Kakinada Smart City Corporation Ltd.

R.O.C No. KSCCL/SMART CITY/2023-24/09 Dt. 15.02.2024

RFP for Selection of Agency for SITC and Operations & Maintenance of Existing Integrated Command Communication Center of KSCCL, Kakinada

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3	Method of Selection	**The method of selection will be purely on Quality Cost Based Selection (QCBS)**. The bidder with lowest price will be selected for the further negotiations with the tenderer after minimum cut -off 70% in Pre-Qualification Criteria in the Technical Evaluation Process.
3.	Pre-Bid Queries End Date	The pre-bid queries must reach by 05/Feb/2024 in the format mentioned in tender document via email on letterhead.
4.	Online Price Bid Submission Date	As per online NIT
5.	Physical Documents Submission (EMD and Tender Fees Receipt)	Proof of EMD shall be submitted online. Submission of physical copies to this office post finalization of tender.
6.	Proposal Opening (Technical)	As per online NIT
7.	Date & Time of opening of Price Bid	Will be notified Later after Technical Evaluation with score
8.	Venue of opening of Technical& Commercial Bid/s	Kakinada Smart City Corporation Limited
9.	Bid Processing Fees (Non - refundable)	Rs. 20000 /- (Rupees Twenty- Thousand only) non refundable
10.	Bid security (EMD)	Earnest Money Deposit (EMD) of Rs. 16,00,000 /- (Rupees sixteen Lakhs only)
11.	Kakinada Smart City Corporation Limited Contact email ID	smartcityofficekakinada@gmail.com
12.	RFP Document Available at	https://www.apeprocurement.gov.in/
13.	Reverse Tendering	Applicable
14.	Auction Date & Time (ReverseAuction)	Will be intimated through email to responsive bidders

NOTE: Please address all queries and correspondence to:
E-mail: smartcityofficekakinada@gmail.com

Kakinada Smart City Corporation Limited (Kakinada Smart City Corporation Limited) invite proposals for

Request for Proposal (RFP) for Selection of an Agency for Operation and Maintenance (O&M) of Smart city project in Kakinada city. The Authority will enter into agreement with the Successful Bidder selected in accordance with this RFP. The agreements will be in the format specified by the Authority.

Only the bidders matching the pre-qualification criteria will be selected for further evaluation. The bidders are required to meet the minimum threshold limit for technical evaluation mentioned herein, post which their financial bid will be reviewed.

The Bidders are required to meet the minimum threshold technical and financial capability criteria, as stated in the Notice Inviting Tenders ("NIT") advertisement published in the local & National newspapers and as provided herein. Pursuant to that, the Bidders would be evaluated on the basis of detailed technical and financial proposals and qualify for undertaking the Project as set out in this RFP.

The RFP document contains information about the Project, bidding process, proposal submission, qualification and financial proposal requirement. Proposal in the form of BID is requested for the item(s) in complete accordance with the documents/attachment's asper following guidelines.

Instruction to the bidders for bid submission:

- ✓ Tender NOTE: Please address all queries and correspondence to:
- ✓ E-mail: smartcityofficekakinada@gmail.com
- ✓ Kakinada Smart City Corporation Limited (Kakinada Smart City Corporation Limited) invite proposals for Request for Proposal (RFP) for Selection of an Agency for Operation and Maintenance (O&M) of smart city project in Kakinada city. The Authority will enter into agreement with the Successful Bidder selected in accordance with this RFP. The agreements will be in the format specified by the Authority.
- ✓ Only the bidders matching the pre-qualification criteria will be selected for further evaluation. The bidders are required to meet the minimum threshold limit for technical evaluation mentioned herein, post which their financial bid will be reviewed. The proposal with the lowest cost will be awarded the contract.
- ✓ The Bidders are required to meet the minimum threshold technical and financial capability criteria, as stated in the Notice Inviting Tenders ("NIT") advertisement published in the local & National newspapers and as provided herein. Pursuant to that, the Bidders would be evaluated on the basis of de tailed technical and financial proposals and qualify for undertaking the Project as set out in this RFP.
- ✓ The RFP document contains information about the Project, bidding process, proposal submission, qualification and financial proposal requirement. Proposal in the form of BID is requested for the item(s) in complete accordance with the documents/attachment as per following guidelines.
- ✓ Instruction to the bidders for bid submission:
- ✓ Tender documents are available only in electronic format which Bidders can download free of cost from the website
- ✓ Bidder shall upload their financial bid.
- ✓ Bidder shall submit technical proposal (both at https) with eligibility documents, non-refundable bid processing fees and bid security. EMD sealed envelopes super scribed with title and RFP NO must be submitted to Kakinada Smart City Corporation Limited Office.
- ✓ The bid shall specify time schedule of various activities.
- ✓ Bids complete in all respects should be submitted on or before the BID DUE DATE.
- ✓ Services offered should be strictly as per requirements mentioned in this Bid document.
- ✓ Please spell out any unavoidable deviations, Clause/ Article-wise in your bid under the adding Deviations.
- ✓ Once quoted, the bidder shall not make any subsequent price changes, whether resulting or arising out of any technical/commercial clarifications sought regarding the bid, even if any deviation or exclusion may be specifically stated in the bid. Such price changes shall render the bid liable for rejection. However,

Kakinada Smart City Corporation Limited reserve the right to revised financial offer.

- ✓ The duration of the Contract period for this activity will be of 3 years from go-live.
- ✓ Bidders who wish to participate in this bid will have to register. Further bidders who wish to participate in online bids will have to procure Digital Certificate as per Information Technology Act 2000 using which they can sign their electronic bids.

Definitions / Acronyms

Term	Meaning
Authority/KSCCL	Kakinada Smart City Corporation Limited
AMC	Annual Maintenance Contract
BEC	Bid Evaluation Committee
BOQ	Bill of Quantity
CCTV	Closed Circuit Television
DD	Demand Draft
EMD	Earnest Money Deposit
ICT	Information Communication and Technologies
LAN	Local Area Network
O&M	Operation and Maintenance
PQ	Pre-Qualification
PBG	Performance Bank Guarantee
RFP	Request for Proposal
SI	System Integrator
SLA	Service Level Agreement
SITC	Supply, Installation Testing and Commissioning
TQ	Technical Qualification
UAT	User Acceptance Test

SECTION 1: ELIGIBILITY CRITERIA

The bidder must possess the requisite experience, strength and capabilities in providing services necessary to meet the requirements as described in the RFP document. Keeping in view the complexity and volume of the work involved, following criteria are prescribed as the eligibility criteria for the bidder interested in undertaking the project.

The bidder must also possess technical know-how and financial ability that would be required for implementationof scope of work described in this RFP as per Kakinada Smart City Corporation Limited's requirement for the entire contract duration.

1 Pre-Qualification (PQ) Criteria

Sr No	Description	Minimum Requirement	Documentary Evidence to be Submitted
PQ 1	Legal Entity	1.1 Bidder should be an Indian firm 1.2 Bidder should be registered under the Companies Act 1956/2013 in India or a Limited Liability Partnership Firm under Limited Liability Partnership Firm Act 2008 at the time of the bidding. 1.3 Bidder should have a registered number of, GST, Income Tax / PAN number 1.4 Bidder should be in operation in India for a period of at least 5 years as on publication of bid	a) Copy of certification of incorporation / Registrationunder companies acts 1956 / 2013 or certified copies of partnership deed b) Copy of PAN card c) Copy of GST registration
PQ 2	Financial Capability	2.2 The Bidder should have average annual turnover of at least Rs. **18 Crores** from last three financial years ending 31 March 2023, i.e.(FY 2020-21, FY 2021-22 and FY 2022-23). 2.2 The bidder must have positive net worth and should be Profit making as on 31st March 2023.	• Copy of audited Balance Sheet, audited Profit & Loss statements for each of the last 3 financial years as on 31st March 2023. • Certificate from the statutory auditor / Charted Accountant (CA) clearly specifying the annual turnover for each of the last 3 financial years as on 31st March 2023.

Sr No	Description	Minimum Requirement	Documentary Evidence to be Submitted
PQ 3	Bidder's Experience	3.1 The bidder should have expertise and experience of implementation and maintaining **at least 1** large scale ICT ***projects experience*** Projects should have at least **3 out of 6** components as part of their project. Surveillance Cameras - At least 400 cameras On-site Data Center (DC) Traffic enforcement system (RLVD, SLVD, ANPR) (At least 5 junctions) IoT devices - At least 40 devices (i.e. Environment sensors, Wi-Fi-devices / hotspot, Emergency Call box, IP PA System) Variable Messaging Display (VMDs) – At least 10 devices Fiber/Bandwidth/MPLS/ISP for minimum 100 junctions For consideration of **One (1) project experience**, either of the criteria should beachieved: At least three (3) similar projects not less thanof 5 Crores each (Overall project cost) **OR** Two (2) similar projects not less than of 7 crores each (Overall project cost) **OR** One (1) similar project not less than of 10 crores (Overall project cost) *The bidder should enclose Experience Certificates in support of technical criteria / requirement issued by the Engineer – In - charge of the State / Central Government departments / Undertakings, not below the rank of Executive Engineer or equivalent and countersigned by the next higher authority not below the rank of Superintending Engineer or equivalent.	Documentary evidence: ▪ Copy of work order from Govt/PSU/ with annual turnover not less than 50cr. ▪ Multiple work orders/PO for same project can add up to the experience value. ▪ Project Citation/RFP Published copy

PQ 4	Mandatory Undertaking	The bidder should: 4.1 Not have been blacklisted by Central Government / Any State Government / Urban Local Body (ULB) / PSU in India as on the date of bid submission. 4.2 Not be insolvent, in receivership, bankrupt or being wound up, not have its affairs	Self-declaration by the Bidder duly Signed and stamped by the authorized signatory in in format described in RFP.

2 Total Bid Evaluation: -

a. The Selection will be based on the Technical Evaluation Criteria. Bidders should Score minimum 70% in each evaluation criteria to qualify for Commercial Evaluation.
b. Those Bids will not be opened whose scope is less than 70% in technical evaluation in each section.
c. The bidder who qualifies in the Technical Evaluation criteria only those bids will be opened for Commercial Evaluation. The Bidder who has quoted lowest price shall be invited for further negotiations for awarding the contract. In case of a tie where two or more bidders having quoted same prices, the bidder with the higher Technical Score will be invited first for negotiations for awarding the contract.

3 Technical Evaluation Framework: -

The Bidder's Technical Bid shall be evaluated as per the evaluation criteria in the following table.

Section #	Evaluation Criteria	Marks	Total Marks
A	Sole Bidder Profile		**15**
	Age of the company		
	3-5 Years	6	
	5 - 7 Years	07	
	Above 7 years	10	
	Company Profile and Organizational Chart	05	
B	Sole Bidder Project Experience		**15**
	At least three (3) similar projects not less than of 5 Crores each (Overall project cost)	**7**	
	Two (2) similar projects not less than of 7 crores each (Overall project cost)	**10**	
	One (1) similar project not less than of 10 crores (Overall project cost)	**15**	
	Experience of Projects which include following key components		**20**
	Surveillance Cameras - At least 400 cameras	**05**	
	On-site Data Center (DC)	**05**	
	Traffic enforcement system (RLVD, SLVD, ANPR) (At least 5 junctions)	**05**	
	IoT devices - At least 40 devices (i.e. Environment sensors, Wi-Fi-devices / hotspot, Emergency Call box, IP PA System)	**05**	

C	Demonstration of use cases and Approach & Methodology for Pan City ICT Solutions and Design & Revenue generation Model Presentation of project along with work plan and Methodology	**40**	**40**
D	Free O&M post Go-Live period		**10**
	Minimum 1 Year	**7**	
	Greater than 1 Year	**10**	
	Total Marks	**100**	**100**

Mandatory Requirement: Bidders should Score minimum 70% in each evaluation criteria to qualify for Commercial Evaluation.

Note: Client (or its nominated party) reserves the right to check/validate the authenticity of the information provided in the Pre-qualification and Technical Evaluation criteria and the requisite support must be provided by the Bidder.
The Contract period will be 42 months (6 months + 36 months for AMC) including the proposed O&M Free period offered by bidder. The proposed O&M Free period will be in the scale of 1 month to 12 months.
KSCCL retains the authority/evaluation committee to cancel or reject any bidder during the evaluation process.

4 Introduction

Kakinada is Andhra Pradesh's one of the fastest growing cities. It has two sea ports. It is also a popular tourist destination. The city is an industrial hub, Kakinada is a multi- faceted city located in south east India. It has a civic body as Kakinada Municipal Corporation (KMC) consisting of 50 municipal wards. The smart city proposal of Kakinada includes several Pan City and Area Based Development initiatives with a focus on both infrastructure and ICT advancements across the city and at strategic locations. The strategic focus of the city has been identified to improve mobility, improve situational awareness, enhance public safety and security, and introduce data driven decision making.

The key components of Smart Kakinada City solutions include:

Services	Feature	Scope
Command and Communications Centre	The CCC Application would integrate all the smart elements	Deployment of CCC software and integration with IOT platform located at Victoria Water works. GIS and ERP Integration with CCC. Integration of Smart Elements.
Data Centre	To host all the networking servers, core routing and switching devices along with Security devices	Collocated with CCC at Victoria Water works, it will host all the storage, Server, networking core devices and security devices
Data Recovery center	To replica the critical applications and data of data center	It will host the major critical server/ storage for important applications and backup for critical networking equipment
Network operation Centre	To monitor the health of the network across the city	Equipped with enterprise management system and workstation, it will enable engineers to monitor the city-wide network Components
Citizen Helpdesk	To act as a Helpdesk to manage Citizen Grievances and coordinate services.	5-Seater Citizen Helpdesk
City Backbone network	Backbone network for the connectivity of Wi-Fi, CCTV and other smart elements	120 Kms of fiber network across the city aggregating at DC/DR. 4 Aggregation Routers and 24 Access Routers, 6 Access Rings, Core/Aggregate Ring
LoRa Network	City wide LoRa Network	Around 11 BTS
Internet Wi-Fi network	Wi-Fi access to the citizens, students in the major junctions, markets, schools and other public places	Around 135 Locations Indoor APs: 170 Outdoor APs: 300 Walk-in subs concurrent: 5000 Average time for Wi-Fi session: 30 mins
CCTV Surveillance System	Provide security to the citizens	Total 350 cameras to be deployed across the city
Smart Street Lighting	Motion based and intensity-based sensors with smart controller for energy saving	640 existing lights to be replaced by smart lighting with 640

Services	Feature	Scope
System		controllers and 12 Gateways
Smart Poles	10 smart poles are proposed which can host LoRa BTS, environmental sensor, PA system and Wi-Fi Equipment	10 such poles of 15-meter height to be deploy across the city
Environment sensors with public display Units	To monitor the health of the city environment	12 environmental sensors to be deployed across the city at major locations
Automatic Vehicle Locator System (AVLS)	Use GPS / GPRS based location tracking devices	To be used in 50 nos. of trucks, which are used for waste collection across the city
Solid waste management	Using volume sensor and RFID tagging, providing real time management of garbage collection Points	110 volume sensor and RFID tag and 50 AVLS for garbage collecting vehicles
ATCS	Automated solution for optimizing traffic signal timings	Four major junctions covered
Automatic Number Plate Recognition System (ANPR)	Data availability of all vehicles entering/leaving the city	10 locations covering 1 approach each
RLVD (Red Light violation detection)	To detect any violation of traffic light at junctions	5 locations covering 1 approach each
FRS (Facial recognition system)	To detect any suspicious person via high resolution camera and analytics	10 such FRS cameras to be deployed at major locations
IP based public address system (PA system)	For addressing citizen / visitors at specific locations from control room	Total 30 IP PA Systems
ECB (Emergency call box)	Emergency call box in times of panic situation for citizens	25 such ECB will be installed city wide.
VMD (Variable messaging display)	Used on roadways to give traveler's" information about special Events	5 such VMDs will be installed across the main roads.
Disaster Management	To alert the central office in advance about any disaster event	Automatic Weather Station and Lightning Detection Station in a NaaS & SaaS Model

5 Current ICCC's Solution: -

With increasing urbanization, the time is opportune to Plan, Design, Build, and manage the city resources on an on-going and sustained basis. For creating smart cities, India needs a balanced focus in terms of modernizing city infrastructure and leveraging technology to improve efficiency and capacity of city services. A layered approach has to be taken to develop the Smart City architecture which is robust, secure, scalable access and datacenter Infrastructure, an infrastructure which is based on the principles of openness be it Open Source, Open Standards, Interoperable, Open Compute and flexible APIs so that the city evolves as a platform which can be leveraged as a marketplace to host new applications and ideas. Essence of smartness in a city lies in integration of the core city subsystems and a deep analysis of the resultant data in ways meaningful to all the stakeholders. There is a need to re-imagine the Cities as a platform for Service Delivery which will deliver ubiquitous services to its Citizens. Kakinada has undertaken meaningful strides in improving the livability of citizens and has announced a City-Wide Smart City Project.

The Essential components of a Smart City Solution as outlined below: -

Things: Users of such a Smart City Infrastructure would be sensors, people, machines, buildings, homes, displays, cameras, Industry etc. The things being positioned in Kakinada are Environmental Sensors, Parking Sensors, Waste Bin Volume Sensors, Lighting Sensors, Camera, Wi-Fi.

Network: The users would need connectivity to the Network. Key charter is to establish and maintain a secure, robust, fault-tolerant connection between the cloud and the edge devices in order to: Collect and aggregate device data, manage the device, provide sufficient bandwidth and QoS control to cater to critical applications like surveillance etc. Network could be both wired and wireless. For such high bandwidth applications an Optical Fiber based network is being proposed. Last mile for such wired networks could be carried over POE, POE+ etc. A future use of such a network could be GPON based FTTx Network over IP/MPLS backbone.

On the other hand, for ease of mobility and low bandwidth applications wireless networks could also be of great use. Embedded sensors and other distributed Internet of Things devices have different network requirements than those of computers, phones or tablets. Several technologies are starting to address the unique network needs of the IoT, and the latest is LoRa -- a low-power, long-range wireless protocol. This suits perfectly to the requirement of connecting several low power low bandwidth consuming sensors. A City wide LoRa network is proposed which can help deploy future use cases like Asset Tracking, Water Meters, Power Meters etc.

Cloud: The Smart City is based on scalable IT platforms based on Cloud Computing. Cloud is a scalable & elastic ICT-enabler for distributed computing or delivery of computing service over a network (Internet or Intranet). Enabling technology for cloud computing is virtualization. The key building blocks for a cloud are Compute, Network and Storage. Of prime importance would be the Data Center Active and Passive Design. All Smart City Applications will reside in the private cloud infrastructure of the Datacenter. Certain other applications are provided in a SaaS model.

Applications: One of the most important pillars of Smart Cities is the Applications that are being hosted on the Smart City Platform. Applications along with the edge devices would provide intelligence and smartness to various Smart City use cases.

Command Control Center: This facility uses the Smart City information system to provide centralized management with comprehensive information displays and unified command and control.

In effect the whole of the City ICT Infrastructure will help improve the Service Delivery of the City Services in terms of Economic activity, Infrastructure efficiency, Mobility, Energy distribution and consumption, Environment, Safety, E-governance, Digital inclusion, Healthcare, Culture, Citizen welfare, Disaster and Emergency Management, Traffic and Utilities etc.

Network Operation Center:

This facility is an essential element in a Smart City CCC to ensure the following:

- Availability of Infrastructure (Server, Applications and Networks),
- Complete Fault and Performance Management (Server, Applications and Networks),

- Service Management Solution (including Helpdesk, Asset Discovery and Management),
- Service Level Management to align IT with Business objectives

Building ICT Infrastructure of cities as a Data center with high-speed broadband access network
Every city has a character and unique identity. To inculcate a true sense of entrepreneurship and participation Cities should strive to build a robust, secure, scalable access and data centre Infrastructure, an infrastructure which is based on the principles of openness be it Open Source, Open Standards, Interoperable, Open Compute and flexible APIs so that the city evolves as a platform which can be leveraged as a marketplace to host new applications and ideas.

Opening City Data center for Developers as a marketplace to use data generated by the city and get hosted on the marketplace
A lot of initiatives, notable among which is Firmware which is EU wide initiative an open sustainable ecosystem around public, royalty-free and implementation-driven software platform standards that will ease the development of new Smart Applications in multiple sectors, are being undertaken. Such initiatives have been well supported by the industry and are a need of the hour. The Solution so proposed will generate lot of data points which can be used to generate new streams of revenue and make City operations more efficient.

Using sustainable solutions and using ICT to improve live ability
Cities need to incorporate infrastructures that have the capacity to utilize the potential of ICT and combine them with the existing infrastructure (such as building, roads, etc.). For this reason, the convergence ICT idea is applied to the infrastructure for Smart Sustainable Cities (SSC). ICT acts as an enabler to construct SSC with it is intelligent and efficient use of resources being the focus. Consequently, using ICTs in SSC results in cost and energy saving, increased economic growth, improved quality of life (QoL), and reduced environmental footprint. The Solution that is proposed incorporates this essential aspect and will help the city in achieving its objectives.

The basic tenets of the solution lie in the following:

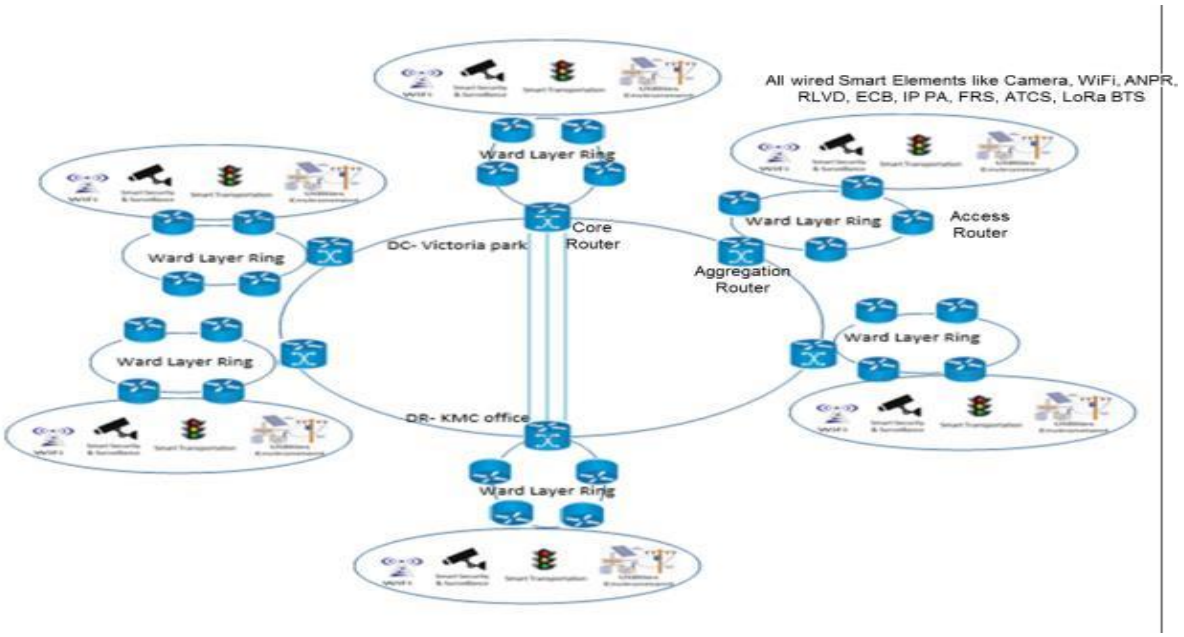
Desired Business Outcome	How KSCCL Make It Happen
Drive new Revenue Streams	The offered Wi-Fi Solution, City Backbone Network, Smart Parking, City Wide LoRa Network, Variable Messaging and IoT Platform opens new revenue streams for the city by launching new services
Improve Connectivity	Provide high bandwidth resilient and scalable City Backbone network covering 120 km of important City roads in a 3-tier architecture.
Reduce operational complexity	Provides centralized, real-time application-level visibility across physical and virtual environments on City NOC.
	Faster troubleshooting
	Instant visibility into application performance combined with intelligent placement decisions
Enhance adaptability	Enhanced connectivity will help Citizens to adopt new services and participate in various Governance initiatives through Wi-Fi etc.
	Accelerate deploying new services and on boarding of various Govt Initiatives like Swachh Bharat etc. Simplifies provisioning applications by using a programmable infrastructure
	The offered Solution is highly scalable. The proposed solution supports vertical and horizontal scalabilities so that depending on changing requirements from time to time, the system can be scaled upwards. e.g. City Network: The Fiber Network is being built with enough cores (96, 48 and

Scalability	24) along with high-capacity routers. A FTTH Network or other Enterprise Network can be built on top of this infrastructure. Data Centre: Enough room is being built in the Datacentre to launch more Compute, Storage and Networking facility to create more capacity. Wi-Fi: A robust and scalable Wi-Fi SMP and WAG are being provided that can incorporate more traffic and Access Points with additional licenses for additional Wi-Fi Access Points quantity. IoT Platform: A Horizontal IoT Platform is being provided to integrate new applications like Power Meters, Water Meters, Waste Bins, Parking etc with additional licenses for new use cases and additional quantities. LoRa Network: A City Wide LoRa network is being provided to integrate new future application sensors like Power Meters, Water Meters, Waste Bins, Parking and other such use cases. Command Control Centre: An Agile and open Command Control Centre to integrate new future applications rapidly with additional licenses.
Improve business agility and responsiveness	Simplify operations and offers speed through automation, which reduces errors
	Translates application intentions automatically to infrastructure design without requiring knowledge of devices or the effort to translate to configurations
Availability	The Solution offers a high degree of reliability and resilience and has been designed keeping in view the SLA requirements of the city. City Network: The Fiber Network has been designed in such a way that the core, aggregation and access rings can survive cut and still keep running. Data Centre: Critical applications for Smart Elements have been provisioned in such a way that Site failovers from DC to DR have been catered to. For certain other applications within Site Virtual Machine fail over on Blade failure etc have been catered to. LoRa Network: The City Wide LoRa network has been designed in such a way that single BTS failure will not hamper the connectivity as it will be catered to by neighbouring BTS.
Security	The architecture has designed by keeping in mind the security concerns of the city. However, since Zero Day attacks keep on happening and everyday new vulnerabilities are being uncovered it is advisable that the City establishes an SoC and strengthen the Security Architecture further to improve the Network Security. A security layer consisting of Firewall and IPS along with Antivirus solution has been designed for the Data Center. For DR Center Firewall and Antivirus have been positioned. A DMZ Zone will be created to filter inter and intra Network traffic. OS will be hardened and unwanted ports will be blocked. For Switches and routers unused ports will be deactivated. AAA: All Routing and Switching devices have been integrated for authentication, authorization and accounting to monitor and store the logs for all devices. PIM: A centralized PIM along with LDAP Authentication is being proposed to control the super user account to not be misused its access. This will help regulate access to Server and other applications along with Network Elements. Firewall: It is being used to create the high security zone for servers and to create the DMZ (demilitarized zone) for untrusted traffic. It will also be used to packet, port and traffic filtering. IPS: It is being used to monitors the entire network for suspicious traffic by analysing protocol activity. Antivirus and End Point Security: It is being proposed to prevent the systems and servers from the virus and malware attacks. Core switches: - SVIs will be created to segregate the traffic as per the requirement and access list are configure to restrict the traffic flow in between the VLANs. SSL Certificates are being provisioned on Wi-Fi SMP/ Captive Portal to provide Secure connection and help secure the user data. Provides Single View of all Smart City Operations to enable 24 X 7 monitoring of critical feeds in the city and measuring City KPIs on a Command Control

	Center.
Maintainability	Management of application lifecycle from upgrade, to deployment, to decommissioning: in minute. Automatic application deployment and faster provisioning based on predefined profiles Continuous and rapid delivery of virtualized and distributed applications with additional licenses for future applications. A robust and scalable Enterprise Management System is being proposed in the offered Solution. This would be helpful in managing the SLA and viewing the Network Status in a snapshot.
Interoperability	The proposed system can allow viewing of additional cameras on the Video Wall. New applications can also be integrated on-to CCC and IoT platform as both the proposed system support Open Standards and expose APIs to harness data.
Open Standards	New applications can also be integrated on-to CCC and IoT platform as both the proposed system support Open Standards and expose APIs to harness data.
Single-Sign On	A centralized PIM and AAA are being provided to manage logins to various Applications and Network Elements.
GIS Integration	The proposed CCC integrated with the Bhuvan/ NRSC GIS Map and the points of interest are mapped.
SMS Gateway Integration	The proposed CCC, Wi-Fi SMP and certain Smart Applications are integrated with a SMS Gateway. Any reputed SMS Gateway can be used and the same will be decided during execution. SMS integration feature is used to integrate the HTTP based SMS API for bulk SMS with the offered IP PBX System. A SMS can be sent to the customer based on the Disposition status entered by the Agent. Email integration feature is used to integrate the SMTP based Email API with the offered IP PBX System. For Example: If the call was related to an inquiry, then an SMS/Email can be sent to the customer regarding the details of that inquiry.
Robust IP Address Schema	A suitable IP Schema for the entire Network Backbone including Central Command Centre, Kakinada City Operations Centre, Zonal offices, ward locations, smart Kakinada City solutions and interfaces to external systems/ network will be designed.
Lightning-proof and anti-interference measures	For Kakinada smart city, KSCCL deployed external lightning protection system which is a highly advanced and efficient lightning protection based on the latest protection techniques as per NF C 17-102:201. Piezoelectric Early Streamer Emission Air Terminal (PESEAT) is an electronic based lightning protection system working principle on piezoelectric technology to protect the entire structure of a building in the event of direct lightning strikes, it allows lightning current to follow a low resistance path through the down conductor to ground, thus protect the structure from physical damage.

6 Overall Architecture: -

6.1 City Network Architecture (High Level) –



On a high level roughly 120 km of Optical fiber network is planned to cover the city backbone to connect the Smart elements and 50 Wards.

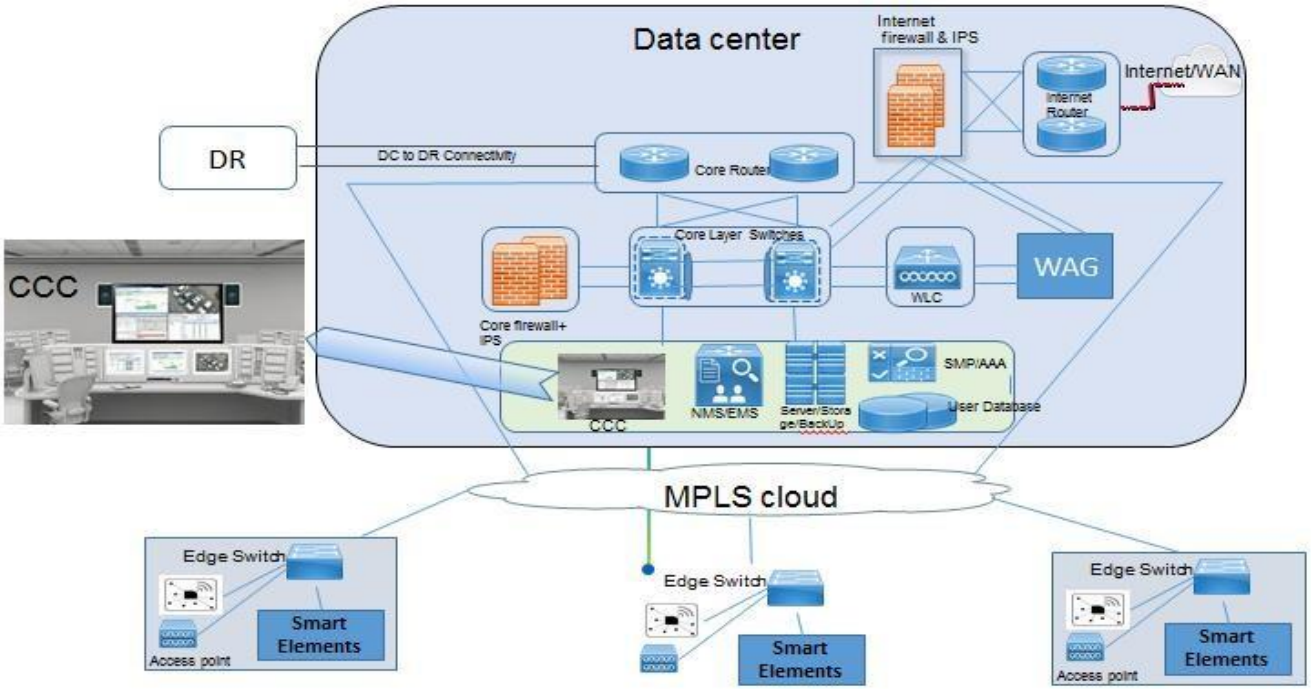
Core / Aggregation layers:
High end scalable Routers, running on IP/MPLS protocols, with capacity in multiple of 10G, scalable up to 100 G.
(2 High-capacity Core Routers at DC & DR and 4 Aggregation routers are planned)
Access Layer:
Modular temperature hardened Chassis and will run IP/MPLS based transport with capacity in multiple of 10G scalable up to 100 G
(24 Access routers to cover 6 Access Rings are planned)

Street layer:
Street layer switches will be connected to pre-Aggregation layer with 1G capacity. (Around 200 Outdoor ruggedized Switches are planned)

6.2 DC Architecture (High level): -

Proposed Architecture for DC

As desired in the RFP, KSCCL Proposed to have a highly available architecture with inbuilt redundancy in DC to



handle localized events and an automated failure over mechanism to DR site. The DR site is proposed to in a different seismic zone than DC. As specified in the RFP, the primary DC is planned to be in Kakinada and the DR will be in the hosted secondary data center.

The Edge Elements are getting connected to the Access Rings which in turn get aggregated at the Aggregation rings. The aggregation traffic is further getting consolidated at the DC & DR location.

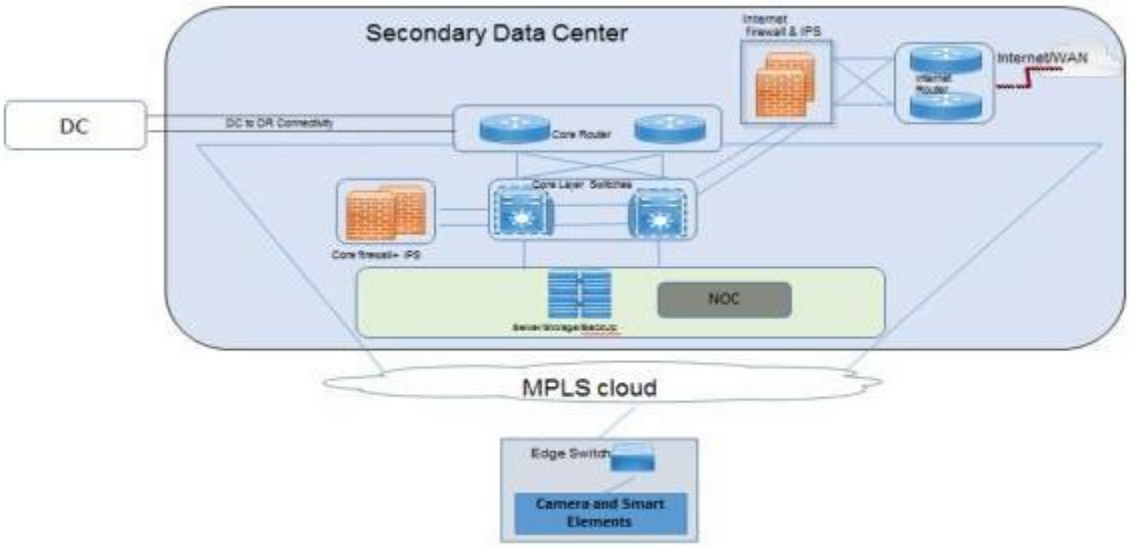
On the DC Side Security elements like Firewall and IPS are being used to create DMZ zones for Internet facing traffic and Intranet facing traffic. The Server Farm is being protected from Internet facing traffic.

The IT infrastructure solution is designed and configured to provide the requisite platform for hosting the entire Smart City and Safe City solutions together with Citizen friendly services encompassing integration to State-wide ERP for citizen-civic authority interaction. The entire solution is architect-ed keeping in mind the performance and availability requirements for each of the core applications with specific emphasis on modular scalability and ensuring ease of management.

Enterprise class of Systems and Storage solutions are the core components of the proposed infrastructure that includes Server and Storage infrastructure. All critical systems are designed with local high availability using integrated clustering solutions, along with disaster recovery (DR) support, to enable a multi-site disaster-tolerant design for achieving complete business continuity and desired the business outcomes.

6.3 DR Architecture (High level): -

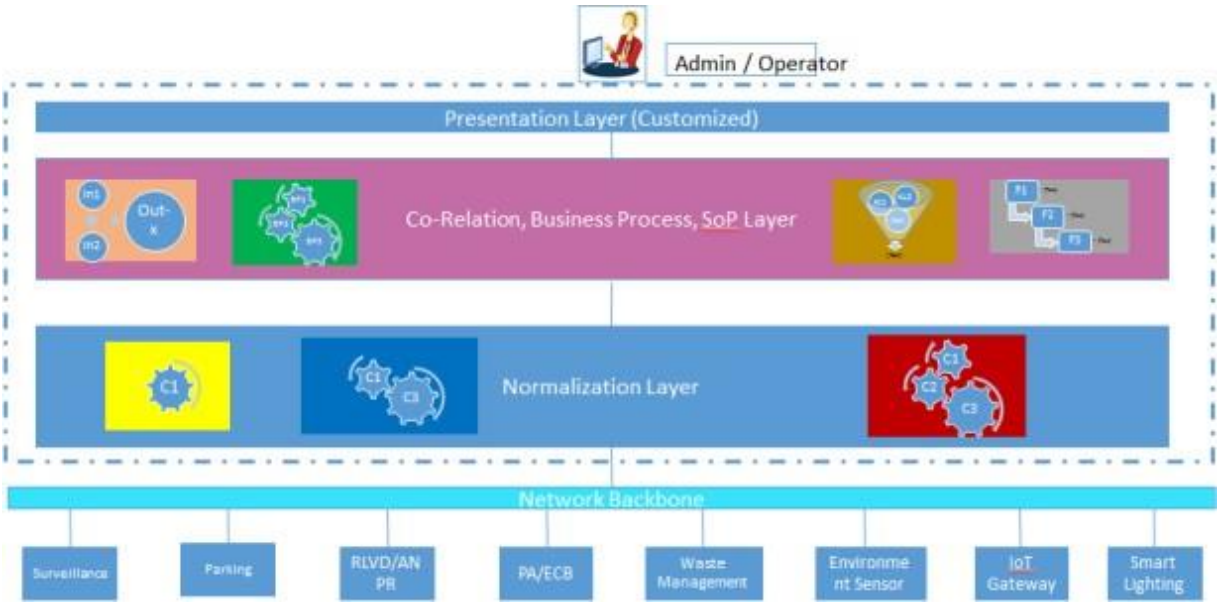
Proposed Architecture for DR



The DR Center is a minimalistic design to provide an operational continuity of Critical Smart City Utility applications in need of emergency. High level architecture of the DR remains like the DC.

6.4 CCC Architecture (High level): -

Software Architecture of the Command-and-Control Centre Software:



- The CCC Application would integrate all the elements as depicted above.
- Some applications would get aggregated on the IoT Platform and be presented on a common dashboard on the CCC.
- The ERP modules already developed and currently being developed will be aggregated on a single dashboard

on the CCC.

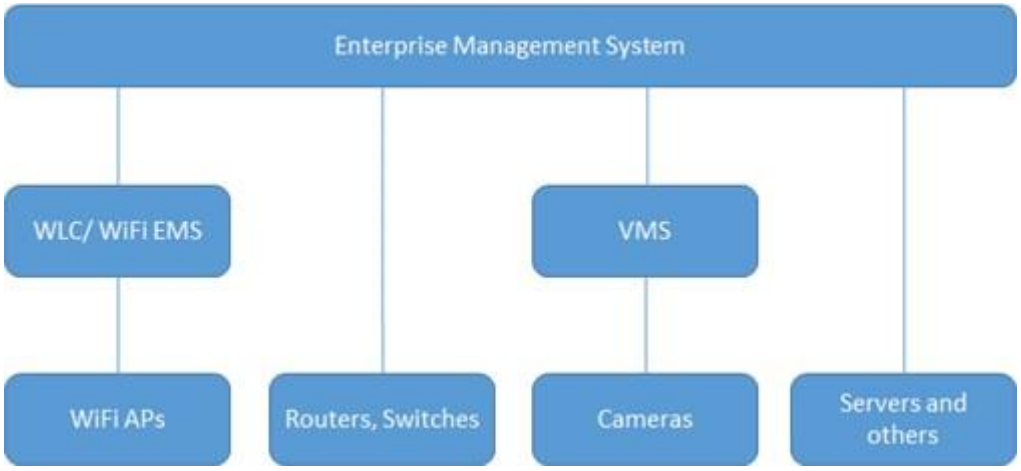
Layout of the CCC:

- The CCC build at Victoria water works. CCC area consists of the 10-Seater Command control Center (CCC), 8-seater meeting room, helpdesk, Data Center room, Electrical room and Toilets. The CCC and helpdesk room separated by glass partition.
- Civil and Interiors are comprising construction of fire rated walls, partitions, false ceiling, flooring, and associated works.
- UPS and Power Distribution System are comprising supply, installation, testing and commissioning of Diesel Generator (DG) Set, UPS system, LT panels, power distribution and earthing system.
- Safety and Security System: Design, supply, installation, testing and commissioning of security systems compriseded with the following components:

Fire alarm System, Aspiration based Fire detection system (VESDA), Fire Extinguisher system, Access control system, CCTV surveillance system, Water leakage detection system, Public Address System, Rodent Repellant System.

6.5 NOC Architecture (High level): **-**

Software Architecture of the Network Operation Centre Software:



The NOC room would be used by the onsite support team of the NOC and DR, other IT operations & IT staff on a 24x7, round the year. The NOC builtd at KMC premises at first floor.

7 Center of Operation: -

7.1 CCC

A City Command and Control Centre is the place that is used to provide centralized command for city safety & security purpose in addition with Smart Governance.

Collect, Co-Relate and Response are the main 3 functions of CCC.

Conceptually, a command center is a source of leadership and guidance to ensure that law and order is maintained, rather than an information center or help desk.

Its tasks are achieved by monitoring the environment, Co-relating the events and reacting to events, using predefined procedures.

There are software connectors/drivers & or hardware interfaces are required to communicate between CCC software and multiple sub systems. Any standalone software/HW will have API/SDK or standard HW interface to communicate with CCC. These connectors have to be developed specifically for CCC server software. In the modern world of IoT, these protocols are becoming standard and ready to use. Sensors are supporting open standard protocols such as MQTT etc.

At micro level, following function will be achieved by CCC, but not limited to

- Single dashboard for multiple system on single monitor or on video wall like waste management, Environmental sensor, AVLS, ANPR, RLVD, Lighting, Surveillance, IP PA, FRS, Parking etc.
- Sending and control sub-system from single interface.
- Mapping individual element on map for the ease of operator and action related to it.
- Provide Standard Operating Procedure (SOP) to operator for any individual alarm or co-related alarm.
- Provide list of first responder contact details in SOP so information can be sent to him at no extra time.
- Provides single interface for faulty element / End device.

7.2 NOC

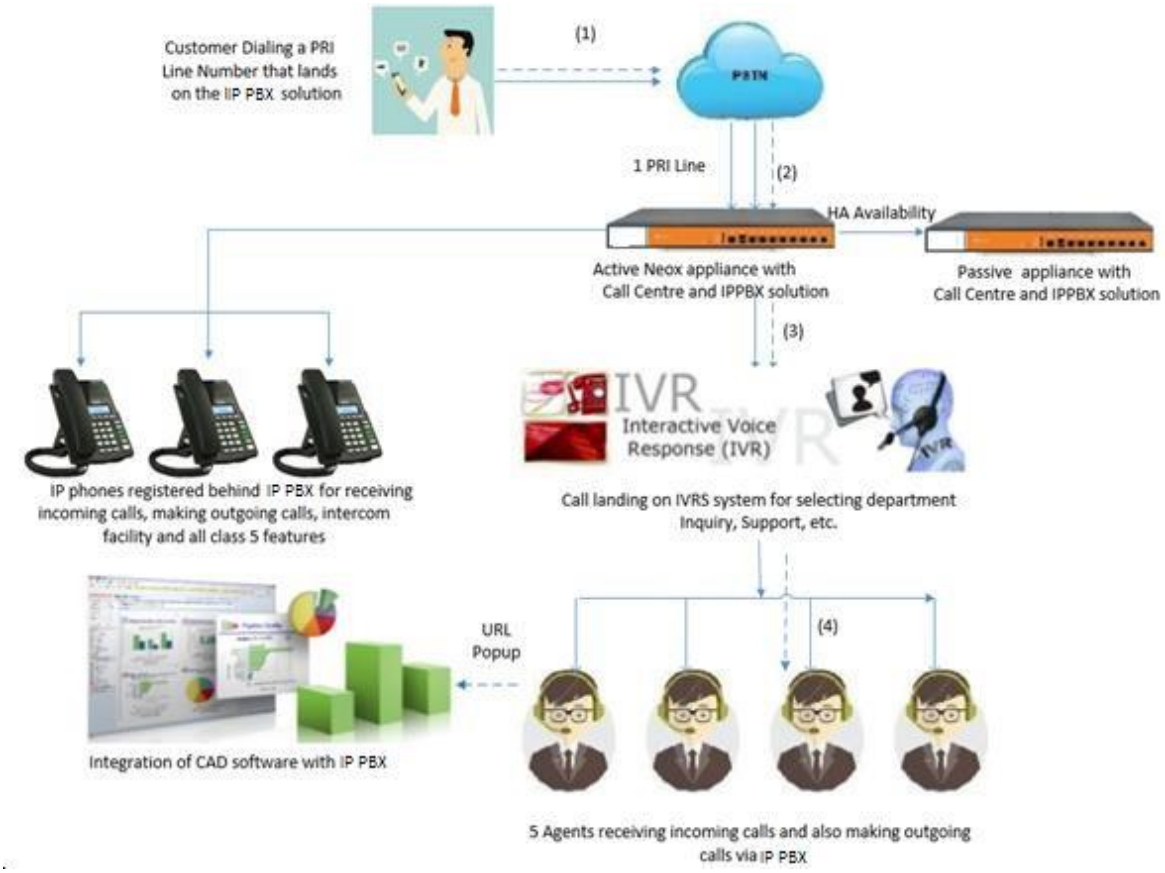
A **network operations center** (NOC, pronounced like the word knock), also known as a "**network management center**", is one or more locations from which **network** monitoring and control, or network management, is exercised over a computer, telecommunication or satellite **network.** This is a network monitoring center in Kakinada KMC with a video wall.

7.3 Citizen Helpdesk

KSCCL had Help Desk Solution also as per Tender ask. Below would be covered as part of the Help Desk Solution.

- Integration with ACD
- Display Customer Information
- Ticket Management System
- Integration with Email for sending updates to customers
- Integration with SMS Gateway for sending updates to customers
- Integrated Reporting engine for custom reports.
- User Management for managing login credentials for Call center agents.

Below is the Solution Architecture of the Help Desk Solution.



8 Data Center: -

In Kakinada smart city data center, KSCCL considered multi-layers architecture which consists of Core/Distribution and access layer. These layers are referred to extensively throughout this guide and are briefly described as follows:

- Core layer: In Kakinada Data Center, Core layer has Routers, Switches, WLC and WAG which are deployed in high availability mode. Core routers handle the IP- MPLS & routing traffic whereas core switches provide the high-speed packet switching backplane for all flows going in and out of the data center. WLC is used to manage, monitor and seamless roaming support and WAG is used to shaping of wireless traffic, quota management and etc.
- Access layer: Access layer consists of TOR (top of the rack) switches and provide connectivity for servers, CCC and users. At this layer servers are physically attached to the network. The server components consist of 1RU servers, blade servers with integral switches, blade servers with pass-through cabling, clustered servers, and mainframe.
- Security Layer: In Kakinada smart city data center, two firewall and two IPS are used to traffic filtering & blocking and to prevent intrusion respectively. One privileged identity management is used for identity management purpose. These firewalls and IPS are used for internet traffic and server farms to create the DMZ (Demilitarized zone). Antivirus is used for the end point users and servers. AAA server or service management platform servers are used for managing the client and their authentications using Radius or TACACS+.
- Compute layer: Compute layer consists of physical servers such as rack and blade servers which will provide the required computational resources like CPU, RAM and etc. to the different applications.
- Virtualization layer: Server virtualization is depicted through platforms like hypervisors which provides better hardware resource optimization; minimize the Capex value, high performance, redundancy, fault tolerance, auto scalability and a better SLA.
- Storage & Backup layers: storage layer is consisting of different type of storage solutions like SAN & local storage which is used to store data from different smart applications like VMS, sensors, database and etc. SAN storage will get connected through SAN switches. Since data is immense critical to any business which needs to be protected somewhere to avoid any kind of disaster. Backup solution is used to save the data copy in a secured manner regularly and as per the retention policy. In case of any fault in primary data, backup solution helps to restore the data back from copied data.

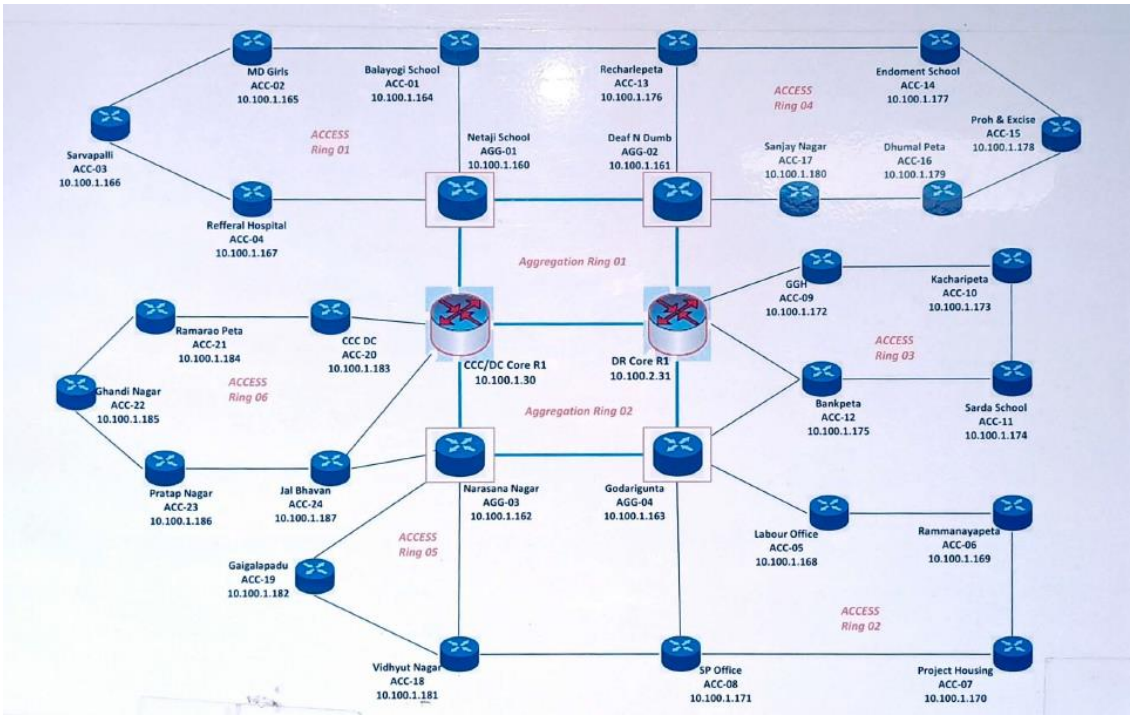
9 Data Center Recovery: -

In Kakinada data recovery center, KSCCL considered multi-layers architecture which consists of Core/Distribution and access layer. These layers are referred to extensively throughout this guide and are briefly described as follows:

- Core layer: In Kakinada data recovery center, Core layer has two internet routers and two switches which are deployed in high availability mode. Internet routers handle the IP- MPLS & routing traffic whereas core switches provide the high-speed packet switching backplane for all flows going in and out of the data center.
- Access layer: Access layer is consisting of around six TOR (top of the rack) switches and provides connectivity for servers, CCC and users. At this layer servers are physically attached to the network. The server components consist of 1RU servers, blade servers with integral switches, blade servers with pass-through cabling, clustered servers, and mainframe.
- Security Layer: In Kakinada smart city data center, two firewall are used to traffic filtering & blocking the. One privileged identity management is used for identity management purpose. These firewalls are used for internet traffic, server forms and to create the DMZ (Demilitarized zone). Antivirus is used for the end point users and servers.
- Compute layer: Compute layer is consisting of physical servers such as rack and blade servers which will provide the required computational resources like CPU, RAM and etc. to the different applications.
- Virtualization layer: Server virtualization is depicted through platforms like hypervisors which provides better hardware resource optimization; minimize the Capex value, high performance, redundancy, fault tolerance, auto scalability and a better SLA.
- Storage & Backup layers: Storage layer consists of different type of storage solutions like local storage which is used to store data from different smart applications like VMS, sensors, database and etc. SAN storage will get connected through SAN switches. Since data is immense critical to any business which needs to be protected somewhere to avoid any kind of disaster. Backup solution is used to save the data copy in a secured manner regularly and as per the retention policy. In case of any fault in primary data, backup solution helps to restore the data back from copied data.

10 City Network: -

City Backbone Network: -
Network Architecture: -



Proposed Network Elements: -
Core Node details:
Nokia's Router 7750 SR-7, for the high traffic carrying core nodes.

The Nokia 7750 Service Router (SR) product family provides high-performance networking that supports the delivery of advanced residential, business, and mobile services. These IP edge routers help you stay ahead of evolving service demands driven by the cloud, LTE/5G, and the Internet of Things.

The MEF Carrier Ethernet 2.0-certified 7750 SR supports an extensive range of IP applications for service provider and enterprise networks, including:

- Broadband network gateway for residential subscriber management functions
- Provider edge router for MPLS-enabled business VPN, internet access, cloud, and data center interconnect services
- Mobile aggregation router for 3G, LTE, and LTE-A mobile backhaul applications
- Wireless LAN gateway for Wi-Fi network aggregation
- Security gateway for mobile backhaul networks
- High-performance IP routing for enterprise WANs including connectivity to data center, internet, and branch offices

Aggregation Router details:

Nokia's Router 7210 SAS-R6, for the aggregation ring nodes

The Nokia 7210 Service Access Switch (SAS) product family provides service providers with Carrier Ethernet demarcation, access, and aggregation for mobile backhaul, business, and residential service delivery. For enterprise and mission- critical network operators, the 7210 SAS addresses stringent requirements for high network resiliency, deterministic network performance, and scalability.

Access Router details:

Nokia's Access router 7210 SAS-Mxp for access layer nodes

The 7210 SAS leverages the proven Nokia Service Router Operating System (SR OS) and the Nokia 5620 Service Aware Manager (SAM) to enable the widest possible range of applications. The 7210 SAS is compliant with the Metro Ethernet Forum (MEF) Carrier Ethernet (CE) 2.0 specification, and with Hierarchical Quality of Service (H-QoS) and comprehensive operation, administration, and maintenance (OAM). The 7210 SAS provides deployment flexibility, service richness, and operational simplicity to extend Carrier Ethernet services throughout the network.

Field switch details: -

Extreme's Industrial grade switch (ISW 8GBP, 4-SFP)

Extreme Networks ISW Series Industrial Switches deliver high quality, wide operation temperature range, extended power input range, and advanced VLAN & QoS features. It's ideal for harsh environments and mission-critical applications. The Managed Ethernet Switch solutions are designed for supporting standard industrial applications. Managed switches are easier to prioritize, partition, and organize user's network, providing a more reliable and better-quality services.

For both 100/1000 Mbps fiber speed connections, the SFP slots are available. The SFP slot accepts the fiber transceivers that typically have an LC connector. The fiber transceivers have options of multimode, single mode, long-haul, or special-application transceivers. Prepare a proper SFP module and install it into the optical port. Then you can connect fiber optics cabling that uses LC connectors or SC connectors (with the use of an optional SC-to-LC adapter) to the fiber optics connector.

Data Center core switch details:

Cisco's NEXUS 9K C9504 as the DC core switch

The Cisco Nexus® 9000 Series Switches include modular and fixed-port switches that overcome these challenges with Cloud scale Technology enabled infrastructure that is flexible, agile, and programmable.

The Cisco Nexus 9500 platform, part of the Cisco Nexus 9000 Series (Figure 1), offers three modular options: the Cisco Nexus 9504 Switch with 4 slots, the Cisco Nexus 9508 Switch with 8 slots, and the Cisco Nexus 9516 Switch with 16 slots. All three switches use the same supervisor, system controller, power supplies, and line cards[1]. The Cisco Nexus 9500 platform consists of Layer 2 and 3 nonblocking Ethernet switches with backplane bandwidth of up to 172.8 terabits per second (Tbps). The Cisco Nexus 9504, 9508, and 9516 Switches support 1, 10, 25, 40, 50, and 100 Gigabit Ethernet interfaces through a comprehensive selection of modular line cards. Configurable with up to 2304 x 10 Gigabit Ethernet ports, 2048 x 25 Gigabit Ethernet ports, 576 x 40 Gigabit Ethernet ports, 1024 x 50 Gigabit Ethernet ports, or 512 x 100 Gigabit Ethernet ports, they provide ample capacity for both access- and aggregation-layer deployments.

Internet Router details: -

Nokia's router 7705 SAR-8, as Internet router

The Nokia 7705 Service Aggregation Router (SAR) portfolio provides service adaptation, aggregation, and routing over an efficient, feature-rich Ethernet and IP/MPLS infrastructure. With interfaces supporting a wide range of access protocols, it is well suited for mobile backhaul, fixed-mobile convergence, mission-critical and enterprise applications. The Nokia 7705 SAR is ideal for fixed and mobile operators seeking mobile backhaul solutions as well as for industries, enterprises and governments delivering legacy and advanced IP services.

The 7705 SAR is available in multiple compact platforms that reduce equipment footprint and energy costs. These platforms deliver highly available services over a wide variety of network topologies. Strong QoS capabilities deliver customer satisfaction and the ability to differentiate service levels.

11 City Wi-Fi Network: -

Overview and Connectivity: -

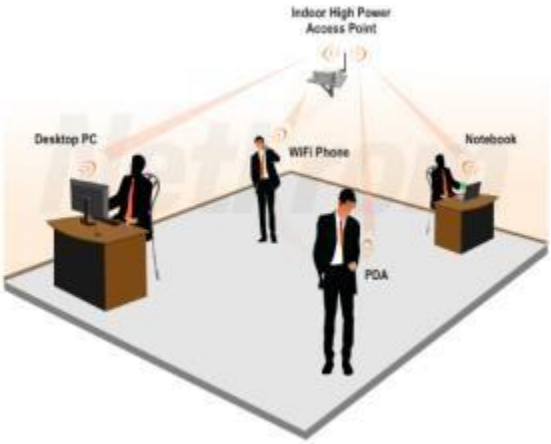
In proposed Kakinada Wi-Fi solution serves as the basis for creating a connected city. The City Wi-Fi allows for a confluence of data from static sensors as well as connected objects and people. This data can inform city processes and improve the delivery of urban services and the management of infrastructure. This will help to resolve the challenges: congestion, safety and security, waste and water management, and access to education and healthcare.

Engineered solutions for each venue use a combination of AP and antenna placement strategies to meet coverage and capacity expectations while accommodating physical access for mounting and cabling in combination with building aesthetic requirements.

The goals of a high density engineered solution are to place AP‟s in locations across the venue using a selection of orientation strategies to minimize the signal from one AP on a Wi-Fi channel from interfering with its neighbor AP‟s on the same channel.

Wi-Fi Solution Key Component: -

Indoor Access Point: -



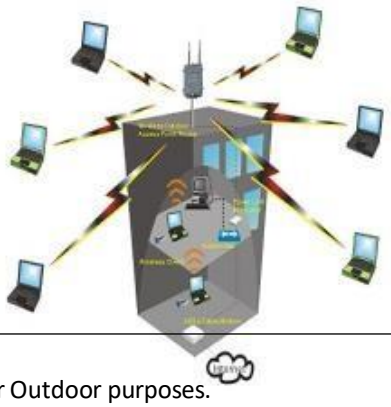
- Suitable for Indoor purposes.
- Can be mounted on Ceilings / Walls / Pillars.
- The ideal orientation of the Indoor AP's is on the ceiling.
- Works on POE power from the POE switch / power Injectors
- Mostly have coverage up to 60 meters (approx.).
- Detailed Site survey is required to choose the location of Installation.

Indoor AP (901-R610-WW00)

The Ruckus ZoneFlex R600 delivers high-performance and reliable 802.11ac wireless networking at a competitive price point for medium density venues such as in K-12 or education. The ZoneFlex R600 combines patented adaptive antenna technology and automatic interference mitigation to deliver consistent, predictable performance at extended ranges with up to an additional 6dB of BeamFlex gain on top of the physical antenna gain and up to 15dB of interference mitigation. The R600 is ideal for wireless networks servicing mobile devices with dual-polarized antennas that adapt in real time to maximize performance for the mobile enterprise. A sleek and low-profile design, the ZoneFlex R600 was purpose built for enterprises requiring reliable high speed client connectivity. It is ideal for a variety of medium density enterprise and hotspot environments including SMBs, hotels, and schools. Full functionality under standard PoE - no need for costly switch upgrades.

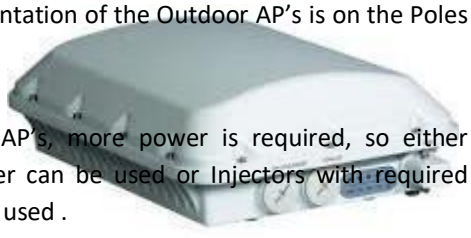
Outdoor Access Points: -

Outdoor Access point (901-T610-WW01)



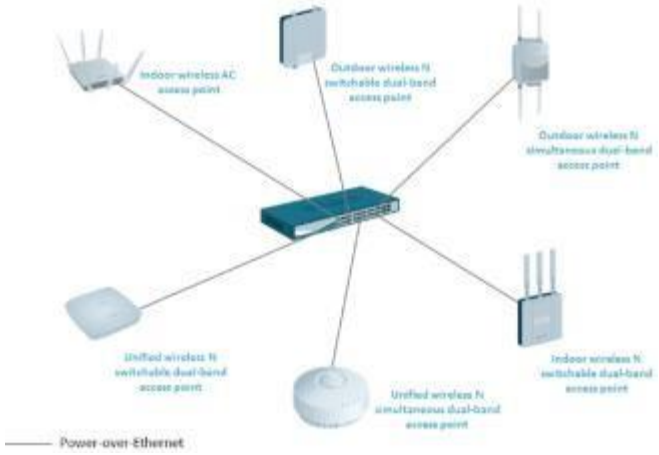
The ZoneFlex T610 combines Ruckus patented technologies and best-in-class design with the next generation of 802.11ac Wave 2 features to deliver industry leading Wi-Fi performance and reliability. Featuring BeamFlex+ adaptive antenna technology, the ZoneFlex T610 offers a substantial increase in performance and range by optimizing antenna coverage on a per-client, per-transmission basis. BeamFlex+ additionally mitigates co-channel interference by directing Wi-Fi signals where they are needed instead of towards neighboring access points. The T610‟s BeamFlex+ adaptive antenna system is also equipped with dual polarization antennas, allowing the access point to adapt to the physical orientation of client devices and maximize uplink performance. With throughput capacities of 800 Mbps (2.4GHz) and 1733 Mbps (5GHz), the ZoneFlex T610 supports the highest available throughput for Wi-Fi clients. 802.11ac Multi-User MIMO (MU-MIMO) support allows the T610 to simultaneously transmit to multiple client devices, drastically improving airtime efficiency, overall throughput, and availability. The ZoneFlex T610 is backward compatible with all existing Wi-Fi clients, and can function either as a

- Suitable for Outdoor purposes.
- Can be mounted on Poles / Pillars.
- The ideal orientation of the Outdoor AP's is on the Poles (6-9 meters).
- For outdoor AP's, more power is required, so either power adapter can be used or Injectors with required power can be used .



standalone AP or as part of centrally-managed Wireless LAN. The ZoneFlex T610 is specifically designed with industrial grade features such as secure image download. The T610 also has an IP67 compliant USB port that enables field-installable connectivity for IoT applications. ZoneFlex T610 is purpose-built for high-capacity, high performance and interference laden environments such as outdoor campuses, smart cities, arenas, convention centers and transportation hubs.

Outdoor POE Switch: -

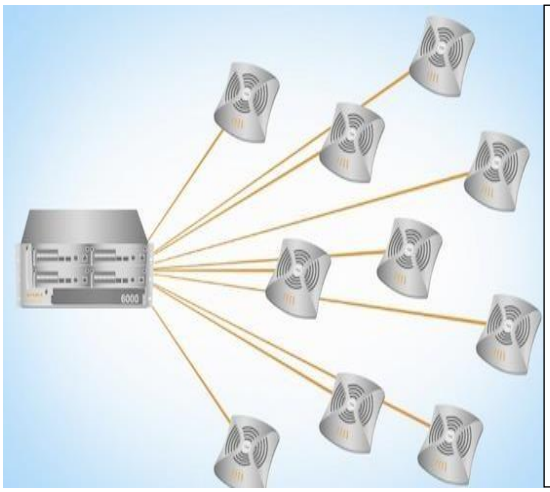


- Suitable for Outdoor locations.
- Ruggedized / Industry grade switches.
- Should be installed in Enclosures / Cabinets
- UPS power should be used to avoid any surge.
- Generally, have 8 / 24 ports POE ports

Industrial grade switch (ISW 8GBP): -

Extreme Networks ISW Series Industrial Switches deliver high quality, wide operation temperature range, extended power input range, and advanced VLAN & QoS features. It's ideal for harsh environments and mission-critical applications. The Managed Ethernet Switch solutions are designed for supporting standard industrial applications. Managed switches are easier to prioritize, partition, and organize user's network, providing a more reliable and better-quality services. For both 100/1000 Mbps fiber speed connections, the SFP slots are available. The SFP slot accepts the fiber transceivers that typically have an LC connector. The fiber transceivers have options of multimode, single mode, long-haul, or special-application transceivers. Prepare a proper SFP module and install it into the optical port. Then you can connect fiber optics cabling that uses LC connectors or SC connectors (with the use of an optional SC-to-LC adapter) to the fiber optics connector.

Wireless Controller: -



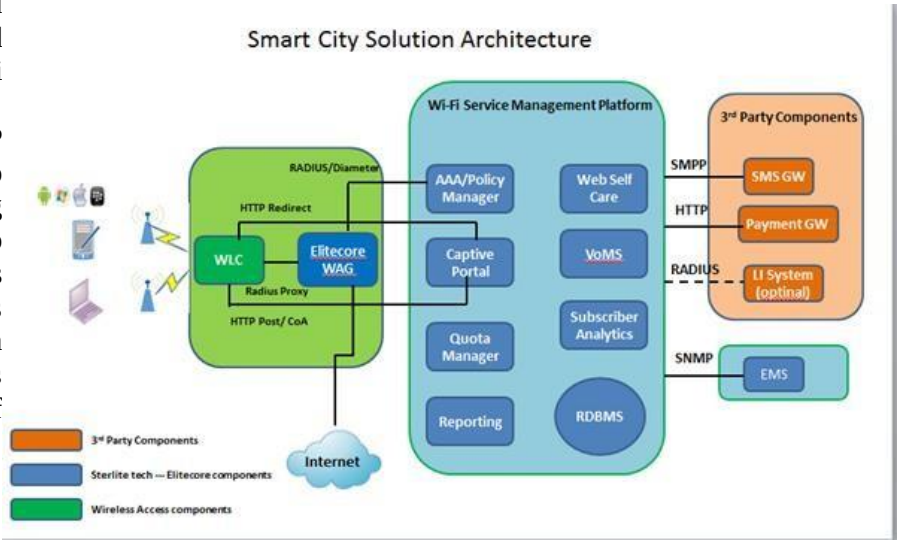
- A wireless LAN controller is a device that directs or regulates traffic on the wireless network
- It is used to manage access points in large quantities by the network administrator. It automatically handles the configuration of wireless.
- It can do interference detection and avoidance: RF power and channel assignment will be adjusted to the plan.
- High-speed load balancing can be used to connect a user to multiple

WLC (SCG-200): -

Situated at the edge of operators‟ mobile networks, the Smart Cell Gateway 200 represents the first in a new category of scalable and versatile service platforms to eliminate the difficulties operators are experiencing with building and managing large- scale small cell networks and integrating them into their mobile core. Awarded the "Best Mobile Broadband Technology" by the GSMA, the Ruckus Smart Cell Gateway (SCG) is capable of supporting hundreds of thousands of Ruckus or non-Ruckus Wi- Fi access points and hundreds of thousands of clients, as well as providing standards based 3GPP integration into existing 3G and future 4G/ LTE mobile core infrastructures. The SCG serves both SIM and non-SIM-based clients using cellular friendly authentication protocols, such as 802.1X. Combined with policy-based data traffic steering, operators have the option to offload traffic at the Wi-Fi edge or tunnel the data traffic to the service provider's core (PDG/TTG mode). With this approach, operators can transparently accommodate today's mobile devices (UEs) without installing special client software (clientless solution) thereby accelerating the time-to- market and adoption of Wi-Fi based offloading solutions. The SCG platform features a unique NEBS-3/ETSI compliant, dynamically scalable clustering model that maintains carrier-class availability and resiliency through active-active clustering by incorporating a distributed and replicated database optimized for real-time data management.

AAA and SMP for Billing:-

Elitecore is a global IT product and service provider. It offers pre-integrated BSS, Packet-core and Carrier Wi-Fi solution with modular flexibility. Adhering to TM Forum and 3GPP standard, the offerings are compatible to large vendor ecosystem addressing CSPs requirement of faster time to market and reduced TCO. Elitecore has over 175 network deployments worldwide for 59 Service providers in more than 40 countries. Elitecore "is satisfied customer base includes 13 of the world's top 30 operators.



Following is the high-level scope of Wi-Fi deployment for Kakinada Smart City:

- Free & Paid Public Wi-Fi with Captive Portal based authentication
- SMS Gateway integration for OTP services
- To carry out the subscriber authentication and billing for the regular Wi-Fi Solution.
- Once free services are completed, subscriber can avail more Wi-Fi service using online payment options.
- To support regular Wi-Fi/Walk in Subscribers
- Integration of the proposed in-scope Elite core software modules with the existing core network elements as mentioned in the ESI table.
- To provide the functional training of in-scope Elite core software module

Plain Wi-Fi Customer Process Flow: -

- For the plain Wi-Fi customers, the subscriber will get connected to Access Points and Access controller from where the request will go to Elite core Captive Portal for subscriber authentication.
- User can register via Voucher / Online Payment Gateway on the Portal. User can enter the preferred Credentials (username/ password) at the time of registration. Elitecore Wi-Fi SMP Captive Portal will store the user's name- password and SMSC will notify the same to customers via SMS.
- The authentication will happen first time against the username and password of the user. If the subscriber has enough balance, subscriber will allow connect to the internet.
- Subscriber Balance will maintain in the Elite core Wi-Fi SMP Quota manager.

The following Product Modules in Scope: -

- Elite core Wi-Fi SMP Platform – AAA, Quota Manager& VoMS
- Captive Portal
- Elite core WAG
- Elite core Monitoring Tool

Functionality	Product	Sub Module
Session Management & User Authentication	Elitecore Wi-Fi SMP	Elitecore Wi-Fi Platform (Elitecore Wi- Fi SMP)
WLAN Web Authentication	Elitecore Wi-Fi SMP	Authentication Engine
Manage Quota for Walk-In and Regular Wi-Fi Customers	Elitecore Wi-Fi SMP	Quota management module
Voucher Management for Walk-In and Regular Wi-Fi Customers	Elitecore Wi-Fi SMP	Voucher and Plan management module
Wireless Access Gateway	Elitecore WAG	Policy and QoS Enforcement, Captive Portal re-direction and URL logging (White-listing of e-governance websites with free usage)

External System Interface: -

Interface From	Interface To	Interface Protocol	Purpose
WAG	Elitecore AAA/Policy Manager	RADIUS /Diameter	Authentication & Policy Enforcement.
WLC	Captive Portal	HTTP redirect/Http Post	Captive Portal Re-direction and login of subscriber.
WLC	Elitecore WAG	RADIUS Proxy	To send authentication request to Elitecore WAG.
Captive Portal	Payment Gateway	HTTP SOAP API	For Online payment
Elite core Wi-Fi SMP	SMSC	HTTP/SMPP	For SMS Notification
Elite core Wi-Fi SMP	EMS	SNMP	For Fault and Performance Management of Elite core Applications

12 City LoRa Network: -

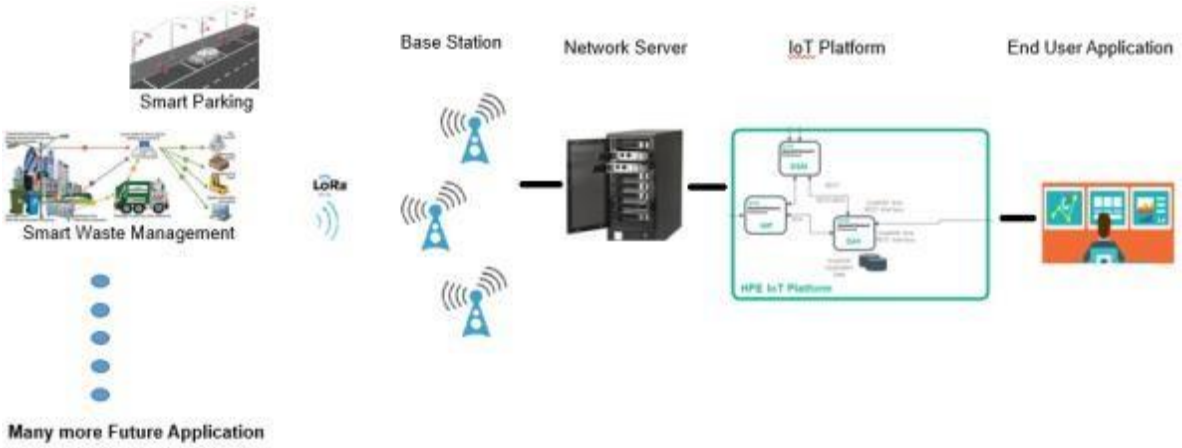
Kakinada Smart City proposed 10 Lora BTS which will be deployed for the connectivity for different sensors like Environment sensors, Waste Management, Parking. The key network requirements specific to wireless sensor networks. One scheme for addressing this is known as LoRa. It gains its name from the fact that it is able to provide 'Long-range' communications using very low power levels. One of the major issues for machine to machine, M2M communications used for applications like the Internet of Things, IoT is to enable communications over long ranges using very low power levels.

LoRa network architecture: -

In terms of the actual architecture for the LoRa network, the nodes are typically in a star-of-stars topology with gateways forming a transparent bridge. These relay messages between end-devices and a central network server in the backend. Communication to end point nodes is generally bi-directional, but it is also possible to support multicast operation, and this is useful for features such as software upgrades and the like or other mass distribution messages.

LoRa network can be arranged to provide coverage similar to that of a cellular network. LoRa technology consists of following elements:

- End points: The endpoints are the elements of the LoRa network where the sensing or control is undertaken. They are normally remotely located.
- LoRa gateway: The gateway receives the communications from the LoRa endpoints and then transfers them onto the backhaul system. This part of the LoRa network can be Ethernet, cellular or any other telecommunications link wired or wireless. The gateways are connected to the network server using standard IP connections. On this way the data uses a standard protocol, but can be connected to any telecommunications network, whether public or private. In view of the similarity of a LoRa network to that of a cellular one, LoRa gateways may often be co-located with a cellular base station.
- Server: The LoRa network server manages the network. The network server acts to eliminate duplicate packets, schedules acknowledgement, and adapts data rates. In view of the way in which it can be deployed and connected, makes it very easy to deploy a LoRa network.
- Remote computer: A remote computer can then control the actions of the endpoints or collect data from them - the LoRa network being almost transparent.



Deployment Details:

- LoRa BTS will be placed on 15m Smart Poles.
- The total City area is around 31.6 sq kms.
- Each BTS will roughly cover around 3.1 sq kms or effectively a radius of 1 km.
- Ease of use since its low power so sensors will have a long battery life of 10 yrs. and no associated cellular cost unlike GSM.
- Use cases being currently targeted would include: Waste, Parking and Environmental Sensors.
- In Future the City can use this network for various Utility Applications like Power Meters, Water Meters etc.

ICCC had Gaia Grid Station (6A1AGateway4G-8C) for LoRa BTS requirement. Long Range IoT station (Wirnet Station) is dedicated for Internet of Things applications with various high capabilities (low power, long range, big internal data storage, 3G wan communication.) It allows long range bidirectional transmissions with very low level of power consumption. This station follows an open development platform.

13 Safety and Surveillance System: -

CCC (Software) / Dashboard+ IOT Platform: -

As cities strive to become more responsive to citizen needs, they turn to the flexibility of IP networks to deliver converged voice, video, and data services. Cities are seeing a shift in market demands from a reactive management approach to a proactive monitoring and management solution. Operations Centers typically gather data and video feeds from across the globe and these multiple data sources traditionally result in a number of monitoring areas and display screens.

As such, there is a growing requirement to provide a customized and integrated, single- pane-of-glass view for these multiple data sources. The City Operations Center enables the monitoring and control of dynamic activities involving high- resolution image processing, real-time video feeds, data integration, and various data and alert signals. The solution provides integrated data processing of sensor, map, and video data on a single layout. This overcomes issues with conventional operations management systems, thereby eliminating:

- The need for numerous workstations to manage multiple data sources
- Hardware reconfiguration when connecting with third party independent systems (avoiding additional costs for hardware integration and programming as the system grows)
- Independent hardware integration costs due to the individual construction plan.

The Cisco platform offers a unified management experience for city infrastructure, simplifying control room operation and system integration, minimizing total cost of ownership, and increasing operational efficiency critical to rapid decision-making.

Cisco Smart+Connected™ Operations Center provides a customized single-pane-of- glass view for data sources. It displays sensor, map on a single layout and a video wall. It improves management of transportation, crime prevention, disaster recovery, environmental protection, and facilities. It gives you an efficient, cost-effective way to visualize and manage all assets from a single command and control location.

For more details, please see our module, Cisco Smart+Connected Operations Center.

Value Proposition

Cisco's City Digital Platform (CDP) offers a unified management experience for city infrastructure, simplifying control room operation and system integration, minimizing total cost of ownership, and increasing operational efficiency critical to rapid decision- making.

- The Cisco Smart+Connected™ City Operations Center end-to-end integrated platform and software:
- Maximizes real-time monitoring and control efficiency from one workstation through the synchronized control of high-resolution blueprints and system alerts which allows for interaction between all relevant data
- A video wall with a map view to display images, data streamed from multiple cameras
- Allows simple and accessible integration with other independent control systems through a single integration point

Key Solution Capabilities

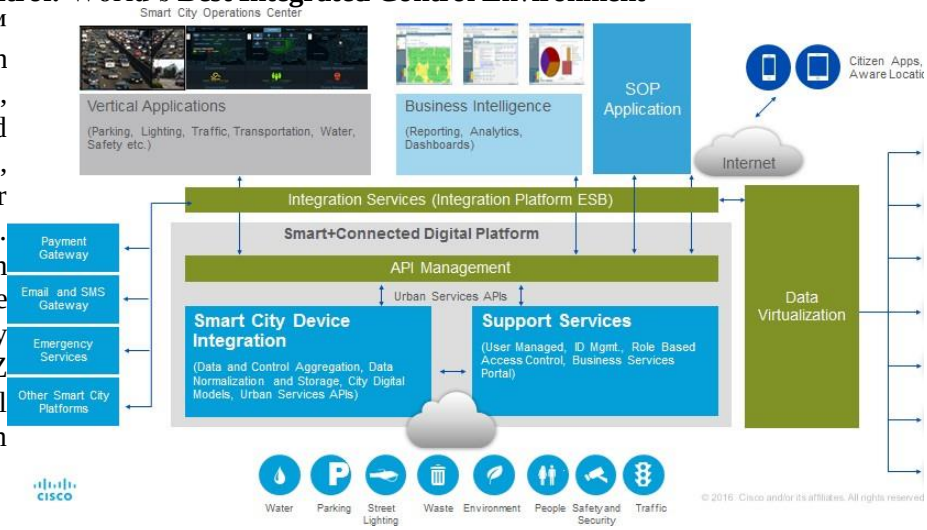
Input Collection: Everything you want to see

Cisco Smart+Connected City™ Operations Center allows different inputs, such as PC screen, webpage, camera and other external devices for rich screen layout.

14 Integrated Command Control Center: -

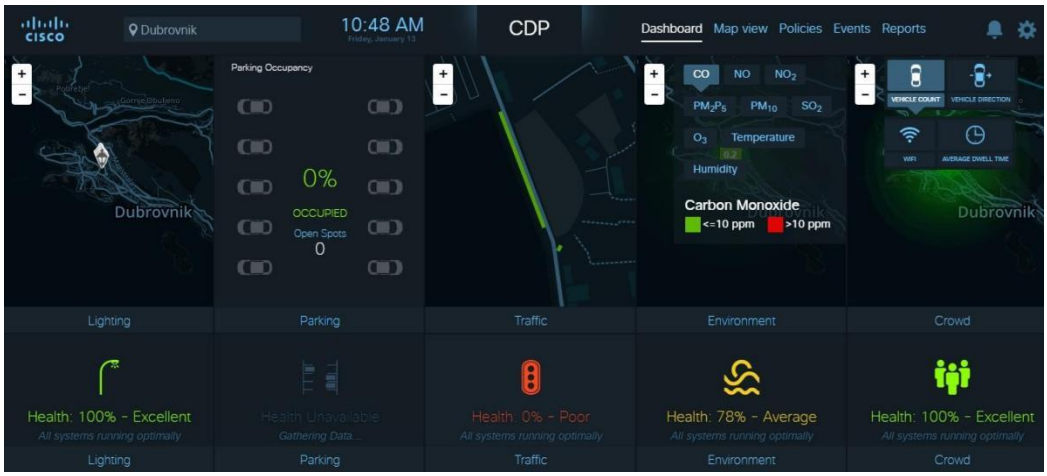
Integrated Control: World's Best Integrated Control Environment

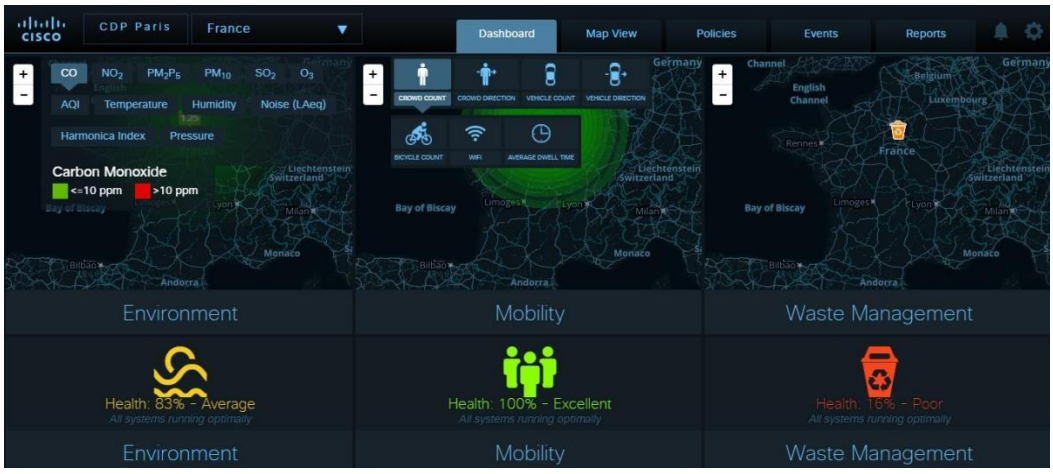
Cisco Smart+Connected City™ Operations Center provides an integrated control environment. Map, PC screen, and data can be integrated into one display and map, camera, videos integrated to a video wall for convenient monitoring and navigation. The end-to-end integrated platform along with video wall offers a true command-and- control environment by providing functions, such as PTZ control, remote PC control, external device control, and alarm response from one station.



Screen Layout Formation: Easy Map customizing and Open UI

The solution provides a flexible and easy approach to customize the screen layout allowing changes in map, blueprint, camera videos, data, and alarm scenario integration to create contents to meet operatorr's needs.





15 Video Wall: -

Overview: -

KSCCL had Ultra Narrow LCD Delta's video wall with individual size of 55" diagonal and having individual resolution of Full HD (1920x 1080 pixels). As per the tender requirement there shall be 3 different LCD video walls as below:

- 55" – 6x2 matrixes at Primary Command & Communications Centre (CCC)
- 55" – 2x2 matrixes at Primary Command & Communications Centre (CCC)
- 55" – 2x2 matrixes at Network Operation Centre (NOC)

These video walls shall be made up of different matrix as indicated above. All the 12 LCD panels of 6x2 matrix video wall which is for CCC shall be connected to its video wall controller thru DVI cables to their DVI inputs. Similarly, the other two video walls of 2x2 matrixes shall also be connected to their respective video wall controllers.

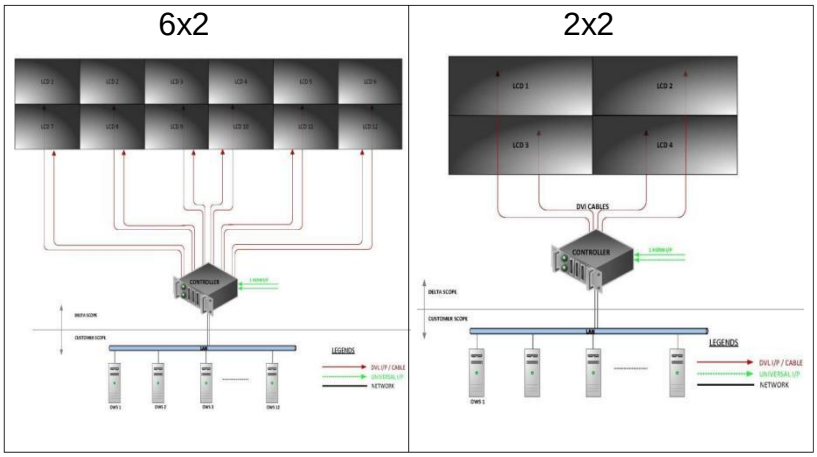
Further, there may be PCs sitting on the same LAN where the video wall controller's will sit, this way the video wall Controllers can pick mirror images thru LAN and display on their respective Video Wall. Also, with the help of the Video Wall Controllers and the Software loaded each of the Video Wall can behave like a single logical screen and display various pre-sets on different portions of the wall as per customer's requirement. The Controller offered for 6x2 matrixes for CCC shall have 12 DVI outputs. Similarly, the other two video walls of 2x2 matrixes shall have 4 DIV outputs each. All the three controllers shall also be loaded with 2 Universal Inputs to cater DVI/HDMI/VGA inputs and has Dual LAN input as well.

Architecture: -

Key features: -

- Ultra Narrow Bezel of 3.5 mm
- Sharp Images and Vibrant Colours
- Full HD 1080p Resolution
- Web-Based Control and Diagnostics

LCD video Wall displays from Delta offer few other advantages as below:



a) Ultra Narrow Design: A Nearly Perfect Seamless display form factor with barely perceptible Ultra Narrow bezel (space between individual LCD panels). With Delta's High performance LCD wall, your content will visually delight your audience uninterrupted without any breaks.

b) Wide Viewing Angle: Delta's slim LCD design is further engineered to provide a wide viewing angle, resulting in superior image quality and outstanding colour uniformity.

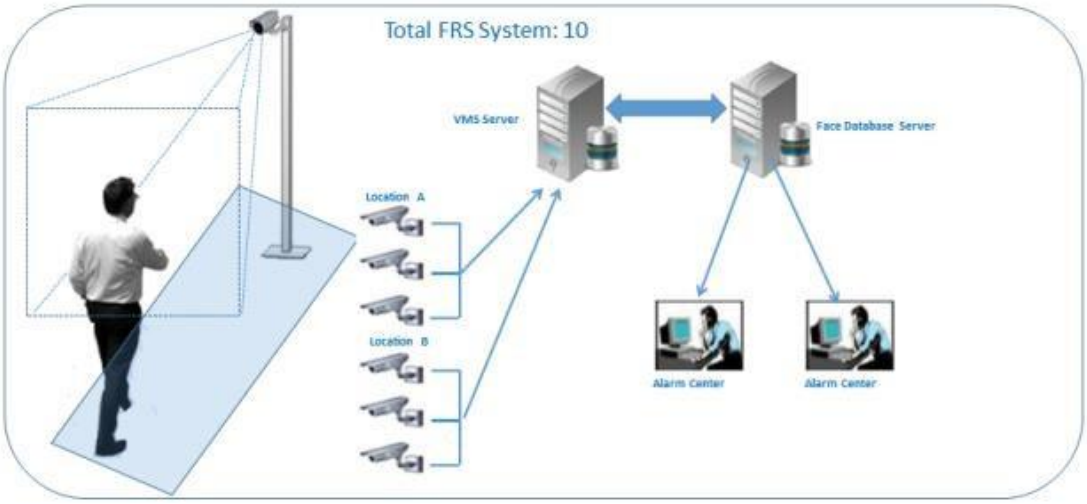
c) High Resolution: Available in Full High-Definition resolutions, Delta's high- resolution LCD walls are ideal for demanding control room environments where image quality and accuracy are of utmost importance.

16 FRS – Facial Recognition System Center: -

Overview: -

In proposed Kakinada Smart City 10 FRS will be deployed. The face detection Cameras will be installed at the pre-identified locations in the city. The FRS cameras will send the live video feed at the Control Room server which will be integrated with Facial Database. The system will be matching the faces of live video with the stored images in the

data base. As soon as the system will find the match, it will generate an alert in the control room.



KSCCL had Herta's FRS software for the required solution.

CFAS is a facial recognition surveillance system designed for multipurpose face indexing, detection and identification. The software allows both centralized & decentralized architecture. It supports multiple databases with unlimited registered faces.
The system relies on sophisticated matching algorithm; It is able to get inputs from variety of pore defined CCTV cameras both analogue & digital. CFAS facilitates data export & import as well as enrolment of faces from still images or live video.

CAMERAS

Indoor Fixed Dome Cameras: -

Dahua -DH-IPC-HDBW5221EP-Z

Features: -

- 1/2.7" 2Megapixel progressive scan CMOS
- Support H.264&MJPEG dual codec
- 25/30fps@1080 (1920× 1080)
- Smart Detection supported
- WDR (120dB), Day/Night (ICR), 3DNR, AWB, AGC, BLC
- Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- 2.7mm ~12mm motorized lens
- 1/1 Alarm in/out, 1/1 audio in/out
- Max. IR LEDs Length 50m
- Micro SD memory, IP67, IK10, PoE

Outdoor fixed Box Cameras: -

Dahua- DH-IPC-HF5221E + PLZ1140-D + DH-PFH610V

Features: -

- 1/2.7" 2Megapixel progressive scan CMOS
- Support H.264&MJPEG dual codec
- 25/30fps@1080P (1920× 1080)
- Smart Detection supported
- WDR (120dB), Day/Night (ICR), 3DNR, AWB, AGC, BLC

- Multiple network monitoring: Web viewer, CMS(DSS/PSS) & DMSS
- 2/1 Alarm in/out, 1/1 audio in/out (Built-in Mic)
- Auto back focus (ABF).
- Micro SD memory, PoE

Outdoor PTZ Cameras: -

Dahua: DH-IPC-HF5221E + PLZ1140-D + DH-PFH610V

Features: -

- 1/2.8" 2Megapixel Exmor R CMOS
- Powerful 30x optical zoom
- Starlight technology
- H.265 Encoding
- Max. 50/60fps@1080P, 25/30/50/60fps@720P
- Auto-tracking and IVS(Optional)
- Support PoE+
- IP67, IK10

17 Smart Traffic System: -

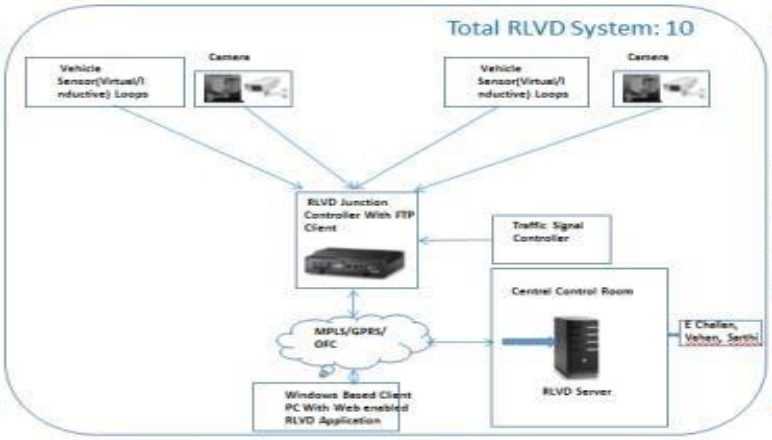
RLVD: -

Overview: -

In Kakinada Smart City 10 RLVD system are deployed. The Integrated Smart Surveillance Solution improves the city monitoring and helps leverage existing resources to enable the security services with greater efficiency. Red Light Violation Detection System is a mass surveillance system that automatically captures the Image of vehicle violating the traffic rules. RLVD system automatically captures images of vehicle from backside with license plate numbers and performs OCR (optical character recognition) on images to read the license plates on vehicles. RLVD continuously monitors the traffic signal, and camera is itself triggered by any vehicle passing over the sensors at specified time after signal has turned red. Alerts are typically sent by mail or SMS to the owners of violating vehicles, based on review of photographic evidence.

KSCCL had ITS solution for the RLVD system. The proposed solution is designed keeping the following aspects in mind: -

- Reducing time between incident detection and response
- Integrating the various security systems
- Empowering field personnel to make decisions based on all available information
- Disseminating the right information to the right people, at the right time.



The approach to safety and security provides an intelligent fabric that optimizes all stages of the public safety and security process, including detection, assessment, and response. The proposed network acts as an intelligent fabric between IP-enabled technologies that deliver information (enabling detection) and the user interfaces that display that information (supporting assessment). The more intelligent the network, the less work the endpoints and the applications have to do.

This approach helps drive down the cost and maintainability of the applications and endpoints, and helps enable overall system intelligence to exist in the fabric of the network, whether that is fixed or cloud-based. The result is faster innovation, more affordable products, and richer content for assessors and responders, which leads to quicker and more intelligent decision making.

The offered solution uses the power of an IP-based infrastructure to deliver focused, innovative security tools that maximizes the value of the existing systems and information. Our solution utilizes the existing investments in video surveillance and physical security, while still protecting your assets. POLICE can access video at any time from any place, enabling real-time incident response, investigation, and resolution. The open, standards-based Cisco infrastructure enables the deployment and control of new security applications and maximizes the value of live and recorded video. The benefits of the offered solution are stated below:

- Enhanced investment protection
- Increased network flexibility
- Improved content control
- Enhanced storage utilization
- Decreased staff training

All IP cameras will connect to Media Servers through ISP/MPLS/Fiber network and switching layer. The Video Surveillance Media Server is the core component of the solution, providing for the collection and routing of video from IP cameras to viewers or other Media Servers. The system is capable of running on a single physical server or distributed across the network, scaling to handle thousands of cameras and users.

IP cameras send a single video stream to the Media Server. The Media Server is responsible for distributing live and archived video streams to the viewer’s simultaneously over an IP network.

ANPR: -

The Automatic Number Plate Reader (ANPR) system captures and then processes the number plate image of vehicles passing any particular point, based on a predefined set of rules.

The existing VehiScan-ANPR Software system uses two cameras, a trigger camera which detects vehicles according to the defined rules, and an ANPR camera to capture the image of the vehicle number plate. The trigger camera faces the oncoming traffic and when a vehicle is detected, triggers the ANPR camera. On being triggered, the ANPR camera snaps 3 images of the rear number plate of the vehicle, along with the timestamp.

The images are stored locally and sent to the central control server for processing, over the available 3G/4G or fibre optic network. The ANPR engine on the servers in the central control system processes the images using Optical Character Recognition (OCR) and stores the entries in an SQL database.

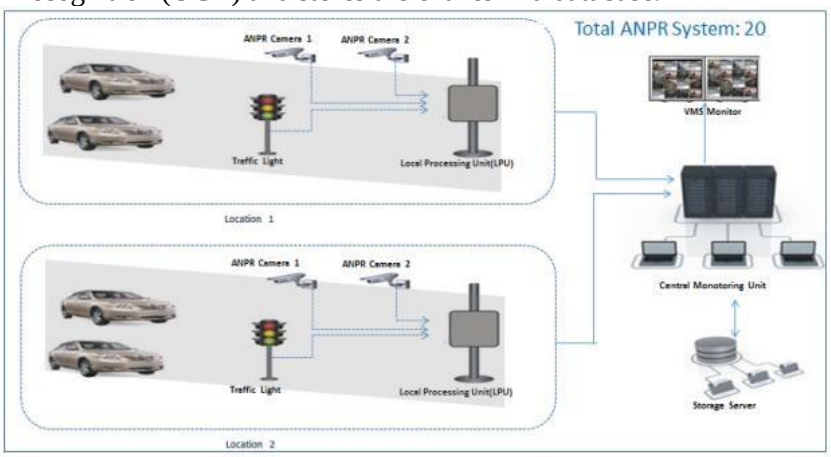
If a vehicle is in violation of any rule and has been classified as such in a black list, then an alert would be generated, with the vehicle image, the location and the timestamp. A suitable interface and targeted alerts can be sent to all relevant authorities.

Over View: -

In Kakinada Smart City 20 ANPR are deployed. The Automatic Number Plate Reader (ANPR) system captures and then processes the number plate image of vehicles passing any particular point, based on a predefined set of rules.

The proposed system uses two cameras, a trigger camera which detects vehicles according to the defined rules, and an ANPR camera to capture the image of the vehicle number plate. The trigger camera faces the oncoming traffic and when a vehicle is detected, triggers the ANPR camera. On being triggered, the ANPR camera snaps 3 images of the rear number plate of the vehicle, along with the timestamp. The images are stored locally and sent to the central control server for processing, over the fiber optic network. The ANPR engine on the servers in the central control system processes the images using Optical Character Recognition (OCR) and stores the entries in a database.

If a vehicle is in violation of any rule and has been classified as such in a black list, then an alert would be generated, with the vehicle image, the location and the timestamp. A suitable interface and targeted alerts can be sent to all relevant authorities.



ATCS: -

Over View: -

In Kakinada Smart City 4 ATCS are deployed. KSCCL offered an integrated traffic control solution of PE/GEVAS to manage traffic across an area. It is an automated solution for optimizing traffic signal timings adaptively. The solution works with any existing or proposed traffic signal controller and is extremely flexible in its operations. The solution is designed to provide traffic managers a customizable platform for building a wide variety of traffic control strategies.

The solution has four key components to it:

1. Traffic Detection System
2. Intelligent Traffic Module (ITM)

3. Intelligent Traffic Control Server (ITCS)
4. Surveillance System

Traffic Detection System

Actuated traffic signals need some form of vehicle detection to activate a call to the signal controller. Vehicle detection through video cameras and virtual loops would form an integral part of this traffic detection system. Virtual loops would function in a presence mode for right turn and left turn traffic (at STOP Bar), as well as in a pulse mode for mainline traffic (setback from STOP Bar). Typically, video cameras would need to be mounted directly over a receiving lane on the far side of the intersection for each leg of the intersection. Continuous inputs from the video cameras would allow the controller to deploy different timing strategies to adapt to the dynamic nature of heterogeneous traffic at the junction.

Intelligent Traffic Module

Intelligent Traffic Module is the field unit installed with each traffic signal controller to carry out local optimization. It is a programmable hardware platform designed for use with traffic signal controllers. The ITM comprises of a processor card and an Input/output card. It communicates with central traffic control system over TCP/IP via Ethernet/Wireless communication. It communicates with the central server to provide field input as well as relays input from the central server to the local signal controller to implement various signal timing strategies.

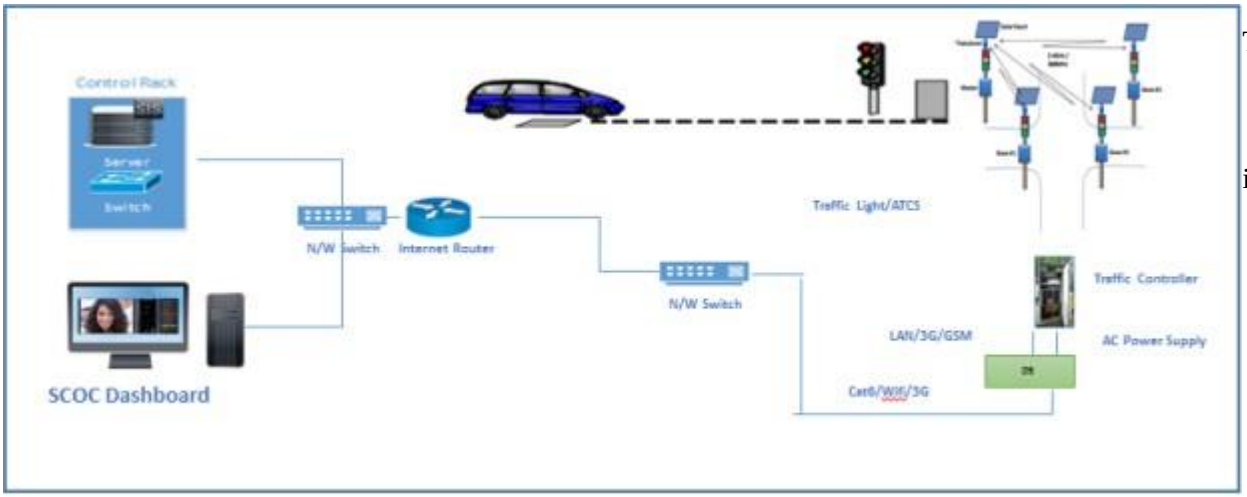
Intelligent Traffic Control Server (ITCS)

Intelligent Traffic Control Server is the central command server application connecting the area wide traffic signal controllers and hosting the traffic control algorithm for regional optimization. It is a generic traffic management platform that can interact with several ITS devices, including traffic signals. It runs the traffic control algorithm by communicating with traffic signals through the Intelligent Traffic Module. ITCS is a web-based multi-user system with role-based access control. Users can access ITCS from any location that is connected to the server. Various reports on the performance of various components of the system can be generated using the Intelligent Traffic Control Server. The ITCS is also compatible with health monitoring algorithms for the intelligent infrastructure deployed in the field to ensure minimum downtime of the city's traffic management system.

Surveillance System

An additional layer of surveillance cameras providing situational awareness on traffic flows at each junction. The Surveillance System comprises of PTZ cameras installed at each intersection to provide traffic managers real-time visibility of the conditions at the intersection. The cameras enable City Managers to manually control signals, during certain incidents or emergencies. It provides City Managers an alternate way of controlling signals, without having to rely on personnel deployed on the ground.

The system architecture is illustrated in the image below:



The Traffic Detection System provides input to the Intelligent Traffic Module which communicates with the Intelligent Traffic Control Server. The Intelligent Traffic Control Server runs the traffic control algorithm and provides input to the Intelligent Traffic Module which communicates with the Traffic Signal Controller to provide optimized traffic signal timing plans in a real-time scenario. The Surveillance System assists the city traffic operators monitor live operations at the city junctions and take corrective action if required.

The process is simple, by receiving and processing data from sensors to optimize and update signal timing settings, adaptive signal control technologies can determine when and how long lights should be green. ATCS helps to improve quality of service that traveler's experience on our local roads and highways.

18 Disaster Management System: -

Environmental Sensor

Overview: -

In proposed Kakinada Smart City, KSCCL deployed Environmental Sensors. Sensors gather data about pollution, temperature, rains, levels of gases in the city (pollution) and any other events on a daily basis. It is very useful and important information for citizens and administration to further take appropriate actions during the daily course / causes of any event. These environmental sensors connected via 3G or 4G wireless network or LoRa network for the back hauling to the data center.

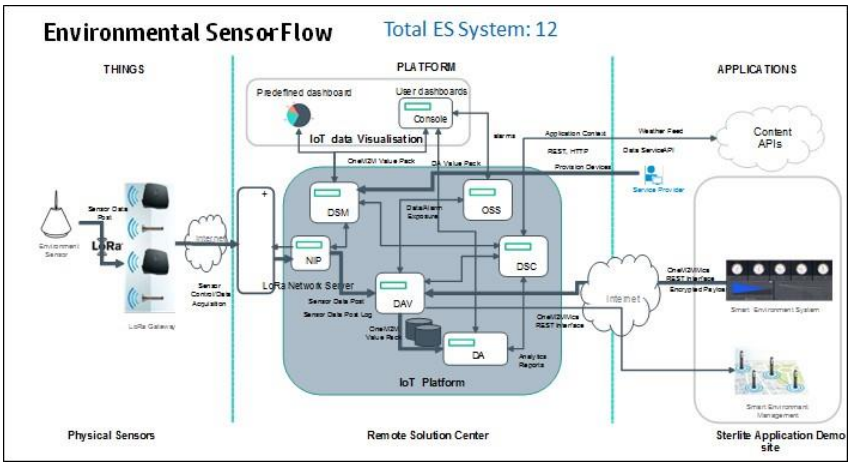
Sensors sense the prevailing environment conditions and send the data to the control system where real time data resides and the same is available to various other departments and applications for further decision making. Sensors rely on dedicated mechanical structures that guarantee the best performance even in challenging environmental conditions.

KSCCL proposed Oizom's environmental Sensor for the required solution, which will use LoRa network planned in Kakinada for smart elements for the back hauling towards data center.

Polludrone is a next-generation environmental monitoring solution which works on IoT technology. Polludrone is also solar powered and its retrofit design allows it to be easily integrated into the existing infrastructure.

Polludrone measures various environmental parameters like Particulate, Toxic Gases Odours, Radiation, Noise, Light, UV etc. on continuous basis and send the data online to the central server system using wireless / wired network protocols like GSM, GPRS, 3G, Wi-Fi, LORA, RS485, Ethernet etc. The data from Polludrone is supported by Oizom Terminal, cloud analytics software. Oizom Terminal offers Real-time Air- quality Data Modeling, Air-quality Data Analytics, Automated Reports, Smart Notifications, Real-time Pollution Mapping, Air-quality Predictions, and Pollution Source Finding etc. Polludrone is also highly compatible with different types of external IT infrastructure like cloud software, web-applications, mobile-app, 3rd party applications, digital display screens, existing LED displays, external server system etc. for data acquisition, visualization and publication.

Architecture: -



Environment Sensors collects data from specified Environment-Sensor equipment then stores, aggregates and displays the data on a secure internet connection for multiple user remote access. Features of the solution are as below.

- Solution works on innovative measurement methodology for accurate data.
- 360 deg Solution: Solution is capable to monitor the entire possible environmental parameter using single device.
- Downward Monitoring: Solution sense uplifting pollutants from downward suction-based sampling.
- Solar Powered: Solution comes with an integrated solar panel as an independent power source.
- Retrofit Concept: No infrastructure changes required to implement the solution.

- Compact Design: Solution is design is compact for minimum space occupancy and ease of mobility.
- No Space Occupancy: The solution monitors environment from 12-15 Feet height without occupying any floor space.
- Real Time Data Transfer: The solution provides real time-data on continuous basis (Every 5 mins) through various connectivity.

19 Lightning Detection System: -

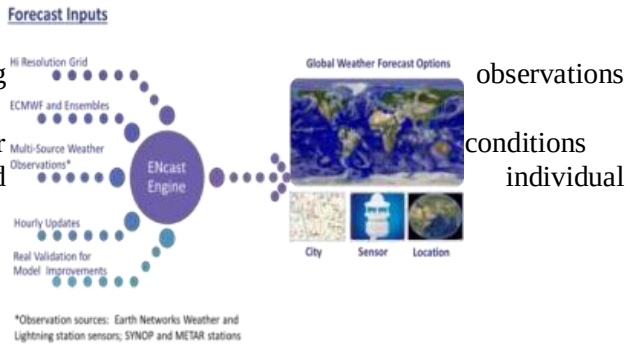
Each lightning sensor detects the lightning within the circle of radius 300 to 400 km. In this radius the sensor has ability to detect every minute lightning strike experienced in the atmosphere. The lightning sensors are installed in such a way that, it covers whole Indian continent.
KSCCL had Skymet‟s earth network in a NaaS & SaaS model for the required solution.

Overview: -

The ENTLS's lightning and severe-weather alerting functions make it possible to display proximity alerts and severe storm warnings, and send these warnings to various platforms and audio-visual alerting devices. The solution is designed for forecasting center operations in an easy-to-use web display. It is possible to set customized alert areas to protect key assets by address or Lat/Lon coordinates. The solution makes it possible to track real-time and historical lightning information around assets based on custom alert regions.

Architecture: -
EN cast provides the following advantages:

- Performance: Best-performing models from global centers of excellence (GFS, CMC, ECMWF, UK Met, ensembles, etc.)
- Localization: City or point/location specific
- Observations: Real-time weather and lightning observations with high spatial and temporal resolution
- Intelligence: "Learns" from observed weather conditions
- Accuracy: Forecast error beats other ensembles and individual models (25% accuracy improvement)



20 Automatic Weather Station: -

Overview: -

Based on its weather forecasting & monitoring skills, it provides diverse services to government & non-government agencies. For example,

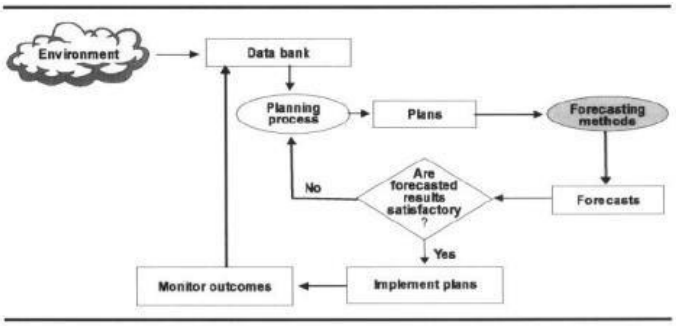
i) Agriculture risk solutions to agriculture industry to improve productivity.
ii) Various weather parameters to Agri- insurance & farming companies.
iii) Weather forecasting & weather parameters to media, power & other corporates.

It aims of skillful exercise of meteorological data with the help of experts, instruments, forecasting models & computing facilities. Consequently, it has led to an improved understanding of Indian weather/ climate among the agricultural community, government & non-government agencies. In the past decade, it has successively earned broad spectrum of experience in the field of meteorology viz., weather forecasting and prediction, agro- meteorology, hydro- meteorology, meteorological measurements & observations. Meteorological parameters such as temperature, humidity, wind speed, wind direction & precipitation is measured by the company in all over the India through Network (Automatic Weather Stations). A lot of sensors are continuously monitoring the weather parameters for Weather Services.
Solution data facilitates‟ its research capabilities. The team has experts in meteorology, climatology, hydrology & oceanography who consistently make their utmost efforts to transform their ideas & knowledge into a remedial application in order to give a cogent solution to the client.

Architecture: -

For Disaster Alert System, will integrate forecasted data with current weather conditions of a given location. Statistically weighted and empirically proven syntheses of the following methods that will be used are:

i) Numerical Weather Prediction
ii) Satellite Meteorology
iii) Synoptic data analysis



21 Public Address System: -

Overview: -

Public Address (PA) for smart cities is communication link between the peoples in city and Security force. To manage harmony in city operation, it is very essential to have effective management of traffics and incidence on the road. Direct communication from people and security offers makes this easier and effective. IP based PA provides service for same. KSCCL had Commend + Ahuja's Solution for PA.

Architecture: -

IP based PA communication system works on the city-wide distributed IP backbone. Each important squares ad roads are covered with PA Equipment's. PA Equipment's consist of following

Speakers: It is used to convert audio signal in speech and it will be fitted on roads to address required manned areas. Speaker power and quantity is designed to meet the required audio levels requirement at streets and international audio standards.

IP Amplifier - Broadcasting audio signal will be received by this device and amplified to provide it to speakers with required power. These are IP based devices so it can be easily deployed over wide city areas without complicated cabling network

Control Desk Station: Security control desk station is IP based call station. It is used for PA announcements on city wide PA system. There is provision for manual and recorded PA announcements. Manual announcement will be made by security personals through control desk call station.

Monitoring and control software: All system elements are IP based and system has facility to manage all system element configuration and status monitoring through software-based applications.

ECB: -

Over View: -

In proposed Kakinada Smart City, KSCCL deployed 25 ECB. ECB Management System is purely based on the concept of providing high security and ease of operation for ECB (Emergency Call Box) Management. The main goal of the ECB Management System is to provide high level emergency services to the Highway users. Admin section has to administrate the other section that comes under admin section. KSCCL's ICCC had MT.ECB.95.280.320 (Masstrans Solution) for ECB.

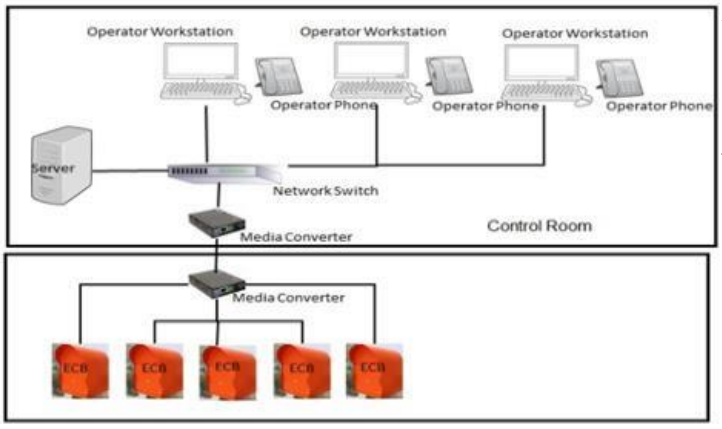
All the configuration level work to be done through S/W of the ECBs will be done in this module. All the Processes to be included are as follows:

- Login Process
- Configuration Process
- Call Process
- Call Tracking Process
- Location Tracking
- Security Reportingg

Architecture: -

ECB provides a pre-programmed push button communication link for a person needing emergency assistance or information which is working on LAN/GSM using VoIP. ECBs shall be located on either side of the road at a spacing of 2 Km. Actual location of ECB sites shall be done in consultation with the client.

There is network & ECB Device connectivity in which all servers and IP Phones are connected with switch to make communication with each other.



Call process: Below mention ECB Call process diagrams are showing, how incoming calls will land at Toll User side.

1. Emergency call will initiate by ECB booth, ECB booth dial on configured mobile number.
2. The call will flow via our fiber backbone network.
3. The gateway switch sends that incoming call to Asterisk Server.
4. Asterisk server executes query and co-ordinate with web hosting server.
5. Web host Server reflates Incoming Pop-up call information at ECB agent.
6. Asterisk Server forward that incoming call to specific SIP Account which one configured on IP Phone.
7. After Call disposition ECB agent need to fill call disposition information and then call reports & Voice call log stored in Database.

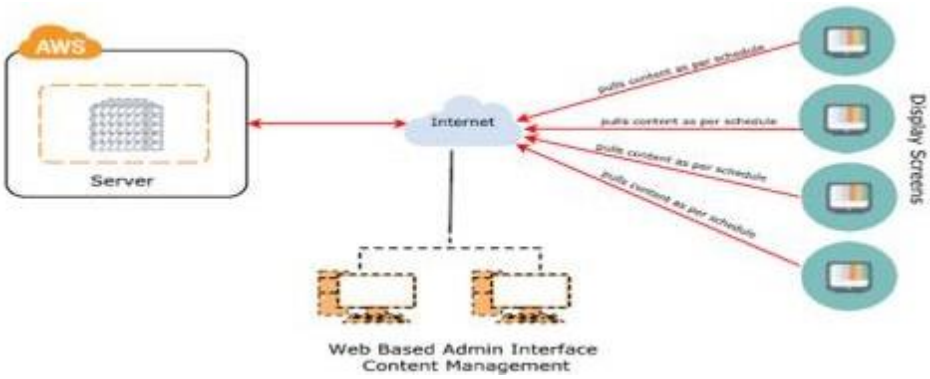
22 Variable Message Signboards: -

Over View: -

In proposed Kakinada Smart City, KSCCL offered 5 VMS. It is an electronic traffic sign often used on roadways to give travelers information about special events. Such signs warn of traffic congestion, accidents, incidents, roadwork zones, or speed limits on a specific highway segment. In urban areas, VMS are used within parking guidance and information systems to guide drivers to available car parking spaces. They may also ask vehicles to take alternative routes, limit travel speed, warn of duration and location of the incidents or just inform of the traffic conditions. ICCC had Masstrans- VMS.PE.V0.13 Solution.

Architecture: -

It allows text and graphic variable messages to be combined. The modern design based on a modular approach allows displays to be built to a variety of different configurations, including dimensions, resolution, sizes, display color and text, graphic video combinations. The VMS comes with a steel body. It supports various communication interfaces like Ethernet TCP/IP, GSM/GPRS, DVI/HDMI, WEB server for remote configuration.



23 VHF Land Mobile Radio: -

Over View: -

Very high frequency (VHF) is the ITU designation for the range of radio frequency electromagnetic waves (radio

waves) from 30 MHz to 300 MHz, with corresponding wavelengths of ten to one meters. Frequencies immediately below VHF are denoted high frequency (HF), and the next higher frequencies are known as ultra-high frequency (UHF).

Common uses for VHF are FM radio broadcasting, television broadcasting, two way land mobile radio systems (emergency, business, private use and military), long range data communication up to several tens of kilometers with radio modems, amateur radio, and marine communications. Air traffic control communications and air navigation systems (e.g. VOR & ILS) work at distances of 100 kilometers or more to aircraft at cruising altitude.

In Kakinada city, the requirement is to have one VHF base station at Data center site, and 50 handsets, such that all the handsets will be able to communicate with each other via base station.

Network/Connectivity Diagram: -

ICCC had Kenwood solution for the requirement. VHF Frequency to be programmed - Semi Duplex
Tx / Rx frequency separation – 5 MHz

One Repeater Station shall be installed at Central Location (Victoria Water Works) and 50 Nos Handheld Radios shall be carried out various around Repeater Station.
With the above arrangement any of the User of Handheld Radio can communicate with other Users as explained below: -
Any User of Handheld Radios shall be able to communicate **(Voice Call)** with all the remaining Users of Handheld Radios which are within the RF Range Normal Mode Operation.
Maximum 8 Groups can be formed for making Group Calls.
Any User of Handheld Radios shall be able to transmit **pre-stored status messages (16 Characters)** to all the remaining Users of Handheld Radios which are within the RF Range Normal Mode Operation. Maximum 2 Numbers up to 16 characters messages can be stored in the Radio memory.

24 Smart Utilities: -

Smart Lighting: -

Over View: -

Streetlights are a major source of expense for all cities, and if not properly maintained, can result in a significant amount of inconvenience and safety risk to citizens. In addition, if left ON for long periods of time, Streetlights can adversely affect the environment.

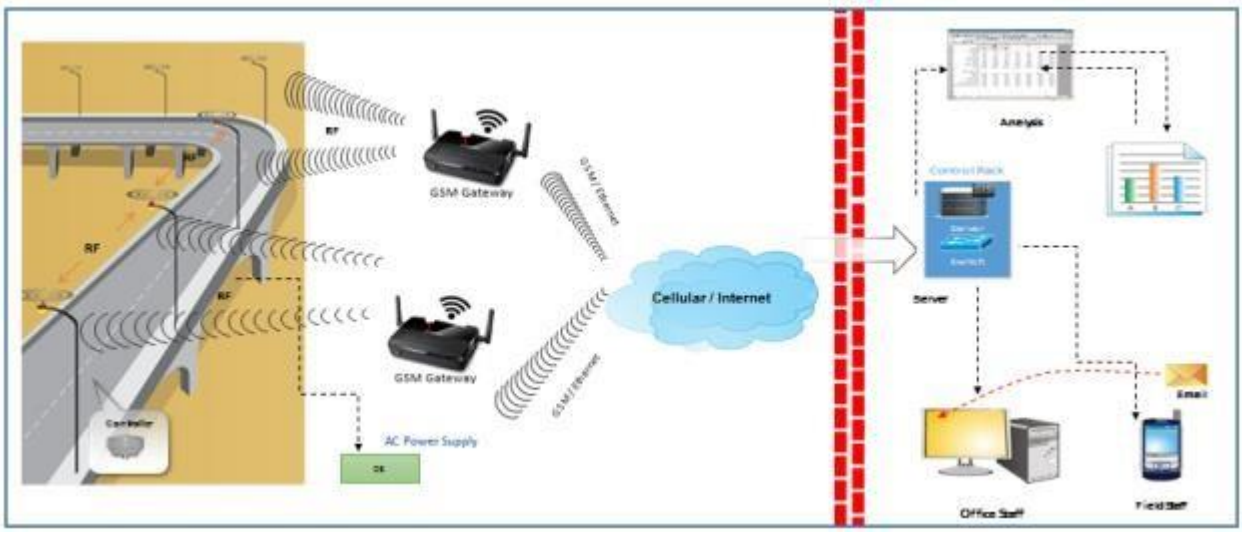
KSCCL Proposed CIMCON"s solution to the problems mentioned above. 640 existing LEDs will be replaced in Kakinada in road stretch of around 8 kms starting from Sarpavaram junction to Balyogi Junction.

In addition to above 40 smart lights will be deployed on 10 smart poles of 15mtr height (4 LEDs per pole)

Main features of smart light solution are as below:

- Reduced energy costs
- Reduced maintenance costs
- Energy Monitoring
- Increased lamp life
- Sun-set / Sun-rise based ON/OFF schedule
- Powerful web-based software with GPS mapping
- Powerful Asset Management with complete and accurate streetlight inventory
- Extensive reporting on performance and energy savings

Architecture: -



A typical streetlight monitoring and control system comprises of the following:

- A local pole Hardware or Sensor (SLC) which will log all the critical parameters of streetlight connected to it.
- A Wireless Gateway Unit (DCU) that wirelessly collects the data from all streetlight controllers (SLC) in its vicinity and communicates it to the MCS.

Lighting Gale (LG) Streetlight Management Software that can be installed within the clients IT infrastructure or hosted on CIMCON servers.

Intelligent Streetlight Controller (SLC)

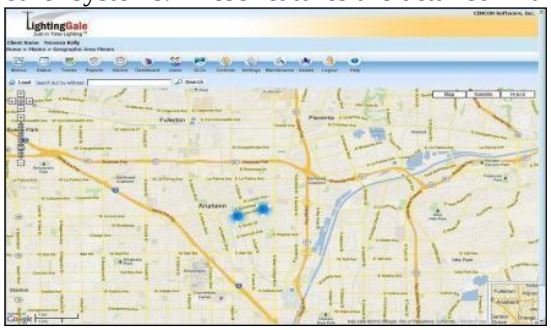
Streetlight Controller (SLC) is the hardware that is installed on each individual luminaire. After installation, it allows monitoring and controlling of that Streetlight from the Central Management Software application using a web-based interface. CIMCON offers several models of SLC controllers depending on the features that are required by each application.

All SLCs can track lamp burn hours, which can then be used for predictive maintenance, allowing lamp replacement to be planned in advance. In addition to these features, the controllers allow for dimming (0-10V) over the full range that is supported by the ballast/driver. The controller can track different lamp parameters, including power parameters

like current, voltage, power and power factor. Fault monitoring is used to report lamp burning, lamp cycling, and ballast failure, over/under voltage, abnormal power consumption, low power factor, network communication failure, as well as other potential failure events. All faults are sent to the central management software, which generates alarms that can be sent to relevant stakeholders. Additionally, alarms are recorded and stored at the central server.
For RF communication between SLC nodes, CIMCON uses a standard Zigbee Pro mesh network. The network is a self-healing mesh network that allows for highly reliable communications over long distances using low powered radios.

Wireless Gateway Unit (WGU)
This module is a Gateway between the SLC and CMS. It handles all the data traffic between the SLC and CMS. It is responsible for the following operations. The Gateway communicates back to the management software using a cellular network or using Ethernet.

Web-based Lighting Management Software
Very powerful yet intuitive web-based software (Lighting Gale TM or LG) provides the interface between the users and the Streetlight controllers. Users can install this on a server and securely access it from anywhere using a web browser with proper authorization. The software provides highly secure access, an easy-to-understand graphical interface using Mimic diagrams and Trends, comprehensive Alarm and Report management, and easy integration with other systems. These features are detailed in the next section.



All Alarms are displayed on a dedicated Alarm page. Once an alarm is displayed, an operator is required to acknowledge it.
The acknowledgement status is also maintained in the system.
All Alarms and Events can be printed as a report.

25 Smart Poles: -

Over View: -

There is a requirement of 10 smart poles which are deployed across the major locations of the Kakinada city. Following are the major asks from the smart pole.

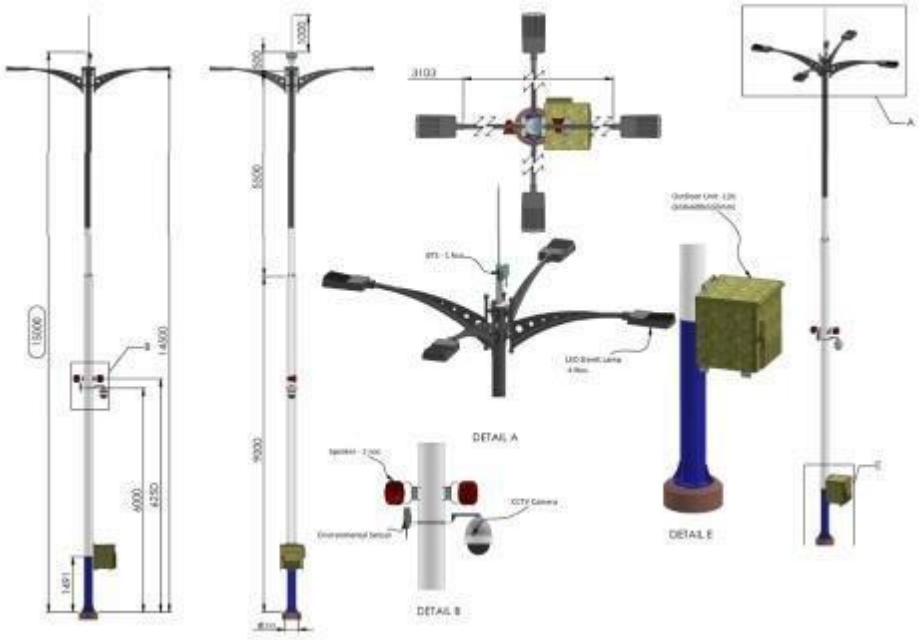
- Smart pole should able to meet city aesthetic requirement and it should be visually appealing. It should easily blend-in into city street pole master plan.
- It should be possible to support LED luminaries from reputed OEMs. Should have minimum 4 LED Luminaire of minimum 200W.
- It should be possible to support connectivity for Smart pole
- The smart pole can host Environmental sensors, LoRa BTS, Smart Lights, Camera, IP PA, and Wi-Fi APs

Architecture: -

Smart Pole will be Galvanized with 15 Meter length, Hot dip galvanized pole with minimum 80-micron DFT as per IS:2629. It has minimum 4 LED Luminaire. Smart Pole will adhere to the standards for poles (wind speed, climate, aesthetics), designed are such that it can handle wind speed for 170 KMPH. It is capable to handle the weight of Environmental Sensor, BTS-LoRa, Camera and wind speed. Height of the Smart Pole should be up to 15m.

Top Mountings & electrical accessories: Suitable bracket arm duly painted and made up of galvanized steel along with accessories supplied along with the pole for fixing lighting luminaries. Electrical accessories to be mounted inside each pole is include stud type loop-in- loop out terminals suitable for LT cable and SP MCBs equal to no. of fixtures mounted on the poles.

Smart Pole Design



26 Waste Management and AVLS: -

Over view: -

With the total volume of waste generated globally expected to increase by nearly 50% over the next decade, the adoption of innovative technologies will result in more integrated waste management solutions that move beyond the traditional use of labour, diesel trucks and conventional landfills.
KSCCL had GIS/GPS enabled Solid Waste Management System practices within the existing landscape to:

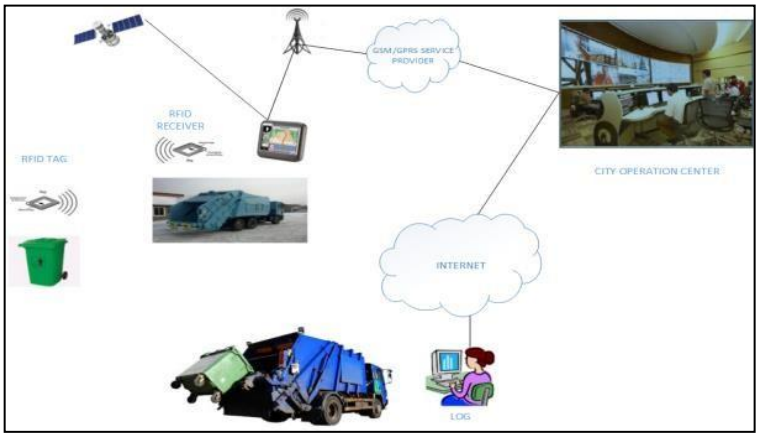
- Route management for waste collection vehicles.
- Real time management of garbage collection points
- Automation in the monitoring process
- Managing history of vehicle routes, attended sites and other details
- Generates customized Reports of vehicles, garbage collected and other elements details to higher authorities from any location at any time
- Monitor and track the activities of field staff force on daily basis.

Architecture: -
The proposed Solution consists of-

- Total Waste Bin locations would be 108.
- 50 AVLS sets will be placed on Existing vehicles to track
- Only volume sensors including accelerometer in scope
- Alarms Support: Fire alarm, Displacement alarm, Knock over Alarm, Dump detection.
- The module is screwed directly into the tank or container.

ICCC had Amigo optima's Solution, for smart waste management and automatic vehicle location service requirement for the city of Kakinada. Mostly, the Solution can be divided into four parts:

- Volume sensor to be installed at existing bins
- RFID Tagging for existing Bins
- AVLS system
- Attendance Management System
- Central Application for managing the data from the sensors and GPS devices.



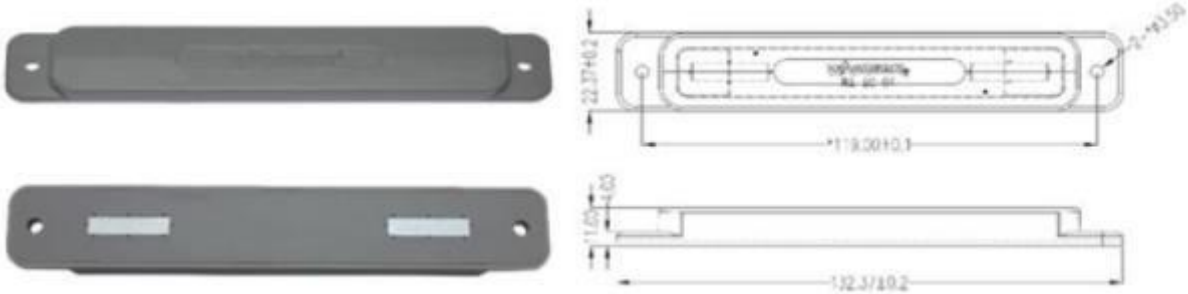
Volume Sensor: -

The proposed UBI sensor for the solution is best-in-class performance achieve specifications unmatched by any other providers. Robust and Reliable, the Sensors and integrated Smart Bin Live platform have the following qualities;

- Advanced ultrasonic measurement and digital signal processing techniques for better accuracy
- Superior communication algorithms that guarantee a reliable messaging service
- Advanced power management that delivers up to 10 years battery life (considering one report per day)
- Fully integrated route management capabilities with optional use of mobile route management
- Automated alerting for specific events such as a container full alert
- A very committed and supportive SmartBin team that want your project to be a success

RFID: -

FM4000 tag for smart bins and RFID– UHF for RFID reader



FM4000 tag is high performance radio frequency identification (RFID) tag designed especially for mount on metal or applications where environmental extremes or exposures are required. The F4000 tag can be applied using rivets, screws, or with a high bond strength acrylic adhesive, making it ideally suited for a broad range of applications where mount on metal or easy materials required.

RFID Reader: -

The products can be compatible with multi-protocol, small volume, quickly read, round-polar antenna is no limited of direction for tag, proof-water, can be used widely in RFID systems.

AVLS (Auto vehicle location services): -

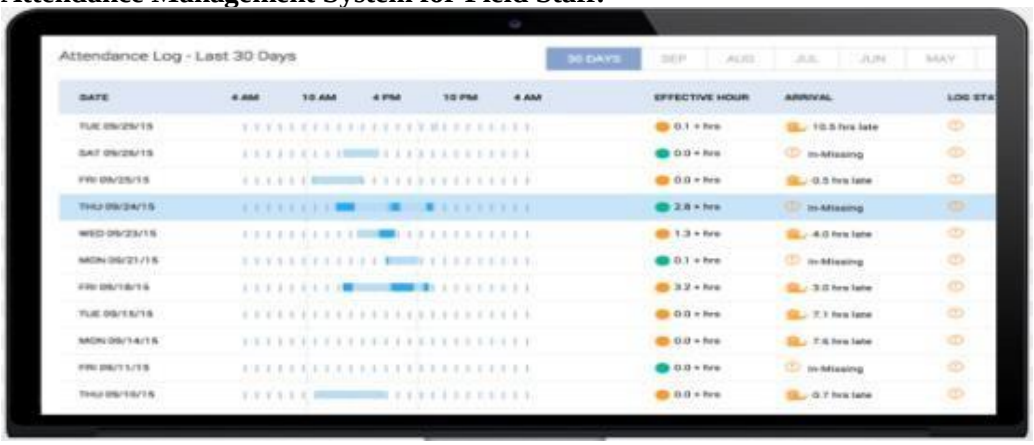
Optima Vehicle tracking OpTrack enables you to maximize the potential of your organization. The simplest of its functions enables you to have real time access to the location of each and every one of your vehicles, where they are going, how fast they are travelling and how far they are from the next customer. By making use of the boundless possibilities of our technology, you can optimize efficiencies and intensify productivity across your entire organization. We provide the best in the line of Vehicle Tracking and fleet management solutions for clients with various requirements. We make use of three different hardware types to cater to various horizontal and vertical industries.

Features of AVLS solution:

- Be more productive whether in the office or on the road.
- More work done, more sites visited, more deliveries made every day.
- Designed for day-to-day use and long-term planning.
- Customized solutions to meet and manage your needs.
- Instantly access essential information.
- Manage, deliver and exceed upon expectations.
- Respond quickly and efficiently to customer queries.
- Meet commitments and command confidence.
- Enjoy savings on the fuel.
- Ensure every journey is the shortest, the quickest, and the most efficient.
- Eliminate unauthorized vehicle use and put a stop to engine idling.
- Optimize use of resources and extend asset life.
- Guarantee the accuracy of overtime payments.
- Follow your vehicles and assets on a map with updated position, speed and vehicle status information.
- Configure real time alerts over email and SMS with ease for unexpected vehicle usage.

Our Vehicle Tracker keeps track of how the vehicles are used so that you can look back at the status and the position of each vehicle at any point in time.

Attendance Management System for Field Staff: -



Android based Mobile Application shall be provided for the field staff which shall have the capability of the following

- Field personnel Current Location on Map
- Route of Field personnel on Map
    - Live
    - Historic
- Geo-Tagged photographs of surroundings
- Employee Attendance along with location information (with biometric)
- All the information shall be sent to the centralized server, for the monitoring purpose.

Central Application for managing the data: -

Smart Bin Live interface, you can view the fill levels of all monitored containers, manage the servicing of communities of containers and generate optimal routing schedules for servicing of your assets. Features available on the web portal include:

Optimized Collection Routes - Collection routes made up of only the containers that need to be serviced. Sent directly to your drivers who follow the routes on our app or on your existing fleet management system. Zero fuel waste, zero emergencies, reduced driving time, and happy clients & communities.

Performance Analysis - Smart analysis of your entire portfolio's performance including collection history, value of collection and cost to collect. SmartBin Live also provides detailed analytics and alerts for each container including temperature, tilt and unscheduled changes in volume.
Operations Overview - A war room style overview of your entire collection operation, bringing greater visibility & performance driven reporting. SmartBin Live enhances your decision-making ability while adding clarity & security.

SmartBin Mobile App: -
The optimized routes can be directly sent to the drivers and monitor their progress with the SmartBin Mobile app.

- Create sites - Associate containers, & input site details
- View driver routes
- Navigate assigned routes
- Service sites & record fill-levels & additional details
- Update SmartBin Live in real-time
- Track driver on route maps via GPS navigation
- Record Actual vs Estimated volume collected, distance travelled & yield

Smart Bin API:
SmartBin provide access to complete sensor metrics information through a simple REST web service. These can be consumed by any other external systems for the operational purposes. User friendly complete documentation is provided for the purpose integration.

SmartBin API can be consumed for

- Remote data access via published API
- ERP System integration
- Fleet Management integration
- Bespoke API configuration

27 Enterprise Management Center: -

Enterprise Management System

EMS and Service management

IBM understands that the customer wants an integrated solution to monitor their network, application and server infrastructure, manage their Assets and manage helpdesk operations. The requirement can be summarized as follows:

- Consolidated Operations Management
- Server Monitoring
- Application Monitoring
- Network Fault & Availability Monitoring
- Network Performance & Flow Management
- IT Helpdesk

Solution Overview

IBM proposes an integrated enterprise management solution to integrate people, process technology which will enable KSCP to have visibility across business, improve SLA and bring efficiency in IT Infrastructure administration by having an automated solution in place.

The IBM solution will help KSCP to have a holistic view through real-time dashboards and KPIs and proactively monitoring the health of the IT infrastructure thereby maximize the utilization of assets, manage ITIL processes and IT assets and minimize the risk and bring in agility into operations.

The Proposed IBM solution includes the following:

Event Consolidation and correlation: This is the heart of the service management solution which integrates into various monitoring systems for consolidating events across networks, applications and storage. It filters correlated events based on topology, rules and policies. The Solution also provides message enrichment and advanced correlation automation capabilities by integrating with the enrichment component. This solution also integrates with ICD for auto ticketing

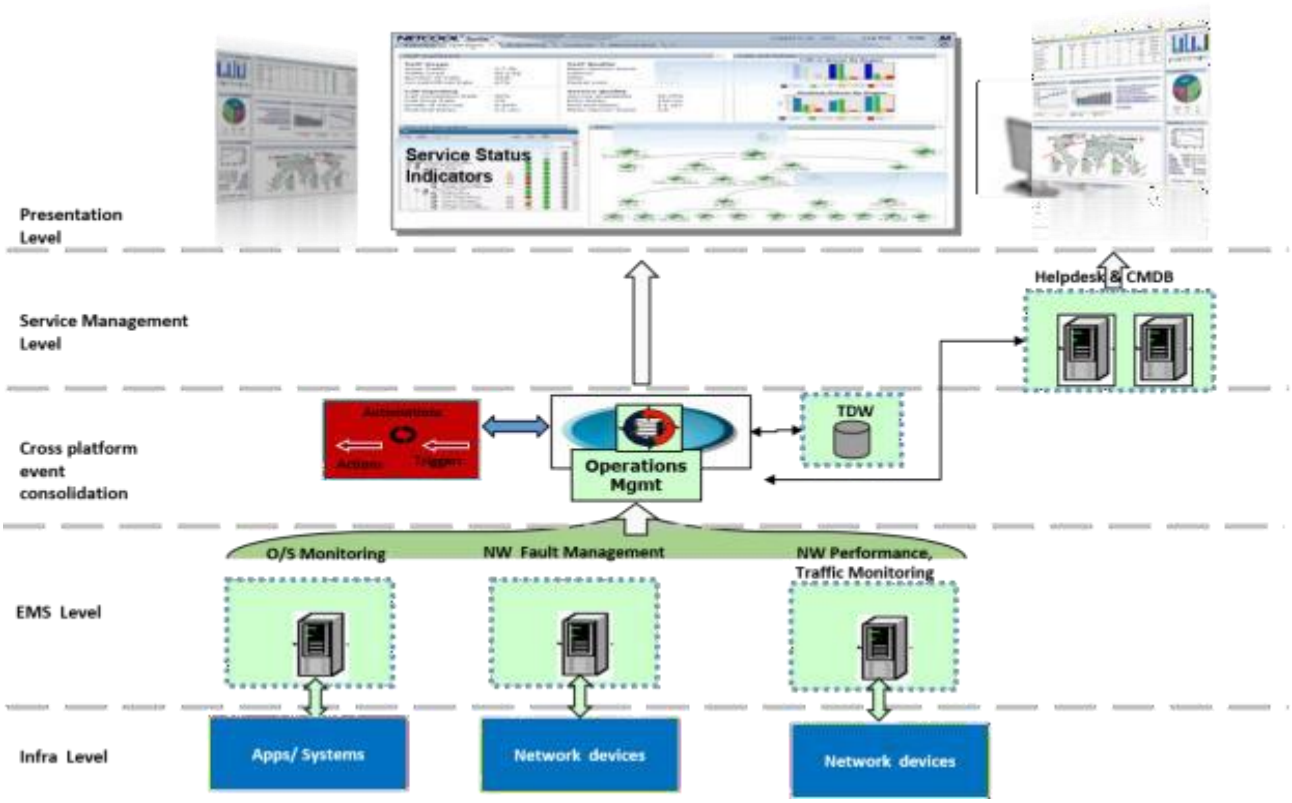
Service, Asset and IT lifecycle Management: The solution provides a complete "control center" for managing services and assets in a seamless way, with automation that allows processes to work at the speed of today's cloud and virtualized environments. This is a single unified ITIL certified solution for change management, configuration management and asset lifecycle management which automates following processes, License management, procurement process, asset reconciliation, Requisition, Asset IMAC processes

IBM Application Performance Manager: IBM APM is a single, comprehensive solution that intelligently manages performance, availability, and capacity for complex application infrastructures in cloud and hybrid environments. IBM Performance Management offers the right visibility, control, and automation for critical applications. With its modular design, IBM Application Performance Management lets you get started quickly and easily to add capabilities as they are needed. Additionally, IBM Application Performance Management delivers service level dashboard to isolate the application performance issues.

Network Management: The IBM solution provides network discovery and monitoring, network configuration management, topology visualization, and root cause analysis capabilities. Integrated with NOI (Operations Management, it also provides valuable advanced fault correlation and diagnosis capabilities for monitored network infrastructure. Real time root cause analysis helps operations personnel quickly identify the source of network faults. The discovery agents interrogate network devices for information using ICMP, SNMP, SSH, and TELNET. It also provides configuring the polling of discovered network devices to monitor those devices.

Network Performance Management: IBM Tivoli® Netcool® Performance Manager (TNPM) enables communication service providers, enterprises, and utilities to manage network performance of both fixed and mobile networks. It provides a comprehensive, flexible and scalable performance management system that supports complex, multivendor, multi technology networks while providing increased visibility into total network performance.

Solution: -



Solution components and capabilities: -

The following table gives a list of major components and their functionalities.

IT Function	Module	Capabilities
Manager of Managers (Operations	Netcool Operations	• Event Management -Collection, Processing, Presentation, Fault Consolidation, Alarm/Event
Management	Insight – Operations Management	Suppression & Correlation • Auto Ticketing through Integration with Trouble Ticketing System. • Event Enrichment, Advance Event Correlation.
Network Fault & Availability Management	• Netcool Operations Insight - Network Management	• Network Discovery, topology map root cause analysis • Network Fault & Availability Monitoring • Network Configuration Management
Network Performance & Traffic Management	• Network Performance Insight • Netcool Performance Management	• Network flow and traffic monitoring • Network Bandwidth Analysis • Network performance Monitoring • Report on performance, usage and network health information

IT Service Management	IBM Control Desk	• Service Request, Incident, Problem & SLA • Knowledge Management • Change and Release Management • Asset Lifecycle Management,
Application Performance Management	IBM Smart Cloud Application Performance Manager	• Application Availability Monitoring, • System – OS, DB Resource Monitoring
Presentation	DASH (Integrated Portal)	• Unified Presentation providing Rich & Consistent Experience, Single Sign-on for modules, Centralized & simplified End-User Administration
Reporting	TCR (Common Reporting)	• Web based Report & Query Design based on Cognos Technology, Ad-hoc & Scheduled Reports, Report Templates

Solution Components

Netcool Operations Insight (Operations Management)

IBM proposes a highly scalable, enterprise level Manager of Managers solution. This solution has the following components. Event Management part is used for integrating EMS tools along with other components of the proposed solution.

- Netcool Operations Insight (Event Management). Includes IBM Netcool Omnibus and Impact

Real time, end-to-end event management for complex infrastructures

- Real-time, centralized monitoring of complex networks and IT domains. With scalability that exceeds millions of events per day.
- Environments supported by Netcool/Omnibus software include a vast array of network devices, Internet protocols, systems, business applications and security devices.
- Netcool/Omnibus provides high scalability with a flexible architecture; the software can deliver event management to support environments of any size.

Netcool/Omnibus Probes

A Probe connects to an event source, detects and acquires event data, and forwards it to the Object Server to form alerts. The Probe uses logic within a rules file to manipulate the event elements before converting them into fields of an alert in the Object Server alerts status (or another table).

The figure below shows how Probes fit into the IBM /Netcool Omnibus architecture: -

Each Probe is uniquely designed to acquire event data from a specific source. However, Probes can be categorized based on how they acquire events. The types of Probes are:

- Device
- Database
- Log File
- API
- Miscellaneous (SNMP, etc.)

The Probe type is determined by the method in which the Probe detects events.

IBM Netcool/Omnibus Gateway

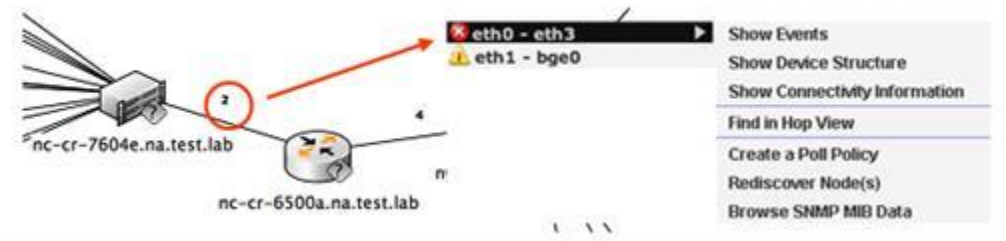
Enables bi-directional integration between IBM Netcool solutions, and 3rd party applications

Netcool/Omnibus gateways enable you to exchange alerts between Object Servers and complementary third-party applications, such as databases and helpdesk. The SCCD Gateway will be used to integrate into the SCCD Helpdesk

You can use gateways to replicate alerts or to maintain a backup Object Server. Application gateways enable you to integrate different business functions. For example, you can configure a gateway to send alert information to a helpdesk system. You can also use a gateway to archive alerts to a database.

Netcool Operations Insight (Network Management)

Network Discovery and Topology Visualization: The IBM solution has comprehensive IP network management capabilities via deep discovery of the IP network artifacts like Layer 2, Layer 3 routers and switches, routing protocols, MPLS VPNs, MPLS TE, Multicast etc. The topology can be visualized in the common Integrated Portal.
Discovery is performed using SNMP, Telnet or via bulk topology upload from an element manager (via CSV files etc.).
IBM Tivoli Network Manager IP (ITNM IP) will provide the network topology discovery and root-cause analysis (RCA) capabilities. ITNM IP will automatically discover network for Layer 2 and Layer 3 (e.g. Ethernet & IP) network devices, interfaces & connectivity and maintain an accurate representation of the network in a standards-based central data repository. It provides extensive discovery and visualization support for MPLS including Layer 3 IP VPNs and Layer 2 technologies. It will allow creating network topology views to provide visibility into the devices and topology as per their roles and entitlements.
Some of the topology screenshots are given below:
Visualize IP network with links (and multi-link bundles etc.)



The following is an MPLS TE Topology visualized

ITNM IP can actively monitor the underlying network for fault and availability by polling the devices and forward poll-based events to report any issues.

Tivoli Netcool Configuration Management:

This solution is used for automation of network devices configurations, backups and restore. With Tivoli Netcool Configuration Manager, you can get improved operational efficiencies through greater automation and unified control plane for multivendor devices while preventing outages and helping to reduce mean time to repair. Tivoli Netcool Configuration Manager is designed to meet the scalability and performance requirements of large and complex networks by providing greater standardization and adherence of organizational policies and industry best practices. You have unique flexibility to support a breadth of network changes for network devices from a wide variety of vendors. By automating the time- consuming, error prone manual configuration process, Tivoli Netcool Configuration Manager helps you reduce configuration errors and easily incorporate repeatable processes into daily operations.

- Real-time configuration management
- Non-disruptive roll back devices to a previously known good state
- Comprehensive change management
- Audit tracking
- Security
- Reporting and notification
- Standards-based integration

Network Performance Insight

IBM Network Performance Insight 1.1.0 is a flow-based network traffic performance monitoring system. Network Performance Insight provides comprehensive, flexible, and scalable traffic data management with visualization and reporting to support complex, multi-vendor, multi-technology networks. It offers a range of dashboard views with robust security features that are designed to meet the needs of executive management and converging network and IT operations teams.

IBM Tivoli Netcool Performance Manager

Tivoli Netcool Performance Manager enables service providers and enterprises to manage network performance of both fixed IP (wireline) and mobile (wireless) networks. It provides comprehensive, flexible, and scalable performance management with visualization and reporting of network performance data for complex, multivendor, multi technology networks. It offers role-based views with robust security features that are designed to help meet the needs of executive, management, and converging network and IT operations teams.

Tivoli Netcool Performance Manager provides visibility into events across the network, allowing for reduced network repair times and helping operations to optimize network performance. Tivoli Netcool Performance Manager is a component of the IBM Service Management solution set, supporting visibility, control, and automation for smarter optimized network and IT operations. Tivoli Netcool Performance Manager includes an extensive library of “off-the-shelf” network interfaces called technology packs, which can be quickly deployed, extended, and modified to manage different vendors and technologies on a single system. These independent modules provide domain-specific and vendor-neutral data models, vendor-specific metrics and key performance indicators (KPIs), and value-added reports and graphs.

IBM Control Desk

IBM Control Desk is a comprehensive IT Service Management solution that helps reduce costs and minimize service disruptions through automated service request handling, efficient change management across IT and enterprise domains:

- Minimize outages related to changes within IT Operations by up to 70%
- Increase process speed and efficiency by up to 40%; service quality and responsiveness by up to 60%
- Lower cost and mitigate license compliance risk
- Improve utilization rate and reduce unnecessary purchases
- Adaptive, role-based simplified UI
- Access from anywhere at any time (mobile support)
- Reduce total cost of ownership
- Licensing model that enables you to purchase a license and have access to all functions within the product
- Simplified intuitive interfaces throughout the product

Advantages of a Unified Approach

The IBM Control Desk unified approach speeds time-to-value while minimizing complexity and total cost of ownership. The solution provides a complete "control center" for managing services and assets in a seamless way, with automation that allows processes to work at the speed of cloud and virtualized environments today.

Simplicity

IBM Control Desk offers new levels of simplicity that will be good news for the growing number of non-technical users who request access to IT services and interact with service management processes. The complete IT service management solution provides self-service capabilities, and is designed so end users can efficiently solve Level 1 service requests on their own and require less technical intervention when elevating issues, regardless of their level of expertise. The tool encourages less need for expert problem-solving, helping reduce training costs, and increasing user efficiency.

Accessibility from mobile devices, social media integration, and development tools puts more information into the hands of end users. Empowering everyday users can lead to a large return on investment in saved technical support costs.

Solution capabilities

IBM Control Desk provides a single platform at a single price point for managing incidents, problems, service requests, & Service levels Users deal with a single install, infrastructure, maintenance stream, administration tool, user interface, workflow engine, scheduler, and security. They can start with one functional area and adopt others at their own pace. The solution also supports more than 10 Information Technology Infrastructure Library (ITIL) processes out of the box.

IBM Control Desk works efficiently in traditional IT environments, in today's dynamic cloud or virtualized infrastructure environments, and in "mixed" environments containing both virtual and traditional assets.

The Service Desk is often referred to as the "first line of defense"; as that is the first interface that the end-user uses to subscribe to, or report problems on, the services that they are subscribing to from the organization. An effective Service Desk should support all the standard ITIL processes. Visibility into CI dependencies, and a strong process to track changes, is key to the Service Desk becoming successful.

28 Scope of work under this RFP: -

Summary: The ICCC and DR NOC the basic communication channel through Fiber optics is lost from core to destination channels also and observed issues, Software's and SAN storages has to be renewed, in field power and device restoration has to be implemented in phased manner. In this phase we shall go ahead with DC, ICCC and Surveillance components (Cameras, VMS/VA/ANPR software).
The bidder is free to choose from existing OEM and new OEMs. Preference shall be given to Make in India OEMs. For New proposed OEMs (If any) the proof of concept (POC) has to be shown (as per KSCCL requirement during before/after technical evaluation of the project) and M/s KSCCL has the rights to accept or reject the makes proposed in BID.

1.The following are the Phased requirement in this RFP:

Sl. No	**Line Item**	**Site**	**UoM**	**Quantity whose AMC is to be taken**
A	**Primary Command & Communications Center (CCC)**			
A1	Video Wall Solution-55" LED in a 6X2 arrangement	CCC	Nos	1
A2	Monitoring Workstations (3 monitors) for Live and Playback	CCC	Nos	10
A3	Indoor Fixed Dome Cameras for internal surveillance	CCC	Nos	10
A4	Data Center Switch (1G)	CCC	Nos	4
A5	Networking Cost (Passive Components)	CCC	Set	1
A6	Electrical Cabling & Necessary Illumination Devices	CCC	Set	1
A7	Access Control System (RFID/Proximity based, For all staff)	CCC	Set	2
A8	Rodent Repellent	CCC	Set	1
A9	Data Center Switch (1G)	NOC	Nos	2
A10	Data Centre Router/ BRAS	DC	Nos	2
A11	WAN / Internet Router	DC	Nos	2
A12	Data Center TOR (Top of the Rack) Switch	DC	Nos	10
A13	Core Switch	DC	Nos	2
A14	Firewall (with minimum 10 Gbps throughput and scalable)	DC	Nos	2
A15	Intrusion Prevention System (with minimum 10 Gbps throughput and scalable)	DC	Nos	2
A16	SFP Modules	DC	Lot	1
A17	Enterprise Management System	DC	Lump sum	1
A18	Anti-virus Software for Servers/ desktops/ workstations	DC	Lump sum	1
A19	SAN Switch	DC	Nos	2
A20	SAN Storage	DC	Set	1
A21	Storage	DC	Set	1
A22	Indoor Fixed Dome Cameras	DC	Set	6

A23	Networking Cost (Passive Components)	DC	Set	1
A24	Servers	DC	Set	1
A25	Video Management System	DC	Lump sum	1
A26	Video Analytics Software License for 50 Cameras	DC	Lump sum	1
A27	FRS Software for 10 Cameras	DC	Lump sum	1
A28	Privileged Identity Manager	DC	Lump sum	1
A29	Virtualization software	DC	Lump sum	1
A30	RDBMS Licenses	DC	Lump sum	1
A31	OS Licenses	DC	Lump sum	1
A32	UPS (redundancy built in)	DC	Set	1
A33	WAN / Internet Router	DR	Nos	2
A34	Data Center TOR (Top of the Rack) Switch	DR	Nos	6
A35	Data Center Switch (10G)	DR	Nos	2
A36	Firewall (with minimum 10 Gbps throughput and scalable)	DR	Nos	2
A37	SFP Modules	DR	Lump sum	1
A38	Anti-virus Software for Servers/ desktops/ workstations	DR	Lump sum	1
A39	Desktop for mgmt. staff	DR	Nos	2
A40	Storage	DR	Set	1
A41	Racks for all Infra in DC	DR	Set	4
A42	Indoor Fixed Dome Cameras	DR	Set	6
A43	Outdoor fixed Box Cameras (Surveillance)	Field	Nos	260
A44	Outdoor PTZ Cameras	Field	Nos	90
A45	IR Illuminators as applicable	Field	Set	1
A46	Industrial Grade outdoor PoE switches	Field	Nos	270
A47	SFP Modules	Field	Lump sum	1
A48	Networking Cost (Passive Component: Junction Box, Patch Panel, LIU, OFC, Cat6 Cable, Patch Cords, Pipes, Earthing, Lighting arrester etc.)	Field	Lump Sum	1
A49	UPS with Batteries	Field	Lump Sum	1
A50	Digging, Piping & Refilling, including digging for electrical cabling	Field	Lump Sum	1
A51	Poles and civil foundation for all Equipment's	Field	Lump Sum	1
A52	Provisioning of Electrical Power and submeter	Field	Lump Sum	1
A53	Aggregation Router	Field	Nos	4
A54	Access Router	Field	Nos	24

A55	SFP Modules	Field	Lump sum	1
A56	Security and Cyber Security and VAPT For all applications	Field	Lot	1
A57	CAMC of complete restored Items in years	Years	Lot	5

Connectivity for field components:
M/s KSCCL has given PPP model to M/s City Online to restore the Fiber to the field locations and ICCC/DC. Bidder has to provide space inside the outdoor junction box and Loaded LIU with required type and nos. of OFC patch cords as per network provider need.

Current Make and Models:

Sl. No	Line Item	Site	UoM	Quantity as per original RFP	OEM Make	OEM Model
A	Primary Command & Communications Center (CCC)					
A1	Video Wall Solution-55" LED in a 6X2 arrangement	CCC	Nos	1	Delta	LW-5580 TR IC + ICON PRO
A2	Video Wall Solution-55" LED in a 2X2 arrangement	CCC	Nos	1	Delta	LW-5580 TR IC + ICON PRO
A3	Monitoring Workstations (3 monitors) for Live and Playback	CCC	Nos	10	HPi	HPZ240 + HP EliteDisplay
A4	Joystick for PTZ Cameras	CCC	Nos	5	Dahua	DH-NKB1000
A5	Office Desktops	CCC	Nos	5	HPi	HP285G2 micro tower + HP V203p
A6	Network Colour Laser Printers	CCC	Nos	5	HPi	HP Color LaserJet M855dn Printer
A7	IP Phones	CCC	Nos	30	Elitecore(Software)Fanvil (IP Phone)	X3SP
A8	VHF Radio Handset/Telephone (compatible)	CCC	Nos	50	Kenwood	NX-240
A9	VHF Base Station with Antenna	CCC	Nos	1	Kenwood	NXR-710

A10	Indoor Fixed Dome Cameras for internal surveillance	CCC	Nos	10	Dahua	DH-IPC-HDBW5221E-Z/DS-2CD2725FWD-RMSU
A11	Data Center Switch (1G)	CCC	Nos	4	Cisco	X440-G2-24t-10GE4/3650
A12	Networking/IT Rack	CCC	Set	1	Manifold	NETRACK
A13	Networking Cost (Passive Components)	CCC	Set	1	Reputed	NA
A14	Electrical Cabling & Necessary Illumination Devices	CCC	Set	1	Reputed	NA
A15	Fire Safety System with alarms	CCC	Set	1	Ravel	MonitI
A16	Public Address System	CCC	Set	1	Bosch	LBB 1950/10
A17	Access Control System (RFID/Proximity based, For all staff)	CCC	Set	1	Smarti	SMNG480
A18	Civil and interior work for 18M X 10M X 14Ft	CCC	Set	2	Reputed	NA
A19	Office Desk and Fixtures Furniture	CCC	Set	1	Reputed	NA
A20	Ergonomic chairs for Command & Communication Center	CCC	Set	1	Featherlite	0TS04BPC01
A21	Chairs for office staff	CCC	Set	1	Featherlite	NA
A22	Conference Table (for 8 personnel) & Chairs	CCC	Set	1	Featherlite	NA
A23	LCD Projector	CCC	Nos	2	Sony	DX220
A24	Rodent Repellent	CCC	Set	1	Maser	VHFO-V2
A25	Ethernet LED Tower Light with Siren Audible Alarms	CCC	Nos	1	Reputed	NA
A26	Civil Work for DG Room	CCC	Set	1	Vlink	NA
A27	Air Conditioning	CCC	Set	1	Haier	1U25FH4QAA
B	Network Operation Center					

B1	Video Wall Solution-55" LED in a 2X2 arrangement	NOC	Nos	1	Delta	LW-5580 TR IC + ICON PRO
B2	Monitoring Workstations (3 monitors) for Live and Playback	NOC	Nos	4	HPi	HPZ240 + HP EliteDisplay
B3	Joystick for PTZ Cameras	NOC	Nos	4	Dahua	DH-IPC-HDBW5221E-Z
B4	Network Colour Laser Printers	NOC	Nos	1	HPi	HP Color LaserJet M855dn Printer
B5	Indoor Fixed Dome Cameras for internal surveillance	NOC	Nos	4	Dahua	DH-IPC-HDBW5221E-Z/DS-2CD2725FWD-RMSU
B6	Data Center Switch (1G)	NOC	Nos	2	Cisco	X440-G2-24t-10GE4/3650
B7	Networking/IT Rack	NOC	Set	1	Vlink	NETRACK
B8	Networking Cost (Passive Components)	NOC	Set	1	Vlink	NA
B9	Electrical Cabling & Necessary Illumination Devices	NOC	Set	1	Vlink	NA
B10	Fire Safety System with alarms	NOC	Set	1	Ravel	MonitI
B11	Public Address System	NOC	Set	1	Bosch	LBB1950/10
B12	Access Control System (RFID/Proximity based, For all staff)	NOC	Set	1	Smarti	SMNG480
B13	Civil and interior work for 30Ft X 30Ft X 14Ft	NOC	Set	1	Vlink	NA
B14	Office Desk and Fixtures Furniture	NOC	Set	1	Reputed	NA
B15	Ergonomic chairs for Command & Communication Center	NOC	Set	1	Featherlite	0TS04BPC01
B16	Chairs for office staff	NOC	Set	1	Reputed	NA
B17	Conference Table (for 8 personnel) &	NOC	Set	1	Reputed	NA

	Chairs					
B18	LCD Projector	NOC	Nos	1	Sony	DX220
B19	Rodent Repellent	NOC	Set	1	Ravel	VHFO-V2
B20	Ethernet LED Tower Light with Siren Audible Alarms	NOC	Nos	1	Reputed	NA
B21	Civil Work for DG Room	NOC	Set	1	Vlink	NA
B22	Provisioning of Electrical Power and submeter	NOC	Lump Sum	1	Vlink	NA
B23	Air Conditioning	NOC	Set	1	Bluestar	BI-2CNHW18NAFU
C	Smart Data Center (DC) Infrastructure					
C1	Data Centre Router/ BRAS	DC	Nos	2	Nokia	7750 SR-7/ASR 9006
C2	WAN / Internet Router	DC	Nos	2	Nokia	7705 SAR-8/ASR 1001
C3	Data Center TOR (Top of the Rack) Switch	DC	Nos	10	Cisco	NEXUS 5672UP/Summit X670V-48x-FB
C4	Core Switch	DC	Nos	2	Cisco	BDX8-AC/NEXUS 9K C9504
C5	Firewall (with minimum 10 Gbps throughput and scalable)	DC	Nos	2	Sonicwall	SUPERMASSIVE 9200
C6	Intrusion Prevention System (with minimum 10 Gbps throughput and scalable)	DC	Nos	2	Sonicwall	SUPERMASSIVE 9400
C7	SFP Modules	DC	Nos	As per requirement	Reputed	1000BASE-SX SFP transceiver module, MMF, 850nm, DOM 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM
C8	Enterprise Management System	DC	Lump sum	1	IBM	HPE NNMi+server manager/IBM CONTROL DESK+Net cool
C9	Anti-virus Software for Servers/ desktops/ workstations	DC	Lump sum	1	Symantec	SYMC ENDPOINT PROTECTION

C10	Backup Software	DC	Lump sum		IBM	IBM Spectrum Protect Suite/Data Protector/Commvault Data Protection Foundation
C11	Desktop for mgmt. staff	DC	Nos	5	HPi	HP285G2 micro tower + HP V203p
C12	SAN Switch	DC	Nos	2	Cisco	SN 3000B/MDS 9148S/6505
C13	SAN Storage	DC	Set	1	HP	3PAR8200/VSP
C14	Storage	DC	Set	1	HP	APOLLO series/UCSC-3260/VSP/ProLiantXL450
C15	Racks for all Infra in DC	DC	Set	10	Manifold	NA
C16	Indoor Fixed Dome Cameras	DC	Set	6	Dahua	DH-IPC-HDBW5221E-Z/DS-2CD2725FWD-RMSU
C17	Fire Proof Enclosure for Media Storage	DC	Set	1	Godrej	Dataline M
C18	Networking Cost (Passive Components)	DC	Set	1	Vlink	NA
C19	GIS Map Integration & ERP Integration With CCC	DC	Lump Sum	1	STL	NA
C20	Customised dashboard with all required integrations from existing ERP module as per Scope of work defined	DC	Set	1	STL	NA
C21	Servers	DC	Set	1	HP	BL460C/B200M4+C3260/520 HB4
C22	Video Management System	DC	Lump sum	1	Milestone	XProtect Corporate – 2016
C23	Video Analytics Software	DC	Lump sum	1	Iomniscent	D140CLL/Hitachi VA Engine/iQ-INFS

C24	Command and Communications Software (including Disaster Management)	DC	Lump sum	1	Cisco	D1JXYLL/Hitachi VA Engine/Trinity City Digital Platform/CDP
C25	Smart Solutions Software - IP PA	DC	Lump sum	1	Commend	C-L-SIS-IP-2D, C-L-SIS-8B, C-L-PLC-50, E-REC-CPF, C-L-IP-REC-1
C26	Smart Solutions Software - Variable Messaging	DC	Lump sum	1	PE	mindzap vn/Ador V1.2
C27	Smart Solutions Software - Environmental Sensors	DC	Lump sum	1	Oizom	Envidata Terminal X10
C28	Smart Solutions Software - Smart Lighting	DC	Lump sum	1	Cimcon/Suveg	LightingGale
C29	Smart Solutions Software - ECB	DC	Lump sum	1	Commend	WS 311V CM
C30	Smart Solutions Software - Solid Waste Management	DC	Lump sum	1	Bioenable	SmartBin Live, RFID and Mobile Application
C31	Smart Solutions Software – AVLS	DC	Lump sum	1	Bioenable	AVLMS
C32	Smart Solutions Software - Smart Parking	DC	Lump sum	1	PParkE	PparkEInsights v2.0
C33	Smart Solutions Software - Disaster Management Software	DC	Lump sum	1	Skymet	Skymetone
C34	Smart Solutions Software - ATCS	DC	Lump sum	1	PE	VTManager
C35	FRS Software	DC	Lump sum	1	Herta	BioSurvilliance Next & BioFinder
C36	ANPR Software	DC	Lump sum	1	Vehant	VehiScan-ANPR Software Licenses
C37	RLVD Software	DC	Lump sum	1	Vehant	RLVD-1.0.1
C38	IoT Platform	DC	Lump sum	1	Cisco	HPE CMS IOT platform/CDP
C39	Head Set	DC	Nos	5	Elitecore	N-2
C40	Privileged Identity Manager	DC	Lump sum	1	Arconnt	Arconnt PXM
C41	IVRS	DC	Lump sum	1	Elitecore	NX-IVRS

C42	CTI	DC	Lump sum	1	Elitecore	NX-IVRS
C43	ACD	DC	Lump sum	1	Elitecore	NX-IVRS
C44	IP PBX	DC	Lump sum	1	Elitecore	S0218089A
C45	WLC	DC	Nos	2	Ruckus	SCG-200/8540
C46	WAG	DC	Set	1	Elitecore	NetVertex-DPI-IL-01/HP
C47	WiFi Management Software	DC	Lump sum	1	Elitecore	EC-SMP-BP-01 + EC-SPR-EE-10
C48	AAA	DC	Lump sum	1	Elitecore	EC-AAARD-01
C49	Virtualisation software	DC	Lump sum	1	Vmware	NA
C50	RDBMS Licenses	DC	Lump sum	1	Microsoft	NA
C51	OS Licenses	DC	Lump sum	1	Redhat & Microsoft	NA
C52	Customisation /Integration of the existing systems of Authority	DC	Lump sum	1	Reputed	NA
C53	UPS (redundancy built in)	DC	Set	1	Consolwat	Falcon 7000
C54	Diesel Generator Set	DC	Set	1	Sterling	SGN160PR
C55	Fire Alarm System	DC	Set	1	Ravel	MonitI
C56	Air Conditioning	DC	Set	1	Bluestar, Haier	BO-3CNHW24NAFU, HS-19TFW3C
D	Data Recovery Center (DRC) Infrastructure					
D1	WAN / Internet Router	DR	Nos	2	Nokia	7705 SAR-8/ASR 1001
D2	Data Center TOR (Top of the Rack) Switch	DR	Nos	6	Cisco	NEXUS 5672UP/Summit X670V-48x-FB
D3	Data Center Switch (10G)	DR	Nos	2	Cisco	X440-G2-24t-10GE4/Nexus 5672UP
D4	Firewall (with minimum 10 Gbps throughput and scalable)	DR	Nos	2	Sonicwall	SUPERMASSIVE 9200

D5	SFP Modules	DR	Nos	As per requirement	Reputed	1000BASE-SX SFP transceiver module, MMF, 850nm, DOM 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM QSFP40G BiDi Short-reach transceiver 10G Base-SR SFP Module 10G Base-LR SFP Module, Enterprise-class Nokia: SFP-GIGE BASE-T RJ45 R6/6 DDM -40/85C SFP-GIGE SX-LC ROHS 6/6 DDM -40/85C SFP-GIGE LX-LC ROHS 6/6 DDM -40/85C SFP+ 10GE SR - LC ROHS 6/6 0/70C SFP+ 10GE LR - LC ROHS 6/6 0/70C SFP+ 10GE ER - LC ROHS 6/6 0/70C
D6	Anti-virus Software for Servers/ desktops/ workstations	DR	Lump sum	1	Symantec	SYMC ENDPOINT PROTECTION
D7	Backup Software	DR	Lump sum	1	IBM	IBM Spectrum Protect Suite/Data Protector/Commvault Data Protection Foundation
D8	Desktop for mgmt. staff	DR	Nos	2	HPi	HP285G2 micro tower + HP V203p
D9	Storage	DR	Set	1	HP	APOLLO series/UCSC-3260/VSP/ProLiantXL450
D10	Racks for all Infra in DC	DR	Set	4	Manifold	NA
D11	Indoor Fixed Dome Cameras	DR	Set	6	Dahua	DH-IPC-HDBW5221E-Z/DS-2CD2725FWD-RMSU
D12	Fire Proof Enclosure for Media Storage	DR	Set	1	Godrej	Dataline M
D13	Networking Cost (Passive Components)	DR	Set	1	Vlink	NA
D14	Servers	DR	Set	1	HP	BL460C/B200M4+C3260/520 HB4

D15	Video Management System	DR	Lump sum	1	Milestone	XProtect Corporate – 2016
D16	Command and Communications Software (including Disaster Management)	DR	Lump sum	1	Cisco	D1JXYLL/Hitachi VA Engine/Trinity City Digital Platform/CDP
D17	Smart Solutions Software - IP PA	DR	Lump sum	1	Commend	C-L-SIS-IP-2D, C-L-SIS-8B, C-L-PLC-50, E-REC-CPF, C-L-IP-REC-1
D18	Smart Solutions Software - Variable Messaging	DR	Lump sum	1	PE	mindzap vn/Ador V1.2
D19	Smart Solutions Software - Environmental Sensors	DR	Lump sum	1	Oizom	Envidata Terminal X10
D20	Smart Solutions Software - Smart Lighting	DR	Lump sum	1	Cimcon/Suveg	LightingGale
D21	Smart Solutions Software - ECB	DR	Lump sum	1	Commend	WS 311V CM
D22	Smart Solutions Software - Solid Waste Management	DR	Lump sum	1	Bioenable	SmartBin Live, RFID and Mobile Application
D23	Smart Solutions Software - AVLS	DR	Lump sum	1	Bioenable	AVLMS
D24	Smart Solutions Software - Smart Parking	DR	Lump sum	1	PParkE	PparkEInsights v2.0
D25	Smart Solutions Software - Disaster Management Software	DR	Lump sum	1	Skymet	Skymetone
D26	Smart Solutions Software - ATCS	DR	Lump sum	1	PE	VTManager
D27	Virtualisation software	DR	Lump sum	1	Vmware	NA
D28	RDBMS Licenses	DR	Lump sum	1	Microsoft	NA
D29	OS Licenses	DR	Lump sum	1	Redhat & Microsoft	NA
D30	UPS (redundancy built in)	DR	Set	1	Consolwat	Falcon 7000
D31	Diesel Generator Set	DR	Set	1	Sterling	SGN 82.5PR
D32	Fire Alarm System	DR	Set	1	Ravel	MonitI
D3	Internet	DR	Set	1	APSFL	NA

3	Bandwidth (as applicable)					
D34	Air Conditioning	DR	Set	1	Bluestar	BI-2CNHW24NAFU
E	Field Elements					
E1	RLVD System including RLVD cameras, Illuminator, Local Processing Unit, with cabling and mounting infrastructure complete with Switch, Pole/Gantry, UPS and Junction Box installation.	Field	Nos	10	Vehant	RLVD-1.0.1 + FEBC-3575/S002 + IPC252ERA-X22DUG+ IPC2322EBR-P
E2	ANPR System including ANPR cameras, Illuminator, Local Processing Unit, with cabling and mounting infrastructure complete with Switch, Pole/Gantry, UPS and Junction Box installation.	Field	Nos	20	Vehant	VehiScan-ANPR Software Licenses + Local Processing unit
E3	Face Recognition System with cabling and mounting infrastructure complete with Switch, Pole/Gantry, UPS and Junction Box installation.	Field	Nos	10	Herta	BioSurvilliance Next & BioFinder
E4	Environmental sensors (with SIM subscription if applicable)	Field	Nos	12	Oizom	Polludrone Smart X10

E5	2880mm X 1920 mm VMS board including VMS controller as per specifications with cabling and mounting infrastructure (Gantry) for VMS as per site requirements and IRC guideline (with SIM subscription if applicable)	Field	Nos	5	PE	P10 outdoor/AP-D20-1R1G1B-IN
E6	Public Announcement (PA) System	Field	Nos	30	Commend	C-AF250I + SUH-25XT
E7	Emergency Call Box	Field	Nos	25	Commend	WS 311V CM
E8	Outdoor fixed Box Cameras (Surveillance)	Field	Nos	260	Dahua	DH-IPC-HF5221E + PLZ1140-D + DH-PFH610V+PFB604W/DS-2CD4025FWD-IRAU
E9	Outdoor PTZ Cameras	Field	Nos	90	Dahua	CP-CRN-L104E/DS-1331HZ-IS
E10	IR Illuminators as applicable	Field	Set	1	Reputed	CP-CRN-L104E/DS-1331HZ-IS
E11	Automatic Weather Station	Field	Set	1	Skymet	NA
E12	Lightning Detection Station	Field	Nos	1	Skymet	NA
E13	Indoor AP	Field	Nos	170	ruckus	ZoneFlex R610/AP1852i
E14	Outdoor AP	Field	Nos	300	ruckus	ZoneFlex T610/AP1562i

E15	Industrial Grade outdoor PoE switches	Field	Nos	250 + 20 (change Mgt.)	Extreme networks	ISW 8GBP, 4-SFP/IE4010/EDS-PS10A-8PoE
E16	SFP Modules	Field	Nos	As per requirement	Nokia/Extreme	1000BASE-LX SFP 10 Pack, Industrial Temp ISW 8GBP, 4-SFP
E17	Smart Poles with necessary civil, electrical works and control nodes, cabling and other accessories required to install and make functional complete Smart Pole solution (with atleast 4 LED Luminaire of minimum 200W)	Field	Set	10	Vlink	NA
E18	LoRa BTS	Field	Nos	11	GAIA	Wirenet station
E19	Smart Lighting with necessary civil, electrical works and control nodes with two side brackets (2 Luminaires per pole to be provisioned), cabling and other accessories required to install and make functional complete Smart LED solution (LED Luminaire of minimum 120W)	Field	No	320	Cimcon/Suveg	ACON + Controller ISLC3100 + HHU +MOTSENS +DCU
E20	Networking Cost(Passive Component :Junction Box, Patch Panel,	Field	Lump Sum	All Locations	Vlink	NA

	LIU, OFC, Cat6 Cable, Patch Cords, Pipes, Earthing, Lighting arrester etc)					
E21	UPS with Batteries	Field	Lump Sum	All Locations	Consolwat	Consul NeoWATT
E22	Digging, Piping & Refilling, including digging for electrical cabling	Field	Lump Sum	All Locations	Vlink	NA
E23	Poles and civil foundation for all Equipments	Field	Lump Sum	All Locations	Vlink	NA
E24	Provisioning of Electrical Power and submeter	Field	Lump Sum	All Locations	Vlink	NA
F	ICT Based Smart Solid Waste/Bin Management System					
F1	Solid Waste management System	ICT	Lump sum	1	Bioenable	SmartBin Live, RFID and Mobile Application
F2	Automated Vehicle Locator Management System with requirement of customized dashboard specific for monitoring and tracking of solid waste management activities and integration with the RFID system & volume sensor system for bin collection management. (with SIM subscription if applicable)	ICT	Nos	50	Bioenable	1. WFP-300B 2. GKA9805 – UHF
F3	RFID based Bin Management System, Volume Sensor Management system	ICT	Nos	110	Bioenable	FM4000 RFID Tags
F4	GPS Tracking System with all fittings & fixtures in all the	ICT	Nos	50	Bioenable	WFP-300B/Equivalent

	vehicles					
F5	RFID device installation in all the vehicles & loaders and RFID tagging of all the Bins	ICT	Nos	110	Bioenable	FM4000 RFID Tags
F6	Mobile/ static biometric device for workers, schools (with SIM subscription if applicable)	ICT	Nos	50	Bioenable	AND-BIO-01
F7	Volume sensors installation at collection point/bin	ICT	Nos	110	Bioenable	Metro Sensor-Lora
G	ICT Based Smart Parking Management System	ICT				
G1	Smart Parking Citizen App	ICT	Lump sum	1	PParkE	Android, ios
G2	Gateway for sensors (with SIM subscription) if applicable	ICT	Nos		PParkE	NA
G3	Parking Sensors	ICT	Nos	100	PParkE	PParkE sensor 204, LoRa
G4	Boom Barrier & Digital Display Unit	ICT	Nos	10	PParkE	NA
G5	Wireless Handheld Device	ICT	Nos	100	PParkE	NA
H	Smart Traffic - ATCS (4 Juntions)					
H1	Light Green/ Amber/ Red and Peditarian Signal		Set	4	PE	trafitronics - 02, 03, 04, 05
H2	Controller		Set	4	PE	PENTAtraffic controller 9000
H3	Sensor/Camera/ Loop Detector		Set	4	PE	IPC2322EBR-P
H4	Pole, Clamp, Cabling, Foundation/Civil , Shaft, Mast Arm, Light Mast Housing, Sealent - Juntions with 4 way crossings		Set	4	STL	NA

I	City Backbone Network					
I1	Aggregation Router		Nos	4	Nokia	7210 SAS R6/ASR 903
I2	Access Router		Nos	24	Nokia	7210 SAS MXP/ASR 903

1. Depute adequate technical staff with transportation facility to attend all Preventive Maintenance (PM) and breakdown calls. They will be equipped with adequate communication equipment (mobile) so as to be contactable at all times.
2. The scope will be for equipment (hardware, firmware and software) installed in Kakinada city including all out-door & in-door systems and meet mutually agreed targeted - SLA time frames to ensure uninterrupted system operations.
3. Agency service engineer to perform tasks as assigned by Engineer-in-Charge (EIC) and security staff. In case the deputed nominated agency engineer/technician is not able to resolve the issues - Agency will be responsible to arrange for an expert technical engineer for the same and ensure issue is resolved on priority. Agency will maintain all details like installation manual, user guide, drawing and any other technical details as provided by the equipment/application supplier that may be required for maintenance and up-keep of the system.
4. The Bidder as per the Supplier's specification & on their guidelines and instructions of EIC shall perform all preventive, regular and any breakdown maintenance of the ICCC and Field Equipment. Bidder shall attend to unlimited breakdown calls as and when required during the contractual period.
5. Contracted agency will be responsible for signal/power source from the point of feed to the equipment/device.
6. The above shall not cover any check or maintenance of LAN or power source i.e. DB or ELCB provided by Ms. KSCCL.
7. A checklist and chart of the periodic & preventive maintenance tasks as required including as published in SAP-EAM will be followed as part of contract in consultation with the EIC / Security Automation Team which shall be filled up by the vendor's engineer at site and shall be submitted periodically to the EIC and Security Automation Team.
8. Bidder will ensure that the work planned is completed in reasonable time schedule to ensure operations are not impacted at any time. In the event of backlog, the Bidder shall increase / mobilize the resources or provide immediate spares to make-up for the unfinished work or work till extended hours, if required as per the directions of the Engineer-in-charge / Security Department. The Bidder shall strictly adhere to the completion schedule. During the execution of this contract if any extra job is to be carried out, it should be executed as per the given list.

9. Bidder will ensure that the hardware/software issues related to ICCC including issues related to interfaces are resolved in agreed time limits in Work Order or SLAs even if it amounts to placing extra manpower at site in case of emergencies to ensure operations and data flow to interfaced systems is not hampered and system functions smoothly at all times.
10. Bidder will be responsible to depute qualified personnel and will maintain complete rules & regulations of Health, Safety & Fire, HSEF and security as prevalent at Owner's site.
11. Any extra job to be carried out by 3rd party related to ICCC or accessing the installed equipment under the scope of vendor, the same will be supervised by vendor at no cost like excavation, trenching manually or with machine required to expose cables or base foundation.
12. Obtaining permit to work/cold work permit/hot work permit or any other permit as required will be in the scope of Bidder for the equipment installed by the vendor or cables laid by the vendor.
13. Any modification, like shifting of current installed gadgets / equipment to another location, all material related to shifting will be provided by the owner and installation etc will be done by the Bidder at no extra cost. This modification will not exceed "Two locations" in a year. However, Ms/ KSCCL shall provide necessary support like civil, electrical, IT and P&M wherever required for shifting of the installed equipment and manpower required for shifting of vendor installed equipment / cables after more than two locations. Bidder shall also make required changes in system configuration or in the application.
14. Bidder has to provide all personal protective equipment to its employees (Safety overall, Safety shoes, helmet, goggles, gloves etc.)
15. Bidder will ensure availability of its decided manpower on the working days as per shift schedule of KSCCL site (six days a week) and reachable through telephone on holidays / silent hours.
16. Bidder will follow all rules related to Traffic, Safety and Security. Bidder will be responsible for understanding the rules of the site via general circulars, training or otherwise.
17. All required Tools & tackles would be in the Bidder's Scope. In case of major repairs, the required lifting crane/machinery for moving the equipment shall be provided by Ms/ KSCCL. Bidder to provide the list of standard tool kit including Multi meter and all hand tools. List of required tools and tackles from Ms/ KSCCL to be provided by Bidder well in advance.
18. Bidder shall report to the Engineer-in-charge or Security Department to co-ordinate with E&M Group (IT, Electrical, Instrumentation, Civil & Mechanical).
19. Maintenance and Programming (including Programming tool/Software Application) shall be included in the scope of Bidder. Module checking, software trouble shooting, reloading and modification (if required), maintenance, replacement etc. shall be done by Bidder. Bidder shall maintain his set of manuals related to ICCC. He will update his own and Ms/ KSCCL's manuals as and when required.
20. Bidder shall ensure proper functioning of ICCC at all times and submit regular status reports in case of any abnormality. They shall intimate the Security Department and the Engineer in charge in case of breakdown of any system in ICCC and shall notify them the fault location as soon as it is identified.

Any breakdown in any equipment shall be brought to the notice of the engineer in charge and the same will be done after completion of the job. It shall be the endeavor of the vendor to provide trained personnel at site and all faults in system to be attended at the earliest with Minimum Loss/ Breakdown Time.

21. Bidder shall be responsible for the Condition monitoring activity (to be carried out once in two months) of the entire ICCC. Preventive maintenance shall be carried out as per the AMC. Bidder shall provide a checklist and recommendation for preventive maintenance. The services broadly covered are as below:
    i. All the field devices and equipment listed in the sheet shall be covered under periodic maintenance.
    ii. All the equipment shall be periodically checked for the operation and functionality of the system as per the guidelines.
    iii. Bidder to maintain an inventory of fast-moving critical spares to be replaced in case of emergencies to reduce downtime of the system. (The faulty spares can be repaired separately and recycled).
    iv. If required in case of any breakdown, the Bidder shall utilize the spares available with owner.
    v. The Bidder shall maintain a record of the daily / routine servicing and breakdown of all the devices and keep the Engineer in-charge / Security department updated.
    vi. The Bidder shall provide all testing equipment and tools required to carry out the above maintenance.
22. No complaint shall remain unattended for want of material or manpower for more than 48 hrs. Bidder shall maintain a log for receipt of complaint, maintenance & rectification in a register. Such register shall be available for inspection by Ms/ KSCCL representative at all times.
23. Bidder shall submit reconciliation statement for the materials, consumables and any other item taken from store on quarterly basis duly certified by concerned E & M engineer to the Engineer-in-charge as the case may be.
24. Bidder to maintain proper record and inventory of his material, tools & tackles, equipment's, machinery and any other thing required for smooth execution of work with proper gate entry pass & shall provide access for its inspection as & when required.
25. Any extra job related to ICCC (as required) to be carried out by any other agency like excavation & trenching (manually or with machine) required to expose damaged cables or base foundation, obtaining permit to work/cold work permit/ hot work permit / or any other permit for such job shall be supervised by Bidder at no cost.
26. Any Modification / Improvement / Major Jobs related to design faults of any wing (Electrical, Instrumentation, IT or Mechanical) of the ICCC AND FIELD EQUIPMENTS shall be done by the Bidder as per the instruction after approval of E&M/IT/Security Group.

27. New installation/shifting of existing installation will not be covered under this AMC and the same will be paid separately as per mutually agreed terms.

B. Operational Scope for AMC

1. Preventive Maintenance

(a) Preventive Maintenance of ICCC project (including expert cleaning). Equipment includes – Camera application, video analytics application, & related accessories installed by the vendor / linked to the vendor system directly.

i. Cleaning of cameras with soft cloth to ensure removal of all dust without any damage / scratch to the shield

ii. Cleaning of controllers/Switches/ Junction Box

iii. Checking of connections at periodic schedule

iv. Ensure no noisy or loose parts

v. Ensure all cabling and connections are tight including proper earthing

(b) Monsoon protection wherever required.

i. Covering of all field equipment as installed by vendor and linked to the vendor system directly.

ii. Data and electrical cable checking and servicing

iii. Silastic and tape application as per requirement

(c) Maintenance Schedule – Vendor site team, Automation team / EIC will decide the periodicity of doing the maintenance of equipment as per requirement. A schedule will be published in this regard by the vendor and mutually agreed by all. (Breakdown/emergency repairs & maintenance will be over and above the regular maintenance schedules).

2. Condition monitoring / performance as per checklist / schedule

i. Vehicle detection

ii. Performance of RLVD, ANPR

iii. Performance and output of system in terms of reports & time output

3. Issues SLA time frames:

i. Hardware related issues –

1. Video surveillance - (primary identification)

a) Video loss & device communication loss – 1 hr

b) Picture frame rate issue - 2 hrs

c) Picture quality & viewing area issue - 2 hrs

ii. Application / Interface/ Server related issues*

a) Slow performance of application – 1 hr (primary identification)

b) Data flow issue between interfaced systems - 4 hrs

All application related issues to be closed within a time span of 24 – 48 hrs depending upon the criticality. The above time includes the coordination with vendors Head office. For all with the Bidder's head office, vendor rep at site will be the single point coordinator.

*Above time line is the best possible in case the vendor rep at site have no issue simultaneous - whatever above is possible to achieve with decided manpower in agreed time, problem will be rectified. For such issues coordination with application owner and vendors at HO will be required.

28.1 Technical Specifications

28.1.1 Industrial Grade Switch

S.NO	Description	Compliance (Y/N)
1	Switch Should Support 8 x 10/100/1000Base-TX PoE / PoE+ capable ports	
2	2 x 1000Base SFP or 1000Base-T Combo ports	
3	Switch Should Support Min. 20 Gbps Switching Capacity	
4	Switch should have console port (RJ45).	
5	The Switch shall have the intelligence to detect the loop occurring from the unmanaged network segment.	
6	Switch Should Support IGMP Snooping v1, v2 and MLD snooping.	
7	Switch shall support Link Layer Discovery Protocol (LLDP).	
8	Switch Should Support IEEE 802.3az Energy Efficient Ethernet (EEE) Power saving Technology	
9	Switch should support 8k mac address	
10	Switch Should Support 4K VLAN ID's,	
11	Switch should support temperature -40 to 75 degree C	
12	Switch Should Support Port Mirroring.	
13	Switch should support Quality of Service (QoS), 802.1p, Strict, Weighted Round Robin (WRR), Bandwidth Control/rate-limit.	
14	Switch should support Access Control List Based on switch port,802.1p, Vlan ID, MAC Address	
15	Switch Should Support Security Features like Broadcast/Multicast/Unicast Storm Control, 802.1X, Dynamic ARP Inspection, Port security	
16	Switch Should Support Radius, TACACS+, SSL/SSH.	

17	Switch Should Support Management through Web-based and Command line	
18	Switch should support SMTP, SNMP v1/v2/v3, RMON, TFTP, ICMP, Telnet, Syslog, LLDP, Pingv6,	
19	Switch should support POE Budget:240W, up to 30 W output per PoE+ port	

28.1.2 Enterprise Management System (EMS)

General Specification		
Sr. No	**Specification**	Compliance (Yes/no)
1	The proposed system shall support multiple types of discovery like IP range discovery, Auto discovery, Automatic discovery Directed discovery & Semi automatic discovery	
2	The proposed system shall support IPV4 & IPV6 Devices	
3	NMS shall be capable of providing the FCAPS functionality to the network. NMS shall provide all necessary information to NMS on standard interfaces	
4	NMS for Network Elements shall support northbound open interfaces such as SNMP/Syslog/TL1/XML /ICMP/ NS Client++, JMX, WMI, WS-Management, or any other protocols for integration with the NMS	
5	Solution shall support SNMPv1, v2 & v3 & MIB 2 compiler	
6	The discovery shall be able to identify and model of the ICT asset	
7	The proposed solution shall determine device availability and shall exclude outages from the availability calculation	
8	The proposed solution shall provide out of the box root cause analysis	
9	The proposed solution should have auto In-built auto-correction mechanism for RCA	
10	Solution should Topology based RCA & Identification	
11	Solution should have Instant diagnosis options with auto correction triggering	
12	Solution should have Immediate fault detection via polling & traps	
13	Alarms should be categorised into different categories e.g. Emergency/Critical, Flash/Major, Immediate/Minor, Priority/Warning, Deferred/Informative depending upon the severity of the alarm.	

14	Solution should have Service alerts based on rules	
15	Solution should have Threshold Crossing Alert (TCA) Alarm Severity	
16	Solution should support topology view	
17	The GUI shall provide the ability to create, delete and modify topology views of the network.	
18	NMS should be able to display the Network Elements and the links in different colours depending upon their status for healthy, degraded and critical alarm conditions	
19	Dashboard should indicate the number of active alarms with filtering options based on the period, duration, severity, event type	
20	The NMS system should support email or SMS feature for informing user	
21	The system should be able to create performance reports and Alarm reports. These reports shall be HTML or pdf which can be dynamically generated and sent over e-mail	
22	The proposed solution shall provide real-time monitoring of the entire network infrastructure and shall allow users to easily navigate with graphical interface and easy to use network management tools	
23	The proposed solution shall be capable of managing any SNMP/ICMP device from any vendor	
24	The proposed solution shall allow notifications to be automatically sent to phones, offsite workstations, etc. for efficient response.	
25	The proposed solution shall allow for display different colours for the links including red, green, orange, yellow to show the status of the links and the connected devices	
26	Solution should provide Fault, Configuration & Performance management of the entire datacentre infrastructure and should monitor IP\SNMP enabled devices such as Routers, Switches, Cameras, Online UPS, etc. Proposed Network Management shall integrate with SLA & Contract Management system in order to supply KPI metrics like availability, utilisation in order to measure central SLA's and calculate penalties. Following are key functionalities that are required, which will help measuring SLA's as well as assist administrators to monitor network faults & performance degradations in order to reduce downtimes, increase availability and take proactive actions to remediate & restore network services	

27	Proposed solution should provide customizable reporting interface to create custom reports for collected data	
28	Network Performance management system should provide predictive performance monitoring and should be able to auto-calculate resource utilisation baselines for the entire managed systems and networks and allow user to set corresponding upper and lower threshold limits based on baseline data instead of setting up manual thresholds for monitored devices.	
29	Solution should have correlation technology	
	Server Performance Management	
30	The proposed tool should integrate with network performance management system and support operating system monitoring for various platforms supplied as part of the project.	
31	The proposed tool should be able to monitor various operating system parameters such as processors, memory, files, processes, file systems, etc. where applicable.	
32	the solution should provide a unified web-based console, which consolidates all aspects of role-based access under a single console.	
33	The proposed tool must provide information about availability and performance for target server and storage nodes.	
34	The proposed tool should be able to monitor various operating system parameters such as processors, memory, files, processes, file systems, etc. where applicable.	
35	The proposed system shall through alerts in case of RAM over utilization, Over CPU utilization	
	Dashboard & Reporting	
36	The solution should provide historical and concurrent service level reports for the project in order to ensure accountability of the service provider's performance	
37	Automatic Report creation, execution and Scheduling, must support variety of export formats including Microsoft Word, Adobe PDF etc.	
38	The solution must support Templates for report generation, Report	
39	Filtering and Consolidation and Context sensitive Drill-down on specific report data to drive standardization and governance of the project	

40	The solution must support security for drill-down capabilities in dashboard reports ensuring visibility for only relevant personnel of the project	
41	Support real-time reports as well as historical analysis reports (like Trend, TopN, Capacity planning reports etc.)	
42	a. Resource utilization exceeding or below customer-defined limits	
43	b. Resource utilization exceeding or below predefined threshold limits	
44	An indicative List of SLAs that need to be measured centrally by SLA contract management system are given in the Tender Document. These SLAs must be represented using appropriate customizable reports to ensure overall service delivery.	

28.1.3 Network Management System (NMS)

Network Management System-NMS		
Sr. No	Functional Requirement	Compliance (Yes/no)
	The proposed solution shall provide at a minimum the following functions:	
1	Fault & Performance Management	
2	Network Management	
3	Event Management	
4	Server, Storage and other Infrastructure Management	
5	The proposed solution shall facilitate the analysis and display of status information from all network devices attached to the system that are SNMP and/or ICMP capable	
6	The proposed solution shall provide the ability to view the network and its associated IP SNMP/ICMP enabled devices including switches and other IP devices connected over the network.	
7	The proposed solution shall process at least 2000 events/sec	
8	The proposed solution should include all hardware and software required to configure, control and monitor the network connected SNMP/ICMP based devices	
9	The proposed solution shall provide discovery & inventory of physical network devices and other IP devices	
10	The proposed solution shall be able to monitor the utilization of physical as well as virtual servers	

11	The proposed system shall employ Graphical User Interface that allows users to manage the network through a multilevel window. (i.e. Network and Sub networks Maps window)	
12	Solution should also support Multitenancy	
13	Solution should support API integration with third party application	
14	Solution should have proper business intelligence tool	
15	Solution should cover all the aspects of FCAPS	
16	Solution Should support Automation from day one: Events should generate automatic tickets, automatically notify to field engineer regarding outages	
17	Solution should support cloud and Virtualisation from day one	
18	Solution should support docker from day one	
19	Solution should have predictive analysis from day one	
20	Shall support client–server-based architecture. Client being GUI/web browser-based access with secure interface to the server	
21	Should support provision of creation, addition, deletion, Updation and viewing capability of the managed network	
22	should support RADIUS based access control	
23	The proposed solution shall be capable of managing any SNMP/ICMP device from any vendor.	
24	Solution should have business service monitoring capability	
25	Solution should have role & privileges-based access from day one	
26	Solution should support LDAP integration from day one	
27	Solution should support SSO from day one	
28	Discovery should work without requiring agent installation (that is, agentless discovery) while discovery Layers 2 through Layers 7 of OSI model	
29	Should use Industry-standard protocols such as WMI, SNMP, JMX, SSH to perform discovery without requiring the installation of an agent	
30	Solution should ensure compatibility of existing Infrastructure with the procured infrastructure, and it must fill the end functionality of the project. Offered solution should support bi-directional integration between the NOC and SOC to have the single consolidated console of infrastructure and security events.	

31	The proposed NMS solution MUST have at least 5 deployments in Indian Government/ Public Sector/Smart city/safe city/BFSI for monitoring & managing cumulative 15,000+ devices (including IT assets - Switch, server, etc.; Non-IT Assets -Cameras, UPS, IOT devices, etc.; ITMS/Surveillance system - Cameras, Sensors, etc. in each of such deployments. Customer names, and solution details needs to be provided at the time of bidding.	
32	The proposed solution should be secured with single sign-on (SSO) and must have authentication through LDAP. EMS, SSO engine & LDAP solution should be from the Same OEM	

28.1.4 Video Management System (VMS)

8.2.1 Central Video Management Software (CVMS)		
Make:		**Model :**
	OEM Criteria:	
	1. The Intellectual Property Rights & Source Code of Offered Central Video Management Software must not reside in a Country that is sharing Land Border with India. The Central Video Management Software Offered should not be developed/manufactured by an entity in which the majority shareholding of the entity is from a Country sharing a Land Border with India.	
	2. The CVMS OEM should have following certifications. A. ISO 9001:2015 Quality Management Certifications B. 27001:2013 Information Security Management Systems Certifications	
	3. The CVMS OEM shall have a direct Registered Office in India without any Collaboration, Joint Venture & should be in Operational for the Last 10 Years as on the Last Date of Bid Submission	
	General Parameters:	
1	The IP Video Central Management Software should allow Live Viewing and Management solution of Network Video surveillance systems & shall not have any Limit on the Number of Cameras to be Connected & shall be Scalable to Unlimited IP Cameras in Future by Augmentation of Camera channel Licenses & server Hardware Components.	

2	The Video Central Management Software shall be Client-Server based IP Video security solution that shall provide seamless management of Digital Video, Audio and data across an IP network. The video management Software shall provide full virtual matrix switching and control capability. Video from sites shall be possible to view from single or numerous workstations simultaneously at any time. Cameras, recorders, and viewing stations may be placed across the terminal in the IP network.	
3	The Offered Application Software should be ONVIF S, G, T Profile Compliant.	
4	The IP Video Management Software shall be Licensed & Perpetual Licenses to be Provided, such that they are Valid for Lifetime.	
5	The Application can be accessed from Windows based computer and support web clients for Standard Web Browsers like Google Chrome & Microsoft Edge in desktop as well as mobile	
6	The Application shall support iPad, Android and iPhone devices & shall also support web clients for Standard Web Browsers like Google Chrome & Microsoft Edge.	
7	The Video Central Management System shall be a fully distributed solution, designed for limitless multi-site and multiple server installations requiring 24/7 surveillance with support for devices from different vendors. The Video Management System shall offer centralized management of all devices.	
8	The system shall be a scalable client – server architecture built using well known operating systems	
9	The system shall provide a powerful and efficient management interface for all the security systems across all monitored sites.	
10	The management server shall allow access to a system manager in the form of Configuration Client from where the administrator can configure and manage all servers, cameras and users.	
11	The Central VMS shall be based on a true open architecture that shall allow the use of non-proprietary workstation and server hardware, non- proprietary network infrastructure and non-proprietary storage.	
	Recordings Features:	
12	Should support recording at H.265+, H.265, H.264, MPEG4 or MJPEG in at minimum 5 fps to 30 FPS at minimum CIF to 4K Resolution t NVR Side.	
13	Should Support RTP over UDP, RTP over TCP and http streaming	
14	Should support dual streaming and recording at different qualities of videos.	
15	Should have ability record audio along with video in same recording file.	

16	Option to define multiple recording paths	
17	Calculate storage size based on number of cameras, days and drives available in the system	
18	Option to record at low frame(I-frame) and high frame rate on Motion in NVR	
19	Export the desired portion of video in mp4, avi and asf formats in DVD/USB or any external device. Viewing of this recording must be playable on authorized player which shall be provided by software manufacturer or in media player on OS Windows, Linux/Unix or Apple Mac.	
20	Export recording possible in client and remote PC also with proper authentication.	
21	Option for Window-Pop up, Email, Sound alarm on recording/ video loss or any event.	
22	Storage and Bandwidth calculation: Recoding size estimation for each hard disk attached to the server.	
23	The option of email Video Pop up on Low disk space event. The system should alert user on low disk space event.	
24	Export of videos Synopsis based on events in a particular time period	
25	Export of Signed video using public/private key.	
	Live, Playback & Zoom Features:	
26	Live View possible for minimum 64 cameras simultaneously on 1 screen or multiple monitors using software video wall.	
27	Configurable Matrix views with size and number of cameras. Pre-defined views from full screen, 1x1 to 8x8 & User Defined Matrix.	
28	View sequencing with user driven time interval.	
29	Dual Streaming and Switching from Low to High Quality on Full screen mode.	
30	Option to change Live View directly from cameras or from VMS server using RTSP and HTTP options	
31	It should support live view and Playback from minimum 10 clients- Both local and remote	
32	It should support event-based playback.	
33	Ability to search based on Date/Time/Camera, Name, ID and Location for more than one camera simultaneously.	
34	**Digital Zoom:**	
35	Both complete live picture and Zoomed picture should be visible simultaneously while zooming.	
36	Should be available On Live and Playback Videos.	
37	Zoom available on snapshots too.	
38	Software should allow creation of multiple camera sequences. It should be possible to set the dwell time for the cameras within the sequence.	

39	Software should allow sequences control (pause/play, skip forwards, skip backwards).	
40	Live view and Playback available at the same time with Playback window on top of live view window.	
41	Instant Playbacks available as window pop up on click of an event from Event Screen.	
42	Event window with specific snapshot of that event should be shown simultaneously in Live view screen. Clicking on the event should play recording of that event time.	
43	Image Enhancement available in Playback. Option to sharpen the video image through scrollbar.	
44	Playback Navigation Tree View with Recording server, camera list, year/months list and the date wise play list.	
45	Playback option for frame-by-frame	
46	Playback should have Video lock feature.	
47	Option of Common Timeline for syncing of multiple cameras while playback.	
48	Ability to make bookmark of any portion of video and view list of all bookmarks	
49	Instant Playback and Quick Search of event-based recordings.	
50	Event based search: Event based Time line to quickly show coloured dots in Timeline and view recorded videos at the event time.	
51	Playlist with files listed for each date. User can click on a date to play recordings.	
52	E-map client should show icon blink and voice alert of the event.	
	Health and Alarms	
55	Automatic Health check-up and activation of optimization modules once CPU reached more than 85%.	
56	Any Video Loss/ Video Block /Motion Detection Alerts should be displyed on dashboard in real time.	
57	Recording Status of every camera should be there on Dashboard, in case of any failure in recording of any camera instant alert should be generated and sent via email etc.	
58	Hard Disk Status of every NVR should be there like, how much HDD connected with any NVR Device, Storage Capacity and Remaining Storage of any HDD.	
59	Network information of any NVR should be viewed centrally, IP address, Subnet Masd, gateway etc.	
60	Real time status of all camera connected with any NVR.	
61	Status Report of all NVR like Total Downtime, Uptime, Disconnected time etc.	
62	Any type of HDD Error in any NVR should be reported instantanly to avoid important recording of evidence.	

63	Option to view cameras only on alarm. Matrix grid size should change automatically if alarms are generated from multiple cameras simultaneously	

28.1.5 Dome Camera

S No.	Features	Specification	Compliance(Yes/NO)
1	Image sensor	1/2.7" progressive scan CMOS	
2	Min. illumination	0.01Lux @ (F1.2, AGC ON), 0.014 Lux @ (F1.4, AGC ON), 0 Lux with IR	
3	Electronic Shutter	(1/1s-1/100,000s Adjustable)	
4	Day/ Night	Yes	
5	Lens	Motorized 2.7-13.5mm	
6	IR Distance	30 Mtr	
7	S/N ratio	≥65db (AGC OFF)	
8	Output	PAL/NTSC adjustable	
9	WDR	120 dB	
10	Image setting	Brightness,Contrast,Saturation,Sharpness	
11	Video compression	H.265/H.264/MJPEG	
12	Max Resolution	1920x1080P	
13	Frame Rate	Main code stream: 2MP@25fps Sub-code stream: D1, VGA@1-25fps, Full Frame	
14	Additional Features	Intrusion Detection/ Region Entrance/Human Detection, Video Tampering, Motion Detection	
15	Privacy Masking	4 Zones	
16	Protocols	TCP/IP, IPv4, ICMP, HTTP, HTTPS, HTTP-Base64, HTTP-Digest, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, FTP, RTMP, IGMP, 802.1X, QoS, Multicast	
17	System Compatibility	ONVIF Profile (S, G) & Quoted product should be listed on ONVIF website. OEM should be full member of ONVIF Family.	
18	Max User Access	20	
19	Ethernet	1 RJ45 10M/100MEthernet port	
20	Operating Conditions	-40 °C ~ 70 °C Humidity 95%	
21	Protection	IP66 & IK10	
22	Product Certification	CE, FCC, BIS, RoHS	

28.1.6 Fixed Camera 2.7 mm to 13.5mm

S No.	Features	Specification
1	Image sensor	1/2.7" progressive scan CMOS
2	Min. illumination	0.01Lux @ (F1.2, AGC ON), 0.014 Lux @ (F1.4, AGC ON), 0 Lux with IR
3	Electronic Shutter	(1/1s-1/100,000s Adjustable)
4	Day/ Night	Yes
5	Lens	Motorized 2.7-13.5mm
6	IR Distance	50 Mtr
7	S/N ratio	≥65db (AGC OFF)
8	Output	PAL/NTSC adjustable
9	WDR	120 dB
10	Image setting	Brightness,Contrast,Saturation,Sharpness
11	Video compression	H.265/H.264/MJPEG
12	Max Resolution	1920x1080P
13	Frame Rate	Main code stream: 2MP@25fps Sub-code stream: D1, VGA@1-25fps, Full Frame
14	Additional Features	Intrusion Detection/ Region Entrance, Human Detection, Video Tampering, Motion Detection
15	Privacy Masking	4 Zones
16	Protocols	TCP/IP, IPv4, ICMP, HTTP, HTTPS, HTTP-Base64, HTTP-Digest, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, FTP, RTMP, IGMP, 802.1X, QoS, Multicast
17	Storage	256 GB SD-Card Supported
18	System Compatibility	ONVIF Profile (S, G) & Quoted product should be listed on ONVIF website. OEM should be full member of ONVIF Family.
19	Max User Access	20
20	Ethernet	1 RJ45 10M/100MEthernet port
21	Operating Conditions	-40 °C ~ 70 °C Humidity 95% or less (non-condensing)
22	Protection	IP66 & IK10 Certified
23	Product Certification	CE, FCC, BIS, RoHS
24	Bidder shall ensure compliance to the Office Memorandum for insertion of Rule 144 (xi) in the General Finance Rules (GFR)-2017 bearing reference number F.No. 6/18/2019-PPD dated 23 July 2020 or latest, by the Public Procurement Division, Department of Expenditure, Ministry of Finance. Non- compliant bid(s) will be summarily rejected. The OEM should not have any common directors who are also on the board of companies having beneficiaries from land border countries at the time of bidding. The camera OEM must submit declaration regarding their own manufacturing setups and shall not have 3rd party manufacturing from any company blacklisted in India or any company sharing land border with India. The IPR/copyright of source code of firmware/software etc. should not reside in countries sharing land borders with India. OEM should submit supporting document to establish proof of this eligibility criteria.	

25	CCTV Product should be compliant to the Policy and Make in India makes shall be given preference as per Order 2017-Revision vide the Department of Industrial Policy and Promotion (DIPP) Order No. P-45021/2/2017-PP(BE-II) dated 16th September,2020 or latest. OEMs under make in India must submit Undertaking and supporting documents.	
26	CCTV OEM should be active company and should have direct presence & manufacturing in India from last ten years (not as joint venture, partnership firms or through any other association).	
27	CCTV OEM should have ISO 9001, 14001, 27001, 45001, ISO/IEC 27032:2012 (Cyber Security), 39001, ISO 50001:2018, GDPR, STQC Certificates and CMMI Level 5 Certificate.	
28	Camera and VMS should be from same OEM	

28.1.7 Fixed Camera 5-50mm

S No.	Features	Specification
1	Image sensor	1/2.7" progressive scan CMOS
2	Min. illumination	0.01Lux @ (F1.2, AGC ON), 0.014 Lux @ (F1.4, AGC ON), 0 Lux with IR
3	Electronic Shutter	(1/1s-1/100,000s Adjustable)
4	Day/ Night	Yes
5	Lens	5-50mm VF
6	IR Distance	80 Mtr
7	S/N ratio	≥65db (AGC OFF)
8	Output	PAL/NTSC adjustable
9	WDR	120 dB
10	Image setting	Brightness,Contrast,Saturation,Sharpness
11	Video compression	H.265/H.264/MJPEG
12	Max Resolution	1920x1080P
13	Frame Rate	Main code stream: 2MP@25fps Sub-code stream: D1, VGA@1-25fps, Full Frame
14	Additional Features	Intrusion Detection/ Region Entrance, Human Detection, Video Tampering, Motion Detection
15	Privacy Masking	4 Zones
16	Protocols	TCP/IP, IPv4, ICMP, HTTP, HTTPS, HTTP-Base64, HTTP-Digest, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, FTP, RTMP, IGMP, 802.1X, QoS, Multicast
17	Storage	256 GB SD-Card Supported
18	System Compatibility	ONVIF Profile (S, G) & Quoted product should be listed on ONVIF website. OEM should be full member of ONVIF Family.
19	Max User Access	20
20	Ethernet	1 RJ45 10M/100MEthernet port
21	Operating Conditions	-40 °C ~ 70 °C Humidity 95% or less (non-condensing)
22	Protection	IP66 & IK10 Certified

23	Product Certification	CE, FCC, BIS, RoHS

28.1.8 PTZ Camera

S No.	Features	Specification
1	Sensor	1/2.7" Starlight Progressive Scan CMOS
2	Shutter Speed	PAL/NTSC
3	Min. Illumination	Color: 0.001Lux@F1.2 B/W: 0Lux with IR on
4	SNR ratio	≥60dB
5	Shutter Time	1s-1/100000s
6	Optical Zoom	30X
7	Digital Zoom	16x
8	Pan Range	360°endless
9	Tilt Range	-5°~90° (Auto Flip)
10	Number of Preset	256
11	Cruise	8, up to 32 Presets per Cruise
12	Pattern	4
13	RS-485 Protocols	Support
14	IR Distance	Up to 200Meter
15	Audio Input/Output	1 IN/1 out
16	Ethernet	1-ch RJ45 10M/ 100M
17	Alarm Input/Out	1-Ch/1-Ch
18	On-board Storage	up to 256GB Supported
19	Max Image Resolution	1920×1080
20	Main Stream	60fps @ (1920x1080)
21	Sub Stream	60fps@(704x576)
22	Third Stream	30fps@ (1920x1080)
23	Video Compression	H.265, H.264, MJPEG
24	ROI Encoding	8
25	Audio Compression	G.711/AAC
26	Protocols	IPv4/IPv6, HTTP, HTTPS, 802.1x, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE, SSL, TCP-IP, IGMP, IP FILTER, ARP
27	System Compatibility	ONVIF Profile (S, G, T) & Quoted product should be listed on ONVIF website. OEM should be full member of ONVIF Family.
28	Video Analytics	Advanced Motion Detection, Tamper Detection, Line Crossing, Loitering, Human Detection, People Counting, Object Left, Object Removed, Region Entrance, Region Exiting,
29	Operating Conditions	-50°C-70°C, 0～95% RH, Auto Temperature control with built in fan & heater
30	Power Supply	PoE(802.3at)/ DC 12V/3A ±10%

31	Surge Protection	IP66 & IK10 Certified
32	Certifications	CE, FCC, BIS, RoHS

28.1.9 **Category 6 U/STP Outdoor Double Jacket LAN Cables**

	Cat 6 U/UTP Outdoor, 23AWG, LSZH/PE Double Jacket, WBT, AR, 305m Reel	**Compliance Yes/No**
	Cat 6 UTP Double Jacket Cable, 23AWG (0.55mm) Dia Pure solid copper	
	Outer Jacket : Black LDPE	
	Inner Jacket : LSZH Grey with Water Block Tape	
	Moisture protection - Water Block Tape between Inner and outer jacket for protection	
	Cable should have cross separator with Rip cord and min Dia of 7.2mm	
	Cable should be certified by ANSI/TIA 568.2-D Category 6, ISO/IEC 11801 Class E tested on 250Mhz	
	Insulator : HD Polyethylene solid	
	Conductor Resistance : <9.38Ω /100m	
	Resistance Unbalance 5% Max	
	Mutual Capacitance : < 5.6nF/100m	
	Capacitance Unbalance: 330pF/100m.	
	Propagation Velocity : 69%	
	Max Temperature: -15°C to +60°C	
	Cable should be UV resistant with RoHS compliant	
	Cable should be with Anti Rodent to protect against Rodent.	
	Cable should be Fluke tested and covered in forever Performance warranty as complete solutions	

29 General Terms and Conditions of Tender

- The bidder shall be responsible for the overall operations & maintenance of all the IT and Non-IT Infrastructure (including ICCC, DC, DR, NOC) at all the Site locations for ensuring adherence of SLAs. The non adherence to the SLA Timelines shall be maximum to 5% of the invoice value during AMC period.
- The bidder shall be responsible for operation management, monitoring and support on the KSCCL's network for any fault / issues/ failure such that the citywide network can be maintained close to 100 %. For better Network availability, preventive maintenance activity is required to be carried out at least once in a month which includes configuration backup and software / firmware upgradation / Updating, cleaning, re-tagging (if required) of Outdoor cabinets, UPS, switches, racks and battery failover testing of UPS etc. Upgradation/Updating should be part of the back-to-back warranty support from the OEM.
- Bidder should provide comprehensive on-site AMC from respective OEM only for all the products for 3 years to Kakinada Smart City Corporation Limited. Bidder would be asked to produce relevant documents in this regard by the Kakinada Smart City Corporation Limited or by its empaneled agency during the course of the contractual agreement. Please note that bidder must take Comprehensive on-site AMC for all the components (Enlisted in Section XXX) and should submit it to KSCCL as documentary evidence within 1 month of issuance of the work order to the successful bidder. In absence of the requisite documentary evidence, bidder would not be paid for the duration for which the comprehensive AMC was not made available. If in case bidder has not provided the AMC for few component / product(s) out of the entire list of products, O&M charges for the

duration for which the AMC was not made available shall not be paid.

- Bidder shall also be required to procure comprehensive AMC for the software product(s) as well from the respective date(s), considering the phase-wise O&M.

- The Bidder is required to submit preventive maintenance (PM) schedule of all equipment to KSCCL. After performing preventive maintenance activities, successful bidder is required to submit the detailed report of the same.
- Initially bidder shall be awarded with the O&M work order for the Phase I quantities only and later on another work order shall be released for the Phase II quantities. Further, KSCCL may release an additional work order(s), if any quantity is left for this maintenance.
- Bidder shall also support in configuration of any field and / or data center devices to provide internet / intranet connectivity towards field devices through the already established network. There should not be reluctance in provision of such assistance / support, wherever required during the contractual agreement period.
- As part of the Operations and Maintenance services, the bidder shall provide support for the software, hardware, and other infrastructure maintained as part of this RFP. The bidder shall also provide services comprising of but not limiting to the following:
- Operations and maintenance services for the IT and Non-IT Infrastructure at the designated locations as defined in this RFP document during the contract period. (i.e. 3 years from go live period)
- The scope of work under O&M is not limited to the IT and Non-IT Infrastructure components deployed under the smart city project but it also includes O&M for any additional equipment / devices/ hardware / software as specified in the RFP & related to the project supposed to be procured during the contract for a period of 3 years by the bidder.
- O&M charges for any such additional equipment/devices/hardware/ software component to be deployed at the central site and at the end point locations shall be paid on the pro - rata basis. Further successful bidder is required to comply with the overall SLA requirement of contract for any such additional Scope of work.
- Bidder shall maintain adequate spares at site during the Comprehensive AMC period to maintain uptime as per SLA. No site should remain unattended / down in absence of the spare.

29.1.1 Comprehensive AMC Support

As part of the warranty services bidder shall provide:

- Bidder shall provide a comprehensive on-site warranty support for 3 years for all the equipment covered under the project.

- Bidder shall provide the comprehensive manufacturer's CAMC and support in respect of proper maintenance. Bidder must cover all hardware, equipment, accessories, spare parts, etc. covered under this RFP against any issue / defect that may come across defects during the AMC period.

- Bidder shall provide the comprehensive AMC in respect of performance of the installed hardware and software to meet the performance requirements and service levels in the RFP.

- During the comprehensive AMC period, bidder shall maintain the up time as per the Service Level agreement (SLA) mentioned in the RFP document. Further, during the O&M phase, if in case any device(s) gets into the end of life / end of support stage, bidder shall replace the product of same or other reputed OEM, with equivalent or higher specification at no additional cost to KSCCL bidder may factor such cost in their comprehensive yearly O&M cost to be quoted. For delay in procurement of new equipment, as mentioned above, KSCCL may levy penalty in this regard. Please note that bidder shall have to take necessary approval during the initial phase of the project for procurement of re placement product(s) against the existing OEM products. All the proposed product should be compatible with existing set of hardware installed and commissioned in the project. No product should be re placed (With change in Make / Model) without the written approval from KSCCL.

- The bidder shall also cover the failure of the end point equipment’s due to earthing or power fluctuations

under this Comprehensive AMC. It is the responsibility of the bidder to undertake preventive maintenance of the supplied UPS and proper earthing to avoid this risk

- During the CAMC period all defective components that are brought to bidders notice, shall be repair / replace at the installed site, at no additional cost to KSCCL.
- The bidder shall as far as possible repair/ replace the equipment at site.
- The bidder shall carry out Preventive Maintenance (PM), including cleaning of interior and exterior, of all hardware including Outdoor Cabinet (ODC), CCTV surveillance cameras, testing for virus, (if any), Variable Messaging Display (VMDs), Environmental sensor(s), Traffic enforcement system etc. and should maintain proper records at each site for such PM. Successful bidder is required to carry out such activity every month and failure to carry out such PM will be a breach of SLA and requisite penalty may be levied from their invoice(s). Further, bidder should maintain a clear log for such PM along with thesite photographs (Pre and post PM with location tags) and should share with KSCCL on a weekly/ monthly basis.
- Bidder should comply with all the safety standards as well.
- Bidder shall have to stock and provide adequate spare parts and spare component to ensure that the uptime commitment is met as per the Service Level Agreement (SLA)
- Bidder shall develop and maintain an inventory database

29.1.2 MIS Reports

The successful bidder shall submit the reports on a regular basis (the reports may be soft copy and / or hard copy, as requested by KSCCL from time to time) in a mutually decided format. The following is only an indicative list but not limited to MIS reports that may be submitted:

- Network up-time
- Location wise up-time report (For customized duration)
- Device up-time report
- Hotspot Wise Bandwidth Utilization, total traffic, per user data log etc.
- Overall Network Bandwidth Utilization.
- Summary of resolved, unresolved and escalated issues / complaints
- Component wise Report (Server, Network, Security devices, other utility hardware, Backup, Website Updation, etc.)
- SLA Reports
- Log of preventive / scheduled maintenance undertaken
- Any other report as may be required from time to time
- Attendance reports of resources deployed on the project, captured from biometric device

29.1.3 O&M of Physical Infrastructure

All the devices installed as part of the physical infrastructure should be monitored and managed on a 24x7x365 basis. The physical infrastructure management and maintenance services shall include, but not limited to the following:

- Management of Physical Access to the premises as per the policies set by KSCCL.
- Monitoring, recording and reporting usual and unusual movements in and around the premises.
- Material inward/ outward control as per policies set by KSCCL.

- Monitoring and managing safety and surveillance equipment like CCTV, Access Control, Fire detection and Suppression etc. at the CCC and Data Center.
- Issuing access control as per approval from KSCCL.
- Reporting incidents to the KSCCL, if any.
- Co-ordinate with respective trusted personnel and communicate with authorized maintenance personnel for various utilities at the CCC as required.
- Vendor Co-ordination for various physical Infrastructure components
- Co-ordination with implementation agencies of other projects of KSCCL. Successful bidder shall have to provide all the required support for the ongoing network migration, network configuration, coordination or any other request that may come up from KSCCL during the contractual agreement period.
- Component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent or higher configuration of same OEM) 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 in this regard. Same should be shared with KSCCL or its empaneled agency upon request.
- CCTV footage is to be kept for meeting legal, regulatory, ISO Policies compliance requirements. The record retention period shall be as per policies of KSCCL / Home department.
- Ensure availability of the physical Infrastructure including Power, Cooling, CCTV, Access Control, Intelligent Racks, Fire detection and suppression systems, Rodent Repellent systems, and other components included as part of the smart city project.
- During the Operation and Maintenance (O&M) phase, bidder shall have to restore any damage / cut to the power cable, data cable etc. to maintain the uptime of respective field device. Bidder may have to replace them. Further, bidder may have to carry out digging activity to restore this cable cut during the O&M phase, bidder should make necessary arrangement for this restoration including but not limited to: permission to carry out the requisite activity, hardware material for restoration, necessary machinery and manpower to execute the task.
- For the Physical infrastructure installed at site locations such as Junction boxes, Poles, Towers, casings etc. the Successful bidder will have to keep a check of such items and maintain the same from weather conditions, rodents etc. for the entire duration of the contract. The security of the Physical infrastructure installed at site locations will be in the scope of the successful bidder.
- Proactive and reactive maintenance, repair or replacement of defective components (IT and Non -IT/ Hardware and Software) related to Physical Infrastructure systems and sub-systems. The cost of repair and replacement shall be borne by the successful bidder. IT and non-IT hardware here refers to systems such as IT and non-IT hardware and software being used for maintaining and monitoring Physical Infrastructure e.g. Access control, fire alarms, CCTV camera etc.
- The successful bidder shall keep minimum number of adequate spares at Kakinada to maintain the required uptime.
- Acceptance test shall be carried out for any system that is re-installed OR upgraded. Bidder shall also have to maintain necessary logs for that as well.
- Successful Bidder shall record all the incidents/issues related to physical infrastructure services, security, systems and Sub-systems.
- The successful bidder shall carry out Risk-assessment of the Physical Infrastructure as per standard Policy/Guidelines and provide a Risk Assessment report including recommendations.
- The successful bidder shall provide training to resources deployed at periodically.
- Full compliance to all the policies, procedures, processes, guidelines, Government- Acts, Rules & Regulations, etc. The successful bidder shall provide full compliance/adherence of all activities performed by them, to the aforementioned statutes, without any additional cost to KSCCL.
- The successful bidder shall have to ensure that at least 30 days of footage for the surveillance system is stored in the primary storage After 30 days, the video feeds would be overwritten unless it is flagged or marked by

the Police/appropriate authority for investigation or any other purpose. The video feeds of all relevant cameras capturing the incident in question would be stored until the Police/ appropriate authority deem it good for deletion. Further, incidents that are flagged by the Police or any court order, the video of the relevant portion from all relevant cameras should be stored/archived separately for investigation purposes.

- With reference to the traffic enforcement system, the image of the License plate extracted by ANPR software, along with the timestamp and location of the image capture will be stored for a period of 3 months.
- Bidder shall have to provide adequate onsite services over and above the comprehensive AMC so as to ensure smooth operation of Kakinada Smart City project. Bidder shall also have to provide requisite maintenance service(s) to all non-IT / passive equipment(s) as well.

29.1.4 O&M for software products

- Bidder shall have to provide Comprehensive AMC for all the software products as well, exhaustive list of components is mentioned in this document.
- Commencement of comprehensive AMC shall depend on the Phase in which it was made live during the Smart City project implementation. Bidder shall have to provide the comprehensive AMC immediately after getting on-boarded.
- Please note that all the software license (With perpetual license) are already procured during the implementation phase however, bidder shall be required to procure their comprehensive AMC (As mentioned above) to ensure that KSCCL gets requisite support as and when required and necessary update(s) are also made available. The systems which are end of life or no support is there from OEM, bidder may quote for the new system software/hardware as per the requirements.

29.1.5 Insurance

- Bidder shall have to procure comprehensive insurance against each of the product maintained as part of this project. Such comprehensive insurance should provide cover against any loss, damage, theft of any of the equipment(s). Bidder should provide documentary evidence for procurement of insurance to KSCCL, as and when requested.
- Insurance should also provide cover against any loss / damage due to natural calamities, terrorist attack, riots, theft, any type of vandalism, fire, cyber-attack, war like situation etc. Please note that this list is indicative, bidder should procure insurance against all the possible loss / damage to the installed devices.

29.1.6 Reporting, Database Administration and Trouble Shooting

- The bidder will need to provide daily, weekly, monthly and periodic reports to Kakinada Smart City Corporation Limited and Kakinada Smart City Corporation Limited as defined by authority.
- The implementation agency shall circulate written progress reports at agreed intervals to Kakinada Smart City Corporation Limited and other stakeholders. Project status report shall include Progress against the Project Management Plan, status of all risks and issues, exceptions and issues along with recommended resolution etc.
- Successful Bidder shall maintain data regarding entitlement for software & hardware upgrade s, enhancements, refreshes, replacements and maintenance.
- Undertake end-to-end management of database on an on-going basis to facilitate smooth functioning and optimum utilization including regular database backup and periodical testing of backup data, conducting configuration review to tune database, maintaining the necessary documentation and managing schemes to database schema, disk space, user roles, and storage.
- The bidder shall allow the Kakinada Smart City Corporation Limited or its nominated agency access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable the Kakinada Smart City Corporation Limited to assess the existing services being delivered

- Promptly on reasonable request by the Kakinada Smart City Corporation Limited, the implementation agency shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with the agreement relating to any material aspect of the services (whether provided by the implementation agency or sub -Bidders appointed by the implementation agency).
- Successful bidder shall have to maintain the inventory details during the entire contractual agreement period. KSCCL shall seek this inventory data on regular intervals and may propose the physical audit for the verification of the actual available stock of various components.
- The Kakinada Smart City Corporation Limited shall be entitled to copy of all such information. Such information shall include details pertaining to the services rendered and other performance data. The implementation agency shall permit the Kakinada Smart City Corporation Limited or its nominated agencies to have reasonable access to its employees and facilities, to understand the methods of delivery of the services employed by the implementation agency and to assist appropriate knowledge transfer.

29.1.7 Preparation of Standard Operating Procedures

Bidder shall prepare Standard Operating Procedures and Practices for operating and maintaining the solution, risk mitigation strategies, periodic status reports, training guidelines and modules, knowledge management protocol. Bidder has to submit the SOPs and risk mitigation strategies to the Kakinada Smart City Corporation Limited for approval.

29.1.8 Risk and Issue Management

a. The implementation agency shall develop a Risk Management Plan and shall identify, analyze and evaluate the project risks, and shall develop cost effective strategies and action plans to mitigate those risks.

b. The implementation agency shall carry out a Risk Assessment and document the Risk profile of Kakinada Smart City Corporation Limited based on the risk appetite and shall prepare and share the Kakinada Smart City Corporation Limited Enterprise Risk Register. The implementation agency shall develop an issues management procedure to identify, track, and resolve all issues confronting the project. The risk management plan and issue management procedure shall be done in consultation with Kakinada Smart City Corporation Limited.

c. The implementation agency shall monitor, report, and update the project risk profile. The risks should be discussed with Kakinada Smart City Corporation Limited, and a mitigation plan be identified during the project review/status meetings. The Risk and Issue management should form an agenda for the Project Steering Committee meetings as and when required.

29.1.9 Miscellaneous

- Bidder needs to procure all the licenses required to run the project components installed under this project. No additional charges shall be paid to the bidder during the O&M phase.
- The bidder shall provide insurance of all the products for the entire contractual duration.
- It is the responsibility of bidder to perform all activities, documentation and procedure for insurance of product.
- Overall, it is the responsibility of bidder to ensure the proper functioning of product for entire project duration.
- Bidder shall support in preparation of any document pertaining to the Smart City project. This may
- include project notes, success story, operating manual / procedure, project specific presentation,impact analysis etc.

- The contractual terms of service shall be monitored on a monthly / quarterly basis as per the
- individual service requirements. However, if the performance of the system/ services is degraded significantly at any given point of time during the contract and if the immediate measures are not implemented and issues are not rectified to the complete satisfaction of the KSCCL or an agency designated by it, then the KSCCL shall have the right to take appropriate punitive actions including termination of the contract and / or forfeiture of PBG.
- Monitor the available Updates of versions, patches etc. of various products being managed by the Bidder.
- Bidder should submit manpower attendance data captured from biometric device. Bidder may factor in a cost pertaining to the same.
- Requirements, Operating Procedures, and Recovery Procedures.
- Bidder should upgrade Application Software/ any licensed software / Database to latest versions of system software for application and database servers as required.

29.1.10 Training & Capacity Building

Training of all stakeholders for Kakinada Smart City project is essential for ensuring that the solution implemented is actually used. The Bidder shall prepare detailed training plan for all the users of the system The bidder needs to ensure proper hands-on training is imparted to the designated end-so as to make them well conversant with the functionalities, features and processes built in the Software and hands-on experience with their functionalities. Training manual / user guide needs to be provided by the bidder in English.

29.2 Role of Project Stakeholders

29.2.1 Successful Bidder

- Scope of work described in this RFP for the O&M phase.
- Ensuring the achievement of project objective & envisaged outcome
- Deployment of competent project team as per the requirement.
- Adherence to the SLA as per the client requirements.
- Repair, refurbishment of faulty equipment in a timely manner
- Ensure availability of sufficient spares for each of the equipment. Bidder must ensure adequate sparesare available from time to time during the project tenure.
- Methodical and Result Oriented Project Management Approach & Technique.
- Accurate and timely reporting and information management.
- Updating of data during the entire contractual period of time.
- Provision of insurance of all the field devices.
- Support in providing remote support for configuration of active devices, as and when re quested by KSCCL
- Provision of requisite manpower, machinery, tools, accessories etc. to ensure envisaged uptime of theproject.
- Support in providing necessary support in migration of connectivity to wards ICCC from any field
- devices from Third party ISP to SI of KSCCL for establishing own network of KSCCL.
- Co-ordination and teamwork with project stakeholders to deliver the objective of project.
- Adherence to code of conduct, culture and discipline of Kakinada Smart City Corporation Limited, Kakinada Smart City Corporation Limited, Kakinada Municipal Corporation (KMCCL) and other organization/individual working on this project.
- Signing of contract with Kakinada Smart City Corporation Limited & submission of PBG.

29.2.2 Kakinada Smart City Corporation Limited

- Support to successful bidder in providing inventory details of the delivered solution.
- Providing support in reaching out to the concerned stakeholder(s) during the tenure of the project.
- Review, approval and suggestions on deliverables.

- Location details of all the components.
- Network diagram along with the IP schema of the established network under the Smart City project.
- On demand of bidder, access to relevant data and approval related to the project.
- Approval on work completed & billing request raised by bidder.
- Approval on attendance of project team deployed by bidder.
- Review of project progress and report to Kakinada Smart City Corporation Limited in case of non-performance or deviation from RFP.
- Necessary sitting arrangement at ICCC of Kakinada Smart City.

29.3 Manpower Requirement

i. The minimum requirement of manpower resources, their qualification and responsibility of e ach resource is given below. The bidder has to ensure that appropriate qualified manpower with requisite skill sets is deputed for the project.

ii. The successful bidder shall depute the resources as per the requirements for carrying out the O&M Activity and maintaining the SLA. This is minimum indicative list of resources and based on actual requirements, the bidder may deploy any number of resources to meet the SLA. No additional charge shall be paid to the bidder for any additional manpower deployment. Please note that Bidder shall have to deploy adequate field resources over and above the mentioned proposed list of resources. Bidder should make an estimation for the field resource requirement and should increase if in case the number of manpower is not sufficient to manage the entire project.

iii. In case deputed employee/staff is not available or is on leave, the successful bidder is required to provide the alternative personnel with same or higher technical capabilities of the non- available personnel based on prior approval from KSCCL.

iv. The manpower deployed for the project should be without any criminal background / record. The successful bidder must submit declaration certificate of all deployed manpower to KSCCL before deputation in this regard. KSCCL reserves the right to carry out background verification of the personnel proposed on the Project for verification of criminal record, at the beginning of deployment or during deployment.

v. The successful bidder shall have to provide replacement for any employee who is either leaving the firm / not suitable for assignment. The replacement personnel should be of the same or higher technical capabilities and with prior approval from KSCCL.

vi. All the manpower shall have to undergo training from the successful bidder for at least 15 working days on the working of project. Training should also cover dos & don'ts and will have few sessions from the KSCCL and Police Department officers on right approaches for monitoring the feeds & providing.

vii. Please note that it is a minimum requirement for the manpower deployment, bidder is free to deploy additional resources by keeping KSCCL informed about their deployment.

Sr. No.	Designation	Qty	Roles & Responsibilities	Desired Qualification
1	Storage and Backup Engineer	1	• Backup of operating system, database and application as perstipulated policies. • 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 wheneverrequired. • Real-time monitoring, log maintenance and reporting of backupstatus on a regular basis. Prompt problem resolution in case of failuresin the backup processes. • Media management including, but not limited to, tagging, cross- referencing, storing, Retrieving, archival logging, testing, and vaultingin fire proof cabinets.	• BE/B.Tech/MCA in computer science/ IT • 5+ years of Post Qualification experience • 3+ years of experience in NAS/ SAN or TMS backup environment
2	CCTV expert	1	• Should be responsible for configuring (if required), monitoring & managingentire CCTV surveillance network • Able to configure alerts, analytics & manage Video management software. • Should be responsible for monitoring of adherence to defined SLA for system by making effective utilization of CCTV surveillance	• Diploma/BE/ B.Tech or higher • 4+ Years of Post Qualification Experience in large scale (min.500 IP cameras surveillance) of CCC operation comprisingof VMS, Video analytics.
3	L1 support engineer (24*7*365)	As per req	• Should be responsible to coordinate with multiple teams to ensure SLAcompliance of all the field devices • Should monitor all the alerts of field devices and support in routine ICCCoperations	• B.E. / B.Tech of higher • 2+ years of Post qualification experience in ICT domain

29.4 Deliverables

The operational aspects of project need to be handled by the Bidder including maintaining weekly statuses, minutes of the meetings, weekly/monthly/project plans, etc. Relevant stake holders will meet formally on a weekly or agreeable duration covering, at a minimum, the following agenda items:

- Preventive Maintenance Report (Monthly)
- Performance and SLA compliance reports
- Monthly and / or Quarterly SLA report
- Monthly attendance Reports of all the resources deployed, generated through biometric attendance capturing device
- Current scenario of each site with actual image of site at an interval of 3 month
- Unresolved and escalated issues
- Project risks and their proposed mitigation plan
- Any other issues that either party wishes to add to the agenda
- All the licenses,Warrenties,Support and support portal for Case login including RMA portals should be on ksccl name and on ksccl provided authority mail id only any such deviation is not acceptable

Bidder to share periodic report with highlighting open issues to KSCCL. Report should include all the issues including the one which is outside the purview of the implementation agency. Such periodic report shall he in KSCCL take informed decision, as per the on-ground requirement.
-Bidder should share the work done for the open issues to KSCCL like coordination with the departments for issue resolution.

29.5 Exit Management Plan

i. The implementation agency shall provide the Kakinada Smart City Corporation Limited or its nominated agency with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the MSA as a whole and in relation to the Project Implementation, and the Operation and Management SLA.
   a. A detailed program of the transfer process that could be used in conjunction with a replacement implementation agency 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
   b. Plans for the communication with such of the implementation agency's sub-Bidders, staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on the Kakinada Smart City Corporation Limited 's operations as a result of undertaking the transfer
   c. (if applicable) proposed arrangements for the segregation of the implementation agency' s networks from the networks employed by Kakinada Smart City Corporation Limited and identification of specific security tasks necessary at termination;
   d. Plans for provision of contingent support to Kakinada Smart City Corporation Limited, and replacement implementation agency for a reasonable period after transfer.

ii. The terms of payment as stated in the Terms of Payment Schedule include the costs of the implementation agency complying with its obligations under this Schedule.

iii. In the event of termination or expiry of MSA, and Project Implementation, each Party shall comply with the Exit Management Plan.

iv. During the exit management period, the implementation agency shall use its best efforts to deliver the services.

v. Exit Management plan shall be furnished in writing to the Kakinada Smart City Corporation Limited or its nominated agencies within 90 days from the Effective Date of this Agreement.

30 DELIVERABLE, TIMELINE &PAYMENT PROCESS

30.1 Project Deliverables, Timeline and Payment Process

The total duration of the Project shall be of 42 (forty two) months Kakinada Smart City O&M shall be distributed across two phases in accordance with the date of Go-live of respective systems.

Phase I Commencement from the date of issuance of Work order and duration for the same shall be for implementation for any new or additional items/ restoration of not working systems.

Phase II – Commencement from completion of implementation/ restoration phase of the Work order.

During the Phase II, successful bidder shall have to operate and maintain all the equipment of both Phase I and Phase II.

Sr No	Milestone	Timeline	Deliverable	Payment
1.		Implementation/Restoration from the date of the issue of the Work Order	Restore/Renew/New Installation and AMC, warranty and support documents from OEM's	1. 50% against Delivery on prorate basis 2. 20% against installation on prorate basis 3. 10% against Go-Live. 4. 10% against Completion of 1.5 years AMC 5. 10% against Completion of next 1.5 years AMC

Amount pertaining to the violation of Above deliverables, as stated in this document shall be levied from invoice payable to the successful bidder.

Note:

- The payment shall be made in accordance with the quantities defined in the financial bid of this RFP. Bidder shall be paid for the quantities which are live as on particular date. Further, if in case the quantity is reduced / increased during a specific Period, payment shall be made on actual basis only. Please note that payment shall be made in accordance with the quantity maintained during a particular period of time.
- Here "Delivery Milestone" refers to Supply of new Components/Equipment/Accessories/OEM Warranty Certificate required to restore the selected BOQ line items by KSCCL.
- Here "Installation Milestone" refers to Installation/Restoration of supplied/Existing Components/Equipment/Accessories/OEM Warranty Certificate required to restore the selected BOQ line items by KSCCL.
- Here "Go-live Milestone" refers to up and running all components mentioned in RFP BOQ. KSCCL reserves the right to arrange the user acceptance test to issue the go-live certificate.
- For better performance and to deliver the best quality of the products or services and revenue generation solutions upon the recommendations made for the Technical experts ,Officials, Implementing agency will be implemented within respective feasible of Project

30. SECTION 30: INSTRUCTIONS TO THEBIDDERS

30.1 Instructions to the bidder

- Bidders are advised to study all instructions, forms, terms, requirements and other information in the Bid Documents carefully.
- Every page of the proposal should necessarily be numbered and signed with seal.
- The bidder should not tamper the templates, and file types. If any additional information should be provided in a separate sheet where required.
- Submission of bid shall be deemed to have been done after careful study and examination of the Bid Document with full understanding of its implications.
- The response to this Bid Document should be full and complete in all respects. Failure to furnish all information required by the Bid Documents or submission of a proposal not substantially responsive to the Bid Documents in every respect will be at the bidder's risk and may result in rejection of its Proposal.
- Additionally, proposals of only those Bidders who satisfy the Conditions of Eligibility, stated herein, will be considered for evaluation by Kakinada Smart City Corporation Limited.
- KSCCL may request bidder(s) to submit their justification / additional documentary evidence during the evaluation of the bid to ascertain their qualification. However, KSCCL may not ask for any justification during the bid evaluation phase at its own discretion.

30.2 Purpose of Bid Document

The purpose of this tender is to select bidder to provide comprehensive Operation and Maintenance (O&M) services for 3 years.

In case a bidding firm possesses the requisite experience and capabilities required for undertaking the work, it may participate in the selection process individually (the "Sole Firm") in response to this invitation. The term "Bidder" means the bidding entity for this project. The manner in which the Proposal is required to be submitted, evaluated and accepted is explained in this RFP.

30.3 Proposal Preparation Cost

The bidder is responsible for all costs incurred in connection with participation in this process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation of proposal , in providing any additional information required by Kakinada Smart City Corporation Limited to facilitate the evaluation process, and in negotiating a definitive Contract or all such activities related to the bid process. The department will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

This Bid Document does not commit the Kakinada Smart City Corporation Limited to award a contract or to engage in negotiations. Further, no reimbursable cost may be incurred in anticipation of award. All materials submitted by the Bidder shall become the property of Kakinada Smart City Corporation Limited and may be returned at its sole discretion.

30.4 Queries (Online)

A prospective Bidder requiring any clarification on the RFP Document may submit his queries, via email, till 6 PM of

The queries should necessarily be submitted in the following format:

Bidders Request for Clarification			
Name and Address of the Organization submitting request		**Name and Position of Person submitting request**	**Contact Details of the Organization / Authorized Representative**
			Tel: Mobile: Email:
Sr. No.	RFP Document Reference (Section No., Page No.)	Content of the RFP requiring clarification	Clarification Sought
1			
2			

Queries submitted post the above-mentioned deadline or which do not adhere to the above-mentioned format may not be considered.

Bidders are requested to send their list of queries through an email communication on @gmail.com

30.5 Amendment of RFP Document

At any time before the deadline for submission of bids, the Kakinada Smart City Corporation Limited, may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the RFP Document by an amendment.

The bidders are advised to visit the, https://.com, on regular basis for checking necessary updates. Kakinada Smart City Corporation Limited also reserves the rights to amend the dates mentioned in this RFP for bid process.

In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Kakinada Smart City Corporation Limited may, at its discretion, extend the last date for the receipt of Bids.

30.6 Kakinada Smart City Corporation Limited's rights to terminate the selection process

Kakinada Smart City Corporation Limited may terminate the RFP process at any time and without assigning any reason thereof. Kakinada Smart City Corporation Limited makes no commitments, express or implied, that this process will result in a business transaction with anyone.

This RFP does not constitute an offer by Kakinada Smart City Corporation Limited.

The bidder's participation in this process may result in Kakinada Smart City Corporation Limited selecting the bidder to engage in further discussions and negotiations toward execution of a contract. The commencement of such negotiations does not, however, signify a commitment by the Kakinada Smart City Corporation Limited to execute a contract or to continue negotiations. Kakinada Smart City Corporation Limited may terminate negotiations at any time without assigning any reason.

30.7 Right to reject any proposal

Notwithstanding anything contained in this RFP, Kakinada Smart City Corporation Limited reserves the right to accept or reject any Proposal and to annul the Selection Process and reject all Proposals, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefore.

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

General Rejection criteria:

- Conditional Bids - If the information provided by the Bidder is found to be partial/ incorrect /misleading / fraudulent at any stage / time during the Tendering Process;
- Any effort on the part of a Bidder to influence the bid evaluation, bid comparison or contract awarddecisions;
- Bids received after the prescribed time & date for receipt of bids;
- Bids without signature of person (s) duly authorized on required pages of the bid;
- Bids without power of attorney/ board resolution or its certified true copy.
- Technical Rejection criteria
- Bidders not complying with the Eligibility Criteria given in this Tender
- Technical Bid containing commercial details;
- Revelation of Prices in any form or by any reason before opening the Commercial Bid;
- Failure to furnish all information required by the Tender Document or submission of a Bid not substantially responsive to the Tender Document in every respect;
- Bidders not quoting for the complete scope of work as indicated in the Tender Documents, addendum
- /Corrigendum (if any) and any subsequent information given to the Bidder;
- Bidders not complying with the Technical and General Terms and conditions as stated in the TenderDocuments;
- The Bidder not confirming unconditional acceptance of full responsibility of providing services in
- accordance with the scope of work and Service Level Agreements of this Tender;

Commercial Rejection Criteria

i. Incomplete price Bid;
ii. Price Bids that do not conform to the Tender's price bid format;
iii. Total price quoted by the Bidder does not include all statutory taxes and levies applicable;
iv. If there is an arithmetic discrepancy in the commercial Bid calculations the Technical Committee shallrectify the same. If the Bidder does not accept the correction of the errors, its Bid may be rejected.
v. Misrepresentation/ improper response by the Bidder may lead to the disqualification. If such disqualification / rejection occurs after the Proposals have been opened and the highest-ranking Bidder gets disqualified / rejected, then Kakinada Smart City Corporation Limited reserves the right to consider the next best Bidder, or take any other measure as may be deemed fit in the sole discretion of Kakinada Smart City Corporation Limited, including annulment of the Selection Process.

30.8 Bid Fee and Earnest Money Deposit (EMD) and amount

- The bidder should pay non-refundable Bid Fee of Rs. 20000 /- (Rupees Twenty- Thousand only) in favor of "MD PFMS SNA Kakinada Smart City Corporation Limited " payable at Kakinada, from Nationalized or Scheduled Banks, payable at Kakinada. The Bid fees shall be in the form of a Demand Draft / Banker's Cheque.
- The bidder should also submit Earnest Money Deposit (EMD) of Rs. 16,00,000 /- (Rupees sixteen Lacs only) in favor of MD PFMS SNA Kakinada Smart City Corporation Limited " from Nationalized or Scheduled

Banks, payable at Kakinada. The EMD shall be in the form of DD or BG with validity of 180 days beyond the original validity period for the bid.

- No interest will be payable by the Kakinada Smart City Corporation Limited on the Earnest Money Deposit (EMD).
- In case bid is submitted without EMD or Bid fees as mentioned above then Kakinada Smart City Corporation Limited reserves the right to reject the bid without providing opportunity for any further correspondence to the bidder concerned.
- The EMD of unsuccessful Bidders will be returned by the Authority, without any Interest, as promptly as possible on acceptance of the Proposal of the Selected Bidder or when the Authority cancels the Bidding Process.
- The Selected Bidder's EMD will be returned, without any interest, upon the Selected Bidder signing the Agreement and furnishing the Security Deposit / Performance Guarantee in accordance with the provision thereof
- The decision of Kakinada Smart City Corporation Limited regarding forfeiture of the EMD and rejection of bid shall be final & shall not be called upon question under any circumstances.
- The EMD may be forfeited:
    - If a Bidder withdraws their bid or increases their quoted prices during the period of bid validity or its extended period, if any; or
    - In the case of a successful bidder, if the Bidder fails to sign the Contract or to furnish Performance Bank Guarantee within specified time
    - During the bid process, if a Bidder indulges in any such deliberate act as would jeopardize or unnecessarily delay the process of bid evaluation and finalization.
    - During the bid process, if any information found wrong / manipulated / hidden in the bid.

30.9 Sealing, Marking and Submission of Technical Bid

The price bid must be submitted online on https://.com. It should not be sent physically, if submitted physically the bid shall be rejected.

Bidders are required to submit their technical bid in soft copy. Bidders are requested to upload a searchable soft copy on https://.com.

Pre-Qualification documents, Bid Fees and EMD with complete details as mentioned in RFP.

Each Bidder shall submit only one proposal containing documents as below.

- Original DD/BG of the Bid fee & EMD
- Pre-qualification criteria related documents
- Details of EMD & Tender fee shall be submitted in electronic format (by scanning) while uploading the bid. This submission shall mean that EMD & tender fees are received for purpose of opening the bid. Accordingly, offer/ tenders of those bidders whose EMD & tender fee is received electronically, However, for the purpose of realization of EMD and Tender fee, bidder shall send the EMD as well as Tender fee in required format in original through RPAD/ Speed Post/in person so as to reach to registered office of Kakinada Smart City Corporation Limited.
- Proposal should be signed by an authorized person of the bidder. It should be submitted along with a certified true copy of a board resolution/power of attorney empowering authorized signatory to sign/act/execute documents binding the bidder to the terms and conditions detailed in this proposal.
- Tenders by partnership firm must be signed by all partners. The full name and addresses of all the partners shall be furnished. The tenders by Corporation/ Companies must be signed with the legal name of the Corporation/ Company by the president/ or by the secretary or other person or persons legally authorized to bind the Corporation/ Company in the matter
- Proposals must be direct, concise, and complete. Kakinada Smart City Corporation Limited will evaluate bidder's

proposal based on its clarity and completeness of its response to the requirements of the project as outlined in this RFP. Kakinada Smart City Corporation Limited reserves the right to accept or reject any or all the proposals without assigning any reason.

- As per Rule 170(i) of General Financial Rules (GFR), 2017 the MSMEs are exempted to submit EMD, subject to meeting of technical specifications, technical qualification and quality specifications in accordance with the relevant provisions of GFR, 2005. The MSME Certificate must be valid on the date of the submission of the bid.
- Following documents shall only be submitted in HARD COPY to Kakinada Smart City Corporation Limited, Kakinada by all bidders.
- Earnest Money Deposit as mentioned in the tender/MSME Certificate
- Tender Fees as mentioned in the tender

Note: The EMD and the tender fee details should match the Details of the Original EMD and the Tender Fee DD/BG, failing which the bid shall be out rightly rejected

The large envelope must be sealed and super scribed containing above documents and shall be sent as under:

Details to be mentioned exactly on sealed envelop	
Tender Details **Notice No.: Tender** **Name** **Last date of Submission:**	To, The CEO & Managing Director , Kakinada Smart City Corporation Limited,

The Bid must be sent strictly by Postal Speed Post or Registered Post AD or in person by the representative of the bidder to Kakinada Smart City Corporation Limited. Documents received in any other manner or mode (like courier, email etc.) will not be considered. Kakinada Smart City Corporation Limited won't be responsible for any postal delays.

30.10 Late Bids

The Bids received after the due date and the specified time (including the extended period if any) shall not be entertained. The Bids submitted by telex/telegram/fax/e-mail etc. shall not be considered. No correspondence will be entertained on this matter. PURCHASER shall not be responsible for any delay or non- receipt/ non- delivery of the documents. No further correspondence on the subject will be entertained. PURCHASER reserves the right to modify and amend any of the above-stipulated condition/Criteria depending upon project priorities vis-à-vis urgent commitments.

For the online bid submission, it is advised that the SI takes all necessary precaution for the same, including submitting the Bid well in advance to avoid any last-minute hassles, ensuring that the names/ formats of the files to be uploaded are as per the e-tendering portal requirements, using the prescribed browser for upload etc. PURCHASER shall not entertain any bids which could not be uploaded or uploaded properly in the portal for whatsoever reasons.

30.11 General Instructions

a) *Language of Bids*

The Bids prepared by the Bidder and all correspondence and documents relating to the bids exchanged by the Bidder and Kakinada Smart City Corporation Limited, shall be written in English language, provided that any printed literature furnished by the Bidder in another language shall be accompanied by an English translation in which case, for purposes of interpretation on of the bid, the English translation

shall govern.

b) *Concessions permissible under statutes*

Bidder, while quoting against this tender, must take cognizance of all concessions permissible, if any, under the statutes and ensure the same is passed on to Kakinada Smart City Corporation Limited, failing which it will have to bear extra cost. In case Bidder does not avail concessional rates of leviеslike customs duty, excise duty, sales tax, etc. Kakinada Smart City Corporation Limited will not take responsibility towards this. However, Kakinada Smart City Corporation Limited may provide necessary assistance, wherever possible, in this regard.

c) *Bid Validity*

The proposal should be valid for acceptance for a minimum period of 180 days from the Bid Opening Date (the "Proposal Validity Period"). If required, Authority may request the bidder to have it extended for a further period. The request and the responses thereto shall be made in writing. A Bidder agreeing to the request will not be required or permitted to modify his proposal but will be required to extend the validity of EMD for the period of the extension, and in compliance with Clause in all respects.

d) *Taxes*

The Prices mentioned in the Price Bid should include all applicable taxes & duties as applicable.

GST

GST (Goods & Service Tax) has come in existence from 1st July, 2017. Bidder/Successful Bidder is bound to pay any amount GST prescribed by the Govt. of India as per the terms of Contract agreed upon during the course of execution of this Contract.

During the course of execution of Contract, if there is any change in Rate of GST (Goods & Service Tax) by the Government, the same shall be reimbursed/recovered separately by Kakinada Smart City Corporation Limited, subject to the submission of Original Receipt/Proof for the amounts actually remitted by the Successful Tendered/Bidder to the Competent Authority along with a Certificate from Chartered Accountant of Bidder/Successful bidder certifying that the amount of GST paid to the Government and the same shall be intimated/submitted/claimed within 30 (Thirty) Days from the date of payment. Remittance of GST within stipulated period shall be the sole responsibility of the Successful bidder/Bidder, failing which, Kakinada Smart City Corporation Limited may recover the amount due, from any other payable dues with Kakinada Smart City Corporation Limited and decision of Kakinada Smart City Corporation Limited shall be final and binding on the Bidder/Successful Bidder in this regard. Further the non- payment of GST to the Government may lead to the termination of contract and forfeiture of Security Deposit/Performance Guarantee Amount.

If imposition of any other new Taxes/Duties/Levies/Cess or any other incidentals etc. or any increase in the existing Taxes/Duties/Levies/Cess or any other incidentals etc. (excluding GST) are imposed during the course of the contract, the same shall be borne by the Bidder/Successful Bidder Only, in no case Kakinada Smart City Corporation Limited shall be liable for the same.

e) *Firm Prices and Bid Currency*

Prices quoted must be firm and final and shall not be subject to any upward modifications, on any account whatsoever. Prices shall be expressed in Indian Rupees (INR) only.

f) *Right to vary the scope of the work at the time of award*

Kakinada Smart City Corporation Limited reserves its right to make changes to the scope of the work at the time of execution of the resultant Agreement. If any such change causes an increase or decrease in the cost of, or the time required for the SI's performance of any part of the work under the Agreement, whether changed or not changed by the order, an equitable adjustment (if required) shall be made in the Contract Value or time schedule, or both, and the Agreement shall accordingly be amended. Any claims by the SI for adjustment under this Clause must be asserted within thirty (30) days from the date of the SI's receipt of the Kakinada Smart City Corporation Limited changed order.

g) *Modification or Withdrawal of Bids*

A Bidder wishing to withdraw its bid shall notify Kakinada Smart City Corporation Limited by -email prior to the deadline prescribed for bid submission. A withdrawal notice may also be sent by electronic means such as e-mail, but it must be followed by a signed confirmation copy, postmarked atleast one day prior the deadline for submission of bids.

The notice of withdrawal shall be addressed to Kakinada Smart City Corporation Limited at the address named in the bid Data Sheet, bear the Contract name, the <Title> and < bid No.>, and the words "bid Withdrawal Notice."

Bid withdrawal notices received after the bid submission deadline shall be ignored, and the submitted bid shall be deemed to be a validly submitted bid.

No bid may be withdrawn in the interval between the bid submission deadline and the expiration of the specified bid validity period. Withdrawal of a bid during this interval may result in the forfeiture of the Bidder's EMD.

h) *Performance Bank Guarantee*

The successful bidder shall at his own expense, deposit with department, within 15 days of the notification of award (done through issuance of the Purchase Order/Letter of Acceptance/Letter of Intent), an unconditional and irrevocable Performance Bank Guarantee (PBG) from Nationalized or Scheduled Banks in favor of "Kakinada Smart City Corporation Limited" for the due performance and fulfilment of the contract by the bidder.

The SI shall submit performance bank guarantee separately for Restoration phase and CAMC. The performance bank guarantee must be 3% of the Restoration Phase and separate 3% for CAMC phase which is effective from the start of CAMC Period. The performance bank guarantee must be unconditional & irrevocable bank guarantee.

All charges whatsoever such as premium, commission, etc. with respect to the Performance Bank Guarantee shall be borne by the bidder.

The successful bidder shall maintain a valid and binding Performance Guarantee for a period of three months after the expiry of the Contract Period ("Validity Period") i.e. Phase Period plus 3 months.

The Performance Bank Guarantee letter format can be found in the Section XXXX of this document. The Performance Bank Guarantee may be discharged/ returned by department upon being satisfied that there has been due performance of the obligations of the Bidder under the contract. However, no interest shall be payable on the Performance Bank Guarantee.

If the Bidder, fails to furnish the Performance Guarantee, it shall be lawful for the Authority to forfeit the EMD and cancel the contract or any part thereof

In the event of the Bidder being unable to service the contract for whatever reason or receive frequent complaints from citizens / authority, Kakinada Smart City Corporation Limited would evoke the entire PBG. Notwithstanding and without prejudice to any rights whatsoever of Kakinada Smart City Corporation Limited under the Contract in the matter, the proceeds of the PBG shall be payable to Kakinada Smart City Corporation Limited as compensation for any loss resulting from the Bidder' s failure to complete its obligations under the Contract Kakinada Smart City Corporation Limited shall notify the Bidder in writing of the exercise of its right to receive such compensation within 14 days, indicating the contractual obligation(s) for which the Bidder is in default.

Kakinada Smart City Corporation Limited shall also be entitled to make recoveries from the Bidder 's bills, performance bank guarantee, or from any other amount due to him, the equivalent value of any payment made to him due to inadvertence, error, collusion, misconstruction or misstatement.

i) *Work Order/ Purchase Order*

For entire operation and maintenance work to be carried out in the Kakinada Smart City Corporation Limited under this contract, the contract will be signed with Kakinada Smart City Corporation Limited and the work order will be issued by the Kakinada Smart City Corporation Limited.

j) *Validity Period of the Contract*

Upon selection of the bidder and the contract is made, the validity of the Bidder contract period would be valid till 3 Years after go-live from restoration phase, unless revoked for whatever reasons. If at any stage during the tenure of the period, it comes to the notice of Kakinada Smart City Corporation Limited, directly or through some other complaint, that the Bidder had misinterpreted the facts or submitted any false information or hidden any information, which could have affected the signing of this agreement with the Bidder, this agreement shall stand terminated immediately under intimation to the Bidder.

The contract would be subjected to review at the end of its validity period for renewal. If any need, necessities for such review during the validity period would be considered by Kakinada Smart City Corporation Limited on its merit.

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k) *Governing Law*

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

l) *Restriction on Transfer of Agreement*

The Bidder shall not assign or transfer its right in any manner whatsoever under this agreement to a third party or enter into any agreement for sub-contracting and/or partnership relating to any subject matter to the agreement to any third party or any sister-concerned firm within a group either in whole or in any part i.e., partnership/third party interest shall be created.

Failure to agree with the Terms & Conditions of the Bid Document/ Contract

Failure of the bidder to agree with the Terms & Conditions of the Bid Document/Contract shall constitute sufficient grounds for the annulment of the award of contract, in which event the contract may be awarded to the next most responsive bidder.

Terms and Conditions of the Tender

Bidder is required to refer to the draft Contract Agreement, attached as Annexure XXX in this Bid Document, for all the terms and conditions to be adhered by the successful bidder during Project Implementation and Post implementation period.

Please note that one needs to read the Contract Agreement as a whole document; and the Annexure mentioned there-in may not correspond to the Bid Document Annexure. Please refer to the Interpretation Section of the Draft/Master Service Agreement.

m) *Liability*

Except as provided in this Agreement, hereinabove, neither party shall be liable to other party or any other party by virtue of termination of this Agreement for any reason whatsoever for any claim for loss or profit or on account for any expenditure, investment, leases, capital improvements or any other commitments made by the other party in connection with their business made in Ms/ KSCCL upon or by virtue of this Agreement.

n) *Force Majeure*

Force Majeure shall not include any events caused due to acts/omissions of MSI resulting in a breach/contravention of any of the terms of the Contract and/or MSI's Bid. It shall also not include any default on the part of MSI due to its negligence or failure to implement the stipulated/proposed precautions, as were required to be taken under the Contract. The failure or occurrence of a delay in performance of any of the obligations of either party shall constitute a Force Majeure event only where such failure or delay

could not have reasonably been foreseen i.e. it is caused due to events beyond the control of such Party like war, or hostility, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restriction, strikes, lockouts or act of God (hereinafter referred to as events). In such an event, the affected party shall inform the other party in writing within five days of the occurrence of such event. Any failure or lapse on the part of MSI in performing any obligation as is necessary and proper, to negate the damage due to projected force majeure events or to mitigate the damage that may be caused due to the above-mentioned events or the failure to provide adequate disaster management/recovery or any failure in setting up a contingency mechanism would not constitute force majeure, as set out above. In case of a Force Majeure, all Parties shall endeavour to agree on an alternate mode of performance in order to ensure the continuity of service and implementation of the obligations of a party under the Contract and to minimize any adverse consequences of Force Majeure. The Party affected by the Force Majeure event shall use reasonable efforts to mitigate the effect of the event of force majeure upon its or their performance of the Contract and to fulfil its obligations under the Contract. The affected Party shall notify the other Party of a Force Majeure event within seven days of occurrence of the same. Upon cessation of the force majeure event, the aggrieved Party shall notify the other Party in writing of the cessation and the Parties shall as soon as practicable thereafter resume performance of all obligations under the Contract.

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o) *Resolution of Dispute*

The Kakinada Smart City Corporation Limited and the Bidder shall make every effort to resolve amicably, by direct informal negotiation, any disagreement or dispute arising between them under or in connection with the contract. If after thirty days from the commencement of such informal negotiations, the Kakinada Smart City Corporation Limited and the Bidder have been unable to resolve amicably a contract dispute; either party may require that the dispute be referred for resolution by formal arbitration.

All questions, disputes or differences arising under and out of, or in connection with the contract, shall be referred to two Arbitrators: one Arbitrator to be nominated by the Kakinada Smart City Corporation Limited and the other to be nominated by the Bidder. In the case of the said Arbitrators not agreeing, then the matter will be referred to an umpire to be appointed by the Arbitrators in writing before proceeding with the reference. The award of the Arbitrators, and in the event not agreeing, the award of the Umpire appointed by them shall be final and binding on the parties. The Arbitration and Reconciliation Act 1996 shall apply to the arbitration proceedings and the venue of the arbitration shall be Kakinada. Cost of arbitration shall be borne by each party proportionately. However, expenses incurred by each party in connection with the preparation, presentation shall be borne by the party itself. The provisions of this clause shall survive termination of this Agreement.

p) *Discount*

The SIs are advised not to indicate any separate discount in the Financial Bid. Discount, if any, should be merged with the quoted prices. Discount of any type, indicated separately, shall not be considered for evaluation purpose. However, in the event of such an offer is found to be the lowest without considering the discount, the Purchaser shall avail such discount at the time of award of contract.

q) *Site visit and verification of information*

SIs are encouraged to submit their respective Bids after doing a thorough survey of project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, access to site, handling of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them.

It shall be deemed that by submitting a Bid, the SI has made a complete and careful examination ofthe Bidding Documents;

- **Revamp of the ICCC** in all respects ceiling, flooring, power, Lighting, safety equipment's, security equipment's etc. The bidder must take complete view of the ICCC and quote accordingly.
- Received all relevant information requested from the Authority

- Accepted the risk of inadequacy, error or mistake in the information provided in the Bidding Documents or furnished by or on behalf of the Authority relating to any of the matters;
- Satisfied itself about all matters, things and information including matters herein above necessary and required for submitting an informed Bid, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder;
- Acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any shall not be abasis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Authority, or a ground for termination of the Concession Agreement by the Concessionaire
- Acknowledged that it does not have a Conflict of Interest; and agreed to be bound by the undertakings provided by it under and in terms hereof.

r) *Safety Regulation, Accident and Damage*

The SI shall be responsible at his own cost in and relative to performance of the work and SI to observe and to ensure observance by his Sub-selected vendors, agents and servants of the provisions of Safety Code as hereinafter appearing and all fire, Safety and security regulations as may be prescribed by the Owner from time to time and such other Precautions, measures as shall be necessary and shall employ / deploy all equipment necessary to protect all works, materials, properties, structures, equipment's, installations, communications and facilities whatsoever from damage, loss or other hazard whatsoever (including but not limited to fire and explosion) and shall during construction and other operations minimize the disturbance and inconvenience to the Owner, other SIs, the public and adjoining land and property owners and occupiers, and crops, trees and vegetation and shall indemnify and keep indemnified the One from and against all losses and damages and costs, charges and expenses and penalties, actions, claims , demands and proceedings whatsoever suffered or incurred by or against the Owner, as the case may be, virtue of any loss, alteration, displacement, disturbance or destruction or accident to any works materials, properties, structures, equipment's, installations communications and facilities and land and property owners and occupiers and crops, trees and vegetation as aforesaid, with the intent that the SI shall be exclusively responsible for any accident, loss, damage, alteration, displacement, disturbance or destruction as aforesaid resultant directly or indirectly from any breach by the SI of his obligation aforesaid or upon any operation, act or omission of the SI his Sub-selected vendor(s) or agent(s) or servant(s).

The SI's liabilities under Clause (a) and otherwise under the Contract shall remain unimpaired notwithstanding the existence of any storage cum erection or other insurance covering any risk, damage, loss or liability for which the SI is liable to the Owner in terms of the foregoing Sub-Clause or otherwise and / or in respect of which the SI has indemnified the Owner with the intent that notwithstanding the existence of such insurance, the SI shall be and remain fully liable for all liabilities and obligations under the contract and indemnified to the Owner, and the Owner shall not be obliged to seek recourse under such policy(ies) in preference to recourse against the SI or otherwise to exhaust any other remedy in preference to the remedies available to in under the Contract prior written approval of KSCCL. However, even if the work is sub- contracted / outsourced, the sole responsibility of the work shall lie with the SI. The SI shall be held responsible for any delay/error/non-compliance etc. of its sub-contracted vendor. The details of the sub- contracting agreements (if any) between both the parties would be required to be submitted to KAKINADA.

s) *Ownership and Licenses*

The ownership of all hardware/software developed/customized/ configured/ procured as part of the project and related documentation for the project would always lie with the KAKINADA Smart city Corporation Limited . All licenses for software procured related to project have to be in the name of Kakinada Smart city Corporation Limited . The SI will be required to produce the Licenses/ATS/Warranty and other documents from the respective OEMs clearly mentioning the product name, quantity, duration, type of support, etc. The payment for the respective item will be subject to submission of the aforesaid documents to KAKINADA Smart city Corporation Limited.

t) *Resolution of Dispute*

The Kakinada Smart City Corporation Limited and the SI shall make every effort to resolve amicably, by direct informal negotiation, any disagreement or dispute arising between them under or in connection with the contract. If after thirty days from the commencement of such informal negotiations, the Kakinada Smart City Corporation Limited and the SI have been unable to resolve amicably a contract dispute; either party may require that the dispute be referred for resolution by formal arbitration.

All questions, disputes or differences arising under and out of, or in connection with the contract, shall be referred to two Arbitrators: one Arbitrator to be nominated by the Kakinada Smart City Corporation Limited and the other to be nominated by the SI. In the case of the said Arbitrators not agreeing, then the matter will be referred to an umpire to be appointed by the Arbitrators in writing before proceeding with the reference. The award of the Arbitrators, and in the event of their not agreeing, the award of the Umpire appointed by them shall be final and binding on the parties. The Arbitration and Reconciliation Act 1996 shall apply to the arbitration proceedings and the venue of the arbitration shall be Kakinada. Cost of arbitration shall be borne by each party proportionately. However, expenses incurred by each party in connection with the preparation, presentation shall be borne by the party itself. The provisions of this clause shall survive termination of this Agreement.

u) *Consortium/Joint Venture*

Consortium is not allowed for this bid.

30.12 Sub-contracting

The bidder would not be allowed to sub-contract work, except for the following:

- Cabling and fixtures work, and all civil work, Electrical work etc. during project

Sub-contracting of the above or any other aspect of the scope of work by the bidder shall be allowed only with prior written approval of Authority. However, even if the work is sub-contracted, the sole responsibility of the work shall lie with the bidder. The bidder shall be held responsible for any delay/error/non-compliance etc. of its sub-contracted vendor. The details of the sub-contracting agreements (if any) between both the parties would be required to be submitted to Authority.

30.13 Additional Quantity/Change Request

a. Kakinada Smart City Corporation Limited reserves its right to award additional quantity of work order up to 30% of the original quantity (as per state and central govt. guideline) at the same price and terms and conditions quoted in original contract.
b. Kakinada Smart City Corporation Limited also reserves right to award change request work order up to 30% of the original project cost for the work needed to execute the work defined in scope of work defined in original contract
c. Payment for Additional items/Change request

– Based on the final project plan or during the project duration if there is need for additional items and Based on the final project plan or during the project duration if there is need for additional items and there is variation in the quantities as defined in the financial bid, implementation SI will be required to arrange additional items. Payment for such additional items may be adjusted the changed BOQ line items identified by KSCCL if not done separately by Kakinada Smart City Corporation Limited.

d. In such case of any additional requirement, payment will be done based on the rate provided in the financial bid of the Implementation SI. Payment shall be made on a pro rata basis for the remaining days of the quarter and from the forthcoming quarter, it shall be made as per the commercial bid submitted by the bidder.

30.14 Extension of the Contractual duration

- Contractual duration for this engagement is 3 years from m the date of issuance of the work order. This operation and maintenance work may be extended further for another 3 years or as per the mutual agreement basis the satisfactory performance of the bidder. The commercials shall be finalized at the mutual agreed terms for this extension. However, please note that this extension shall be granted at sole discretion of KAKINADA.

30.15 Termination of Contract

Termination of Contract Kakinada Smart City Corporation Limited may, without prejudice to any other remedy under this Contract and applicable law, reserves the right to terminate for breach of contract by providing a written notice of 30 days stating the reason for default to the SI and as it deems fit, terminate the contract either in whole or in part in the following ways.

- Termination by Default: for failing to perform obligations under the Contract of if the quality is not upto the specification or in the event of non-adherence to time schedule.
- Termination for Convenience: Kakinada Smart City Corporation Limited by written notice sent to the SI, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of

termination shall specify that the termination is for Kakinada Smart City Corporation Limited's convenience, the extent to which performance of the SI under the Contract is terminated, and the date upon which such termination becomes effective.

- Termination for Non-Performance: If the SI fails to deliver any or all of the project requirements / operationalization / performance parameters (PERFORMANCE STANDARDS) of the project within the time frame specified in the contract; or If the SI fails to perform any other obligation(s) under the contract.
- Under any point of time SI is not having rights to close or cancel the warranties which has been procured

- Termination for Insolvency/NCLT proceedings: The Department may at any time terminate the contract by giving written notice to the SI(s), if the SI(s) becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the SI(s), provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Department. SI agrees to handover all requisite data in terms of code, documents, etc. along with requisite to the office of the Kakinada Smart City Corporation Limited identified team in this case.

Prior to providing a notice of termination to the SI, Kakinada Smart City Corporation Limited shall provide the SI with a written notice of 30 days instructing the SI to cure any breach/ default of the Contract, if Kakinada Smart City Corporation Limited is of the view that the breach may be rectified.
On failure of the SI to rectify such breach within 30 days, Kakinada Smart City Corporation Limited may terminate the contract by providing a written notice of 30 days to the SI, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to Kakinada Smart City Corporation Limited. In such event the SI shall be liable for penalty/liquidated damages imposed by the Kakinada Smart City Corporation Limited. The performance Guarantee shall be forfeited by the Kakinada Smart City Corporation Limited.

Consequences of Termination

- In the event of termination of this contract, Kakinada Smart City Corporation Limited is entitled to impose any such obligations and conditions and issue any clarifications as may be necessary to ensure an efficient transition and effective continuity of the services which the SI shall be obliged to comply with and take all available steps to minimize the loss resulting from that termination/ breach, and further allow and provide all such assistance to Kakinada Smart City Corporation Limited and/ or succeeding vendor, as may be required, to take over the obligations of the SI in relation to the execution / continued execution of the requirements of this contract.
- In the event of termination of this contract, Kakinada Smart City Corporation Limited shall have ownership over entire volume of delivered & installed software and hardware irrespective payment made to successful SI. The payments due to be paid as per the agreed terms.
- In the event of the SI being unable to service the contract for whatever reason, Kakinada Smart City Corporation Limited would evoke the PBG. Notwithstanding and without prejudice to any rights whatsoever of department under the Contract in the matter, the proceeds of the PBG shall be payable to department as compensation for any loss resulting from the SI's failure to complete its obligations under the Contract. Department shall notify the SI in writing of the exercise of its right to receive such compensation within 14 days, indicating the contractual obligation(s) for which the SI is in default.
- Kakinada Smart City Corporation Limited shall also be entitled to make recoveries from the SI's bills, performance bank guarantee, or from any other amount due to him, the equivalent value of any payment made to him due to inadvertence, error, collusion, misconstruction or misstatement

- All plans, drawings, specifications, designs, reports, other documents prepared by the Vendor shall remain the property of Kakinada Smart City Corporation Limited and before termination or expiration of this contract the SI shall deliver all such documents, prepared under this contract along with a detailed inventory including available or existing AMC, warranties and Support from the OEM's thereof, to Kakinada Smart City Corporation Limited.

SECTION 31: Annexures

31 Annexure A: Technical Bid Format

31.1 Checklist for Pre-Qualification and Technical Qualification Document

<<To be printed on bidder company's letterhead and signed by Authorized signatory>>

Sr. No.	Documents to be submitted	Submitted(Y / N)	Documentary Proof (Page No.) of Proposal
i.	Bid Processing Fee (DD) as per RFP		
ii.	Bid Security EMD (DD/BG)/MSME Certificate as per RFP		
iii.	Technical Bid Cover letter		
iv.	Technical Proposal		
v.	Power of attorney / board resolution to the authorized Signatory of the RFP		
vi.	Copy of Certificate of Incorporation/Registration certificate/ Shop & Establishment Certificate		
vii.	Bidder Profile on their letterhead		
viii.	Copy of Audited Balance Sheet and Profit and loss statement for last three financial years		
ix.	Supporting Documents like Rent Agreement/ Electricity Bill / Self-Declaration on Company's Letter head to be submitted for Local Office in Kakinada. OR undertaking from authorized signatory to open the local office within 60 days from issuance of LOI to be submitted		
x.	Copy of GST registration		
xi.	Copy of PAN registration		
xv.	Self-declaration by the Bidder duly signed and stamped by the authorized signatory - Not be insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoingreasons		
xvi.	Self-declaration by the Bidder duly signed and stamped by the authorized signatory - Not have their directors and officers convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified.		

Note:
All technical bid document(s)/ details should be duly sealed & signed as required.

In case of the deviation in the authorization letter by the manufacturer & forwarding letter; the price bid of such bidder will not be opened.

Any conditional mention regarding any technical details or prices in any document(s)/ forwarding letter; price bid of such bidder will not be opened.

31.2 Technical Bid Cover Letter

<<To be printed on bidder company's letterhead and signed by Authorized signatory>>Date:

dd/mm/yyyy

To
The CEO & Managing Director,

Subject: Selection of an Agency for Operation and Maintenance of smart city at Kakinada

Reference: Tender No :<No> Dated<DD/MM/YYYY>

Dear Sir/ Madam,
Having examined the Bid Document (and the clarification / corrigendum issued thereafter, if any), the receipt of which is hereby duly acknowledged, we, the undersigned, offer to provide the professional services as required and outlined in the Bid Document for the "Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada City".

We attach hereto our responses to Technical-Qualification & Commercial proposals as required by the Bid Document. We confirm that the information contained in these responses or any part thereof, including the exhibits, and other documents and instruments delivered or to be delivered to Kakinada Smart City Corporation Limited is true, accurate, verifiable and complete. This response includes all information necessary to ensure that the statements therein do not in whole or in part mislead Kakinada Smart City Corporation Limited in its shortlisting process.

We fully understand and agree to comply that on verification, if any of the information provided here is found to be misleading the selection process, we are liable to be dismissed from the selection process or termination of the contract during the project, if selected to do so.

We agree for unconditional acceptance of all the terms and conditions set out in the Bid Document (& subsequent clarification / corrigendum, if any) document and also agree to abide by this tender response for a period of 180 days from the Bid Opening date. We hereby declare that in case the contract is awarded to us, we shall submit the contract performance guarantee bond in the form prescribed the Bid Document.

We agree that you are not bound to accept any tender response you may receive. We also agree that you reserve the right in absolute sense to reject all or any of the products/ services specified in the tender response.

It is hereby confirmed that I/We are entitled to act on behalf of our company/ corporation/ firm/ organization and empowered to sign this document as well as such other documents, which may be required in this connection.

Signature of Authorized Signatory (with official seal)
Name :
Designation :
Address :
Telephone :
E-mail address :

31.3 Bidder Information Format

<<To be printed on bidder company's letterhead and signed by Authorized signatory>>

To whomsoever it may concern,

Please find below the details of bidder for participation in Selection of an Agency for Operation and Maintenance (O&M) of Smart City in Kakinada City.

#	Particulars	Bidder
1	Name of the organization	
2	Type of Organization (Pvt. Ltd/ Public Limited)	
3	Address of Registered office	
4	Company Registration Details	
5	Date of Registration	
6	PAN	
7	GST	
8	Number of years of operations in India	
9	Authorized Signatory Name	
10	Authorized Signatory Designation	
11	Authorized Signatory Contact Details	
12	Authorized Signatory email ID	

Yours Sincerely,

Signature of Authorized Signatory (with official seal)
Name :
Designation :
Address :
Telephone :
E-mail address :

Note: To be submitted with any other supporting details specified as Document Proof in Section 3

31.4 Bidders' Annual turnover over in last 3 financial years

<<To be printed on bidder company's letterhead and signed by Authorized signatory>>

Date: dd/mm/yyyy

To,
The CEO & Managing Director,

Subject: Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada city. Sir/

Madam,
I have carefully gone through the Terms & Conditions contained in the RFP Document Selection of Bidder for Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada city.

I hereby declare that below are the details regarding Overall turnover over last 3 financial years for our organization

#	Details	FY 2020-21 (i)	FY 2021-22 (ii)	FY 2022-23 (iii)	Average Turnover [(i)+(ii)+(iii)/3]
1	Overall Annual Turnover- Bidder				

Contact Details of officials for future correspondence regarding the bid process:

Details	Authorized Signatory	Secondary Contact
Name		
Title		
Company Address		
Mobile/ Telephone		
Email Id		

I further certify that I am competent officer in my company to make this declaration. Yours

Sincerely,

Signature of Authorized Signatory (with official seal)
Name :
Designation :
Address :
Telephone :
E-mail address :

Note: To be submitted with any other supporting details specified as Document Proof in Section 3 of RFP.

31.5 Auditor's/CA Certificate for turnover for bidder

Date: dd/mm/yyyy

This is to certify that the Annual Turnover as per books and records of_____for the following financial years are as under.

#	Financial Year Ending	Annual Turnover (INR)
1.	31st March, 2021	
2.	31st March, 2022	
3.	31st March, 2023	
	Average Turnover	

I further certify that I am competent officer in my company to make this declaration. Yours

Sincerely,

Signature of Auditor (with official seal)
Name :
Designation :
Address :
Telephone :
E-mail address :

31.6 Self-Declaration – No Blacklisting

<<To be printed on company's letterhead and signed by Authorized signatory>>

Date: dd/mm/yyyy

To

The CEO & Managing Director,

Sir/Madam,
In response to the Tender Ref. No._____dated_____for Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada city, as an owner/ partner/ Director of _____, I/ We hereby declare that presently our Company/ firm _____is having unblemished record and is not declared ineligible for corrupt and fraudulent practices either indefinitely or for a particular period of time by any State/ Central Government/ PSU.

We further declare that presently our Company/ firm_____is not blacklisted and not declared ineligible for reasons other than corrupt and fraudulent practices by any State/ Central Government/ Urban Local Body / PSU in India as on the date of bid submission.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our security may be forfeited in full and the tender if any to the extent accepted may be cancelled.

Name of the Bidder :
Authorized Signatory :
Seal of the Organization: Business
Address :
Date :
Place :

31.7 Bank Guarantee format for EMD

FORMAT OF THE UNCONDITIONALAND IRREVOCABLE BANK GUARANTEE FOREARNEST MONEY DEPOSIT

(**To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.**)

THIS DEED OF GUARANTEE is executed on this [insert date] day of [insert month and year] at [insert place] by [insert name of bank] with its head/registered office at [insert address], (hereinafter referred to as the Guarantor, which expression shall unless it is repugnant to the subject or context thereof include successors and assigns)

IN FAVOUR OF:

KAKINADA SMART CITY CORPORATION LIMITED, a company incorporated under the (Indian) Companies Act, 2013, with its registered office at_____(hereinafter referred to as KSCCL, which expression shall, unless it be repugnant to the context or meaning thereof, include its successors-in-title and permitted assigns);

WHEREAS:

KSCCL has entered into a contract for providing Implementation services dated [insert date] (the Contract) with [insert name of Bidder], a company/firm [incorporated/registered] under the [insert name of the relevant statute under which the bidder has been incorporated or registered, as the case may be e], [with its [registered/principal] office at [_____]] (hereinafter referred to as the bidder, which expression shall, unless it be repugnant to the context or meaning thereof, include its successors-in - title and permitted assigns).

In terms of the Contract, the bidder has agreed to provide the Operation and Maintenance Services for 3 years for of Smart city in Kakinada city, which involve the use of technology, information and data to maintain infrastructure and services within the city of Smart city in Kakinada city, to implement the Smart city in Kakinada city, pursuant to the Request for Proposal dated [__] (referred to as the RFP) and other related documents including without limitation the draft Contract (collectively referred to as Bid Documents).

In terms of the letter of award / Intent (the LOA/ LOI) dated [insert date] issued by Client to the bidder and Clause I of the Contract, the bidder is required to furnish to KSCCL, an unconditional, irrevocable, on demand bank guarantee for an amount equivalent to Rs. [_____] [Insert amount equivalent to 5% of the Total Value of Contract] (the Guaranteed Amount) as security for the due and punctual performance or discharge of the bidder's obligations and liabilities under the Contract.

At the request of the bidder and for sufficient consideration, the Guarantor has agreed to provide an unconditional, irrevocable and on-demand bank guarantee, for the due and punctual performance or discharge by the Bidder of its obligations and liabilities under the Contract.

NOW THEREFORE THIS DEED WITNESSETH AS FOLLOWS:

1. Capitalized terms used herein but not defined shall have the meaning ascribed to them in the Contract.

2. The Guarantor hereby irrevocably and unconditionally guarantees and secures, as primary obligor and not merely as guarantor, to KSCCL the payment in full of all amounts at any time that may be due, owing or payable to

KSCCL from the Bidder for the failure of the Bidder to duly and punctually perform all of its obligations under the Contract during the term **(Guarantee)**, without any demur, reservation, protest or recourse, immediately on receipt of a demand from KSCCL.

The Guarantee is given on consideration received from the Bidder (the receipt and sufficiency of which is hereby acknowledged).

The Guarantor agrees that the value of the Guarantee shall at all times be maintained at the amount equivalent to the Guaranteed Amount.
The Guarantor further agrees that this Guarantee does not limit the number of claims that may be made by KSCCL against the Guarantor. Upon a payment being made under this Guarantee, the amount of the Guarantee shall automatically be replenished to the full Guaranteed Amount.

Any payment made hereunder shall be made free and clear of and without deduction for, or on account of, any present or future Taxes, deductions or withholdings of any nature whatsoever and by whomsoever imposed, and where any withholding on a payment is required by any Applicable Law, the Guarantor shall comply with such withholding obligations and shall pay such additional amount in respect of such payment such that KSCCL receives the full amount due hereunder as if no such withholding had occurred.

3. The Guarantor shall not go into the veracity of any breach or failure on the part of the Bidder or validity of demand so made by KSCCL and shall pay the amount specified in the demand notwithstanding any direction to the contrary given or any dispute whatsoever raised by the Bidder or any other Person. The Guarantor's obligations hereunder shall subsist until all such demands are duly met and discharged in accordance with the provision hereof.

4. The obligations of the Guarantor herein are absolute and unconditional, irrespective of the value, genuineness, validity, regularity or enforceability of the Contract or the insolvency, bankruptcy, re - organization, dissolution or liquidation of the Bidder or any change in ownership of the Bidder or any purported assignment by the Bidder or any other circumstance whatsoever, which might otherwise constitute a discharge or defense of a guarantor or a surety.

Further, this Guarantee is in no way conditional upon any requirement that KSCCL shall first attempt to procure the Guaranteed Amount from the Bidder or any other Person, or resort to any other means of obtaining payment of the Guaranteed Amount.

5. In order to give effect to this Guarantee, KSCCL shall be entitled to treat the Guarantor as the principal debtor. The obligations of the Guarantor under this Guarantee shall not be affected by any act, omission, matter or thing which, but for this provision, would reduce, release or prejudice the Guarantor from any part of the Guaranteed Amount or prejudice or diminish the Guaranteed Amount in whole or in part, including, whether or not known to it, or KSCCL:

a. any time or waiver granted to, or composition with, the Bidder or any other Person;

b. any incapacity or lack of powers, authority or legal personality of or dissolution or change in the status of the Bidder or any other Person;

c. any variation of the Contract so that references to the Contract in this Guarantee shall include e ach variation;

d. any unenforceability, illegality or invalidity of any obligation of any Person under the Contract or any unenforceability, illegality or invalidity of the obligations of the Guarantor under this Guarantee or the unenforceability, illegality or invalidity of the obligations of any Person under any other document or Guarantee, to the extent that each obligation under this Guarantee shall remain in full force as a separate,

continuing and primary obligation, and its obligations be construed accordingly, as if there was no unenforceability, illegality or invalidity;

e. the partial or entire release of any Guarantor or other Person primarily or secondarily liable or responsible for the performance, payment or observance of any of the Bidder's obligation s during the term of the Contract;

or by any extension, waiver, or amendment whatsoever which may re lease a guarantor or the Guarantor, other than performance or indefeasible payment of the Guaranteed Amount; or

f. Any part performance of the Contract by the Bidder or by any failure by KSCCL to timely pay or perform any of its obligations under the Contract.

6. If, and to the extent that for any reason the Bidder enters or threatens to enter into any proceeding s in bankruptcy or re-organization or otherwise, or if, for any other reason whatsoever, the performance or payment by the Bidder of the Guaranteed Amount become s or may reasonably be expected to become impossible, then the Guaranteed Amount shall be promptly paid by the Guarantor to KSCCL on demand.

7. So long as any amount is due from the Bidder to KSCCL, the Guarantor shall not exercise any right of subrogation or any other rights of a guarantor or enforce any guarantee or other right or claim against the Bidder, whether in respect of its liability under this Guarantee or otherwise or claim in the insolvency or liquidation of the Bidder or any such other Person in competition with KSCCL. If the Guarantor receives any payment or benefit in breach of this clause 7, it shall hold the same upon trust for KSCCL.

8. This Guarantee shall remain in full force and effect from the date hereof until 60 days beyond issuance of the Completion Certificate.
Notwithstanding the foregoing, this Guarantee shall continue in effect until the sums payable under this Guarantee have been indefeasibly paid in full and the Guarantor receives written notice thereof from KSCCL, such notice to be issued promptly upon such occurrence.

9. The Guarantor represents and warrants to KSCCL that:

a. it has the power to execute, deliver and perform the terms and provisions of this Guarantee and has taken all necessary action to authorize the execution, delivery and performance by it of this Guarantee;

b. the Guarantor has duly executed and delivered this Guarantee, and this Guarantee constitutes its legal, valid and binding obligation enforceable in accordance with its terms except as the enforceability thereof may be limited by applicable bankruptcy, insolvency, moratorium or other similar laws affecting the enforcement of creditors' rights generally and by general equitable principles;

c. neither the execution, delivery or performance by the Guarantor of this Guarantee, nor compliance by it with the terms and provisions hereof will: (i) contravene any material provision of any Applicable Law; (ii) conflict or be inconsistent with or result in any breach of any of the material terms, covenants, conditions or provisions of, or constitute a default under any agreement, contract or instrument to which the Guarantor is a party or by which it or any of its property or assets is bound; or (iii) violate any provision of the Guarantor' s constituent documents;

d. no order, consent, approval, license, authorization or validation of, or filing, recording or registration with, except as have been obtained or made prior to the date hereof, or exemption by, any governmental or public body or authority, or any subdivision thereof, is required to authorize, or is required in connection with: (i) the execution, delivery and performance of this Guarantee; or (ii) the legality, validity, binding effect or enforceability of this Guarantee; and

e. This Guarantee will be enforceable when presented for payment to the Guarantor' s branch in Kakinada at [__].

10. This Guarantee is a continuing one and all liabilities to which it applies or ma y apply under the terms hereof shall be conclusively presumed to have been created in Ms/ KSCCL hereon. No failure or delay on the part of KSCCL in exercising any right, power or privilege hereunder and no course of dealing between KSCCL and the Guarantor, or the Bidder, shall operate as a waiver thereof, nor shall any single or partial exercise of any
right, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any otherright, power or privilege.

11. The rights, powers and remedies expressly provided in this Guarantee are cumulative and not exclusive of any rights, powers or remedies which KSCCL would otherwise have. No notice to or demand on the Guarantor in any

case shall entitle the Guarantor to any other further notice or demand in similar or other circumstances or constitute a waiver of the rights of KSCCL to any other or further action in any circumstances without notice or demand.

12. If any one or more of the provisions contained in this Guarantee are or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby, and the Guarantor shall enter into good faith negotiations with KSCCL to replace the invalid, illegal or unenforceable provision.

13. The Guarantor hereby agrees to execute and deliver all such instruments and take all such actions as maybe necessary to make effective fully the purposes of this Guarantee.

14. This Guarantee may be executed in one or more duplicate counterparts, and when executed and delivered by the Guarantor and KSCCL shall constitute a single binding agreement.

15. KSCCL may assign or transfer all or any part of its interest herein to any other person with prior written notice to the Guarantor. The Guarantor shall not assign or transfer any of its rights or obligations under this Guarantee.

16. All documents arising out of or in connection with this Guarantee shall be served:

a. upon KSCCL, at [insert address]; and
b. upon the Guarantor, at [insert address].

17. Any demand, notice or communication would have been deemed to have been duly served:

a. if delivered by hand, when left at the proper address of services; and
b. if given or made by pre-paid registered post or facsimile, when received.

18. Either party may change the above address by prior written notice to the other party.

19. This Guarantee shall be governed by, and construed in accordance with, the laws of India. The Guarantor irrevocably agrees that any dispute arising out of or relating to this Guarantee may be brought in the courts in Kakinada.

IN WITNESS WHERE OF the Guarantor has set its hands hereunto on the day, month and year first hereinabove written.

Signed and delivered by [insert name of Bank] Bank, by [insert name of branch] Branch by hand of [insert name of signatory]
It's [insert designation] and duly authorized representative
Authorized by [Power of Attorney dated [insert date]] OR [Board resolution dated [insert date]].

31.8 Format for Power of Attorney for the Bidder

Whereas the Kakinada Smart City Corporation Limited has invited applications from interested parties for the Selection of **"**Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada city"

Whereas .....are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal (RFP document) and other connected documents in respect of the Project, and

Whereas, it is necessary to designate one of them as the Lead Member with all necessary power and authority to do for and, all acts, deeds and things as may be necessary in connection with the bid for the Project and its execution.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS

We, …….. Having our Registered office at .....,

hereby irrevocably designate, nominate, constitute, appoint and authorize Mr. / Ms. ..... , as the Lead Member and true and lawful attorney of us (hereinafter referred to as the "Attorney"). We hereby irrevocably authorize the Attorney (with power to sub-delegate) to conduct all business for us during the bidding process and, in the event of awarding the concession/contract, during the execution of the Project and in this regard, to do on our behalf, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification and submission of its bid for the Project, including but not limited to signing and submission of all applications, bids and other documents and writings, participate in SIs and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the bid and generally to represent us in all its dealings with the KSCCL, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the bid for the Project and/ or upon award thereof till the Concession Agreement is entered into with the KSCCL.

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

IN WITNESS WHEREOFWE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS …… DAY OF ……., 20….

For ……

(Signature)

……

(Name & Title)
For ……

(Signature)

……

(Name & Title)

Witnesses:

1.

2.

(Executants)

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 sorequired, the same should be under common seal affixed in accordance with the required procedure.*
- *Also, wherever required, the SI should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the SI.*
- *For a Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by SIs from countries that have signed the Hague Legislation Convention, 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate*

31.9 Format for Self-Declaration – Not insolvent

<<To be printed on company's letterhead and signed by Authorized signatory>>

Date: dd/mm/yyyy

To,

The CEO & Managing Director,

Sir/Madam,

In response to the Tender Ref. No._____dated_____for Selection of an Agency for Operation and Maintenance (O&M of Smart city in Kakinada city, as an owner/ partner/ Director of _____, I/ We hereby declare that presently our Company/ firm _____is having unblemished record and is not be insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoing reasons either indefinitely or for a particular period of time by any State/ Central Government/Urban Local Body/PSU.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/our security may be forfeited in full and the tender if any to the extent accepted may be cancelled.

Name of the Bidder :

Authorized Signatory :

Seal of the Organization: Business

Address :

Date :

Place :

31.10 Format for Self-Declaration – Not convicted in any criminal offense

<<To be printed on company's letterhead and signed by Authorized signatory>>

Date: dd/mm/yyyy

To,

The CEO & Managing Director,

Sir/Madam,

In response to the Tender Ref. No._____dated_____for Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada city, as an owner/ partner/ Director of_, I/ We hereby declare that presently our Company/ firm _____is having unblemished record and does not have our directors and officers convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified. e ither indefinitely or for a particular period of time by any State/ Central Government/ PSU.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our security may be forfeited in full and the tender if any to the extent accepted may be cancelled.

Name of the Consultant :

Authorized Signatory :

Seal of the Organization :

Business Address :

Date :

Place

32 Annexure C: Commercial Bid Format & Instructions

32.1 Commercial Bid Cover Letter

<<To be printed on letter head of Bidder and signed by Authorized signatory>>Date:

dd/mm/yyyy

To
The CEO & Managing Director,

Subject: Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada city. Reference: Tender No

:< No> Dated<DD/MM/YYYY>

Dear Sir/ Madam,
We, the undersigned Bidders, having read and examined in detail all the bidding documents in respect of "Selection of Bidder for Selection of an Agency for Operation and Maintenance (O&M) of Smart city in Kakinada city" do hereby propose to provide services as specified in the Bid Document referred above.

PRICE AND VALIDITY
All the prices mentioned in our Tender are in accordance with the terms as specified in the Tender documents. All the prices and other terms and conditions of this Tender are valid for entire contract duration.
We hereby confirm that our Tender prices include all taxes. Taxes are quoted separately under relevant sections, as specified in the Bid Document formats.

We have studied the clause relating to Indian Income Tax and hereby declare that if any income tax, surcharge on Income Tax, Professional and any other corporate Tax in altercated under the law, we shall pay the same.

DEVIATIONS
We declare that all the services shall be performed strictly in accordance with the Bid Documents and there are no deviations
Further we agree that additional conditions, if any, found in our bid documents, shall not be given effect to.

QUALIFYING DATA

We confirm having submitted the information as required by you in your Instruction to Bidders. In case you require any other further information/documentary proof in this regard before evaluation of our Tender, we agree to furnish the same in time to your satisfaction.

BID PRICE
We declare that our Bid Price is for the entire scope of the work as specified in the Bid Document. The bid price at which the contract is awarded shall hold good for entire tenure of the contract. These prices are indicated in the subsequent sub-sections of this Section.

CONTRACT PERFORMANCE GUARANTEE BOND
We hereby declare that in case the contract is awarded to us, we shall submit the contract Performance Bank Guarantee in the form prescribed in the Bid Document.

We hereby declare that our Tender is made in good faith, without collusion or fraud and the information contained in the Tender is true and correct to the best of our knowledge and belief.
We understand that our Tender is binding on us and that you are not bound to accept a Tender you receive. We confirm that no technical deviations are attached here with this commercial offer.

Thanking you, Yours faithfully,

(Signature of the Authorized Signatory)Name
DesignationSeal.
Date: Place:
Business Address:

32.2 Commercial Bid

The Rates for the BOQ to be filled online.

Sr. No.	Description of Items	Site	UoM	Quantity Whose AMC is to be taken	Unit Price for Restoration (SITC wherever applicable)	Total Amount for Restoration
A	**Primary Command & Communications Center (CCC)**					
A1	Video Wall Solution-55" LED in a 6X2 arrangement	CCC	Nos	1		
A2	Monitoring Workstations (3 monitors) for Live and Playback	CCC	Nos	10		
A3	Indoor Fixed Dome Cameras for internal surveillance	CCC	Nos	10		
A4	Data Center Switch (1G)	CCC	Nos	4		
A5	Networking Cost (Passive Components)	CCC	Set	1		
A6	Electrical Cabling & Necessary Illumination Devices	CCC	Set	1		
A7	Access Control System (RFID/Proximity based, For all staff)	CCC	Set	2		
A8	Rodent Repellent	CCC	Set	1		
A9	Data Center Switch (1G)	NOC	Nos	2		
A10	Data Centre Router/ BRAS	DC	Nos	2		
A11	WAN / Internet Router	DC	Nos	2		
A12	Data Center TOR (Top of the Rack) Switch	DC	Nos	10		
A13	Core Switch	DC	Nos	2		
A14	Firewall (with minimum 10 Gbps throughput and scalable)	DC	Nos	2		
A15	Intrusion Prevention System (with minimum 10 Gbps throughput and scalable)	DC	Nos	2		
A16	SFP Modules	DC	Lot	1		
A17	Enterprise Management System	DC	Lump sum	1		
A18	Anti-virus Software for Servers/ desktops/ workstations	DC	Lump sum	1		
A19	SAN Switch	DC	Nos	2		
A20	SAN Storage	DC	Set	1		
A21	Storage	DC	Set	1		
A22	Indoor Fixed Dome Cameras	DC	Set	6		

A23	Networking Cost (Passive Components)	DC	Set	1		
A24	Servers	DC	Set	1		
A25	Video Management System	DC	Lump sum	1		
A26	Video Analytics Software License for 50 Cameras	DC	Lump sum	1		
A27	FRS Software for 10 Cameras	DC	Lump sum	1		
A28	Privileged Identity Manager	DC	Lump sum	1		
A29	Virtualization software	DC	Lump sum	1		
A30	RDBMS Licenses	DC	Lump sum	1		
A31	OS Licenses	DC	Lump sum	1		
A32	UPS (redundancy built in)	DC	Set	1		
A33	WAN / Internet Router	DR	Nos	2		
A34	Data Center TOR (Top of the Rack) Switch	DR	Nos	6		
A35	Data Center Switch (10G)	DR	Nos	2		
A36	Firewall (with minimum 10 Gbps throughput and scalable)	DR	Nos	2		
A37	SFP Modules	DR	Lump sum	1		
A38	Anti-virus Software for Servers/ desktops/ workstations	DR	Lump sum	1		
A39	Desktop for mgmt. staff	DR	Nos	2		
A40	Storage	DR	Set	1		
A41	Racks for all Infra in DC	DR	Set	4		
A42	Indoor Fixed Dome Cameras	DR	Set	6		
A43	Outdoor fixed Box Cameras (Surveillance)	Field	Nos	260		
A44	Outdoor PTZ Cameras	Field	Nos	90		
A45	IR Illuminators as applicable	Field	Set	1		
A46	Industrial Grade outdoor PoE switches	Field	Nos	270		
A47	SFP Modules	Field	Lump sum	1		
A48	Networking Cost (Passive Component: Junction Box, Patch Panel, LIU, OFC, Cat6 Cable, Patch Cords, Pipes, Earthing, Lighting arrester etc.)	Field	Lump Sum	1		

A49	UPS with Batteries	Field	Lump Sum	1		
A50	Digging, Piping & Refilling, including digging for electrical cabling	Field	Lump Sum	1		
A51	Poles and civil foundation for all Equipment's	Field	Lump Sum	1		
A52	Provisioning of Electrical Power and sub meter	Field	Lump Sum	1		
A53	Aggregation Router	Field	Nos	4		
A54	Access Router	Field	Nos	24		
A55	SFP Modules	Field	Lump sum	1		
A56	Security and Cyber Security and VAPT For all applications	Field	Lot	1		

32.3 General instructions for Commercial Bid

i. Bidder should provide all prices as per the prescribed format under this Annexure.

ii. Bidder may propose the alternative make to achieve the functionality of the system. KSCCL reserves the right to approve or reject the proposed make based on functional evaluation. Preference will be given to make in India products under govt of India initiative.

iii. All the prices are to be entered in Indian Rupees (INR) only

iv. Price should be inclusive of any other tax, levies, duty etc. (except GST).

v. All prices should be inclusive of all required accessories/parts, re-installation charges (if required) and 3 years onsite repair comprehensive annual maintenance contract.

vi. It is mandatory to provide breakup of all Taxes, Duties and Levies wherever asked for.

vii. Initially winning bidder shall be allotted with a work order for the Phase I Restoration and CAMC. Further, payment shall be made to the winning bidder as per the schedule and during the CAMC as per actual quantity maintained on the fieldout of the BOQ / work order quantity. Bidder may factor these attributes in their commercial bid.

viii. Bidder shall be paid on actual basis against removal and / or re-installation of a device as per the rate quoted, upon successful completion of allied activities. Bidder need to factor any other cost which may require to incur for the completion of requisite task of removal and / or re- installation of any component.

ix. Bidder to ensure availability of L1 support resource at client location on a 24*7 basis. Bidder shall have to propose multiple resource(s) in accordance with the requirement.

x. Please note that winning bidder shall have to replace miscellaneous items such as power cable, data cable etc. during the contractual agreement duration. Bidder may factor the cost pertaining to the same in their financial bid. KSCCL shall not make any additional payment in this regard. Further, bidder shall have to use only approved material for such replacement. Winning bidder should seek necessary approval for using a particular material (OEM Make and Model) from KSCCL during the initial phase only for such miscellaneous material. KSCCL may ask bidder to provide necessary certification(s) to prove their capability during the contractual duration.

xi. Kakinada Smart City Corporation Limited reserves the right to ask the SI to submit proof of payment against any of the taxes, duties, levies indicated.

xii. If in case during the tenure of the project, GST bracket is changed, as per the Govt. norms, corresponding effect shall be extended in the consequent billing of the successful bidder. (e.g., If the GST bracket is reduced from 18% to 12%, further pending amount shall be paid at 12% GST rate on their base rate and same applies vice versa as well). Please note that bidder shall have to submit requisite documentary evidence against the same.

xiii. The Unit Rate as mentioned in the following formats may be used for the purpose of 'Change Order' (Limited to thirty percent of quantity described in commercial bid) for respective items including license fee, if any. The unit-rates discovered shall be valid for duration for 3 years from the date ofopening of the financial bid.

xiv. No escalations of prices will be considered under any circumstances.

xv. The bidder shall be responsible to maintain the system for 3 years with onsite repair warranty and Comprehensive Annual maintenance contract.

xvi. The bidders may visit the site and obtain additional information at their own cost and responsibility.

xvii. Kakinada Smart City Corporation Limited to scale up and scale down resources based on requirements. Any line items may be removed from the scope based on Kakinada Smart City Corporation Limited's discretion.

xviii. The Bidder needs to account for all Out-of-Pocket expenses due to Boarding, Lodging and other related items. No additional/separate payment shall be made regarding the same.

xix. In case of repeat of same item in commercial bid, the least price quoted by bidder shall be considered while placing additional order.

xx. The Contract Price shall be firm and not subject to any alteration.

xxi. The Implementation agency should be deemed to have satisfied itself as to the correctness and sufficiency of the contract price, which shall, except as otherwise provided for in the contract, cover all its obligations under the contract.

xxii. Please note invitation of price discovery rate for future requirements does not imply guarantee of any additional work or any increase in scope. The price discovery rates are being invited to meet any exigency requirements if a need emerges during the period of contract with respect to deployment of additional manpower resources.

xxiii. The rate/cost quoted for AMC and price discovery elements may be considered for additional procurement/payment in future.

Tender Procedure:

a) The bidders need to contact the Superintending Engineer, KSCCL, KAKINADA, for information on e-procurement.
b) The bidders need to register on the electronic procurement market place of Government of Andhra Pradesh, that is, www.apeprocurement.gov.in. On registration on the e-procurement market place they will be provided with a user ID and password by the system using which they can submit their bids on line.
c) While registering on the e-procurement market place, bidders need to scan and upload the required documents as per the tender requirements on to their profile.
d) The e-procurement market place provides an online self-service registration facility to such of the contractors who are already registered with respective participating departments for supply of specified goods and services. As an incentive for early registration, basic registration by suppliers, that allows them to participate in the e- procurement process, shall be enabled on the e-procurement market place without levy of any registration or subscription fee up to 31st March 2003 or such later date as decided by the steering committee. However, the e-procurement market place levy charges for such value added services as decided by the steering on the e-procurement as laid down in the G.O.Ms. No. 2, Information Technology and Communication department dated: 15-01-2003.

Procedure for Bid Submission:

1) Tender schedule can be downloaded from the web site:https://tender.apeprocurement.gov.in.
2) Intending bidders can contact Superintending Engineer, Kakinada Smart City Corporation Limited, KAKINADA, Andhra Pradesh Cell No. 9959799135 for any clarification, information on any working day during working hours.
3) The bidder shall submit the bid and all related correspondence in English language only. **The bidders shall submit original Bank Guarantee towards EMD, Demand Draft towards Processing Fee and Self Declaration at KSCCL office before PQ stage opening date & Time as mentioned at Tender Key dates in NIT, failing which the bidders shall be disqualified for PQ and Commercial stage.**
4) All bidders must fill in the pre-qualification checklist in the templates provided and sign on the self-declaration form stating their compliance with all the technical and financial pre - qualification criteria and up load the same.
5) E.M.D. to be paid in the shape of Bank Guarantee in favour of Managing Director, Kakinada Smart City Corporation Limited, KAKINADA to be valid for 6 months from the Date of NIT, issued by any Nationalized Bank /scheduled Bank in the standard format (or) Using Net Banking / RTGS/ NEFT from registered bank accounts OR using Credit Card / Debit card (i.e., 1% of ECV).
6) All bidders must upload all supporting documents in the e- Procurement portal validating their declarations and uploaded in the templates provided for the same under the technical and commercial pre-qualification criteria laid down in the check list.
7) The bidders should quote their initial price offer at the prescribed field / place provided in the e-market place within the prescribed period.
8) The bidder shall sign on all the documents uploaded by him including EMD along with the self-declaration for fulfilling pre - qualification criteria set by the Department (on the check list) owning responsibility for their correctness / authenticity and upload along with Tender.
9) The system shall carry initially the evaluation based on the information furnished in the given templates with regard to both technical and commercial pre-qualification criteria and the declaration up loaded by the bidder.
10) All bidders shall furnish the original hard copies of the BG for EMD, Demand Draft towards Processing Fee & self declaration before PQ stage opening date and time fixed.
11) The price bids will be opened on the date and time fixed.
12) If any bidder fails to submit the original hard copies of the BG for EMD, Demand Draft towards Processing

Fee & self declaration within the stipulated time, the Initial Price Offer of the respective bidder will not be opened and they shall not be carried forward into the reverse auction phase.

13) The bidders shall furnish willingness in participating reverse tendering process and an undertaking shall be uploaded to that effect along with submission of initial price offer.
14) After identification of the L-1 Initial Price Offer, eligible (those who have submitted original hard copies of the BG for EMD bidders shall be transferred to the Reverse Auction Platform.
15) The time and date will be displayed for reverse tendering process.
16) Finally, after completion of reverse tendering process, the Department shall carry out the technical bid evaluation of L1 bidder solely based on the uploaded certificates/documents, BG towards EMD in the e-procurement system.

Reverse Tendering Process:

As per G.O.Ms. No. 67 Water Resources (Reforms) Department dated: 16-08-2019.

1) All bidders shall self-declare their details under each technical and financial criterion on the e-procurement platform along with an undertaking confirming their compliance with the technical and financial criterion prescribed in the bid document.
2) All bidders shall submit supporting documents for their submittals under each technical and financial criterion. In case of documents found to be defective, incorrect or forged and therefore claim of Qualification is not supported, severe action including forfeiture of EMD shall be taken.
3) The threshold values of Technical and Financial qualification as prescribed by the department shall be displayed to the bidders on the screen of online e-procurement site. The bidders have to submit their details of qualification criterion in prescribed text boxes along with their Self-declaration on the fulfillment of qualification criterion prescribed. The system automatically evaluates the qualification details uploaded by the bidders and enable the qualified bidders only to quote for their price bid in the prescribed box for theworkA
4) All bidders satisfying pre-qualification criterion as per their submittals and self-declaration on e-procurement site shall quote their price offer. The Price bids of all the bidders shall be opened and the lowest quoted price bid among the qualified bidders in the tender process shall be determined.
5) To conduct the reverse tender process at least two bidders would be required.
6) The L1 Price Offer (Initial) shall be the maximum allowable Bid price for the reverse tendering process.
7) Only one round of reverse tendering shall be carried out in which bidders can revise their bids multiple times within the time limits specified.
8) At the start of the Reverse Tendering process the Maximum Allowable Bid Price will be set and bidders shall submit their bids in an online platform.
9) Names of the bidders / vendors shall be anonymously masked in the Reverse Tendering process and vendors will be given suitable dummy names.
10) The initial period of the Reverse tendering process will start after 3 hours, following which there will be auto extensions of time by 15 minutes in case of any reduction in bids recorded in the prior 15 minutes.
11) Only the current L1 bid shall be visible to all bidders who may revise their bids until the end of the process.
12) Decrements made in each subsequent bid shall not be less than 0.5% of the IBM/ECV uploaded.
13) The L1 bid may be determined following a period of inactivity of more than 15 minutes of reverse bidding after the initial 3 hour period after closure of the main bidding.
14) Following the determination of the L1 bid, the L1 bidder's
15) Supporting documents under each technical and commercial criterion shall be verified. The reverse tendering process shall be on hold for a maximum period of 24 hours (1 day) while the L1 bidder's supporting documents are verified.
16) Upon successful verification of the L1 bidder's supporting documents, the reverse tendering process shall be closed declaring the L1 bidder as "successful bidder" and the remaining bidders in the process shall be

notified as "unsuccessful" and their respective EMDs shall be refunded.

17) In case there are discrepancies between the L1 bidder's declarations under the technical and financial criteria and the supporting documents submitted, the L1 bidder shall be disqualified, his EMD shall be forfeited, he will be removed from the reverse tendering process and the remaining bidders shall be notified of the date and time when the reverse tendering process shall be resumed.
18) The reverse tendering process shall be resumed with the L2 price as the Maximum Allowable Bid Price.
19) Only 15 minutes shall be initially allowed for the remaining bidders to revise their bids, subject to automatic extensions of 15 minutes in case of any reduction in bids recorded in the prior 15 minutes.
20) The reverse tendering process shall continue until the determination of a successful bidder.

Conclusion of the Reverse Tendering Process:-

After conclusion of the reverse auction process, the pre- qualification criteria of L1 bidder shall be verified. In case of successful verification of pre-qualification criteria of the L-1 Bidder and if qualified he will be awarded the contract and the EMDs of unsuccessful bidders shall be refunded.

1) If any variation is noticed between the up loaded documents, information furnished in the given templates in respect of both technical and commercial prequalification criteria and the self- declaration submitted by the bidder, the bidder will be suspended from participating in the tenders on e-procurement platform for a period of 3 years. If any of the documents furnished by the bidder are found to be false / fabricated / bogus, at any time the bidder will be black listed and the EMD will be forfeited.
2) In case of the L1 bidder being disqualified, the Department reserves the right to restart the reverse auction process with the L2 price of the concluded reverse auction as the start/ maximum bid price OR to restart the entire tendering process from the NIT Stage. In either case, the date and time of the subsequent process shall be communicated to the remaining bidders.
3) e-procurement corpus fund: An e-procurement corpus fund 0.04 % on the Estimated/Quoted Value administered by APTS has to be paid by the successful bidder in the shape of Demand draft in favour of Managing Director, AP Technological Services, Vijayawada at the time of concluding the agreement.

Special conditions

1) The Employer reserves the right to accept or reject any or all the Bids without assigning any reason whatsoever.
2) The dates stipulated in the NIT are firm and under no circumstances they will be relaxed unless officially extended / notified.
3) The Contractors shall submit their Bids online only. For any sort of difficulties or the problems in the internet, web site in submission of tenders, the Employer is not responsible.
4) All bidders shall furnish the original hard copies of the BG for EMD before PQ stage opening date and time; failing which their Initial Price Offer shall not be opened and they will not be taken forward into the reverse auction.
5) In respect of Initial Price Offers received beyond 25% less than ECV specified by the employer, the Contractor shall furnish a Bank Guarantee for the difference between the Bid amount and 75% of ECV at the time of concluding Agreement as additional security deposit valid up to 6 months after completion of work.
6) The Employer reserves the right to cancel the Bids at any time without assigning any reasons.
7) The Contractor should submit a copy of valid GST registration certificate issued by the registration authority.

8) The Contractor should submit copy of PAN card and copy of latest Income Tax return submitted to IT Department along with proof of submission.
9) Any other condition regarding receipt of Bids in conventional method appearing in the Bid documents is to be treated as not applicable.
10) The Contractors should invariably upload the scanned copies of Bid Security and experience certificates and other relevant documents duly signed by them.
11) Bids shall be valid for a period of 3months from the last date of submission of Bids. Before expiry of validity, the authority who called for the Tenderers, shall seek for further extension of validity from the Contractors and in case the validity is not extended by any Contractor, his Bid will not be considered after such expiry and his Bid Security shall be returned.
12) The retention amount from the bills will be deducted at the rate of 10 %.
13) Rs.11,800/- (10,000/- + GST: 1800/-) The participating bidders will have to pay transaction fee to M/s MD APTS, Vijayawada through Online. It is mandatory for the bidders to pay the transaction fee through the Electronic payment Gateway.
14) In case of discrepancy between the Price Bid quoted online and in supporting documents uploaded, the Price Bid quoted in the template provided online only would be considered for evaluation.
15) Bid Price should be quoted online in the specified template.
16) The Contractor is subjected to be disqualified and liable for black listing and forfeiture of Bid Security, if he is found to have misled or furnished false information in the documents submitted in proof of qualification requirement.
17) Even during execution of the work, if found that the Contractor had produced false/fake certificates of experience he will be liable for black listing and the Contract will be liable for termination duly forfeiting Performance Security and all the amounts due to him.
18) Articles of Contract: Successful Contractor/Contractor is to execute Articles of Contract as provided in the Bid Document.

Other Conditions:

1) Tenderers with an excess of more than 5 % over the Estimated Contract value (ECV), will not be able to participate in bidding.
2) In respect of tenders beyond 25 % less than ECV, a Bank Guarantee (or) Demand Draft for the difference between the tendered amount and 75 % of ECV should be furnished at the time of agreement as additional security deposits.
3) Transaction Fees: The transaction fee has to be paid through electronic gate way payment system to M/s Vupadhi Technologies Pvt Ltd, by each participating bidder at the time of Bid submission.
4) The e-procurement application is PKI enabled and supports the digital certificates issued by APTS, for signing the bids at the time of submission by contractor. The contractor has to procure digital certificates issued by APTS Ltd., Hyderabad as per the procedure. Digitally signed bids are to be submitted electronically through e-procurement, without which the tender will not be considered for opening the Price Bid.
5) The bidders intend to know the procedure of bid submission on e-procurement platform; suitable training will be given by M/s Vupadhi Technologies Pvt. Ltd.,

6) The bidders shall submit original Bank Guarantee towards EMD, Demand Draft towards Processing Fee and Self Declaration at KSCCL office before PQ stage opening date & Time as mentioned at Tender Key dates in NIT failing which the bidders shall be disqualified for PQ and Commercial stage.

7) KSCCL reserves the right to modify bid conditions at any time.

8) KSCCL reserves the right to cancel the tender at any time. And KSCCL also can cancel Bids received at any time.

9) In case of discrepancy between the price quoted online and in supporting documents uploaded, then the price quoted in the template provided online only would be the considered for evaluation.

10) The time for completion of the project is 06 months (capex completion) + 32 months(AMC Period) months.

11) Issue of bid document will not automatically construe the eligibility of the bidders for participation in the subsequent bidding process and will be determined during evaluation.

12) KSCCL reserves the right to accept or reject any or all the bids without assigning any reasons whatsoever.

13) The dates stipulated in the NIT are firm and under no circumstances they will be relaxed unless officially extended.

14) The bidders shall submit their tenders online only. The department is not responsible for any sort of difficulties for the problems in the Internet, website in submission of tenders.

15) In the process, if the works are stalled due to legal intervention or due to natural calamities, no compensation will be paid.

16) GST will be adopted from time to time as per instructions of Government of Andhra Pradesh.

17) TDS will be applied as per procedure in vogue.

18) Joint venture (JV) is not allowed.

19) All necessary permissions / clearance / approvals are to be processed and obtained by the firm only. As a user agency KSCCL will initiate the proposals in respect of above. Other conditions can be seen in the bidding document.

Superintending Engineer,

Kakinada Smart City Corporation Ltd.