuring resolution of the same.
- Identification, diagnosis and resolution of problem areas pertaining to the Cloud and application and maintenance of assured SLA levels.
- Implementation and maintenance of standard operating procedures for maintenance of the Cloud based ITMS Solution based on CRUT's requirements.
- Management of the user names, roles and passwords of all the relevant subsystems.
- Executing hardware and software updates when necessary
- Cloud performance monitoring, fine-tuning and optimization
- Diagnosing and Problem Resolution related to Cloud
- Pro-active Disk management /Capacity planning
- Configuration changes
- Understanding Performance Bottlenecks
- Perform file back-up/recovery as defined in the process

- Virus detection and correction
- Bidder will make available, monitor and process on-line and batch applications, including scheduled, unscheduled and on-request services and processing initiated by users.

12.4. Backup & Restore and Archival Services

- These services provide for files availability on applications and supported servers for users.
- Backup of operating system, database, and application as per stipulated policies for Cloud.
- Monitoring and enhancement of the performance of scheduled backups, schedule regular testing of backups and ensure adherence to related retention policies.
- Ensuring prompt execution of on-demand backups of volumes, files and database applications whenever required by User Departments or in case of upgrades and configuration changes to the system.
- Real-time monitoring, log maintenance and reporting of backup status on a regular basis. Prompt problem resolution in case of failures in the backup processes.
- The backup practice should ensure the usage of concepts of GFS (Grandfather Father Son) backup scheme to ensure backup of every day, every week, every month & every year.
- The backup process should encrypt the backup and store them securely.
- For every backup a pre backup test should be used to ensure a higher rate of success for the backup.
- The backup process should use incremental backups for all the days and a full back up at the end of the week. This would ensure faster backup & restoration without compromising on the availability of the backup data.
- The backup solution used should be able to integrate with the Virtual Tape Library to ensure faster backup & restoration process.
- Policy driven archival of the data in the low-cost storage box i.e., the Virtual tape library. These policies would be formulated as per the business needs of the process and would be finalized during the actual project implementation.
- Ongoing support for file and volume restoration requests on Cloud
- Control all the files during the scheduled access times.
- Initiate and complete required data processing activities concerning data integrity of all processed files.
- Verify, using tools and procedures, all the incoming files and outgoing files.
- Document, maintain, update and execute CRUT's approved file and back-up and recovery procedures.
- Conduct regular back-up and recovery procedures as specified in the document and prioritized by CRUT.
- Conduct routine monitoring and take corrective action.
- Verify availability of adequate file space for processing.
- Report disk space utilization for capacity planning purposes

12.5. Storage Administration and Management Services

The bidder in collaboration with Cloud Service Provider (CSP) shall ensure:

- Installation and configuration of the storage system on Cloud in accordance to the application requirement.
- Required number of VLANs should be created in the SAN to optimize the speed and storage of data. The VLANs created would also ensure segregation of the data as per the application requirement. The VLANs should be dynamically configurable for the space allocation.
- Management of storage environment to maintain performance at desired optimum levels. Configuration of SAN is to be carried out whenever a new application is hosted on Cloud. This shall include activities such as management of storage space, volume, RAID configuration, LUN, zone, security, business continuity volumes, performance, etc.

12.6. Database Administration and Management Services

The bidder will be responsible for

- Provide operating system / database support to the data base environments.
- Monitor and report the performance of the database and recommend modifications to improve the database performance.
- Suggest, Maintain and/or implement database backup procedures to recover from a database outage or corrupted databases within time frames specified in the Operations Manual.
- Maintain physical database definitions and make them available to CRUT.
- Promote the database changes into the production environment as CRUT approves.
- In cooperation with CRUT, maintain the database access routines applications development and software maintenance personnel use and document any change to same.
- Assist in problem determination and resolution of the same.
- End-to-end management of database on an ongoing basis to ensure smooth functioning of the same.
- Management of changes to database schema, disk space, storage, user roles.
- Conduct code and configuration reviews to provide tuning inputs to the State / User Department in order to improve the application performance or resolve bottlenecks if any.
- Performance monitoring and tuning of the databases on a regular basis including, preventive maintenance of the database as required.
- Management of database upgrade or patch upgrade as and when required with minimal downtime.
- Regular backups for all databases in accordance with the backup and archive policies and conduct recovery whenever required with appropriate permissions.
- Implement the database encryption solution in high availability mode in DC and Standalone mode in DR to ensure data security.

12.7. User Administration and Security

The bidder will be responsible for

- Defining Identity and Access Management (IAM) matrix for all user groups and their corresponding access rights. The Super Admin control should lie with IT Cell, CRUT
- Maintain access control and provide individual and group access to VPN resources from

CRUT's authorized users.

- Register new users and delete existing user's accounts as per CRUT requests.
- Assign and change user passwords.
- Implement adequate password complexity policy across the enterprise.
- Use of Single Sign On solution for all CRUT users and their privileges.
- Undertake the usage of the Authentication, Authorization & auditing module for mapping all the users.
- For critical user transactions, employ the usage of the OTP solution.
- Also employ the usage of Digital Signature of designated users for the digital signage of the documents within the solution

12.8. Security Administration of IT Solutions

The activities to be carried out under security administration shall include:

- Addressing the ongoing needs of network security management including, but not limited to, monitoring of various system solution components such as firewall, intrusion detection, content filtering and blocking, virus protection, and vulnerability protection through implementation of proper patches and rules.
- Protecting all the IT assets to prevent any known & unknown attacks.
- Root domain administration by setting the root level security policies such as authentication mechanisms (single/multi factor), password policies such as password length, password complexity, password expiry, account lockout policy, certificate policies, IPSEC policies etc.
- Maintaining an updated knowledge base of all the published security vulnerabilities and virus threats for related software, Database, environments etc.
- Ensuring that patches/ workarounds for identified vulnerabilities are patched / blocked immediately.
- Respond to security breaches or other security incidents and coordinate with respective OEM or CSP in case of a new threat is observed to ensure that workaround / patch is made available for the same.
- Provide evidence of a well-designed access management system, security of physical and digital assets, data and network security, backup and recovery etc.
- The Bidder shall be responsible for the security audit of the proposed solution network and its related infrastructure to be carried out by a certified agency other than the Bidder itself.
- Ensuring that the security policies is maintained and updates to the same are made regularly as per ISO/IEC 27001:2013, ISO/IEC 20000-1:2011, DPDP Act. guidelines
- Operating system security through appropriate configuration and patch updates.
- Periodic reviews of domain level rights and privileges.
- Obtain CRUT permission before making any changes and/ or updates to the production environment.
- Plan system maintenance in accordance as per schedule defined by Bidder and approved by CRUT

12.9. Network Monitoring & Management Services

The objective of this service is to ensure continuous operation and upkeep of the Cloud hosted solution.

- Ensuring that the network is available 24x7x365 as per the prescribed SLAs.
- Attending to and resolving network failures and snags
- Support and maintain the overall cloud service and infrastructure across all CRUT locations.
- Configuration and backup of network devices including documentation of all configurations.
- 24x7x365 monitoring of the network to spot the problems immediately so as to meet the desired SLAs.
- Provide information on performance of Network segments, including capacity utilization and error statistics for the segment and the top-contributing hosts.
- The bidder shall create and modify VLAN, assignment of ports to appropriate applications and segmentation of traffic between CRUT Office and other offices. Bidder should ensure that the failover to the redundant network connectivity is undertaken seamlessly to ensure smooth operations.

13. General Conditions

13.1. General Guidelines

- The system of recording, measurements and payments will be based on CRUT in vogue.
- It is presumed that the Bidder has carefully studied the standard, specification of the individual items and all conditions before estimated rates are quoted by them.
- Special provisions in the detailed specifications or wording of any item shall give precedence over the corresponding contract provisions, if any. In case of any contradictions in the specifications, the interpretation and decision of the IT in- charge shall be final and binding.
- If the Bidder has any doubts whatsoever, as to the contents of the contract, he is deemed to have had a good time i.e., before submitting his tender, get his doubts clarified. Once the tender is submitted by the Bidder, the matter will be decided according to the tender evaluation specified in the RFP.

13.2. Interpretation

- In this Contract unless a contrary intention is evident:
    - The clause headings are for convenient reference only and do not form part of this Contract.
    - Unless otherwise specified a reference to a clause number is a reference to all of its sub-clauses.
    - Unless otherwise specified a reference to a clause, sub-clause or section is a reference to a clause, sub- clause or section of this Contract including any amendments or modifications to the same from time to time.
    - A word in the singular includes the plural and a word in the plural includes the singular.
    - A word importing a gender includes any other gender.

- A reference to a person includes a partnership and a body corporate.
- A reference to legislation includes legislation repealing, replacing or amending that legislation.
- Where a word or phrase is given a meaning, it includes the appropriate grammatical forms of that word or phrase which have corresponding meanings.
- In the event of an inconsistency between the terms of this Contract and the Tender and the Bid, the terms hereof shall prevail.

13.3. Key Performance Measurements

- Unless specified by the CRUT to the contrary, the Bidder shall implement the infrastructure, perform the Services and carry out the Scope of Work in accordance with the terms of this Contract, Scope of Work and the Service Specifications as laid down under Service Level Agreement.
- If the Contract/Service Specification includes more than one document, then unless the CRUT specifies to the contrary, later in time shall prevail over a document of earlier date to the extent of any inconsistency.

13.4. Commencement & Progress

The Bidder shall commence the performance of its obligations in a manner as specified in the Scope of Work.

The Bidder shall proceed to carry out the activities / services with diligence and expedition in accordance with any stipulation as to the time, manner, mode, and method of execution contained in this Contract.

The Bidder shall be responsible for and shall ensure that all activities/ services are performed in accordance with the Contract, Scope of Work and that the Bidder's Team complies with such specifications and all other standards, terms and other stipulations/conditions set out hereunder.

The Bidder shall perform the activities / services and carry out its obligations under the Contract with due diligence, efficiency, and economy, in accordance with generally accepted techniques and practices used in the industry and with professional engineering and consulting standards recognized by international professional bodies and shall observe sound management, engineering and security practices. It shall employ appropriate advanced technology and engineering practices and safe and effective equipment, machinery, material and methods.

The Bidder shall always act, in respect of any matter relating to this Contract, as faithful advisors to the CRUT and shall, always, support and safeguard the CRUT's legitimate interests in any dealings with Third parties.

13.5. Trademarks, Publicity

Neither Party may use the trademarks of the other Party without the prior written consent of the other Party. Neither Party shall publish nor did permit to be publish either along with or in conjunction with any other person any press release, information, article, photograph, illustration or any other

material of whatever kind relating to this Agreement, the SLA or the business of the Parties without prior reference to and approval in writing from the other Party.

13.6. Events of default by the Bidder

The failure on the part of the Bidder to perform any of its obligations or comply with any of the terms of this Contract shall constitute an Event of Default on the part of the Bidder. The events of default as mentioned above may include inter-alia the following:

- When the Bidder does not adhere to 'Go-Live' in the committed timeline of T+4 months plus another 2 months beyond that despite a written notice from CRUT
- When there is a critical breach on the SLAs and even after 2 months of CRUT providing a written notice to the Bidder, the critical breach has not been rectified.
- The Bidder's Team has failed to demonstrate or sustain any representation or warranty made by it in this Contract, with respect to any of the terms of its Bid, the Tender and this Contract.
- There is a proceeding for bankruptcy, insolvency, winding up or there is an appointment of receiver, liquidator, assignee, or similar official against or in relation to the Bidder.
- The Bidder team has failed to comply with or is in breach or contravention of any applicable laws.
- The Bidder team are involved in fraud/willful misconduct.

13.7. Consequences of Default

Where an Event of Default subsists or remains uncured then CRUT shall be entitled to:

- Impose any such obligations and conditions and issue any clarifications as may be necessary to inter alia ensure smooth continuation of project and the Services which the Bidder shall be obliged to comply with. The Bidder shall in addition take all available steps to minimize loss resulting from such an event of default.
- Where there has been an occurrence of such defaults inter alia as stated above, the CRUT shall issue a notice of default to the Bidder, setting out specific defaults / deviances / omissions / non-compliances / non-performances and providing a notice of Sixty (60) days to enable such defaulting party to remedy the default committed.

13.8. Data Ownership

All the data created as a part of the project would be owned by CRUT. The Successful Bidder shall take utmost care in maintaining security, confidentiality, and backup of this data. The successful Bidder, however, has the right to use the data to fulfil its obligations under this contract and otherwise to improve CRUTs operations, but cannot use it for any other purposes.

13.9. Other Conditions

CRUT will provide details of all the existing transit vehicles, public transport network, bus stops, routes, fares and other necessary information.

13.10. Jurisdiction of Courts

In case of any claim, dispute or difference rising in respect of the contract, the case of action there of shall be deemed to have arisen in Odisha and all legal proceedings in respect of any such claim, dispute or difference shall be instituted in competent courting the city of Bhubaneswar only.

13.11. Mutual Settlement

Settlement of Dispute: If the Parties fail to resolve, such a dispute or difference by mutual consent, within 15 (fifteen) days of its arising, then the dispute in the first instance be referred to the Managing director (CRUT), who shall provide decision within a period of 15 (fifteen) days of the dispute being referred to it by either Party.

13.12. Extension of timelines

As soon as it is apparent that the Contract dates cannot be adhered to, an application shall be sent by Bidder to the CRUT. If failure, on the part of Bidder, to complete scope of work in proper time shall have arisen from any cause which the CRUT may admit as reasonable ground for an extension of the time, CRUT may allow such additional time as it considers to be justified by circumstances.

13.13. Termination

If the Bidder fails to carry out any obligation under the Contract, CRUT may notice the bidder to rectify the failure and to remedy it within a specified reasonable time.

CRUT is entitled to terminate the Contractor a portion or part of the work thereof with a written notice of 60 days:

- If Bidder fails to complete the entire work before the scheduled completion date or the extended date, the CRUT may without prejudice to any other right or remedy available to the CRUT.
- The Bidder has insolvency, receivership, reorganization, bankruptcy, or proceedings of a similar nature brought against it and the proceedings are not dismissed or effectively stayed within 30 (thirty) days of such commencement.

- If the Bidder does not maintain a valid instrument of Performance Security (and additional performance security, if any), as prescribed.
- If any of the default points covered under 'Events of Default by ITMS / Bidder' comes into existence or happens as per the respective clause CRUT reserves right to terminate the contract at any time, if any of the RFP clauses are not implemented and non-adherence of implementation to the timeline.
- Bidder shall be entitled to terminate the Contract with a written notice of 90 days:

13.14. Excused Performance

If either Party is prevented from rendering performance of its obligations, whether wholly or partially under this Contract for reasons of a Force Majeure Event, then that Party will be excused from the performance so affected by the Force Majeure Event to the extent so affected provided that:

- The affected Party gives the other Party written notice of the occurrence of the Force Majeure Event as soon as practicable and in any event within 15 (fifteen) Days from the date of occurrence of the Force Majeure Event, giving full particulars of such occurrence, including an estimation of its expected duration, impact on the performance of such Party's obligations here under, and thereafter continues to furnish there to timely regular reports with respect to continuation of the Force Majeure Event and measures which the affected Party has taken or proposes to take to mitigate the impact of the Force Majeure Event and to resume performance of such of its obligations affected thereby and the Completion Date shall be suitably extended.
- The suspension of performance shall be of no greater scope and of no longer duration than is reasonably required by the Force Majeure Event.
- Upon the occurrence of any circumstances of Force Majeure Event, the Bidder shall use all reasonable endeavors to continue to perform its obligations under the Contract and to minimize the adverse effects of such circumstances. The Bidder shall also use all reasonable means and best endeavors to ensure that the loss caused by the Force Majeure Event is minimized as far as possible.
- An event of Force Majeure does not relieve a Party from liability for an obligation which arose before the occurrence of that event.

13.15. Effect of Force Majeure Event

- Neither CRUT nor the Bidder shall be considered in default or in contractual breach to the extent that performance of obligations is prevented by a Force Majeure Event, which arises after the Effective Date. An extension of time to the implementation Date shall be agreed upon by the Parties, provided the Bidder proves to CRUT that.
    - The execution of Works is actually and necessarily delayed by an Force Majeure Event; and
    - The effect of such Force Majeure Event could not have been prevented or avoided or removed despite exercise of reasonable due diligence whether before, after or during the Force Majeure Event
    - Also, in the event of Force Majeure, Bidder agrees to CRUT deferring the payments for the Force Majeure period provided CRUT agrees to pay the deferred amount immediately after the Force Majeure period is over.

13.16. Payment Schedule

Under the tender for Selection of Agency for Design, Develop, Supply, Install, Integrate, Test, Commission, and O&M of an Intelligent Transport Management System (ITMS), the payment to the

selected agency shall be made on a monthly subscription basis (SaaS Model), as per the terms and conditions stipulated in this RFP.

13.16.1. Payment Structure:

The agency shall raise a consolidated monthly invoice covering the following components:

- Monthly subscription charges for the SaaS-based ITMS solution, inclusive of hardware cost amortized over the contract period.
- Monthly Operation & Maintenance (O&M) support charges post Go-live.
- The agency shall submit the invoice by the 7th working day of every month for the services rendered in the preceding month.
- Deployment status of the solution (Installed/Commissioned/Go-live).
- Uptime/performance logs for the system as per SLA.
- Details of O&M support and any software updates delivered.
- Monthly payment should be included in all taxes including GST.
- Any other relevant deliverables as agreed in the contract.
- The bidder shall submit invoice only the nos. of buses utilized on monthly basis.
- In case of incomplete monthly deployment the invoice amount shall be calculated on pro rata basis considering 30 days for a month.

13.16.2. Supporting Documents

Each invoice shall be accompanied by a performance certificate issued by the designated official of CRUT, certifying the satisfactory performance of the solution for the invoiced period.

13.16.3. Payment Timeline

Payments shall be released within 30 days from the date of receipt of invoice and all relevant supporting documents, subject to verification and approval by the Authority.

13.16.4. Penalty Deductions

Any non-compliance, downtime, or shortfall in service levels as per the defined SLA will lead to applicable deductions from the monthly invoice as per the penalty clause specified in this RFP.

13.17. Force Majeure

For the purpose of this RFP the expression "Force Majeure" or "Force Majeure Event" includes any act, event or circumstance, or combination of acts, events or circumstances, which may affect the affected Party's performance of its obligations pursuant to the terms of this Contract, but only if and to the extent that such acts, events or circumstances are not within the affected Party's reasonable control, were not reasonably foreseeable and could not have been prevented or overcome by the affected Party through the exercise of reason able skill or care.

Any act, event, circumstance, or combination thereof meeting the description of Force Majeure that has the same effect upon the performance of the Bidder which directly, materially, and adversely affects the performance by CRUT or the Bidder of its obligations in whole or in part under this Contract shall constitute Force Majeure with respect to the CRUT or the Bidder respectively.

- The Force Majeure Event shall comprise the acts, events and circumstances, such as
    - act of war, invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot insurrection, civil commotion, act of terrorism or sabotage, in each case occurring inside or directly involving India.
    - strikes or lockouts occurring within India or at the Site as part of a nation-wide, industry, wide or state-wide strike or local strike, or lock out (excluding such events which are Site specific and attributable to the Bidder);
    - radioactive contamination or ionizing radiation or chemical contamination specifically affecting the Facility or resulting from another Force Majeure Event.
    - Flood, Cyclone, Tsunami, Lightning, Earthquake, Drought, Storm, Pandemic, Epidemics, Lockdown/Shutdown Restrictions, Quarantine Restrictions,
    - any action by competent governmental instrumentality having jurisdiction over the Project, CRUT or the Bidder resulting in a loss of access to the Site.
    - an act of God
    - any other act or event or circumstance of analogous nature.
    - any state/national govt order interrupting day-to-day operations or any other extreme effect of the natural elements.

13.18. Exceptions to Force Majeure

Notwithstanding the foregoing, Force Majeure shall not include:

- any delay, default, or failure (direct or indirect) by the Bidder in any agreement entered by it; and
- any act, event, or occurrence resulting in financial hardship, including any delay or rejection of an insurance claim, shall not constitute a Force Majeure Event.

13.19. Governing law and Jurisdiction

a) Save where expressly stated otherwise in this Agreement, any dispute, difference or controversy of whatever nature howsoever arising under, out of or in relation to this Agreement including non-completion of the Agreement between the Parties and so notified in writing by either Party to the other (the "Dispute") in the first instance shall be attempted to be resolved amicably by the Parties and failing such resolution of the same, in accordance with the procedure set forth below.

b) Either Party may require the Dispute to be referred to the Managing Director of CRUT for amicable settlement. Upon such reference, both the Parties and the Managing Director of CRUT shall meet at the earliest mutual convenience and in any event within 15(fifteen) days of such reference to discuss and attempt to amicably resolve the dispute. If the Dispute is not amicably resolved within 15(fifteen) days of such meeting, either Party may approach the appropriate Court of Law within the jurisdiction of Bhubaneswar, for redressal of his grievance.

1. Bid Formats

Annexure I: PQ Bid Formats

(To be submitted in bidders Letter Head)

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (INDIA), Pin- 751024

Subject: Response to Request for Proposal (RFP) for Selection of a System Integrator (SI) to Design, Develop, Supply, Install, Integrate, Test, and Commission an Intelligent Transport Management System (ITMS) on Software as a Service (SaaS) Model for the Capital Region Urban Transport.

Dear Sir,

1. We hereby request to be qualified with the Capital Region Urban Transport (CRUT) as a bidder for**<XXXXX>** against RFP No. <XXXXX>. I / We declare that all the services shall be performed strictly in accordance with the RFP documents, and we agree to all the terms and conditions in the RFP.
2. I / We confirm that I / we am/are withdrawing all the deviations counter clauses, proposed modifications in the Scope of work, Terms and Conditions, Functional Requirement Specifications and Technical Specifications which may have been mentioned in our proposal.
3. We authorize Capital Region Urban Transport (CRUT) or their authorized representatives to conduct any investigations to verify the statements, documents and information submitted and to clarify the financial and technical aspects of this application. For this purpose, we hereby authorize (any public official, engineer, bank, depository, manufacturer, distributor, etc.) or any other person or firm to furnish pertinent information deemed necessary and requested by Capital Region Urban Transport (CRUT) to verify statements and information provided in this application or regarding our competence and standing.
4. The names and positions of people who may be contacted for further information, if required, are as follows:

   Name: _____, Designation: _____, Telephone: _____, E-mail id: _____
5. We declare that the statements made, and the information provided in the duly completed application to Capital Region Urban Transport (CRUT) of our knowledge, are complete, true and correct in every detail. On verification at any time in the future if it is found that information furnished with this application and statements made therein are not true, incomplete, or incorrect, we hereby authorize Capital Region Urban Transport (CRUT) to reject our application.
6. We confirm having submitted the information as required by you in Qualification Criteria. In case you require any other further information / documentary proof in this

regard before evaluation of our bid, we agree to furnish the same in time to your satisfaction.

7. We undertake, if our proposal is accepted, to provide all the services related to **"Request for Proposal (RFP) for Selection of a System Integrator (SI) to Design, Develop, Supply, Install, Integrate, Test, and Commission an Intelligent Transport Management System (ITMS) on Software as a Service (SaaS) Model for the Capital Region Urban Transport."** put forward in the bid document or such features as may subsequently be mutually agreed between us and Capital Region Urban Transport (CRUT) or its appointed representatives.
8. We agree for unconditional acceptance of all the terms and conditions set out in the bid document and also agree to abide by this bid response for a period of 180 days from the date fixed for bid opening and it shall remain binding upon us with full force and virtue. Till a formal contract is prepared and executed, this bids response, together with your written acceptance thereof in your notification of award, shall constitute a binding contract between us and Capital Region Urban Transport (CRUT).
9. We hereby declare that in case the contract is awarded to us, we will submit Performance Bank Guarantee equivalent to 3% of total contract value as quoted in the commercial bid in the form prescribed in the RFP.
10. I/We understand that Capital Region Urban Transport (CRUT) reserves the right to reject any application without assigning any reason thereof.
11. I/We hereby undertake that I/We have not made any payment or illegal gratification to any person/authority connected with the bid process so as to influence the bid process and have not committed any offence under the PC Act in connection with the bid.
12. All the prices mentioned in our RFP are in accordance with the terms as specified in the RFP documents. All the prices and other terms and conditions of this Bid are valid for a period of 180 calendar days from the date of opening of the Bid.
13. We hereby confirm that our prices include all taxes. However, all the taxes are quoted separately under relevant sections.
14. We understand that the actual payment would be made as per the existing tax rates during the time of payment.
15. We have indicated in the relevant forms enclosed the unit rates for the purpose of on account of payment as well as for price adjustment in case of any increase to/decrease from the scope of work under the contract.
16. I/We do hereby confirm to deliver the latest versions of the software and hardware as available on the date of delivery on mutually agreed terms, that addresses the requirements of Capital Region Urban Transport (CRUT), pursuant to the Request for Proposal (RFP) document relating to providing of the Enterprise Business system and associated software components, Implementation, training and maintenance services, Information Technology Infrastructure and System Integration services to Capital Region Urban Transport (CRUT) at the same cost committed in the commercial proposal.
17. We shall size the hardware, all other equipment and software based on information provided by Capital Region Urban Transport (CRUT) in its RFP document, past experience of similar implementations, Capital Region Urban Transport (CRUT) practices followed elsewhere and in accordance with the expected RFP and Service

Level requirements and assure Capital Region Urban Transport (CRUT) that the required sizing shall be accounted in the commercial bid. However, if the sizing of any of the proposed solutions is found to be inadequate in meeting the RFP and the Service Level requirements given by Capital Region Urban Transport (CRUT), then we will upgrade the proposed solution without any additional cost to Capital Region Urban Transport (CRUT).

18. We further confirm that the prices stated in our bid are in accordance with your Instruction to Bidders included in RFP documents.
19. In case you require any other further information/ documentary proof before/ during evaluation of our RFP, we agree to furnish the same in time to your satisfaction.
20. We declare that our Bid Price is for the entire scope of the work as specified in the RFP document. These prices are indicated in Commercial Bid submitted as part of the requirements of RFP
21. I/We do hereby undertake that commercial proposal submitted by us is inclusive of all the items in the technical proposal and is inclusive of all the clarification provided/may be provided by us on the technical proposal during the evaluation of the technical offer. We understand and agree that our commercial proposal is firm and final and shall any clarifications sought by you and provided by us would not have any impact on the commercial proposal submitted by us.
22. Our commercial proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal.
23. We understand you are not bound to accept any Proposal you receive.
24. We hereby declare that our RFP is made in good faith, without collusion or fraud and the information contained in the RFP is true and correct to the Capital Region Urban Transport (CRUT) of our knowledge and belief.
25. It is hereby confirmed that I/We are entitled to act on behalf of our company/ firm/ organization and empowered to sign this document as well as such other documents, which may be required in this connection.
26. We declare that we have read through the RFP document, all related clarifications and corrigendum.

Thank you,
Yours faithfully

(Signature of the Authorized signatory of the Bidding Organization)

Name:
Designation:
Date:
Company Seal:
Business Address:

Annexure II: Format for Power of Attorney for signing the bid

(To be submitted by bidder)

(On INR 100.00 Non judicial Stamp Paper and duly notarized) KNOW ALL MEN BY THESE PRESENTS,

We _____(name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms. (name),_____ son/daughter/wife of _____ and presently residing at _____, who is presently employed with us and holding the position of _____, as our true and lawful attorney (hereinafter referred to as the "Attorney") to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our application for qualification and submission of our bid for the Project proposed by the _____ (the "client") including but not limited to signing and submission of all applications, bids and other documents and writings, participate in pre-applications and other conferences and providing information/ responses to the client, representing us in all matters before the client, signing and execution of all contracts including the Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the client in all matters in connection with or relating to or arising out of our bid for the said Project and/ or upon award thereof to us and/or till the entering into of the Agreement with the client.

AND we 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.

IN WITNESS WHEREOF WE_____THE ABOVE-NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF _.

For
(Signature, name, designation and address) Witnesses:
1. (Notarized)

2. Accepted
(Signature, Name, Title and Address of the Attorney)

Notes:

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.

Annexure III: Bidder's Details

#	Particulars	Details to be filled in by the bidder)
1	Name of Bidder	
2	Legal status of Bidder (company, Pvt. Ltd., LLP etc.)	
3	Main business of the Bidder	
4	Registered office address	
5	Incorporation/Registration date and number	
6	Details of Company's Registration **(Please enclose copy of the company registration document)**	
7	Name of Registration Authority	
8	Registration Number and Year of Registration	
9	GST registration No. (as applicable)	
10	Permanent Account Number (PAN)	
11	Primary Contact Person (Name, Designation, address, mobile number, email)	
12	Details of the EMD (Bank name, Date, DD no.)	
13	Details of the Tender fee (Bank name, Date, DD no.)	
14	Bank account details for refund of EMD (cancel cheque)	

Annexure IV: Credential Summary

#	Project Name	Authority Name	Authority Type	Project Value (in Indian Rupees)	Project Components	Documentary evidence Provided (Yes or No)	Project Status (Completed or Ongoing or Withheld)

- Authority type – Indicate whether the client is Government or PSU or Private
- Documentary evidence provided – Indicate the documentary evidence provided with the detailed project credential like work order or purchase order or completion certificate
- Project Status – Completed (date of project completion) or Ongoing (project start

Annexure V: Project Plan and Daily Deliverables

A Detailed Project Plan covering break-up of each phase into the key activities, along with the start and end dates must be provided as per format given below.

Activity-wise Timelines									
S. No.	**Detailed Work Breakdown Structure**	**Week Wise Program**							
1	Project Plan	1	2	3	4	5	6	7	N
2	Activity 1								
2.1	Sub-Activity 1								
2.2	Sub-Activity 2								
2.3	Sub-Activity 3								

Daily Report Format-1

City Name	Route No.	From	To	Total Buses	Out Shading Depot Name	Frequency in Min	Total Trips
	8	IGKC	Sum Campus2(Via-ID Market,Vani vihar)				
	9	Master Canteen	Patia				
	13/13E	Nandankanan Bbotanical Garden	Lingipur/Dhauli				
	14	Kalinga Vihar	Master Canteen				
	15	Utkal Hospital	CNBT				

Daily Report Format-2

FLEET DETAILS

Region wise Data

	Capital Region	Rourkela	Sambalpur	Berhampur	Total
Total Fleet					
Operated Fleet					
No. of Active Routes					

DAILY OPERATIONAL STATUS

	Capital Region	Rourkela	Sambalpur	Berhampur	TOTAL
Ridership					
% Diff (with previous day)					
₹ Revenue					
% Diff (with previous day)					
Digital Transaction (%)					
Operated Kms					

Note:
- This includes all types of payments (ETIM, ONDC, ATVM, NCMC, Ama bus Card, Mobile Pass, WhatsApp and Mobile Tickets)
- This excludes E rickshaw data

Date :

Annexure VI: Manpower Plan

Manpower Distribution- Implementation (Till Go-Live)									
		Week Wise Program							
S. No.	**S. No.**	1	2	3	4	5	N	Total	Onsite/ Offsite
	Resource Name								
	Resource Name								
	Resource Name								
Manpower Distribution- Operations & Maintenance (Post Go-Live)									
	Resource Name								
	Resource Name								
	Resource Name								

Annexure-VII: Financial Capability

<<To be completed by the Bidder as appropriate to demonstrate that they meet the requirements>>

<<On the letterhead of the Chartered Accountant>>

<<To be submitted along with Audited Financial Statements>>

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (India), Pin- 751024

Dear Sir,

We have examined the books of accounts and other relevant records of *<<Bidder Name along with registered address>>.* Based on such examination and according to the information and explanation given to us, and to the Capital Region Urban Transport (CRUT) of our knowledge & belief, we hereby certify that the annual turnover for the last three years i.e., FY (2022-2023, 2023-2024, 2024-2025) was as per details given below:

	Information from Balance Sheets (in Indian Rupees)			
	2022-2023	2023-2024	2024-2025	Average
Annual Turnover				
Net worth				

(Signature of the Chartered Accountant)

Name:

Designation:

Membership Number:

Date:

Company Seal:

Business Address:

Annexure-VIII: Undertaking of Non-Blacklisting

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (INDIA), Pin- 751024

Subject: Non-Blacklisting Declaration

Sir,

In response to the RFP Reference No: _____ I as an owner/Partner/Director of <<Name of Bidder>>, hereby declare that <<Name of Bidder>>has not been blacklisted by any State / Central Government in India/PSUs as on bid submission date for corrupt, fraudulent or any other unethical business practices or for any other reason during last 3 financial years.

Yours sincerely,

Name: _____
In the capacity of: _____
Signed: _____
Duly authorized to sign the Authorization for and on behalf of
Date: _____
[Signature] – [Company Seal]

Annexure IX: Undertaking of Establishment of Office in Odisha

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (INDIA), Pin- 751024

Subject: Undertaking of Establishment of Office in Odisha

Sir,

In response to the RFP Reference No: _____ I as an owner/Partner/Director of <<Name of Bidder>>, I/We hereby declare that we do not have any local office in Odisha, and we confirm to establish our office within 30 days from the date of issuing of Work Order (If selected as successful bidder).

Yours sincerely,
Name: _____
In the capacity of: _____
Signed: _____
Duly authorized to sign the Authorization for and on behalf of
Date: _____
[Signature] – [Company Seal]

Annexure X: Manufacturer Authorization Form (MAF)

RFP No: - Date: -

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (INDIA), Pin- 751024

Sir,

We who are established and reputable manufacturers / producers of _____ having factories / development and Service facilities at (address of factory / facility and Service) do hereby authorize M/s _____ (Name and address of Agent) to submit a Bid, and sign the contract with you against the above Bid Invitation.

We hereby extend our full guarantee and warranty for the Solution, Products and services offered by the above firm against this Bid Invitation.

We hereby declare that we are not insolvent, in receivership, bankrupt or being wound up, our affairs are not being administered by a court or a judicial officer, our business activities have not been suspended and we are not the subject of legal proceedings for any of the foregoing.

We also undertake to provide any or all the following materials, notifications, and information pertaining to the Products manufactured or distributed by the Supplier:

Such Products as the Capital Region Urban Transport (CRUT) may opt to purchase from the Supplier, provided, that this option shall not relieve the Supplier of any warranty obligations under the Contract; and

In the event of termination of production of such Products: advance notification to the Capital Region Urban Transport (CRUT) of the pending termination, with enough time to permit Capital Region Urban Transport (CRUT) to procure needed requirements; and

Following such termination, furnishing at no cost to the Capital Region Urban Transport (CRUT), the blueprints, design documents, operations manuals, standards, source codes and specifications of the Products, if requested.

We duly authorize the said firm to act on our behalf in fulfilling all installations, technical support and maintenance obligations required by the contract.

We also confirm that products quoted and supplied by the supplier are not end-of-life and end of support for the further period of 5 years. Support including spares, software upgrades and updates shall be made available for next 5 years from date of acceptance/taking over of the system on request.

We assure you that in the event of <Name of the Bidder>_____, not being able to fulfil its obligation as our Service Provider in respect of our standard Warranty Terms we would continue to meet our Warranty Terms through alternate arrangements and also provide spares in accordance with the RFP for the period of 5 (Five)years.

Yours faithfully,

(Name of the Signatory)

Designation of the signatory

Contact Phone No. of the signatory

Email ID of the signatory

Note: This letter of authority should be on the letterhead of the manufacturer of the respective item and should be signed by a person competent and having the power of attorney.

The camera OEM should be fully compliant to section 889 of National Defense Authorization act NDAA, OEM should provide an undertaking stating that NDAA section 889 compliant products and doesn't have OEM, ODM, and JDM relationship with the blacklisted vendors in the NDAA and do not use or deploy critical components including SoC's produces by banned component vendors.

Annexure XI: Undertaking on defect free service

RFP No: - Date: -

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (INDIA), Pin- 751024

RFP Ref No:

Sir,

We confirm that we have understood the scope of work under this RFP in totality. We guarantee that everything to be supplied and fabricated by us hereunder shall be brand new, free from all encumbrances, defects and faults in material, workmanship and manufacturer and shall be of the highest grade and quality and consistent with the established and generally accepted standards for materials of the type ordered and shall be in full conformity with the specifications, drawings or samples, if any, and shall operate properly. We shall be fully responsible for its efficient and effective operation. This guarantee shall survive inspection of and payment for and acceptance of the goods but shall expire 36 months after their acceptance by the Authority.

The obligations under the Guarantee expressed above shall include all costs relating to labour, repair, maintenance (preventive and unscheduled), and transport charges from site to manufacturers works and back and for repair/adjustment or replacement at site of any part of the equipment/ item which under normal care and proper use and maintenance proves defective in design, material or workmanship or fails to operate effectively and efficiently or conform to the specifications and for which notice is promptly given by the Authority to the Supplier.

SIGNATURE OF THE WITNESS SIGNATURE AND SEAL OF BIDDER

DATE:

Annexure XII: Format for specifying Compliance to the benchmark / minimum specifications.

The bidder is required to submit compliance to the required benchmark / minimum specifications for various components specified in the RFP.

This compliance would be needed in two Formats – 1) Summary table given below for all the items, 2) Compliance tables for each of the line item against the benchmark specifications specified in this RFP.

1) Summary Table of Compliance of Requirements

#	Component	Unit OF Measurement	Quantity Proposed	Make & Model	Compliance with Required Specifications? (Yes / No)
1.	.....				
2.	.....				
3.	.....				

2) Detailed compliance tables for each of the proposed items against the benchmark specifications specified in this RFP should be provided on OEM/Manufacturer's Letterhead and cross-signed and stamped by Bidder's Authorized Signatory

Name of the Equipment:
Make:
Model:

#	Parameter	Minimum Specification / Requirement mentioned in the RFP	Compliance with Required Specifications? (Yes / No)
1.	.....		
2.	.....		
3.	.....		

Annexure XIII: Relevant Experience

Sr. No.	Credential for < Prequalification Criteria No. / Technical Criteria No>	
	Name of the Organization - <<Name of the Bidder / Consortium Member that have executed / executing the project>>	
	Parameter	Details
General Information		
i.	Customer Name	
ii.	Name of the contact person and contact details for the client of	
iii.	Whether client visit can be organized	(YES / NO)
Project Details		
1	Project Title	
2	Start Date and End Date	
3	Government/Private/PSU/Others please specify	
4	Geographical Coverage (No. of locations the project covers)	
5	Date of Go-Live	
6	Total Cost of the project	
7	Current Status (Live / completed / on-going /	
8	Number of years of successful	
9	No of staff provided by your company	
1	Please indicate the current or the latest AMC period with the client *(From Month – Year to Month-*	
1	Please indicate whether the client is currently using the	
Size of the project		
12.	Order Value of the project (in lakhs)	
13.	Capital Expenditure involved (in lakhs)	
14.	Cost of services provided by the bidder (in lakhs)	
15.	Cost of services provided by the partners if involved (in lakhs)	
16.	Number of total users and concurrent users of the solution at	Total users

17.		Concurrent users
18.	Training, System handover and Operational responsibilities of	
19.	Any other information to be shared with	
Narrative Description of the Project:		
Detailed Description of actual services provided by Bidder:		
Documentary Proof:		
Highlights of the Key Result Areas expected and achieved		
List of modules and sub-modules implemented		

Annexure XIV: Anti-Collusion Certificate

[Certificate should be provided by Bidder on letter head]

Anti-Collusion Certificate

We hereby certify and confirm that in the preparation and submission of our Bid for **RFP for selection of System Integrator (SI) for Design, Development, Supply, Installation, Integration, Testing & Commissioning of Intelligent Transport Management System for Capital Region Urban Transport.** against the RFP No :<No> Dated<DD/MM/YYYY> issued by Authority, we have not acted in concert or in collusion with any other Bidder or other person(s) and also not done any act, deed or thing, which is or could be regarded as anti-competitive. We further confirm that we have not offered nor will offer any illegal gratification in cash or kind to any person or organization in connection with the bid.

(Signature of the Bidder)
Printed Name
Designation

Seal Date: Place:
Business Address:

Annexure XV: Approach and Methodology

1. The Bidder should cover details of the methodology proposed to be adopted for planning and implementation of solutions and infrastructure relating to establishment of the proposed solution.
2. The bidder shall cover the details for Capital Region Urban Transport (CRUT) practices by imparting similar kind of training for users in an organization similar to the Authority based on bidder's prior implementation experience in the same.
3. Detailed Methodology and approach provided for training of the different stakeholders within Capital Region Urban Transport (CRUT)
4. Capital Region Urban Transport (CRUT) practices from undertaking Change Management for users in an organization like Capital Region Urban Transport (CRUT) based on bidder's prior implementation experience in the same.
5. Detailed Training Plan indicating the number of training sessions, batch sizes and number of batches with respect to all the stakeholders, and all different kinds of training vis-à-vis the requirements in the RFP.
6. The Bidder may give suggestions on improvement of the scope of work given and may mention the details of any add on services related to this project over and above what is laid down in the RFP document. A list of deliverables should also be identified and explained.
7. The Bidder shall describe the knowledgebase, Capital Region Urban Transport (CRUT) practices and tools that will be used by the project team for the execution of scope of work activities based on bidder's prior implementation experience in the same.
8. The Bidder should cover details of the methodology proposed to be adopted for operations and maintenance related to the proposed solution.
9. The Bidder should provide details about the Service Helpdesk and handholding staff available for the purpose of resolution of issues pertaining to the conditions at the proposed solution.
10. Project Methodology should contain but not limited to the following.
    - Overall implementation methodology (Objective of phases, deliverables at each phase, etc.)
    - Methodology for performing business design
    - Methodology for quality control and testing of configured system
    - Methodology of internal acceptance and review mechanism for deliverables by the bidder. Proposed Acceptance criteria for deliverables
    - Methodology and approach along with proposed tools and processes which will be followed by the bidder during project implementation
    - Change Management and Training Plan
    - Spare-part delivery management Plan for hardware components related to the solution
    - Risk and Quality management plan
11. Additional information directly relevant to the scope of services provided in of the RFP may be submitted to accompany the proposal.
12. Overview of support methodology offered in Warranty, AMC/ATS and Support & Maintenance phase.
13. Detailed bill of services offered for Warranty, AMC/ATS and Support and Maintenance services.
14. Detailed support model for services under support and Maintenance

Annexure XVI: Format for Performance Bank Guarantee

[On Appropriate Stamp Paper]

Ref:
Date

Bank Guarantee No.

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (India), Pin- 751024

Whereas <<name of the supplier and address>> (hereinafter called "the Implementation Agency") has undertaken, in pursuance of contract no. <Insert Contract No.> dated. <Date> to provide Implementation services for << **Request for Proposal (RFP) for Selection of a System Integrator (SI) to Design, Develop, Supply, Install, Integrate, Test, and Commission an Intelligent Transport Management System (ITMS) on Software as a Service (SaaS) Model for the Capital Region Urban Transport.**>> to [XXXXXXX] (hereinafter called "the Capital Region Urban Transport (CRUT)")

And whereas it has been stipulated in the said contract that the bidder shall furnish you with a bank guarantee by a recognized bank for the sum specified therein as security for compliance with its obligations in accordance with the contract.

And whereas we, <Name of Bank> a banking company incorporated and having its head/registered office at <Address of Registered Office> and having one of its offices at <Address of Local Office> have agreed to give the supplier such a bank guarantee.

Now, therefore, we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of Rs. <Insert Value> (Rupees <Insert Value in Words> only) and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of Rs. <Insert Value> (Rupees <Insert Value in Words> only) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

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

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the Implementation Agency 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 <<Insert Date>>) Notwithstanding anything contained herein:

i. Our liability under this bank guarantee shall not exceed Rs. <Insert Value> (Rupees <Insert Value in Words> only).

ii. This bank guarantee shall be valid up to <Insert Expiry Date>)

i. It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this bank guarantee that we receive a valid written claim or demand for payment under this bank guarantee on or before <Insert Expiry Date>) failing which our liability under the guarantee will automatically cease.

Date:

Place:
Signature:
Witness:
Printed name: (Bank's common seal)

Annexure XVII: Non-Disclosure Agreement

WHEREAS we the undersigned Bidder _____ having our principal place of business or registered office at _____are desirous of bidding for RFP No. <<>> dated <<DD-MM-YYYY>> "Request for Proposal (RFP) for Selection of a System Integrator (SI) to Design, Develop, Supply, Install, Integrate, Test, and Commission an Intelligent Transport Management System (ITMS) on Software as a Service (SaaS) Model for the Capital Region Urban Transport.", hereinafter referred to as 'Authority.'

And,

WHEREAS the Bidder is aware and confirms that the Authority's business or operations, information, application or software, hardware, business data, architecture schematics, designs, storage media and other information or documents made available by the Authority in the RFP documents during the bidding process and thereafter, or otherwise (confidential information for short) is privileged and strictly confidential and or proprietary to the Authority,

NOW THEREFORE, in consideration of disclosure of confidential information, and in order to ensure the Authority's grant to the Bidder of specific access to Authority's confidential information, property, information systems, network, databases and other data, the Bidder agrees to all of the following conditions.

It is hereby agreed as under:

1. The confidential information to be disclosed by the Authority under this Agreement ("Confidential Information") shall include without limitation, any and all information in written, representational, electronic, verbal or other form relating directly or indirectly to processes, methodologies, algorithms, risk matrices, thresholds, parameters, reports, deliverables, work products, specifications, architecture, project information, security or zoning strategies & policies, related computer programs, systems, trend analysis, risk plans, strategies and information communicated or obtained through meetings, documents, correspondence or inspection of tangible items, facilities or inspection at any site to which access is permitted by the Authority.
2. Confidential Information does not include information which:
    a. The Bidder knew or had in its possession, prior to disclosure, without limitation on its confidentiality.
    b. information in the public domain as a matter of law.
    c. is obtained by the Bidder from a third party without any obligation of confidentiality.
    d. The Bidder is required to disclose by order of a competent court or regulatory authority.
    e. Is released from confidentiality with the written consent of the Authority.
    f. The Bidder shall have the burden of proving the above are applicable to the information in the possession of the Bidder.
3. The Bidder agrees to hold in trust any Confidential Information received by the Bidder, as part of the Tendering process or otherwise, and the Bidder shall maintain strict confidentiality in

respect of such Confidential Information, and in no event a degree of confidentiality less than the Bidder uses to protect its own confidential and proprietary information. The Bidder also agrees:

a. to maintain and use the Confidential Information only for the purposes of bidding for this RFP and thereafter only as expressly permitted herein.
b. to only make copies as specifically authorized by the prior written consent of the Authority and with the same confidential or proprietary notices as may be printed or displayed on the original.
c. to restrict access and disclosure of Confidential Information to their employees, agents, strictly on a "need to know" basis, to maintain confidentiality of the Confidential Information disclosed to them in accordance with this clause; and
d. To treat Confidential Information as confidential unless and until Authority expressly notifies the Bidder of release of its obligations in relation to the said Confidential Information.
e. Notwithstanding the foregoing, the Bidder acknowledges that the nature of activities to be performed as part of the Tendering process or thereafter may require the Bidder's personnel to be present on premises of the Authority or may require the Bidder's personnel to have access to software, hardware, computer networks, databases, documents, and storage media of the Authority while on or off premises of the Authority. It is understood that it would be impractical for the Authority to monitor all information made available to the Bidder's personnel under such circumstances and to provide notice to the Bidder of the confidentiality of all such information.

4. Therefore, the Bidder shall disclose or allow access to Confidential Information only to those personnel of the Bidder who need to know it for the proper performance of their duties in relation to this project, and then only to the extent reasonably necessary. The Bidder will take appropriate steps to ensure that all personnel to whom access to the Confidential Information is given are aware of the Bidder's confidentiality obligation. Further, the Bidder shall procure that all personnel of the Bidder are bound by confidentiality obligation in relation to all proprietary and Confidential Information received by them which is no less onerous than the confidentiality obligation under this agreement.

5. The Bidder shall establish and maintain appropriate security measures to provide for the safe custody of the Confidential Information and to prevent unauthorized access to it.

6. The Bidder agrees that upon termination or expiry of this Agreement or at any time during its currency, at the request of the Authority, the Bidder shall promptly deliver to the Authority the Confidential Information and copies thereof in its possession or under its direct or indirect control, and shall destroy all memoranda, notes and other writings prepared by the Bidder or its Affiliates or directors, officers, employees or advisors based on the Confidential Information and promptly certify such destruction.

7. Confidential Information shall at all times remain the sole and exclusive property of the Authority. Upon completion of the Tendering process and or termination of the contract or at any time during its currency, at the request of the Authority, the Bidder shall promptly deliver to the Authority the Confidential Information and copies thereof in its possession or under its direct or indirect control, and shall destroy all memoranda, notes and other writings prepared

by the Bidder or its Affiliates or directors, officers, employees or advisors based on the Confidential Information within a period of sixty days from the date of receipt of notice, or destroyed, if incapable of return. The destruction shall be witnessed and so recorded, in writing, by an authorized representative of the Authority. Without prejudice to the above the Bidder shall promptly certify to the Authority due and complete destruction and return. Nothing contained herein shall in any manner impair the rights of the Authority in respect of Confidential Information.

8. If the Bidder here to becomes legally compelled to disclose any Confidential Information, the Bidder shall give sufficient notice and render best effort assistance to the Authority to enable the Authority to prevent or minimize to the extent possible, such disclosure. Bidder shall not disclose to a third party any Confidential Information or the contents of this RFP without the prior written consent of the Authority. The obligations of this Clause shall be satisfied by handling Confidential Information with the same degree of care, which the Bidder applies to its own similar Confidential Information but in no event less than reasonable care.

For and on behalf of: (BIDDER)
Authorized Signatory

Office Seal: Name: Place:
Designation:

Date:

Annexure XVIII: Price Bid Format

To
General Manager (P&A),
Capital Region Urban Transport (CRUT)
Plot No. 548/1452, Patia, Kalarahanga,
Bhubaneswar, Odisha (India), Pin- 751024

Subject: Financial Bid for Request for Proposal (RFP) for Selection of a System Integrator (SI) to Design, Develop, Supply, Install, Integrate, Test, and Commission an Intelligent Transport Management System (ITMS) on Software as a Service (SaaS) Model for the Capital Region Urban Transport.

Sir,

1. We hereby declare.
   i. that we have domain knowledge in implementation, Design, Development, Supply, Installation, Integration, Testing & Commissioning of Intelligent Transport Management System as a System Integrator (SI).
   ii. We/our principals are equipped with adequate manpower / machinery / technology for providing the Services as per the parameters laid down in the Tender Document and we are prepared for live/technical demonstration of our capability and preparedness before the representatives of Office of CRUT and we/our principals are also equipped with adequate maintenance and service facilities within India for supporting the offered document.
   iii. We hereby offer to provide the Services at the prices and rates mentioned in the Commercial Bid in Part III.
   iv. We do hereby undertake, that, in the event of acceptance of our bid, the Services shall be provided as stipulated in the schedule to the Bid document and that we shall perform all the incidental services.
2. We enclose herewith the complete Commercial Bid as required by you. This includes:
   i. This Bid Letter
   ii. Price Bid (Section II)

We agree to abide by our offer for a period of 180 days from the last date of submission of Bid and that we shall remain bound by a communication of acceptance within that time.

We have carefully read and understood the terms and conditions of the tender and the conditions of the contract applicable to the tender and we do hereby undertake to provide services as per these terms and conditions.

Certified that the bidder is a Company and the person signing the tender is the duly constituted attorney. Bid Security (Earnest Money Deposit) for an amount equal to Rs.20,00,000 (Rupees Twenty Lakhs) is paid towards the tender.

We do hereby undertake, that, until a formal contract is prepared and executed, this bid, together with your written acceptance thereof or placement of WO awarding the contract, shall constitute a binding contract between us.

Price Bid Section-II

Monthly Software as a Service (SaaS) amount:

Sr. No	Items	Qty. (a)	Monthly SaaS amount per Bus (b)	GST (18%) (c)	Total Monthly SaaS Amount (d)= (b) + (c)
1.	For Design, Development, Supply, Installation, Integration, Testing & Commissioning including Operation and Maintenance of Intelligent Transport Management System including all software, hardware, manpower and cloud internet service for CRUT. Including components below: **Software** a) Automatic Fare Collection System b) Automatic Vehicle Location System (AVLS) c) Vehicle Planning Scheduling and system (VPSD) d) Passenger Mobile Application. **Hardware** e) Electronic Ticketing Machine	1 Bus			

Note: The component of Table (SaaS Payment per Month per Bus) shall be considered as the final financial offer and will be used for the evaluation of the financial bid.
The final payment will be made on a pro-rata basis based on the number of operational buses during the billing period.
This is an indicative format; however, bidders are required to submit their quotes online strictly as per the prescribed format available on the e-procurement portal.

Dated this Day of YYYY (Signature) (In the capacity of)

Duly authorized to sign the Tender Response for and on behalf of:

Name and Address of Company)

Seal/Stamp of bidder