Vol. 1: Request for Proposal

Selection of Concessionaire for Implementation of Intelligent Street Pole at Indore under PPP on DBOOT Model

Tender No: 52/ISCDL/16-17

Indore Smart City Development Limited

Dated: 09 December 2016

Request for Proposal

For

Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model

Tender No:

Dated: 09 December 2016

Indore Smart City Development Limited, Indore

INDORE SMART CITY DEVELOPMENT LIMITED, INDORE

107-109, Palika Plaza, Phase – II, M.T.H. Compound, Indore (M.P.)
Phone: 0731-2535572, E-mail: smartcityindore16@gmail.com

NIT No. 52 /ISCDL/16-17 Date: 09/12/2016

REQUEST FOR PROPOSAL

Indore Smart City Development Limited invited Expression of Interest on 06 Sept 2016 for the Work as below. ISCDL now invites eligible firms / entities who participated in the EOI and other consortium members to submit proposals for the Work as below.

Sl. No.	Name of Work	Earnest Money Deposit	Cost of Tender Form	Concession Period
1	Selection of Bidder for Implementation of Intelligent Street Pole (Smart Pole) at Indore under PPP model	Rs. 50 Lakh (DD or FDR in favour of Executive Director, Indore Smart City Development Limited	Rs. 50,000/-	15 years

Key Dates: -

Sl. No.	Description	Date & Time
1	Online Tender Purchase Start Date	09 Dec 2016 from 1030 hrs
2	Online Tender Purchase End Date	05Jan 2017 till 17:30 hrs
3	Pre-bid meeting	22 Dec 2016 at 15:00 hrs
4	Online Bid Submission End date	09 Jan 2017 till 17:30 hrs
5	Submission of Hardcopy of Technical Bid and EMD	10 Jan 2017 till 15:00 hrs.
6	Technical Proposal Opening Date and Time	10 Jan 2017 at 16:00 hrs.

RFP document shall be available on website: www.mpeproc.gov.in.

For any clarification and queries, contact Mr. Mathew – 9717165747/7470955914/9322901906

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DISCLAIMER

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

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

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

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

The Authority also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP. The Authority may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFP.

The issue of this RFP does not imply that the Authority is bound to select a Bidder or to appoint the Successful Bidder JV or Contractor, as the case may be, for the Project and the Authority reserves the right to reject all or any of the Bidders or BIDs without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its BID including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by the Authority or any other costs incurred in connection with or relating to its BID. All such costs and expenses will remain with the Bidder and the Authority shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the BID, regardless of the conduct or outcome of the Bidding Process.

DEFINITIONS

Authority:	As defined in Clause 1.2
BID(s):	As defined in Clause 1.2.2
Bidders:	As defined in Clause 1.2.2
Bidding Documents:	As defined in Clause 1.3
BID Due Date:	As defined in Clause 1.3
Bidding Process:	As defined in Clause 1.4
BID Security:	As defined in Clause 2.2
Conflict of Interest:	As defined in Clause 2.1.12
Government:	Government of Madhya Pradesh
Highest Bidder:	As defined in Clause 1.4.5
LOA:	As defined in Clause 1.3.8
Project:	As defined in Clause 1.1.
Re. or Rs. or INR:	Indian Rupee

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein.

1. INTRODUCTION

1.1 Background Information

1.1.1. The Smart Cities Mission of Government of India is to promote cities that provide core infrastructure and give a decent quality of life to its residents. The Smart City Challenge required cities to develop a proposal for the development of city in two components, Area based development (developing a specific area in the city) and Pan City initiative. As part of Pan-City ICT based solution, one of the important project is Implementation of Intelligent Street pole at Indore under PPP on DBOOT model. The objective is to increase the capability of municipal governance, improve the quality of civic service delivery and the overall quality of life of Indore citizen.

1.1.2. Indore has set a goal for itself as an advance stage Smart city where “All major services are provided through online and offline platforms. Citizens and officials can access information on accounting and monitor status of projects and programs through data available on online system”.

1.1.3. A smart city is an urban development vision to integrate multiple information and communication technology (ICT) and Internet of Things (IOT) solutions in a secure fashion to manage a city’s assets. The city’s assets include, but are not limited to, schools, libraries, transportation systems, hospitals, power plants, water supply networks, waste management, law enforcement, and other community services besides private infrastructure. The goal of building a smart city is to improve quality of life by using urban informatics and technology to improve the efficiency of services and meet residents’ needs.

1.1.4. For Indore, being chosen as one amongst the top 20 smart cities selected across India, is a meritorious achievement in itself. To see the realization of this, a fresh wave of development is required that conforms to if not all, few of the above mentioned features of a smart city. With a view to make the city more livable and enjoyable for the citizens, it is important to work on the basic requirements of the public, one of them being street lighting. Good lighting on the streets and roads ensures safety, security for the citizens, induces a vibrancy which infuses life into the city.

1.1.5. As a part of this project, we aim to help build up a system in lighting, which along with the task of providing adequate light level for functional purposes is smart by all means. It should control the luminaires to adjust according to the requirement of the client and should perform the function of asset management for the civic authorities. With such a system in place, it shall become a convenient platform for the civic authorities, for the facility management team as well as for the citizens of the city.

1.1.6. Over time with advent of technology and the requirement to optimize on resources it became prudent to have multiple services on the street lighting. Thus the evolution of Intelligent street pole.

1.1.7. **Intelligent Street Pole:** The smart poles combine the benefits of LED lighting and mobile connectivity in a "lighting-as-a-service" model for cities. It allows city authorities to offer space within their connected lighting poles to network Bidder for mobile infrastructure. Due to its commercial potential the smart poles can be implemented on DBOOT model at a yearly fee to be earned by the corporation. Thus the whole project with its additional functions can result in a "win –win" situation for the citizens, government and business. No doubt the benefits to the citizens should be of paramount importance and success of the project shall be measured by the use of the smart pole by the citizens and its positive impact on the life of the citizens. The mobile wireless 4G/LTE infrastructure deployment on smart pole can result in better coverage, improved data speeds, reduced radiation, reduced signal dropouts, etc. Smart pole can vastly improve the telecom infrastructure of the city. LED street lighting can generate energy savings of 50 to 70 percent, with savings reaching 80 percent when coupled with smart controls.

1.1.8. **Primary and Secondary Functions:** The primary function of the smart poles will be to provide street lighting, mobile broadband infrastructure, Wi-Fi hotspot services and surveillance camera. These facilities will be connected to the central command and control Centre (C4) where it will be constantly monitored and managed. The Bidder may also use the smart pole for other commercial purposes, namely, smart bill board, electronic vehicle charging, environmental sensor etc. It should however be ensured that the primary functions are not hampered in any way while using the same for other commercial purposes.

1.1.9. **City Wide IT Network :** IT Network to be created by the concessionaire for ISCDL area under this RFP shall be on Multiprotocol Label Switching (MPLS) technology. Network should act as backbone for all the ISCDL smart city initiatives which may come in future like for parking, waste management, environment and other e-governance services like smart energy grid, smart water supply, smart education, smart health, waste management etc. Dedicated network should be created for ISCDL so that they can scale to multiple urban smart city services in future without any bandwidth or OPEX dependencies on Service provider. This network will be using MPLS to construct a packet-switched transport networks. This will provide a common set of functions to support the operational models and capabilities required for such critical networks. MPLS shall provide connection-oriented paths, protection and restoration mechanisms, comprehensive Operations and Maintenance functions for Seamless network operation using dynamic control plane.

Citywide IT network for ISCDL area will have distributed architecture and will have three layers, viz., Core layer, Aggregation layer and Pre Aggregation layer.

1.1.10. **Commercial Use:** The Bidder shall be permitted to use the smart pole for the commercial uses, namely, mobile broadband infrastructure, Wi-Fi hotspot services, smart bill board, electronic vehicle charging, etc. and earn revenue for the same.

1.1.11. **Design Philosophy**: The intelligent street pole is designed primarily for lighting while at the same time taking cognizance of the requirements of other functions. Hence the height of the pole has to be constant except in junctions where the lighting is required to be from a higher point. The inter se distance between the smart poles may be finalized based on requirements of 4G with provision to upgrade to 5G and further as may evolve during Bidder period. Other functions shall also be built into the intelligent street pole an aesthetic manner without affecting over all functionality.

1.2 RFP Issuing Authority:

Chief Executive Officer, Indore Smart City Development Limited, 107-109 Palika Plaza, Phase-II, MTH Compound, Indore (M.P) 452001

1.2.1 In line to the guidelines issued by Ministry of Urban Development (MoUD)/ Government of India (GoI) Government of Madhya Pradesh has created a Special Purpose Vehicle (SPV) Indore Smart City Development Ltd (ISCDL) for implementing the Smart City mission at the city level. ISCDL will plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the Smart City development projects.

1.3 Important Guidelines

1.3.1 Indore Smart City Development Ltd (Hereinafter referred to as **"Authority" or "ISCDL"**) intends to appoint a Bidder for implementing Smart City Pan city projects in Indore on **Build, Own, Operate and Transfer (DBOOT) model** on Public Private Partnership (PPP) Basis (the **"Project"**) for a specified Concession Period i.e. implementation period of 9 months and operation and maintenance period of 15 years (**the "Concession Period"**).

1.3.2 Bidders who have submitted the EOI are allowed to bid as **"Lead bidder"** in this RFP.

1.3.3 The Successful Bidder (the "Bidder"), shall be responsible for designing, engineering, financing, procurement, construction, operation and maintenance of the Project under and in accordance with the provisions of a long-term concession agreement (the "Concession Agreement") to be entered into between the Successful Bidder and the Authority in the form provided by the Authority as part of the Bidding Documents pursuant hereto.

1.3.4 The scope of work includes construction of the Project on the Site set forth in Annexure 11 of the RFP together with provision of Project Facilities as specified in RFP and in conformity with the Specifications and Standards stipulated therein.

1.3.5 An Agreement will be drawn up between the Authority and the Successful Bidder on PPP basis (the "Concession Agreement"). The Concession Agreement sets forth the detailed terms and conditions for grant of the concession to the Bidder, including the scope of the Bidder's services and obligations (the "**Concession**"). Revenues from the proposed Project will accrue to the **"Bidder"** and would be appropriated as per the provisions of the Concession Agreement.

1.3.6 The statements and explanations contained in this RFP are intended to provide a better understanding to the Bidder about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Bidder set forth in the Concession Agreement or the Authority's rights to amend, alter, change, supplement or clarify the scope of work, the Concession to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFP are to be noted, interpreted and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by the Authority.

1.3.7 The Authority shall receive Bids pursuant to this RFP in accordance with the terms set forth in this RFP and other documents to be provided by the Authority pursuant to this RFP, as modified, altered, amended and clarified from time to time by the Authority (collectively the **"Bidding Documents"**), and all Bids shall be prepared and submitted in accordance with such terms on or before the date specified in Clause 1.3 for submission of Bids (the **"Bid Due Date"**).

1.3.8 A Bidder shall be considered as a Successful Bidder for the projects of the Authority, where the Letter of Awards (LOA) has been issued.

1.4 Brief description of Bidding Process

1.4.1 The Authority has adopted a "single stage – two envelope" bidding process wherein the interested parties are required to submit the Bid (collectively referred to as the "**Bidding Process**") for selection of the Bidder for award of the Project. The Bid in response to the RFP is to be submitted in two parts, viz.:

PART 1: Qualification/Technical Bid

PART 2: Financial Bid

The evaluation of the Bids would be carried out in two parts.

PART 1: The first part would involve test of responsiveness, technical and financial capability for undertaking the Project based on the Qualification Bid. Only those Bids that meet the Qualification Criteria, as set out in this RFP would be qualified for opening of Financial Bid.

PART 2: Opening and Evaluation of Financial Bid.

On the basis of this evaluation process, Authority will issue a Letter of Award to the Successful Bidder.

[GOI has issued guidelines (see **Annexure 12** of RFP) for qualification of Bidders seeking to acquire stakes in any public sector enterprise through the process of disinvestment. These guidelines shall apply mutatis mutandis to this Bidding Process. The Authority shall be entitled to disqualify an Applicant in accordance with the aforesaid guidelines at any stage of the Bidding Process. Applicants must satisfy themselves that they are qualified to bid, and should give an undertaking to this effect in the form at **Annexure 1**]

1.4.2 In the Bid Stage, the "**Bidders**", which expression shall, unless repugnant to the context, include the Members of the Consortium, are to submit their financial offers online, in accordance with the terms specified in the Bidding Documents. The Bid shall be valid for a period of not less than 120 days from the date of submission of Bid.

1.4.3 The Bidding Documents also include the draft **Concession Agreement** for the Project which is enclosed. The aforesaid documents and any addenda issued subsequent to this RFP Document, will be deemed to form part of the Bidding Documents.

1.4.4 During the Bid Stage, Bidders are invited to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective Bids for award of the Concession including implementation of the Project.

1.4.5 Further and other details of the process to be followed at the Bid Stage and the terms thereof are spelt out in this RFP. Any queries or request for additional information concerning this RFP shall be submitted in writing or by fax and e-mail to the officer designated in Clause 1.3 below. The envelopes/ communication shall clearly bear the following identification/ title:

"Queries/Request for Additional Information: **Selection of Bidder for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL".**

1.4.6 Interested parties may obtain the RFP document from the ***www.mpeproc.gov.in*** upon payment of non-refundable fee of INR 50,000 (INR Fifty Thousand only).

1.4.7 Further, PART 1: Technical Bid must be submitted online as well as in hard bound form. PART 2: Financial Bid shall be submitted online only.

2. INSTRUCTION TO BIDDERS

A. GENERAL

2.1 General Terms for Bidding

2.1.1 No Bidder shall submit more than one Bid for the Project.

2.1.2 Bidders who have taken part in the EoI are eligible to participate as "lead bidder" in the bid. However, they may bring in consortium partners and technology partners of their choice.

2.1.3 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the draft Concession Agreement shall have overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Concession Agreement.

2.1.4 The Bid should be furnished in the format at **Annexure 5**, clearly indicating the bid amount in both figures and words, in Indian Rupees, and signed by the Bidder's authorized signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.

2.1.5 The Bid shall consist of a Revenue Share to be quoted by the Bidder. The Revenue Share shall be payable by the Bidder to the Authority, as the case may be, as per the terms and conditions of this RFP and the provisions of the Concession Agreement.

2.1.6 The Bidder may be a sole applicant (Single Entity) or a group of entities (hereinafter referred to as 'Consortium'), coming together to implement the Project. The term Bidder used hereinafter would therefore apply to both a Single Entity and a Consortium who have submitted the Bid. The Successful Bidder is the one selected by Authority to develop this Project and who has been issued LOA by the Authority. The Successful Bidder would be liable for the execution of the Project in accordance with the terms of the Concession Agreement.

2.1.7 In case the Successful Bidder is a Consortium, the equity holding of the Consortium Members in the Bidder would be as per the requirements of this RFP and the Concession Agreement.

2.1.8 Any condition or qualification or any other stipulation contained in the Bid shall render the Bid liable to rejection as a non-responsive Bid.

2.1.9 The Bid and all communications in relation to or concerning the Bidding Documents and the Bid shall be in English language.

2.1.10 The documents including this RFP and all attached documents, provided by the Authority are and shall remain or become the property of the Authority and are transmitted to the

Bidders solely for the purpose of preparation and the submission of a Bid in accordance herewith. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The provisions of this Clause 2.1.10 shall also apply *mutatis mutandis* to Bids and all other documents submitted by the Bidders, and the Authority will not return to the Bidders any Bid, document or any information provided along therewith.

2.1.11 A Bidder shall not have a conflict of interest (the "**Conflict of Interest**") that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified. In the event of disqualification, the Authority shall forfeit and appropriate 5% of the value of the Bid Security or Performance Security, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to the Authority for, inter alia, the time, cost and effort of the Authority, including consideration of such Bidder's Bid, without prejudice to any other right or remedy that may be available to the Authority hereunder or otherwise. Without limiting the generality of the above, a Bidder shall be considered to have a Conflict of Interest that affects the Bidding Process, if:

(i) the Bidder, its Member or Associate (or any constituent thereof) and any other Bidder, its Member or any Associate thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, its Member or an Associate thereof (or any shareholder thereof having a shareholding of not more than 25% (twenty five per cent) of the paid up and subscribed share capital; of such Bidder, Member or Associate, as the case may be) in the other Bidder, its Member or Associate, is not more than 25% (Twenty five per cent) of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in section 4A of the Companies Act, 1956. For the purposes of this Clause 2.1.11, indirect shareholding held through one or more intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the "Subject Person") shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub-clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or

(ii) a constituent of such Bidder is also a constituent of another Bidder; or

(iii) such Bidder, its Member or any Associate thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, its

Member or Associate, or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member or any Associate thereof; or

(iv) such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or

(v) such Bidder, or any Associate thereof, has a relationship with another Bidder, or any Associate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other's information about, or to influence the Bid of either or each other; or

(vi) such Bidder or any Associate thereof has participated as a consultant to the Authority in the preparation of any documents, design or technical specifications of the Project.

Notwithstanding anything stated herein a conflict of interest situation arising at the prequalification stage will be deemed to subsist only, as between such Applicants attracting conflict of interest provisions on account of shareholdings, submit bids under this document.

Explanation:

In case a Bidder is a Consortium, then the term Bidder as used in this Clause 2.1.11, shall include each member of such Consortium. For purpose of this RFP Associate means, in relation to the Bidder/ Consortium Member, a person who controls, is controlled by, or is under the common control with such Bidder/ Consortium Member (the **"Associate"**). As used in this definition, the expression "Control" means, with respect to a person which is a company or corporation, the ownership, directly or indirectly of more than 50% (Fifty percent) of the voting shares of such person, and with respect to a person which is not a company or corporation, the power to direct the management and policies of such person, by operation of law.

For the Purpose of clarity it is informed that Bidders could form an Incorporated or Unincorporated consortium for bidding and executing the Project

2.1.12 This RFP is not transferable.

2.1.13 Any award of Concession pursuant to this RFP shall be subject to the terms of Bidding Documents.

2.2 Minimum Equity Requirement in case of Consortium

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

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

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

c) the new Member(s) expressly adopt(s) the Application already made on behalf of the Consortium as if it were a party to it originally, and is not an Applicant Member/ Associate of any other Consortium bidding for this Project.

2.2.2 Approval for change in the composition of a Consortium shall be at the sole discretion of the Authority and must be approved by the Authority in writing. The Bidder must submit its application for change in composition of the Consortium no later than 15 (fifteen) days prior to the Bid Due Date.

2.2.3 The modified/ reconstituted Consortium shall submit a revised Jt. Bidding Agreement and a Power of Attorney and other documents, substantially in the formats at Annexures provided in this RFP, prior to the Bid Due Date.

2.2.4 The respective holding of each Consortium Member conforms to the representation made by the Consortium and accepted by the Authority as part of the Bid and that no member of the Consortium shall hold less than 25% (twenty five per cent) of such Equity during the Construction Period;

2.3 Change in Ownership

2.3.1 By submitting the Bid, the Bidder acknowledges that it was pre-qualified and short-listed on the basis of Technical Capacity and Financial Capacity of those of its Consortium Members who shall, until the 2nd (second) anniversary of the date of commercial operation of the Project, hold equity share capital representing not less than 25% (twenty five per cent) of the subscribed and paid-up equity of the Bidder. The Bidder further acknowledges and agrees that the aforesaid obligation shall be the minimum, and shall be in addition to such other obligations as may be contained in the Concession Agreement, and a breach hereof shall, notwithstanding anything to the contrary contained in the Concession Agreement, be deemed to be a breach of the Concession Agreement and dealt with as such thereunder. For the avoidance of doubt, the provisions of this Clause 2.3.1 shall apply only when the Bidder is a Consortium.

2.3.2 By submitting the Bid, the Bidder shall also be deemed to have acknowledged and agreed that in the event of a change in control of a Consortium Member or an Associate whose Technical Capacity and/ or Financial Capacity was taken into consideration for the purposes of short-listing and pre-qualification under and in accordance with this RFP, the Bidder shall be deemed to have knowledge of the same and shall be required to inform the Authority forthwith along with all relevant particulars about the same and the Authority may, in its sole discretion, disqualify the Bidder or withdraw the LOA from the Successful Bidder, as the case may be. In the event such change in control occurs after signing of

the Concession Agreement but prior to Financial Closure of the Project, it would, notwithstanding anything to the contrary contained in the Concession Agreement, be deemed to be a breach of the Concession Agreement, and the same shall be liable to be terminated without the Authority being liable in any manner whatsoever to the Bidder. In such an event, notwithstanding anything to the contrary contained in the Concession Agreement, the Authority shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the Concession Agreement or otherwise.

2.4 Cost of Bidding

The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bidding Process. The Authority will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

2.5 Site visit and verification of information

2.5.1 Bidders are encouraged to submit their respective Bids after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, water and other utilities for construction, access to site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them.

2.5.2 It shall be deemed that by submitting a Bid, the Bidder has:

(a) made a complete and careful examination of the Bidding Documents;

(b) received all relevant information requested from the Authority;

(c) 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 referred to in Clause 2.5.1 above;

(d) satisfied itself about all matters, things and information including matters referred to in Clause 2.5.1 hereinabove 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;

(e) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in Clause 2.5.1 here in above shall not be a basis 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 Bidder

(f) acknowledged that it does not have a Conflict of Interest; and

(g) agreed to be bound by the undertakings provided by it under and in terms hereof.

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

2.6 Verification and Disqualification

2.6.1 The Authority reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP or the Bidding Documents and the Bidder shall, when so required by the Authority, make available all such information, evidence and documents as may be necessary for such verification. Any such verification, or lack of such verification, by the Authority shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of the Authority thereunder.

2.6.2 The Authority reserves the right to reject any Bid and appropriate the Bid Security if:

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

(b) the Bidder does not provide, within the time specified by the Authority, the supplemental information sought by the Authority for evaluation of the Bid.

(c) Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If the Bidder is a Consortium, then the entire Consortium and each Member may be disqualified/ rejected. If such disqualification / rejection occurs after the Bids have been opened and the Highest Bidder gets disqualified / rejected, then the Authority reserves the right to:

(i) take any such measure as may be deemed fit in the sole discretion of the Authority, including annulment of the Bidding Process subject to provisions of Section 3 of this RFP.

2.6.3 In case it is found during the evaluation or at any time before signing of the Concession Agreement or after its execution and during the period of subsistence thereof, including the Concession thereby granted by the Authority, that one or more of the pre-qualification conditions have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the Bidder either by issue of the LOA or entering into of the Concession Agreement, and if the Successful Bidder has already been issued the LOA or has entered into the Concession Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by the Authority

to the Successful Bidder or the Bidder, as the case may be, without the Authority being liable in any manner whatsoever to the Successful Bidder or Bidder In such an event, the Authority shall be entitled to forfeit and appropriate the Bid Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to the Authority under the Bidding Documents and/ or the Concession Agreement, or otherwise.

B. DOCUMENTS

2.7 Contents of RFP

This RFP comprises the Disclaimer set forth hereinabove, the contents as listed below, and will additionally include any Addenda issued in accordance with Clause 2.9.

Section1	Introduction
Section 2	Instructions to Bidders
Section 3	Evaluation of Bids
Section 4	Fraud and Corrupt Practices
Section 5	Pre-bid Conference
Section 6	Miscellaneous
Section 7	Project Background, Description and Scope of Work
Section 8	Annexures

The draft Concession Agreement provided by the Authority as part of the Bid Documents shall be deemed to be part of this RFP.

2.8 Clarifications

2.8.1 Bidders requiring any clarification on the RFP may notify the Authority in writing or by fax and e-mail in accordance with Clause 1.3. They should send in their queries on or before the date mentioned in the Schedule of Bidding Process specified in Clause 1.3. The Authority shall endeavour to respond to the queries within the period specified therein, but no later than 15 (fifteen) days prior to the Bid Due Date. The responses will be sent by fax or e-mail. The Authority will forward all the queries and its responses thereto, to all Bidders without identifying the source of queries.

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

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

2.9 Amendment of RFP

2.9.1 At any time prior to the Bid Due Date, the Authority may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of Addenda.

2.9.2 Any Addendum issued hereunder will be in writing and shall be sent to all the Bidders who have purchased the bid document.

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

C. PREPARATION AND SUBMISSION OF BIDS

2.10 Format and Signing of Bid

2.10.1 The Bidder would provide all the information as per this RFP. Authority reserves the right to evaluate only those Bids that are received in the required format, complete in all respects and in line with the instructions contained in this RFP.

2.10.2 The Bid and its copy shall be typed or written in indelible ink and signed by the authorized signatory of the Bidder who shall also initial each page, in blue ink. In case of printed and published documents, only the cover shall be initialled. All the alterations, omissions, additions or any other amendments made to the Bid shall be initialled by the person(s) signing the Bid.

2.10.3 The Bidders will submit their Technical Bids online as well as in the physical format, however the financial bid will be submitted only online subject to following conditions:

a) The online submission shall be according to e-procurement guidelines issued by GoMP as provided in **Annexure 10.**

b) Bidders can prepare and edit their offers number of times before final submission. Once finally submitted, Bidder cannot edit their offers submitted in any case. No written or online request in this regards shall be granted/entertained.

c) Bidder shall submit their offer i.e. Technical bid as well as financial bid in electronic format on the website as mentioned in the RFP.

d) Bid should be duly signed by the person who holds the power of attorney for this particular bid.

e) Financial Bid shall be submitted in the same format as provided in the format in **Annexure 5** of the RFP.

f) Financial bid should not be submitted in physical form.

2.10.4 For Technical Bid, the Bidder shall prepare and submit one original Bid along with an additional copy.

2.10.5 The pages and volumes of each part of the Bid shall be clearly numbered and stamped and the contents of the Bid shall be duly indexed.

2.10.6 For physical submission of Technical Bids, all documents should be submitted in a hard bound form separately (hard bound implies binding between two covers through stitching or otherwise whereby it may not be possible to replace any paper without disturbing the document) (spiral bound form, loose form, etc. will be not accepted), either singularly or with several documents bound together. The Bid should not include any loose papers.

2.10.7 The Bid shall be typed or printed. The Bid shall be signed and each page of the Bid shall be initialled by a person or persons duly authorized to sign on behalf of the Bidder and holding the Power of Attorney.

2.10.8 The Bid shall contain no alterations or additions, except those to comply with instructions issued by Authority or as necessary to correct errors made by the Bidder, in which case such corrections shall be initialled by the person or persons signing the Bid.

2.11 **Sealing and Marking of Bids**

2.11.1 The Bidder shall seal Technical Bid in separate envelopes duly marking each envelope as **"TECHNICAL BID (Original + Copy)"**. The Technical Bid shall include completely filled information in the formats attached as Annexures 1, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 4A, 6, 7,8 and signed copies of this RFP including the draft Concession Agreement, all addenda, corrigenda and other applicable documents.

2.11.2 The Bid Security details of online submission by the Bidder **"BID SECURITY"** shall be provided in separate envelope and this envelope placed inside Envelope marked **"Part I: TECHNICAL BID"**.

2.11.3 The Bidder shall put the above two separate envelopes in a single outer envelope and seal the envelope.

2.11.4 The outer envelope shall clearly bear the following identification."**Selection of Bidder for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model"**

2.12 Each Envelope shall be addressed to:

CEO, Indore Smart City Development Limited. INDORE SMART CITY DEVELOPMENT LIMITED, INDORE ,107-109, Palika Plaza, Phase – II, M.T.H. Compound, Indore (M.P.)

2.12.1 Each of the envelopes shall indicate the complete name, address, email ID, telephone, mobile and facsimile number of the Bidder.

2.13 **Bid Due Date and Time**

2.13.1 Bids should be submitted on or before the Bid Due Date at the address provided in data sheet in the manner and form as detailed in this RFP.

2.13.2 Authority may, at its sole discretion, extend the Bid Due Date by issuing an Addendum uniformly for all Bidders.

2.14 **Modifications / Substitution / Withdrawal of Bids**

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

2.14.2 The modification, substitution or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 2.11, with the envelopes being additionally marked "MODIFICATION", "SUBSTITUTION" or "WITHDRAWAL", as appropriate.

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

2.15 Late Bids

2.15.1 Bids received by the Authority after the specified time on the Bid Due Date shall not be eligible for consideration and shall be summarily rejected.

2.16 Rejection of Bids

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

2.16.2 The Authority reserves the right not to proceed with the Bidding Process at any time, without notice or liability, and to reject any Bid without assigning any reasons.

2.17 Validity of Bids

2.17.1 The Bids shall be valid for a period of not less than 120 (one hundred and twenty) days from the Bid Due Date. The validity of Bids may be extended by mutual consent of the respective Bidders and the Authority.

2.18 Confidentiality

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

2.19 Correspondence with the Bidder

2.19.1 Save and except as provided in this RFP, the Authority shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any Bid.

D. BID SECURITY

2.20 Bid Security

2.20.1 Bids need to be accompanied by a Bid Security mentioned in the Data Sheet. The Bid Security shall be kept valid for 180 days beyond the Bid Validity period including any extensions in the Bid Validity Period inclusive of a claim period of 60 (sixty) days, and may be extended as may be mutually agreed between the Authority and the Bidder from time to time.

2.20.2 The Bid Security shall be in the following form:
DD / FDR in favour of "Executive Director, Indore Smart City Development Limited", payable at Indore, drawn on any nationalized / scheduled bank.

2.20.3 Authority shall reject the Bid, which does not include the Bid Security.

2.20.4 The entire Bid Security shall be forfeited in the following cases:

(i) If the Bidder withdraws his Bid within the Bid Validity Period;

(ii) In case of a successful Bidder, if the Bidder fails:

(a) To furnish acceptance of the LoA within 15 days from the issue or

(b) To furnish Performance Security within 30 working days from the date of issue of LoA or

(c) To sign the Concession Agreement within 30 working days from the date of issue of LoA or

(d) If the Bidder is found to be involved in fraudulent practices.

3. EVALUATION OF BIDS

3.1 Opening and Evaluation of Bids

3.1.1 The Authority shall open the Bids at the appointed time and place specified in the presence of the Bidders who choose to attend.

3.1.2 The Authority will subsequently examine and evaluate the Bids in accordance with the provisions set out in this Section 3.

3.1.3 To facilitate evaluation of Bids, the Authority may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Bid.

3.2 Tests of responsiveness

3.2.1 Prior to evaluation of Bids, the Authority shall determine whether each Bid is responsive to the requirements of this RFP. A Bid shall be considered responsive only if:

(a) it is received as per the formats as mentioned in this RFP;

(b) it is received by the Bid Due Date

(c) it is signed, sealed, bound together in hard cover and marked as stipulated in Clauses 2.10 and 2.11;

(d) it is accompanied by the Bid Security.

(e) The purchaser of the RFP document must be the Bidder itself or a Member of the Consortium submitting the Bid. The Bidder should submit a Power of Attorney as per the format enclosed at **Annexure 2A**, authorising the signatory of the Bid to commit the Bid.

(f) In case the Bidder is a Consortium, the members of the Consortium shall furnish a Power of Attorney in the format prescribed at **Annexure 2B** designating one of the Members, as per the Memorandum of Understanding (MoU), as their Lead Member.

(g) Any entity, which has been barred, by Authority and the bar subsists as on the Bid Due Date would not be eligible to submit the Bid, either individually or as Member of a Consortium. An Affidavit as per the format in **Annexure 2C** should be submitted along with the Bid.

(h) The Bid shall be accompanied with an Anti-Collusion Certificate on the letter head of the Lead Member (in case of a Consortium) or the Single Entity as the case may be substantially in the format provided at **Annexure 2D**.

(i) The Bid shall also be accompanied with a Project Undertaking on the letter head of the Lead Member (in case of a Consortium) or the Single entity as the case may be substantially in the format provided at **Annexure 2E**.

(j) Members of the Consortium shall submit a Memorandum of Understanding (MoU), specific to this Project, for the purpose of submitting the Bid as per format provided in **Annexure 2F**. The MoU shall be furnished on a non-judicial stamp paper of Rs. 100/-, duly attested by notary public.

(k) The Bid should be accompanied by the Board Resolutions (in case of corporate members) and/or undertakings (in case of individual members) of the Consortium, giving authority /undertaking to enter into an MoU with other Members for submitting Bid for the Project and, if successful, to participate and undertake the Project and in case of corporate members nominating and authorising an authorised representative of the member to sign and enter into the MoU and execute Power of Attorneys for the Project. The format for the Board Resolutions / Undertaking that must be submitted as provided at **Annexure 2G**.

(l) it contains all the information (complete in all respects) as requested in this RFP and/or Bidding Documents (in formats same as those specified);

(m) it does not contain any condition or qualification; and

(n) it is not non-responsive in terms hereof.

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

3.3 Selection of Bidder

3.3.1 Subject to the provisions of Clause 2.16.1, the Bidder whose Bid is adjudged as responsive in terms of Clause 3.2.1, the Bidder who scores the highest Final Score shall be declared as the Successful Bidder subject to fulfilment of all other provisions of this RFP.

3.3.2 The technical and financial capability of the Bidders would be assessed based on the evaluation process and minimum requirements as set by Authority as per **Annexure 4A**, to be submitted by the Bidders in formats as per **Annexure 4BForms 1 to 10**.

3.3.3 Technical Bid is to judge the Bidder's capability and is proposed to be established by the following parameters:

(a) **Technical capability**: The Bidder should have executed 'Eligible Projects' as provided in **Annexure 4B (Form 1 to Form 10 excluding Form 3)**.

(b) **Financial capability:** The financial capability of the Bidder shall be evaluated in terms of criteria mentioned in **Annexure 4B - Form 3**:

3.3.4 A Bid that is substantially responsive is one that conforms to the preceding requirements without material deviation or reservation. A material deviation or reservation is one

(i) Which affects in any substantial way the scope, quality, or performance of the Project, or

(ii) Which limits in any substantial way or is, inconsistent with the RFP, rights of Authority or the obligations of the Bidder under the Concession Agreement, or

(iii) Which would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

3.3.5 Authority reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained in respect of such Bids.

3.3.6 Bidders whose qualifies the eligibility criteria shall be technically evaluated.

3.4 Technical Evaluation of Bids

3.4.1 Bidders will be Technically evaluated and given a Technical Score (T)

3.4.2 Technical Bids that obtain 60% marks or more in the technical evaluation shall qualify for the financial bid opening.

3.5 Financial Evaluation Bids

3.5.1 Authority will open 'FINANCIAL BID' of the Bidders, who pass the Technical Evaluation, in the presence of the Bidders' authorised representatives who choose to attend.

3.6 Successful Bidder

3.6.1 The bid of the bidder who makes the highest offer to the authority will be treated as the best bid and the contract will be awarded to that Bidder. The Successful Bidder shall be notified on its selection in writing or by fax or email. The Successful Bidder shall also be issued Letter of Acceptance confirming its selection.

3.6.2 In the event that two or more Bidders make equal financial offer the Bidder with highest technical score (T) shall be identified as the Successful Bidder.

3.6.3 In the event that the Highest Bidder withdraws or is not selected for any reason in the first instance (the **"first round of bidding"**), the Authority may invite the Bidder with next highest final score for consideration as Successful Bidder;

3.6.4 The Successful Bidder shall be notified on its selection in writing or by fax or email. The Successful Bidder shall be issued Letter of Acceptance confirming its selection.

3.6.5 After selection, a Letter of Award (the "**LOA**") shall be issued, in duplicate, by the Authority to the Successful Bidder and the Successful Bidder shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Successful Bidder is not received by the stipulated date, the Authority may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as Damages on account of failure of the Successful Bidder to acknowledge the LOA, and the next eligible Bidder may be considered.

3.6.6 After acknowledgement of the LOA as aforesaid by the Successful Bidder, it shall cause the Bidder to execute the Concession Agreement within thirty (30) days of the issue of LOA. The Successful Bidder shall not be entitled to seek any deviation, modification or amendment in the Concession Agreement.

3.6.7 In case, the Concession Agreement does not get executed within the period mentioned in Clause 3.6.6., Authority reserves the right to take any such measure as it may deem fit including to annul the bidding process and may invite fresh Bid for the Project. In such a case the entire Bid Security submitted by the Successful Bidder shall be forfeited. However, Authority on receiving request from the Successful Bidder may at its discretion, permit extension of time for execution of the Concession Agreement.

3.6.8 Authority will notify other Bidders that their Bids have been unsuccessful. Bid Security of other Bidders will be returned within 15 days of signing of the agreement or expiry of validity period of Bids whichever is earlier.

3.7 Contacts during Bid Evaluation

3.7.1 Bids shall be deemed to be under consideration immediately after they are opened and until such time the Authority makes official intimation of award/ rejection to the Bidders. While the Bids are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save and except as required under the Bidding Documents, from contacting by any means, the Authority and/ or their employees/representatives on matters related to the Bids under consideration.

4. FRAUD AND CORRUPT PRACTICES

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

4.1.2 Without prejudice to the rights of the Authority under Clause 4.1.1 hereinabove and the rights and remedies which the Authority may have under the LOA or the Concession Agreement, or otherwise if a Bidder or Bidder, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Concession Agreement, such Bidder or Bidder shall not be eligible to participate in any tender or RFP issued by the Authority during a period of 2 (two) years from the date such Bidder or Bidder, as the case may be, is found by the Authority to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

4.1.3 For the purposes of this Clause 4, the following terms shall have the meaning hereinafter respectively assigned to them:

(a) "**corrupt practice**" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Authority who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the Concession Agreement or arising therefrom, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Authority, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process), engaging in

any manner whatsoever, whether during the Bidding Process or after the issue of the LOA or after the execution of the Concession Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Concession Agreement, who at any time has been or is a legal, financial or technical adviser of the Authority in relation to any matter concerning the Project;

(b) "**fraudulent practice**" means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

(c) "**coercive practice**" means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process;

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

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

5. PRE-BID CONFERENCE

5.1.1 Pre-Bid conferences of the Bidders shall be convened at the designated date, time and place. Only those persons who have purchased the RFP document shall be allowed to participate in the Pre-Bid Conferences. A maximum of five representatives of each Bidder shall be allowed to participate on production of authority letter from the Bidder.

5.1.2 During the course of Pre-Bid conference(s), the Bidders will be free to seek clarifications and make suggestions for consideration of the Authority. The Authority shall endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

6. MISCELLANEOUS

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

6.1.2 The Authority, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;

(a) suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;

(b) consult with any Bidder in order to receive clarification or further information;

(c) retain any information and/ or evidence submitted to the Authority by, on behalf of, and/ or in relation to any Bidder; and/ or

(d) Independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.

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

6.2 Performance Security

6.2.1 The successful bidder shall for due and punctual performance of obligations during the Project Implementation Period and O&M Period deliver to ISCDL, will submit Performance Security as per this Agreement.

6.2.2 The successful bidder shall submit a Performance Security in the form of an irrevocable and unconditional Bank Guarantee, from any scheduled bank for the amounts as mentioned below:

(i) Rs. 20 Crores for the Implementation Period (i.e. 30 months) plus 60 days, from the date of this agreement, and,

(ii) Rs. 10 Crores for the Concession Period plus 120 days (effective from the Date of Commencement of Operations Period).

6.2.3 The Performance Security shall be in the format as detailed in Annexure 3.

6.2.4 The Performance Security at 6.2.2(i) above shall be released after satisfactory completion of the implementation activities are carried out and completed.

7. Project Background, Description and Scope of Work

7.1 Intelligent Street Pole Concept

1) The smart poles combine the benefits of LED lighting and mobile connectivity in a "lighting-as-a-service" model for cities. The mobile wireless 4G/LTE infrastructure deployment on smart pole can result in better coverage, improved data speeds, reduced radiation, reduced signal dropouts, etc. Smart pole can vastly improve the telecom infrastructure of the city. LED street lighting can generate energy savings of 50 to 70 percent, with savings reaching 80 percent when coupled with smart controls.

2) **Primary and Secondary Functions:** The primary function of the smart poles will be to provide street lighting, mobile broadband infrastructure, Wi-Fi hotspot services, Active Geo location transponder for location based services and surveillance camera. These facilities will be connected to the central command and control Centre (C4) where it will be constantly monitored and managed. The concessionaire may also use the smart pole for other commercial purposes, namely, smart bill board, electronic vehicle charging, environmental sensor etc. It should however be ensured that the primary functions are not hampered in any way while using the same for other commercial purposes.

3) **Functional Requirement** of Citywide IT Network layer to be implemented by the Concessionaire:

- The network should support successful implementation of Smart pole including CCTV, Wi-Fi and other future Smart city initiatives already defined for ISCDL area in RFP document.
- The network should be built to provide the following:
    - Higher Network Uptime
    - Visibility of Network
    - Better Utilization of WAN Links
    - Segregation of Traffic and QOS
    - Better Network Management
- The network should have the capability and facility for Seamless integration with all other component required to build CCTV , Wi-fi network and other services related to Smart city initiatives.
- Network should act as backbone for all the ISCDL smart city initiatives which may come in future like for parking, waste management, environment and other e-governance services like smart energy grid, smart water supply, smart education, smart health, waste management etc.
- Network must support next generation architecture of future applications.
- All the proposed routing devices should support key IP MPLS feature and protocol for enablement of same as and when required.

- Network will be connected in Ring fashion and devices must support the redundancy protocol like MPLS-TE for better convergence.
- The Ring Based architecture must be deployed to meet the following:
    - Redundancy of nodes and Links
    - Less prone to failures
    - Better Link utilization
    - Traffic should not Hog core bandwidth for any to any communication
    - Easy Insertion of new Node without config change at Core switches/Routers.

4) **Commercial Use:** The concessionaire shall be permitted to use the smart pole for the commercial uses, namely, mobile broadband infrastructure, Wi-Fi hotspot services, smart bill board, electronic vehicle charging, Geo location based services, etc. and earn revenue for the same.

5) Design Philosophy: The intelligent street pole is designed primarily for lighting while at the same time taking cognizance of the requirements of other functions. Hence the height of the pole has to be constant except in junctions where the lighting is required to be from a higher point. The inter se distance between the smart poles may be finalized based on requirements of 4G with provision to upgrade to 5G. Other functions shall also be built into the intelligent street pole an aesthetic manner without affecting over all functionality.

1.2 Smart Lighting – Approach

1) The road illumination involves providing cohesive lighting scheme for a diverse urban landscape whilst maintaining a responsible approach to minimizing the level of lighting pollution, and, maintaining lighting levels enough for functional purposes. Well-designed public lighting solutions provide the essential safety to enjoy the cityscape and also deter crime and vandalism.

2) The standard referred in the document shall be applied for the road lighting design, namely guidance of the factors of “average lighting level” and “uniformities” to be maintained according to the classification of the roads. Concessionaire is required to provide the lighting system along with Effective Asset Management System for Road Lighting in Smart City.

3) Details of existing luminaire types and wattages are provided for evaluation purpose. The successful Concessionaire needs to conduct baseline study and generate inputs required for a road lighting design viz, road width, the type of road (fast traffic, pedestrians, slow traffic etc.). The required lighting level and uniformity shall be selected from the standards. Suitable lighting fixtures for appropriate lighting design shall be worked out. An audit of existing street light infrastructure needs to be carried out. Infrastructure is required to be updated wherever required.

4) The total quantity of Luminaire involved in the project is approximately 75,000 numbers. However this data is for information purpose only and actual data is to be considered by the

successful Concessionaire after conducting Baseline Survey. Concessionaire is required to carry out the survey, based on which he needs to work out the lighting design in such a way to provide Illumination Level as per IS standards mentioned below.

Classification	Average Illumination (lux)	Ratio Minimum to average illumination
Class A1	30	0.4
Class A2	20	0.4
Class B1	10	0.3
Class B2	7	0.3

5) Principles of Design: Design of Lighting as well as Lights Management System should be such as to provide excellent Illumination on roads while keeping the energy efficiency in mind. The LED bulbs should have an output of minimum 110 lumens per watt. While designing the lighting system undermentioned guidelines shall be followed.

i) No Light Pollution
ii) Free Public movement
iii) Hazard-free lighting for motorist as well as pedestrians
iv) Economic viability - Long Life solution / Low Maintenance
v) Experiential and attractive lighting
vi) Green solution with respect to environment

Lighting control management system is required to control each luminaire point or group control as the case may be. System should have capability to schedule the operations of luminaires and accordingly control them by dimming up & down. Luminaires may be controlled through cabinet in case of emergency.

6) **Light Management System:** Lighting Control System should be deployed to manage the entire Street Lighting System under the scope of the project. Foolproof communication is to be provided between luminaire and central server Web based System should exercise complete control over the streetlights and thus be able to monitor their functions / operations such as Scheduling, Dimming, and Monitoring.

a) Primary requirement of the system is that it should be Simple, Open and Secure. System Infrastructure should be simple providing seamless end to end solution without any complexity, with simple plug and play type of solution for installation not emphasizing of any special expert knowledge. System should be such that it can be easy to use / operative for non IT expert for daily work life. System should be Open and can be easily integrated with other major system. It should use Open standard network technologies. Lighting data should be secure from any leak. Solution should be scalable and adaptable to future requirements.

b) A centralized control solution shall be easy to implement that requires less equipment and easier installation and essentially provide following facilities:

c) Automatic (with a timer), Remote and Manual Switching Options

d) Remote Energy Measurement

e) Dimming functionality

f) Near real-time monitoring

g) Alarms and Report generation.

h) Emergency override – locally and remotely.

i) Web based User Interface with Integrated Visual maps.

j) Data security and secured system access.

k) Prevent unauthorized physical access to the street light control box.

l) Uninterrupted operation, even during single phasing.

m) System integration with third party application software for smart city requirements.

n) System should be centralized exercising cabinet based control of the street lights such as ON/OFF, Dimming ensures an extremely high up-time and enables fast reaction to fault states.

o) The hardware modules installed in control cabinets and a full system overview is provided via the Web browser interface. Through a secure connection the system is accessible from any location and provides a fast assessment of the system's status, alarms and other events.

p) The streetlight automation system shall control and monitor streetlight electrical cabinets remotely via wireless/wired communications as the primary communications network to the server. The system shall be easily scalable to include streetlights from a small area to a citywide system rollout on the same platform. ON/OFF programming shall be enabled remotely and can be changed at any time. The ON/OFF times shall be optimized for the different daylight hours every day for energy optimization. That is, it would be optimized to follow the sunrise and sunset times every day

q) Electrical cabinet monitoring configurations shall be enabled remotely and can be changed at any time. Electrical meter readings shall be available On Demand and also in configured time intervals. Graphical view of the electrical consumption readings shall be available online for monitoring of the hourly electricity consumption

r) Power supply voltage and out-going current (from electrical cabinets to streetlights) shall be available ON-Demand. All alarm/fault detection events shall be logged and available for report-out printing for analysis

s) This system is primarily should be employed for the major part of the project ie for category 'A2' – Busy streets, thickly populated area & colony. Appropriate scheduling is to be done in consultation with the authorities for Dimming of street lights. In case of 'B1'

& 'B2'colony areas system to be designed for ON/OFF control and other requirements without dimming. Lighting level in colony area is not required to be dimmed down.

t) In case of category 'A1' i.e. VIP area and main Roads system is to provide individual light point control. System should be simple with plug & play type of installation features with cellular point to point communication between luminaire and server. Lighting management application to professionally manage Lighting Data & efficiently manage workflow / operations and demonstrate full control over monitoring and accurate energy metering. System to be flexible by providing Open platform for high level integration on software as well as on lighting hardware side. Requirements.

7) APPLICABLE STANDARDS FOR EQUIPMENTS: Standards for Illumination of Public areas are mentioned above. Wherever any guidelines are unavailable National Lighting Code should be followed. IS 1944 provides lighting level requirements for different categories of roads are mentioned below.

TABLE 1 CLASSIFICATION OF LIGHTING INSTALLATION AND LEVELS OF ILLUMINATION

(*Clause* 5.1 *and* 5.7)

CLASSIFICATION OF LIGHTING INSTALLATION	TYPE OF ROAD	AVERAGE LEVEL OF ILLUMINATION ON ROAD SURFACE	RATIO MINIMUM/ AVERAGE ILLUMINATION	TRANSVERSE UNIFORMITY RATIO = *Min* ILLUMINATION / *Max* ILLUMINATION	TYPE OF LUMINAIRE	
					Preferred	Permitted
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		lux		percent		
Group A1	Important traffic routes carrying fast traffic	30	0.4	33	cut-off	semi-cut-off
Group A2	Other main roads carrying mixed traffic, like main city streets, arterial roads, throughways, etc	15	0.4	33	cut-off	semi-cut-off
Group B1	Secondary roads with considerable traffic like principal local traffic routes, shopping streets, etc	8	0.3	20	cut-off or semi-cut-off	non-cut-off
Group B2	Secondary roads with light traffic	4	0.3	20	cut-off or semi-cut-off	non-cut-off

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IS : 1944 (Parts I and II) - 1970

8) In order to ensure the best performance over their life cycle these advanced tools i.e. LED luminaires, should conform to the various National / International standards for safety & performance. Luminaires shall conform to Performance Requirements as defined in IS 16107 Part 2/Sec 1. Manufacturer should provide test reports as per LM 79 & LM80. Luminaires should conform to the IS standards for Safety & Performance and test certificates as per IS 16107 should be provided by the manufacturer. In case of luminaires which are imported, should conform to test parameters as per UL or equivalent standards. CE marking would be acceptable

9) Scope of lighting work in ABD (Area Based Development) area is mentioned in Annexure 11, Section 3.1.

1.3 Smart Telecom Infrastructure – Approach

1) India is already covered for voice coverage (2G) in most of the cities / rural areas. However, few coverage holes are still there due to not getting proper site locations for the operators, especially in the dense urban environment/area. The smart cities have to plan for 4G and 5G. They have to be future ready. In the era of Digital India, the data coverage is still very poor. It requires massive network densification. 3G deployment started in India from early 2011 by top 3 private telecom operators and mostly available across India & is still ongoing. Now the 4G deployment is very new and recently started to launch by various by private operators.1-2 years back.

2) There are three main factors which affects the service quality of Telecom Infrastructure

   a) **Density of the users (No. of concurrent users):** Now after launching of 4G by various operators, devices rates has been reduced considerably giving huge no of 4G users thus pushing the demand for high speed data. This is mainly due to data hungry applications. To add to the demand, the data rates has been dropped drastically which is resulting in huge usage of data.

   b) **Distance between Mobile phone and the Tower:** In order to get best user data experience (up link - transmission from handset to mobile base station) **user need to be very close to mobile BTS (Base Transceiver Station) site which also provide good battery life to the end user**. No doubt the radiation due to mobile phone will also reduce as the distance between the mobile and tower reduces.

   c) **Inter se distance between Towers**: LTE and 3G networks in India are mostly in higher bands (1800, 2100, 2300 and now 2500 MHz). This means due to higher frequency resulting into higher attenuation, the number of sites require are quite high, as compare to 700/800 and 900 band frequency spectrum. For this type of requirement, low power BTS site small gain/size antenna is more effective than a high power tall BTS, as this does not give more consistency for data rates, resulting into poor quality network. In order to provide best quality of 4G(or above) network in India, approximate site to site distance will come in the range of **200-300m** with antenna height of **09- 15 M.**

   d) **The monitoring of user density:** The quality of services (QoS) provided by the Telecom operators needs to be monitored for call drops and this needs to be achieved by calculating the density of users within 100 Meters of the Smart Street light infrastructure, to enable this the street lights shall incorporate Active Geolocation transponders, which shall connect to the Indore Smart City application as well as other applications which utilize geo location as the key trigger for services to be rendered.

   The proximity of a Citizens smart phone to the Smart Street Light shall be sensed by the Indore Smart City or any third party application and while providing location based services shall also provide the load conditions (density of users). This feature shall be used as “Big Data” while auditing the QoS of the Telecom operators.

3) **Effect of 4G radiation Vs 3G and lower:** The distance from mobile to the tower is critical in deciding the radiation levels and battery life. Radiation effect of Wi-Fi, 3G and 4G has also been tested. Plankton were used in experiments to test the adverse properties of wireless signals in lab tests. In these experiments, the wireless-exposed plankton **died** or were **deformed** within several days of chronic exposure. With Wi-Fi it took 96 hours, 3G took 72 hours, and with 4G the plankton died within 48 hours.

4) **Challenges of High Masts. :**The high masts, namely 25 m and above mast sites is more for coverage than capacity but it still has network quality challenges even for voice resulting into **call drop**. Therefore high masts are not suitable where the focus is on creating capacity for high density users. Higher the mast greater the number of users and hence unsuitable for high density users. Higher the mast longer the distance between user and BTS hence greater the radiation and power consumption. Another issue that a higher mast site generates is **passive intermodulation (PIM**) that results in call drops. In most high mast sites there is a requirement of Air-conditioning because of high power requirement of BTS. This result in higher power consumption for city, in addition to generating pollution. It also requires space over ground, resulting in space wastage & hindrance for any new construction in Smart city, giving a blow to aesthetics of a smart city.

1.4 Solution

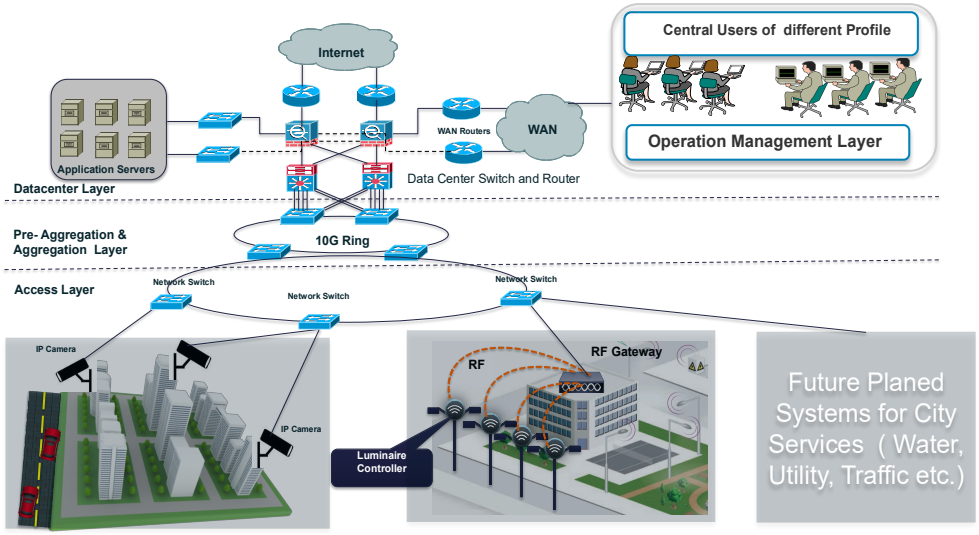
1) The inherent requirements of the 4G and the challenges of high masts necessitates an optimum solution. The fact that street lighting requires poles of similar height has given an opportunity to optimize on the resources and space. The idea of intelligent street pole has evolved primarily from these challenges and opportunities. It's a completely win-win situation which will give the smart city a new look and a better experience to the citizens. Intelligent lighting coupled with excellent mobile network. The additional features of Wi-Fi hot spots, surveillance cameras, signage, pollution sensors, EV charging, etc., will further enable monetizing the intelligent street pole. The solution thus lies in having 9- 15 m height intelligent street poles with a distance of 200-300m of distance in city areas. These not only has the same height as light pole, it provides various options to make it a smart pole. The Smart pole is designed to support high capacity data site, with lot of societal applications in smart city deployment scenarios. It also helps to reduce visual pollution, it is technically viable and visually appealing solution.

2) The structure is designed to provide guaranteed performance to telecom operators as well as provide cities multiple citizen applications by camouflaging various features inside the pole such as low OPEX LED lights, surveillance camera, WiFi, ActiveGeo location transponders, environmental sensors .It can also support digital signage which can generate additional revenues or can be utilize by cities to broadcast various public messages. The material used for camouflaging the RF section **with negligible RF losses** and **free from passive intermodulation**. This is very important parameter to reduce call drops and RF interference. Earlier the RF equipment's sizes were big but now due to technology evaluation, the sizes has reduced considerably which also helped us to integrate multiple

operators with various types of technology equipment's (2G/3G/4G/Wifi/5G) in light pole in nice looking shape . It also has a feature of GREEN that does not require high power consumption due to non-requirement of Air conditioning. To provide sufficient power and battery backup there is **underground** space/box provided which can help to provide long battery backup hrs in case of mains/AC failure as well as help cities to maintain city aesthetics. It is a fully camouflaged solution.

3) Citywide Network: Concessionaire will built IT network for Indore Smart City as per the best practices followed in network infrastructure designs. The network shall have critical components that helps enable highly secure, easy access of network and centralized usage policy can be enforced through it.

The network to be created for Indore should be of three-layered logical architecture comprising of: Street layer, City network layer and Data center layer (provides resources to help enable citywide network applications and services).



Street Layer

Devices at the street layer like outdoor network access points gateways for smart street light LED & Cameras mounted on poles environmental sensors, other devices used for other Smart city initiatives , ruggedized access switches in street cabinets, citywide network routers, and RFID or Wi-Fi tags used for city services.

City Network Layer

The city network layer aggregates street access switches and access points, and connects to the data center and other locations used for monitoring and managing the infrastructure.

Data Center Layer

The data center layer includes network, compute, and storage resources for citywide network applications and service

1.5 Broad design of the Smart pole

1 Indore City requires Intelligent Street pole Solution which is best in class with innovation for network densification in outdoor city environment. Smart pole should able to meet city aesthetic requirement and it should be visual appealing. It should easily blend into city light pole master plan. The general concept is to integrate telecom solution with street light poles in a Smart way. This solution should fully be encapsulated for outdoor site deployments. The Telecom units should be inside the Smart pole that is camouflaged while other equipment such as power, battery and cooling etc. are placed underground in an IP 67 cabinet. It shall be possible to uplift the entire underground Column above Ground level. Underground equipment box should be maintenance friendly, Provision of lifting of equipment from maintenance perspective is available. In order to have trouble free operation Lifting column is able to support 200Kg or more of equipment load.

2 Apart from the LED Lights and Telecom Equipment, the pole should have capabilities to accommodate Surveillance Camera, Environment Sensors and Wi-Fi. It should have the capability to incorporate backhaul for connectivity such as Optical Fiber Network and Microwave as per requirement. The signage may be fitted at an appropriate height measuring 4 feet by 3 feet. All the cablings are to be done inside the pole and the whole design should be aesthetic and attractive.

3 The features of the Smart pole solution.

a) Easy to place and build .Best mobile coverage at streets and hot spots
b) Getting ideal location for seamless mobile broadband coverage in dense urban areas for various technologies 2G/3G/4G &Wi-Fi.
c) Multi use of city infra – blends easily into city aesthetics without any visual pollution
d) The Smart Pole should withstand partial flooding on the ground level
e) Smart Street Solution should be designed to suit all climate zones
f) Lighting protection and grounding are to be included in the pole structure
g) DC Power Backup: It should be possible to house minimum 3-4 telecom technologies (GSM, WCDMA, LTE, Wi-Fi, BLE4.0 etc.) simultaneously with minimum 2-3 sectors. It should also be possible to support future technologies such as 5G.
h) It should be possible to support LED luminaries as per the primary requirement of the Light Pole
i) The height of the smart pole should be in line with the requirement of the street light varying from 9 to 15 meters depending on the type of the road and the lighting required.
j) It should be possible to support 1 light arm/2 light arm as per requirement.
k) Smart pole should be possible to support other societal/smart city applications such as surveillance camera, weather monitoring, flood monitoring, bill board etc.
l) The camera should be integrated with the light arm and should have feature of night vision

m) It should provide passive infrastructure in suitable underground box for supporting space and power need for telecom / wifi equipment

n) It should be able to cater to the space, power and functionalities of environmental sensors, billboards and EV charging as and when required

o) There should be provision to have separate connection for light as well for telecom and other secondary equipment for maintenance purpose.

p) Hanging of telecom equipment boxes or ground based cabinets at bottom level (outside of structure or integrated with pole) is not permissible, approach needs to have integrated solution which blends into the city scape and would look like a light pole with mandatory underground box for telecom and other equipment

q) It is encouraged to utilize the space inside the top section and facilitate antenna sharing within the operators

r) There should be suitable mounting options for Radio /Antenna unit mounting

s) Pole hat mounting is allowed with suitable mounting option for GPS antenna, small MW antenna (up-to 0.3m dia).

t) It should be possible to house telecom equipment from all reputed OEMs.

u) All cabling, cooling/heating etc should be via/inside the pole and it should not be visible from outside due to aesthetic and security reasons

v) It is mandatory to use underground space for telecom equipment with suitable telecom grade enclosure box with IP67 protection

w) Underground equipment box should be maintenance friendly, provision of lifting of equipment (at suitable working height) from maintenance perspective should be available as option up to equipment weight of 200 Kgs. The underground box needs to be available option however selection can be based on operator / city discretion. The lifting column should be self-powered and operable with the help of external remote / connected switch

x) Sections of the poles which are going to enclose equipment for telecom etc needs to be provided with proper cooling arrangement to cater to heat dissipation from the radio equipment

y) The cooling/heating equipment to cool /heat telecom equipment should be integral part of smart pole. Efforts should be made to reduce the power consumption as much as possible.

z) The camouflaging material for covering the antenna /RF equipment should be hard material with a minimum life of 10 years. It should be possible to provide multiple color options as asked by municipality/user as per city light pole colors. The paint material (to cover the RF section) should be complied to RF /Telecom requirement should be possible to color the complete body (including RF equipment camouflaging) by any paint

aa) The camouflaging material (to cover RF equipment) **should have RF transparency with maximum 0.5db of attenuation covering all the radio frequency bands** available in India

bb) It should meet **EMC requirement of telecom sites as per Indian regulations**

cc) The structure should be free from any passive intermodulation. Passive intermodulation (PIM) **value should be < -150 dBc @ 2 x 43 dBm.**

dd) The smart pole should be preventive maintenance free for minimum 2 years.

ee) The minimum life requirement of above smart pole structure is 15 years (metal parts)

ff) The supplier should not use any banned /restricted material as per Indian regulations

gg) Smart pole should comply to city as well telecom standards for India for various parameters defined for wind speed, climate, aesthetic etc.

hh) For wind speed requirement IS codes for the applicable city needs to be followed.

ii) Suppliers needs to provide IIT approval certificate for structural stability

jj) Ingress Protection standard for underground box should be IP 67 approved by any International Lab or Govt of India accredited labs.

All necessary IPR and related patents should be submitted.

8. ANNEXURES

1.1 Checklist for Submission of Qualification Bid

This shall consist of:

1. Annexure 1: Covering letter for Bid submission
2. Annexure 2A: Power of attorney for signing of Bid
3. Annexure 2B: Power of attorney for lead member of consortium
4. Annexure 2C: Affidavit
5. Annexure 2D: Anti-collusion certificate
6. Annexure 2E: Project undertaking
7. Annexure 2F: Memorandum of understanding (MoU)
8. Annexure 2G: Board resolution for companies
9. Annexure 3: Bid security
10. Annexure4A : Guidelines for evaluating qualification/Technical Bid
    a. Form 1: Format for submission for providing information regarding qualification capability of the Bidder
    b. Form 2: Eligible project details
    c. Form 3: Financial capability of the Sole Bidder/Lead Member of the Consortium
    d. Form 4: Proposed Solution
    e. Form 5: Proposed Implementation Work Plan
    f. Form 6: Composition of Deployed Team
    g. Form 7: Curriculum Vitae of Project Manager (dedicated on-site)
    h. Form 8: Deployment of Personnel
    i. Form 9: Manufacturer's/Producer's Authorization From
    j. Form 10: Declaration against Blacklisting

11. Annexure 5: Price Bid Format
12. Annexure 6:Undertaking on Service Level Compliance
13. Annexure 7: Undertaking on Exit Management and Transition
14. Annexure 8: Undertaking to open an office in Indore
15. Annexure 9: Data Sheet
16. Annexure 10: MP E-procurement Guidelines
17. Annexure 11: Project Details, Specifications and Scope of Work
18. Annexure 12: Guidelines of the Department of Disinvestment

ANNEXURE 1- COVERING LETTER FOR BID SUBMISSION

FORMAT FOR COVERING LETTER FOR BID SUBMISSION

(On the Letter head of the Bidder or Lead Member in case of a Consortium)

To Date:

Name & Address of the Authority

Subject: Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL

Tender Specification No…….

Dear Sir,

With reference to your RFP document dated ******$. I/we, having examined the Bidding Documents and understood their contents, hereby submit my/our Bid for the aforesaid Project. The Bid is unconditional and unqualified.

2. I /We acknowledge that the Authority will be relying on the information provided in the Bid and the documents accompanying the Bid for selection of the Concessionaire for the aforesaid Project, and we certify that all information provided therein is true and correct: nothing has been omitted which renders such information misleading; and all documents accompanying the Bid are true copies of their respective originals.

3. This statement is made for the express purpose of our selection as Concessionaire for the development, construction, operation and maintenance of the aforesaid Project.

4. I/We shall make available to the Authority any additional information it may find necessary or require to supplement or authenticate the Bid.

5. I/We acknowledge the right of the Authority to reject our Bid without assigning any reasons or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.

6. I/We certify that in the last three years, we/any of the Consortium Members or our/their Associates have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award, nor been expelled from any project or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.

7. I/We declare that:

   (a) I/We have examined and have no reservations to the Bidding Documents, including any Addendum issued by the Authority; and

   (b) I/We do not have any conflict of interest in accordance with Clauses 2.1.12 of the RFP document; and

   (c) I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Clause 4.1.3 of the RFP document, in respect of any tender or request for proposal issued by or any agreement entered into with the Authority or any other public sector enterprise or any government. Central or State; and

   (d) I/We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 4 of the RFP, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice; and

   (e) the undertakings given by us along with the Application in response to the RFP for the Project are true and correct as on the date of making the Application and are also true and correct as on the Bid Due Date and I/We shall continue to abide by them.

8. I /We understand that you may cancel the Bidding Process at any time and that you are neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to the Bidders, in accordance with Clause 2.16 of the RFP document.

9. I/We believe that we/our Consortium satisfy(s) the Net Worth criteria and meet(s) the requirements as specified in the RFP document.

10. I/We certify that in regard to matters other than security and integrity of the country, we/any Member of the Consortium or any of our/their Associates have not been convicted by a Court of Law or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.

11. I/We further certify that in regard to matters relating to security and integrity of the country, we/any Member of the Consortium or any of our/their Associate have not been charge-sheeted by any agency of the Government or convicted by a Court of Law.

12. I/We further certify that no investigation by a regulatory authority is pending either against us or against our Associates or against our CEO or any of our directors/managers/employees.

13. I/We further certify that we are not disqualified in terms of the additional criteria specified by the Department of Disinvestment in their OM No. 6/4/2001-DD-II dated July 13, 2001, a copy of which forms part of the RFP at Annexure 12 thereof.

14. I/We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the guidelines referred to above, we shall intimate the Authority of the same immediately.

15. I/We acknowledge and undertake that our Consortium was pre-qualified and short-listed on the basis of Technical Capacity and Financial Capacity of those of its Members who shall, for a period of 2(two) years from the date of commercial operation of the Project, hold equity share capital not less than: (i) 26% (twenty six per cent) of the subscribed and paid-up equity of the Concessionaire. We further agree and acknowledge that the aforesaid obligation shall be in addition to the obligations contained in the Concession Agreement in respect of Change in Ownership.

16. For the purpose of clarity it is confirmed that the consortium being formed for the purpose of bidding could be incorporated or unincorporated

17. I/We acknowledge and agree that in the event of a change in control of an Associate whose Technical Capacity and/or Financial Capacity was taken into consideration for the purposes of short-listing and pre-qualification under and in accordance with the RFP. I/We shall inform the Authority forthwith along with all relevant particulars and the Authority may, in its sole discretion, disqualify our Consortium or withdraw the Letter of Award, as the case may be. I/We further acknowledge and agree that in the event such change in control occurs after signing of the Concession Agreement but prior to Financial Close of the Project, it would, notwithstanding anything to the contrary contained in the Agreement, be deemed a breach of thereof and the Concession Agreement shall be liable to be terminated without the Authority being liable to us in any manner whatsoever.

18. I/We understand that the Successful Bidder shall either be an existing Company incorporated under the Indian Companies Act, 1956/2013 or shall incorporate as such prior to execution of the Concession Agreement.

19. I/We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by the Authority in connection with the selection of the Concessionaire, or in connection with the Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.

20. In the event of my/our being declared as the Successful Bidder, I/we agree to enter into a Concession Agreement in accordance with the draft that has been provided to me/us prior to the Bid Due Date. We agree not to seek any changes in the aforesaid draft and agree to abide by the same.

21. I /We have studied all the Bidding Documents carefully and also surveyed the Project highway and the traffic. We understand that except to the extent as expressly set forth in the Concession Agreement, we shall have no claim, right or title arising out of any documents or information provided to us by the Authority or in respect of any matter arising out of or relating to the Bidding Process including the award of Concession.

22. I/We offer a Bid Security of Rs. ***** (Rupees ***** only) to the Authority in accordance with the RFP Document.

23. The Bid Security in the form of DD / FDR is attached.

24. The documents accompanying the Bid, as specified in Clause 2.11.1 of the RFP, have been submitted in a separate envelope and marked as “Enclosures of the Bid”.

25. I/We agree and understand that the Bid is subject to the provisions of the Bidding Documents. In no case, I /We shall have any claim or right of whatsoever nature if the Project/Concession is not awarded to me/us or our Bid is not opened or rejected.

26. The Premium / Grant has been quoted by me/us after taking into consideration all the terms and conditions stated in the RFP, draft Concession Agreement, our own estimates of costs and traffic and after a careful assessment of the site and all the conditions that may affect the project cost and implementation of the Project.

27. I/We agree and undertake to abide by all the terms and conditions of the RFP document.

28. We, the Consortium Members agree and undertake to be jointly and severally liable for all the obligations of the Concessionaire under the Concession Agreement till occurrence of Financial Close in accordance with the Concession Agreement.

29. I/We shall keep this offer valid for 120 (one hundred and twenty) days from the Bid Due Date specified in the RFP.

In witness thereof, I/We submit this Bid under and in accordance with the terms of the RFP document.

Dated this ..... Day of..... 20__
Place:…….

Name of the Lead Member/Person
Name, Designation &Signature of the Authorised Person

Annexure – D: Financial Proposal Submission Form

To the attention of the CEO, ISCDL [Place + Date]

From:*[Name and address of the Bidding Company/ Lead Member]*
Tel:
Fax:
Email:
Re: 'Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL

Dear Sir,

Please find below our Financial Bid for Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDLin response to the Request for Proposal ("RFP") issued by ISCDL on (date).

We hereby confirm the following:

(a) This Financial Bid is being submitted by [name of Bidder] in accordance with the conditions stipulated in the RFP.
(b) We have examined in detail and understand and agree to abide by all terms and conditions stipulated in the RFP Documents issued by ISCDL, as amended, and in any subsequent communication sent by ISCDL. Our Financial Bid is consistent with all requirements of submission stated in the RFP and in any subsequent communication sent by ISCDL.
(c) We are solely responsible for any errors or omissions in our Financial Bid.

Duly authorized to sign the bid for and on behalf of

[Signature]

Name:
Title: Date:
Place:
(NAME, signature and title of the Authorized Person in whose name a power of attorney was issued)

ANNEXURE 2 A FORMAT FOR POWER OF ATTORNEY

FORMAT FOR POWER OF ATTORNEY FOR SIGNING OF BID

(On Non – judicial stamp paper of Rs 100 duly attested by notary public)

POWER OF ATTORNEY

Know all men by these presents, we(name and address of the registered office of the Single Entity / Lead Member) do hereby constitute, appoint and authorize Mr. / Ms. _____S/o,D/o,W/o R/o ….(name and address of residence) who is presently employed with us and holding the position of as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to the bid of the consortium consisting of , and (please state the name and address of the Members of the Consortium) for submitting bid for Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL(the "Project"), including signing and submission of all documents and providing information / responses to Authority, representing us in all matters in connection with our bid for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

For

(Signature)

(Name, Title and Address)

Accept

..... (Signature)

(Name, Title and Address of the Attorney)

Notes:

- To be executed by the Single Entity or the Lead Member in case of a Consortium.
- The mode of execution of Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law.
- Also, wherever required, the executant(s) should submit for verification the certified documents such as a resolution / Power of attorney in favour of the Person executing this Power of Attorney for the delegation of power hereunder on behalf of the executant(s).

ANNEXURE 2 B FORMAT FOR POWER OF ATTORNEY FOR LEAD MEMBER

FORMAT FOR POWER OF ATTORNEY FOR LEAD MEMBER OF CONSORTIUM

POWER OF ATTORNEY

(On Non – judicial stamp paper of Rs 100 duly attested by notary public)

Whereas the Authority has invited applications from interested parties for **Bid for Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL**called the "Project" for a specified Concession period (the "Concession Period").

Whereas, M/s ____ ,M/s _____ , and M/s(the respective names of the Members along with address of their registered offices) have formed a Consortium and are interested in bidding for the Project and implementing the Project in accordance with the terms and conditions of the Request for Proposal (RFP), Concession Agreement and other connected documents in respect of the Project, and

Whereas, it is necessary under the RFP for the members of the Consortium to designate one of them as the Lead Member and its said employees, as with all necessary power and authority to do for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium's bid for the Project and to appoint one of them as the Lead Member who, acting jointly, would have all necessary power and authority to do all acts, deeds and things on behalf of the Consortium, as may be necessary in connection with the Consortium's bid for the Project. The Lead Member is hereby authorized to delegate the said powers to any of its employees duly approved by the Board of Directors of the Lead Member.

NOW THIS POWER OF ATTORNEY WITNESSETH THAT:

We, M/s _____ M/s_____, and M/s(the respective names of the Members along with address of their registered offices) do hereby designate M/s (name along with address of the registered office) being one of the members of the Consortium, as the Lead Member of the Consortium, to do on behalf of the Consortium, all or any of the acts, deed or things necessary or incidental to the Consortium's bid for the Project, including submission of Bid, participating in conference, responding to queries, submission of information / documents and generally to represent the Consortium in all its dealings with , any other Government Agency or any person, in connection with Project until culmination of the process of bidding and thereafter till the Concession Agreement is entered into with _____.

We hereby agree to ratify all acts, deeds and things lawfully done by Lead Member our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney, shall be deemed to have been done by us

Dated this _____ day of_____ 200_.

[Executant(s)]

(To be executed by all the members in the Consortium)

- The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law.
- Also wherever required, the executant(s) should submit for verification the certified documents such as resolution/ Power of attorney in favour of the person executing this Power of attorney for the designation of power hereunder on behalf of the Concessionaire.

ANNEXURE 2 C : FORMAT FOR AFFIDAVIT

FORMAT FOR AFFIDAVIT
(To be furnished by the Concessionaire
In case of Consortium to be given separately by each Member)

(On Non – judicial stamp paper duly attested by notary public)

Ref: Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL

1. I, the undersigned, do hereby certify that all the statements made and/or any information provided in our Bid are true and correct and complete in all aspects.
2. The undersigned hereby certifies that neither our firm M/s nor any of its directors/constituent partners have abandoned any work nor any contract awarded to us for such works have been terminated for reasons attributable to us, during last five years prior to the date of this application.
3. The undersigned also hereby certifies that neither our firm M/s nor any of its directors/constituent partners have been debarred by State/Central/Authority/Any other Statutory Body for any work or from bidding.
4. The undersigned hereby authorize(s) and request(s) any bank, person, firm or corporation to furnish pertinent information deemed necessary and requested to verify this statement or regarding my(our) competence and general reputation.
5. The undersigned understands and agrees that further qualifying information may be requested, and agrees to furnish any such information at the request of the Authority.

Signed by an authorized Officer of the firm

Title of Officer

Name of Firm

Date

ANNEXURE 2 D :FORMAT FOR ANTI-COLLUSION

FORMAT FOR ANTI-COLLUSION CERTIFICATE

(On the letter head of the Lead Member / Single Entity)

Ref: Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL

ANTI-COLLUSION CERTIFICATE

We hereby certify and confirm that in the preparation and submission of this Bid, we have not acted in concert or in collusion with any other Bidder or other person(s) and also not done any act, deed or thing which is or could be regarded as anti-competitive.

We further confirm that we have not offered nor paid nor will offer nor pay, directly or indirectly, any illegal gratification, in cash or kind, to any person or agency in connection with the instant Bid.

Date this.....Day of.....200_.

Name of the Concessionaire

Signature of the Authorised Person

Name of the Authorised Person

Note:

To be executed by the lead member, in case of a Consortium

ANNEXURE 2 E : FORMAT FOR PROJECT UNDERTAKING

FORMAT FOR PROJECT UNDERTAKING

(On the Letter head of the Single Entity/ Lead Member)

PROJECT UNDERTAKING

Date:

To:

_____ Name & Address of the Authority

Ref: Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL

We have read and understood the Request for Proposal (RFP) in respect of the captioned Project provided to us by the Authority.

We hereby agree and undertake as under:

Notwithstanding any qualifications of conditions, whether implied or otherwise, contained in our Bid we hereby represent and confirm that our Bid is unqualified and unconditional in all respects and we agree to the terms of the proposed Concession Agreement, a draft of which also forms a part of the RFP provided to us.

Dated this.....Day of..... 200_

Name of the Concessionaire

Signature of the Authorised Person

Name of the Authorised Person

Note: To be signed by the Lead Member, in case of a Consortium, authorised to submit the bid

ANNEXURE 2 F: FORMAT FOR MoU

FORMAT FOR MEMORANDUM OF UNDERSTANDING (MoU)

<To be printed on a stamp paper and signed by authorized signatories of the Lead Bidder and Consortium Members>

This Memorandum of Understanding is made in _____ on the __ Day of ___, 20 _____

By and Between

M/s _____ having its registered office at _____ (hereinafter referred to as_____) acting as the Lead Partner of the first part,

And

M/s _____ having its registered office at _____ (hereinafter referred to as _____) in the capacity of a Joint Partner of the other part

And

M/s _____ having its registered office at _____ (hereinafter referred to as _____) in the capacity of a Joint Partner of the other part

And

M/s _____ having its registered office at _____ (hereinafter referred to as _____) in the capacity of a Joint Partner of the other part

The expressions of _____ and _____ shall wherever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns and shall collectively be referred to as “the Parties” and individually as “the Party”

WHEREAS:

Indore Smart City Development Ltd (ISCDL) [hereinafter referred to as “Purchaser”] has invited bids for Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL’.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

The following documents shall be deemed to form and be read and construed as an integral part of this MOU.

RFP comprising

Any corrigendum/addendum issued by Purchaser

The bid submitted on our behalf jointly by the Lead Partner

The 'Parties' have studied the documents and have agreed to participate in submitting a 'bid' jointly.

M/s _____ shall be the lead partner of the Consortium for all intents and purpose and shall represent the Consortium in its dealing with the Purchaser. For the purpose of submission of bid proposals, the parties agree to nominate _____ as the Leader duly authorized to sign and submit all documents and subsequent clarifications, if any, to the Purchaser. However M/s _____ shall not submit any such Bids, clarifications or commitments before securing the written clearance of the other partner which shall be expeditiously given by M/s _____, M/s _____and M/s _____to M/s _____.

The lead partner shall be authorized to incur the liabilities and receive instructions for and on behalf of any and all partners of consortium. The lead partner will be solely responsible for the entire project implementation.

The 'Parties' have resolved that the following distribution of responsibilities will be followed in the event that the Consortium Bid is accepted by ISCDL.

Lead Partner share ___ % of Work Share

Responsibilities

--

--

--

Consortium Partner 1 share ___ % of Work Share

Responsibilities

--

--

–

Consortium Partner 2 share ___ % of Work Share

Responsibilities

--

--

–

Consortium Partner 3 share ___ %;of Work Share

Responsibilities

--

--

–

Assignment and Third Parties

The parties shall co-operate throughout the entire period of this MOU on the basis of exclusivity and neither of the Parties shall make arrangement or enter into agreement either directly or indirectly with any other party or group of parties on matters relating to the Project except with prior written consent of the other party and Purchaser.

Responsibilities

All partners of the Consortium shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms,

Executive Authority

The said Consortium through its authorized representative shall receive instructions, payments from the Purchaser. The management structure for the project shall be prepared by mutual consultations to enable completion of project to quality requirements within permitted cost and time.

Guarantees and Bonds

Till the award of the work, the lead partner shall furnish bid bond and all other bonds/guarantees to the Purchaser on behalf of the Consortium which shall be legally binding on all the partners of the Consortium.

Bid Submission

Each Party shall bear its own cost and expenses for preparation and submission of the bid and all costs until conclusion of a contract with the Purchaser for the Project. Common expenses shall be shared by both the parties in the ratio of their actual participation.

Indemnity

Each party hereto agrees to indemnify the other party against its respective parts in case of breach/default of the respective party of the contract works of any liabilities sustained by the Consortium.

For the execution of the respective portions of works, the parties shall make their own arrangements to bring the required finance, plants and equipment, materials, manpower and other resources. All the payments from ISCDL will be received by the Lead partner.

Documents and Confidentiality

Each Party shall maintain in confidence and not use for any purpose related to the Project all commercial and technical information received or generated in the course of preparation and submission of the bid.

Arbitration

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the parties. If an amicable settlement cannot be reached as above, it will be settled by Executive Director (ISCDL) and Executive directors decision will be final, even if the Bidder does not agree, arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The venue of the arbitration shall be Indore.

Validity

This Agreement shall remain in force till the occurrence of the earliest to occur of the following, unless by mutual consent, the Parties agree in writing to extend the validity for a further period.

The bid submitted by the Consortium is declared unsuccessful, or

Cancellation/shelving of the Project by the Purchaser for any reasons prior to award of work

Execution of detailed Consortium agreement by the parties, setting out detailed terms after award of work by the Purchaser.

This MoU is drawn in ___ number of copies with equal legal strength and status.

This MoU shall be construed under the laws of India.

Notices

Notices shall be given in writing by fax confirmed by registered mail or commercial courier to the following fax numbers and addresses:

Lead Partner

_____

_____

(Name & Address)

Consortium Partner 1

_____

_____

(Name & Address)

Consortium Partner 2

_____

_____

(Name & Address)

Consortium Partner 3

_____

_____

(Name & Address)

IN WITNESS WHEREOF, THE PARTIES have executed this MOU the day, month and year first before written.

M/s_____

(Seal)

Witness

_____(Name & Address)

_____(Name & Address) M/s_____

(Seal)

M/s_____

(Seal)

M/s_____

(Seal)

ANNEXURE 2G

FORMAT BOARD RESOLUTION FOR COMPANIES

Format for Lead Member

"**RESOLVED THAT** approval of the Board be and is hereby granted to join the consortium with , and (name and address of the consortium members) for joint submission of bids to _____ for "**Bid for Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL(**the "Project")".

"**RESOLVED FURTHER THAT** the "draft" Memorandum of Understanding ("MoU) to be entered into with the consortium partners (a copy whereof duly initialled by the Chairman is tabled in the meeting) be and is hereby approved."

"**RESOLVED FURTHER THAT** Mr._____ (name),(designation) be and is hereby authorised to enter into an MoU, on behalf of the company, with the consortium members and to sign the bidding documents on behalf of the consortium for submission of the bidding documents and execute a power of attorney in favour of the Company as Lead Member."

Format for Members

"**RESOLVED THAT** approval of the Board be and is hereby granted to join the consortium with, and (name and address of the consortium members) for joint submission of bids to _____ for the Project.

"**RESOLVED FURTHER THAT** the "draft" Memorandum of Understanding ("MoU) to be entered into with the consortium partners (a copy whereof duly initialled by the Chairman is tabled in the meeting) be and is hereby approved."

"**RESOLVED FURTHER THAT** Mr._____ (name),(designation) be and is hereby authorised to enter into an MoU with the consortium members and execute a power of attorney in favour of_____ to act as the Lead Member"

Format for Members

I/We _____hereby agree to join the consortium with_____ ,and …… (name and address of the consortium members) for joint submission of bids to _____ for **Bid for Selection of Concessionaire for implementing Smart City Pan City Projects in Indore under PPP DBOOT Model**(the "Project").

I /We also approve the Memorandum of Understanding ("MoU) to be entered into with the consortium partners

I/We also authorise Mr. _____(name),(designation) to enter into an MoU with the consortium members and execute a Power of Attorney in favour ofto act as the Lead Member"

Each member of the Consortium will have to attach its Board Resolution/ Undertaking as the case may be, approving the participation in the consortium, bidding for the Project and authorizing a company official to sign the bidding documents / Power of Attorney to the Lead Member.

ANNEXURE 3

FORMAT FOR BID SECURITY

BID SECURITY

1. In consideration of the (hereinafter called "Authority" which expression shall include any entity which Authority may designate for the purpose) having agreed, interalia, to consider the bid of(hereinafter referred to the "Concessionaire" which expression shall include their respective successors and assigns) which will be furnished in accordance with the terms of the Request for Proposals for the Project **for Selection of Concessionaire for Implementation of Intelligent Street pole at Indore under PPP on DBOOT model For ISCDL** (hereinafter called the "RFP") in lieu of the Concessionaire being required to make a cash deposit, we [name of the Bank and address of the issuing branch], hereinafter called the "Bank" which expression shall include our successors and assigns, as to bind ourselves our successors and assigns do at the instance of the Concessionaire hereby unconditionally and irrevocably undertake to pay as primary obligor and not as surety only to Authority without protest or demand and without any proof or condition the sum of Rs.10,00,000 (ten lakhs only).

2. We, the Bank, do hereby unconditionally and irrevocably undertake to pay forthwith (and in any event within five days) the amounts due and payable under this Guarantee without any delay or demur merely on a written demand from Authority stating that the amount claimed is due by reason of the occurrence of any of the events referred to in the RFP. Any such demand made on the Bank by Authority shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, the Bank's liability under 'this Guarantee shall be restricted to an amount not exceeding Rs _____
(in words).

3. We, the Bank unconditionally undertake to pay to Authority any money so demanded under this Guarantee notwithstanding any dispute or disputes raised by the Concessionaire or any other party including in any suit or proceeding pending before any court or tribunal relating thereto or any instructions or purported instructions by the Concessionaire or any other party to the Bank not to pay or for any cause to withhold or defer payment to Authority under this Guarantee. The Bank's liability under this Guarantee is irrevocable, unconditional, absolute and unequivocal. The payment so made by the Bank under this Guarantee shall be a valid discharge of the bank's liability for payment hereunder and the Concessionaire shall have no claim against the Bank for making such payment.

4. We, the Bank further agree that the Guarantee herein contained shall remain in full force and effect up to and until 1700 hours on the date i.e. (hereinafter called "the End Date"). Unless a demand or claim under this Guarantee is made on the Bank by Authority in writing on or before the said End Date the Bank shall be discharged from all liability under this Guarantee thereafter unless extended in writing.

5. We, the Bank further agree that Authority shall have the fullest liberty without the Bank's consent and without affecting in any manner the Bank's obligation hereunder to vary any of the terms and conditions of the RFP or to extend or postpone the time of performance by the Concessionaire or any other party from time to time or postpone for any time or from time to time any of the powers exercisable by Authority against the Concessionaire or any of them and to enforce or to forbear from enforcing any of the terms and conditions relating to the RFP and the Bank shall not be relieved from its liability by reason or any forbearance act or omission on the part of Authority, or any indulgence given by Authority to the Concessionaire or any other party or by any such matter or thing whatsoever which under the law relating to securities would, but for this provision, have the effect of so relieving the Bank.

6. To give full effect to the obligations herein contained, Authority shall be entitled to act against the Bank as primary obligor in respect of all claims subject of this Guarantee and it shall not be necessary for Authority to proceed against the Concessionaire or any other party before proceeding against the Bank under this Guarantee and the Guarantee herein contained shall be enforceable against the bank as principal obligor.

7. This Guarantee will not be discharged or affected in any way by the liquidation or winding up or dissolution or change of constitution or insolvency of the Concessionaire or of any individual member of the Concessionaire or any other party or any change in the legal constitution or insolvency of the Concessionaire or any other party or any change in the legal constitution of the Bank or Authority.

8. In case the bank delays in making payment within 15 days of invocation of the guarantee, the bank is liable to pay interest on the amount due @ Bank PLR plus 2% beyond the 15 days from the date of receipt of invocation letter by the bank.

9. We, the bank undertake not to assign or revoke this Guarantee during its currency except with the previous consent of Authority in writing.

Notwithstanding anything contained herein.

a) Our liability under the Bank Guarantee shall not exceed (in word).
b) The Bank Guarantee shall be valid upto [date], 200_.
c) Unless acclaimed or a demand in writing is made upon us on or before , all our liability under this guarantee shall cease.

IN WITNESS WHEREOF THE BANK HAS SET ITS HANDS HERETO ON THE DAY, MONTH AND YEAR MENTIONED HEREUNDER.

Signed and Delivered

On behalf of .....(Bank name) (Signature with Date)
by the hand of Mr .....
(Name of Authorized Signatory)
[SEAL OF THE BANK]

Designation

Address of the controlling office of the issuing branch with phone number and fax number to be provided.

ANNEXURE 4A- Qualification Criteria & Evaluation Format

GUIDELINES FOR EVALUATING QUALIFICATION/TECHNICAL BID: TECHNICAL AND FINANCIAL CAPABILITY OF THE CONCESSIONAIRE TO UNDERTAKE THEPROJECT

A. Evaluation Parameters for Qualification Requirements

1. The Qualification Requirements is to judge the Bidder's competence and capability and will be established by the following phases:

Phase I: Pre-Qualification

(a) Step 1: Bidder's Experience-

The Bidders experience shall be evaluated based on following parameters:

#	Prequalification Requirement		Supporting Documents to be attached
1.	**Legal Entity**	The Sole Bidder/Lead Member/ Member of Consortium should be Indian Registered Company registered under Indian Companies Act 1956/2013.	• Certificate of Incorporation from Registrar of Companies. • Articles and Memorandum of Association. • Annual Report for the last three financial years.
2.	**Presence in India**	The Sole/Lead Bidder should have been present in India for the least 5 years carrying out business in India as on 30.11.2016	• Certificate of Incorporation
3.	**Bidder's Experience – Can be met by any Member in case of Consortium**	The Sole Bidder/Lead Member/ Member of Consortium should have delivered/or under delivery a contract at least 3 IT/Telecom services projects in that last 3 years each of value greater than 150 Crores in India or Global.	• Work Order/Completion Certificate/ Self certificate (duly signed by the Power of Attorney holder for signing the bid)
4.		The Sole Bidder/Lead Member/ Member of Consortium should have experience of managing Services of Telecom /IT Networks in India for any Bidder.	
5.		The Sole Bidder/Lead Member/ Member of Consortium should have successfully done O&M of minimum 30,000 street lights in India as on 30-11-2016 In the last three years	

#	Prequalification Requirement		Supporting Documents to be attached
6.	**Certifications**	The Sole Bidder/Lead Member/ Member of Consortium must possess the following certificate at the time of bidding; • ISO-9001:2015 • ISO 14001	• ISO 9001:2015 certificate • ISO 14001 certificate • For the purpose of clarity, the certificate of the Parent Company shall also be considered
7.	**IP1 License**	The Sole Bidder/Lead Member/ Member of Consortium should have IP1 license and fulfil all ISP regulatory obligations	• IP1 License
	Compliance on Vital features of Functional Requirement specifications (FRS)	The Design of the Intelligent street Pole System and the equipment proposed to be installed shall conform to the vital features mentioned in the FRS	• FRS is given at Annexure 4C Form 9 • Bidders should give the design with a diagram of the Smart pole.

(b) **Step 2:**Financial capability shall be evaluated based on following parameters:

#		Prequalification Requirement	Supporting Documents to be attached
1.	**Financial: Turnover from IT/ ITeS/Telecom**	Average Annual Turnover of the Bidder from IT/ ITeS/Telecom from hardware, software and services during the last three financial years, i.e., 2013-2014,2014-2015 and 2015-2016 (as per the last published audited balance sheets), should be at least Rs.500 Cr.	• Audited balance sheet for the last three years
2.	**Net Worth**	The minimum Net worth of the Sole/Lead Bidder should be Rs 25 crores As on 31-03-2016	• Audited balance sheet for the last three years
3.	**Financial-Solvency**	The Bidder should provide a solvency certificate from their bankers for an amount not less than 100 Crores	• Solvency certificate from any scheduled bank

(c) **Step 3:** Blacklisting

#	Prequalification Requirement		Supporting Documents to be attached
1.	**Blacklisting**	Sole/ Any consortium member shall submit a self-declaration of not having been black listed to provide similar services to any State or Central Government Department or Ministry / PSU as on bid submission date	• Self-declaration duly signed by PoA holder for signing the bid

Annexure 4B: Technical Evaluation format

Technical Evaluation Format

	Technical Evaluation Criteria	Max Weightage	Remarks
1	The bidder/ member of consortium's experience in setting up Telecom infrastructure. Projects valued 30 crores and above shall be considered. Delivered Telecom services projects in that last 5 years each of value greater than 30 Crores in India or Global. • Cumulative value >= 150 to 200 crores = 10 • Cumulative Value > 200 to 250 Crores = 15 • Cumulative Value > 250 Crores = 20	20	Self-declaration, Work Order of the projects to be attached.
2	The Bidder/ Member of consortium's experience in managing Telecom service • 1 Telecom Service Provider – 8 • 2 Telecom Service Providers - 12 • 3 Telecom Service Providers – 15	15	Self-declaration, Work order and relevant documents as proof.
3	The Bidder/ Member of consortium's experience in managing street lights in India • >30000- 45000 Street lights – 10 • >45000-60000 Street Lights – 15 • > 60000 street lights –20	20	Work order and relevant documents as proof.
4	Bidder or Member of the consortium should have smart pole solution which is closest to the specifications mentioned in the FRS (Functional Requirement Specification) mentioned in the RFP.	30	The detailed FRS shall be compared and accordingly evaluated. Reference
5	Bidder or Member of the Consortium should have deployed Smart poles of the given design in India or abroad • Three Installations – 5 • Two installations – 4 • One installation – 3	5	Necessary Reference points with proof of installation may be furnished along with self-certificate of the deployments
6	Presentation including approach and Methodology	10	
	Total	100	

(a) Minimum Technical score required to qualify is 60 marks.

(b) Technical Bids receiving marks greater than or equal to cut-off marks in each competency group will be eligible for consideration in the subsequent round of evaluation. If required, ISCDL may seek specific clarifications from any or all Bidder(s) at this stage.

(c) Evaluation Committee will evaluate the technical Bid of the Bidder with regard to the solutions offered, technology proposed, technical professional(s) and time-frame etc.

(d) Evaluation Committee will invite the Bidder for technical presentation and discussions on the project.

(e) Bidder is expected to depute only those officials for technical presentations who will be responsible for providing the leadership to the project.

(f) Evaluators of Technical Bids shall have no access to the Financial Bids until the technical evaluation is concluded.

(g) FRS Compliance

(h) Criticality: Each module has requirement which has been classified and given score based on the following criticality:

- Vital: 3
- Essential: 2
- Desirable: 1

(i) Option Available: Bidder shall submit their response (as per the format mentioned in FRS)against the requirement and score shall be given as per the following options:

- Non-complaint: 0 marks
- Compliant on Customization:1 marks
- Fully compliant: 2 marks

Annexure 4C – FORMS

Form 1

FORMAT FOR SUBMISSION OF INFORMATION REGARDING QUALIFICATION CAPABILITY OF THE BIDDER

Experience of the Bidder

General Information	
Name of the project	
Client for which the project was executed	
Name and contact details of the client	
Project Details	
Name of Executing Agency	
Description of the project	
Scope of services	
Technologies used	
Outcomes of the project	
Other Details	
Total cost of the project	
Total cost of the services provided by the	
Duration of the project (no. of months, start date, completion date, current status)	
Other Relevant Information	
Letter from the client to indicate the successful completion of the projects	

NOTE:

1. A separate sheet should be filled for each of the Eligible Projects.
2. Role of Member would be Single Entity or in case of Consortium would be Lead Member or Member
3. Please provide Copies of Work Orders/Completion Certificate duly attested by the Authorised Signatory or Self Certificate duly signed by the authorized signatory of the company
4. The Bidder should provide the experience details of Projects undertaken by it only. Project experience of the Single Entity's parent company or its subsidiary or Consortium Members parent company or its subsidiary (who are not Members of the Consortium) will be considered.

Form2

FINANCIAL CAPABILITY OF THE SOLE BIDDER/LEAD MEMBER

(in Rs. Cr.)

S.N.	Financial information at the end of concerned year	Year-1	Year-2	Year-3
1	Turnover			
2	Profit After Tax			

This is to certify that above information is true and correct for above mentioned Years..... (name of the Applicant).

Date:

(Signature, name and designation of the authorised signatory)

Name and seal of the audit firm:

Note: This information should be extracted from the Annual Financial Statement / Balance Sheet which should be enclosed and this response sheet shall be certified by the Auditor of the Bidder or Lead Member of the Consortium

Form 3

Proposed Solution

Technical approach, methodology and work plan are key components of the Technical Bid. This needs to be provided for implementation of;

(i) Smart Pole with LED Street light and Telecom Infrastructure.

(ii) WI-FI Services in 800 Hot Spots

(iii) Optical Fibre

(iv) Citywide IT Network

(v) Surveillance

(vi) Environmental Sensors

(vii) Electronic Vehicle charger

(viii) Smart Bill Board

(ix) SOS Application

(x) Mobile Application

(xi) Command, control and Communication Centre (C4) along with required ICT Infrastructure component

(xii) Managing the Complete Network

You are suggested to present Approach and Methodology divided into the following sections for each of the above areas:

a) Solution Proposed

b) Understanding of the project (how the solution proposed is relevant to the understanding)

c) Technical Approach and Methodology

Form 4: Work Plan

Proposed Implementation Work plan

#	Activity	Months												
		1	2	3	4	5	6	7	8	9	…	…	…	…
1														
2														
3														
4														
5														
6														
7														
8														
9														
…														
…														
…														
…														
…														

Note:

1. Indicate all main activities and drill down to sub-activities of the assignment, including delivery of reports and other benchmarks.
2. Duration of activities shall be indicated in the form of a bar chart.

Form 5

Composition of Deployed Team

Name of Staff with Qualification and Experience	Area of Expertise	Position Assigned	Task Assigned	Time committed for the engagement

Form 6

Curriculum Vitae (CV) of Project Manager (dedicated on-site)

(Mobilise within one week of LoA)

General Information	
Name of the person	
Current Designation/Job Title	
Current job responsibilities	
Proposed Role in the Project	
Proposed Responsibilities in the Project	
Academic Qualifications: • Degree • Academic institution graduated from • Year of graduation • Specialization (if any) • Key achievements and other relevant information (if any)	
Professional Certifications (if any)	
Total number of years of experience	
Number of years with the current company	
Summary of the Professional/Domain Experience	
Number of complete life cycle implementations carried out	
The names of customers (Please provide the relevant names)	

General Information	
Past assignment details (For each assignment provide details regarding name of organizations worked for, designation, responsibilities, tenure) Prior Professional Experience covering: • Organizations worked for in the past • Duration and dates of entry and exit • Designation Location(s) • Key responsibilities	
Prior project experience • Project name • Client • Key project features in brief • Location of the project • Designation • Role • Responsibilities and activities • Duration of the project Please provide only relevant projects.	
Proficient in languages (Against each language listed indicate speak/read/write)	

Form 7

Deployment of Personnel

#	Name of Staff	Staff input in Months (in the form of a bar chart)[2]													Full Time	Part Time	Total staff man-months proposed
		1	2	3	4	5	6	7	8	9	10	11	12	N			Total
1																	
2																	
3																	
N																	
											Total						

Note:

1. For professional staff the input should be indicated individually; for support staff it should be indicated by category
2. Months are counted from the date of signing of contract.
3. List of O &M staff to be continuously displayed for 15 years.

Form 8

Manufacturers'/Producers' Authorisation Form

(This form has to be provided by the OEMs of the products proposed on its letterhead)

No.:

Date:

To:

OEM Authorisation Letter

Dear Sir:

Ref: Your RFP Ref: dated

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

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

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

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

a) Such Products as the Bank may opt to purchase from the Supplier, provided, that this option shall not relieve the Supplier of any warranty obligations under the Contract; and in the event of termination of production of such Products:

   i. advance notification to the Bank of the pending termination, in sufficient time to permit the Bank to procure needed requirements; and

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

Yours faithfully,

(Name)

(Name of Producers)

Note:

- This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to bind the manufacturer. The Bidder in its Bid should include it.

Form 9

Technical Compliance – FRS

1) LED Street Lights

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
LED/ Luminaire Controller – Phillips/ Usha/Bajaj /Equivalent				
1	Certification CE Directive 2004/108/EC: EN 61000-6-3:2007+A1:2011 EN 61000-6-1:2007 EN 55015:2013 EN 61000-3-2:2014 EN 61000-3-3:2013 EN 61547:2009 ETSI EN 301 489-1 V1.9.2:2011 ETSI EN 301 489-3 V1.6.1:2013 Directive 99/5/CE: ETSI EN 300 220-1 V2.4.1:2012-05 ETSI EN 300 220-2 V2.4.1:2012-05 Directive 2006/95/EC: EN 61347-2-11:2001 EN 61347-1:2008 +A1:2011+A2:2013 Directive 2011/65/EU: EN50581 FCC and ARIB certifications The wireless transmission	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	system needs to comply with the European maximum transmission power of 10mW (+10dBm) or 500mW (+27dBm), and a receive sensibility of -105dBm IP 20 (integrated controller, IP65 for external enclosure with UV plastic) and RoHS approved. The system needs to be based on the IETF open standard.			
2	Power: 100-240 VAC nominal range 85-277 VAC absolute max range 50/60Hz.	Desirable		
3	Intellectual Property: The supplier's technology needs to own, control, manage and develop 100% of the solution's Intellectual Property"	Essential		
4	Low power consumption: The Luminaire Controller should consume less than 3 watts when transmitting and 1W in idle mode	Desirable		
5	Form Factor: The controller should have	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	several form factors options, such as: -Internal fixture controller -NEMA controller -External controller			
6	Integrated in the fixture: The Luminaire Controller should be Internal mounting in the fixture. Node dimensions (Max) 110 x 80 x 36 mm (for internal mounting). Operating temperature: -10°C et +70°C.	Vital		
7	**Luminaire Features:** Plug & play luminaire installation, no need to manually programming & commissioning or find & add to dashboard. Auto GPS location of luminaire on dashboard. auto network commissioning of luminaire Auto lighting asset data upload on dashboard	Vital		
8	Control of the luminaire and Manual override: The Luminaire Controller must be able to receive and execute	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	real time ON/OFF (via mechanical 5A relay) and step less dimming commands that it receives from the Central Management Software. The controller's schedule table should support up to 16 programmable commands, in an integrated non-volatile method. A local override port on the controller should be available for future use.			
9	Step less dimming: The Luminaire Controller must be capable of dimming an electronic ballast or a LED driver through a DALI, an analog 1-10V dimming interface or digital 0-10VDC PWM dimming. It must be able to execute stepless dimming from 0% to 100%, by step of 1%. The maximum sink current is 20mA 0% should be set by the mechanical relay to cut the power to the driver.	Vital		
10	Communicate using a wireless	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	mesh protocol or GPRS with an IPv6 addressing scheme. The Luminaire Controllers must communicate using a wireless mesh protocol or GPRS. The wireless protocol should be open, based on the 6LoWPAN or LORA or ZigBee Mesh standard (802.15.4), on the ISM band (433MHz, 868MHz and 915MHz)			
11	Broadcast communication: The wireless mesh protocol shall support broadcast (one command to target a group of Luminaire Controllers) and unicast (one command sent to a single Luminaire Controller) and multicast (one command sent to subscribed group of Luminaires Controllers)	Essential		
12	Integrated in a Smart City environment: The Luminaire Controllers must integrate seamlessly in a Smart City wireless meshed network (a dedicated city-wide network to manage urban connected devices such as meters, waste bins, parking sensors, traffic	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	lights, pollution sensors, etc.).			
13	**Security features** Shall offer HTTPS access over the Internet Strong password and 2-factor authentication for login to smart lighting management software Multi-level user roles with difference access rights Regular scheduled updates of the smart lighting management software at the frequency of 1 month or faster 3rd party penetration tests and certification for the last 3 years End-to-end application layer AES encryption All data must be retrained by system provider for one year after the termination of contract	Vital		
14	Remote management: The Luminaire Controllers must be controlled and managed remotely.	Essential		
15	**Smart Node Controller Shall support:** Embedded GPS location mapping and Astronomical Clock	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	within the node. Embedded photo sensor within the controller node. Embedded energy meter in each Node controller with accuracy as specified in EN50470-3			
16	**Asset management features:** Smart Street Lighting management software shall support logging of hierarchical data record for Street Light including pole, bracket, controller and luminaire Additional custom text fields, custom date fields, custom number fields Support advanced search function where any number of all available data fields can be used in both “and” and “or” operations Shall support loading multiple attachments for each object (street light, pole, bracket, controller, luminaire) Shall support visual representation of both street light and cabinet on the same GUI Visualize any available data field with color legend on a map view to facilitation decision making	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
17	Detect and report failures: The Luminaire Controllers must be able to detect and report alarms such as: lamp failures, low/high voltage, low/high current, low capacitor, flickering lamps, etc.	Desirable		
18	Measuring electrical values: The Luminaire Controllers must be able to measure mains voltage (RMS), current (RMS), frequency, power factor, active and reactive power, active and reactive energy; in real-time or not, with an accuracy equal or better than 2% for the I and V. Integrated temperature meter. The max electrical load: 5A	Desirable		
19	Measure cumulated energy consumption: The Luminaire Controller must measure and send to the CMS the cumulated energy consumption.	Desirable		
20	Measure number of burning hours: The Luminaire Controllers must measure and send to the CMS the number of lamp burning hrs	Desirable		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
21	**Work order management shall be able to:** Create work order ticket for fault resolution Create work order ticket for preventive maintenance Assign work order ticket to individual field service technician Mobile app to facilitate field service technician in identifying asset and record activities All work order activity history must be kept in database for the entire duration of the contract	Essential		
22	Response time: Query to the furthest node and back to the CMS under 3 seconds	Vital		
23	Scripting on the node: The Luminaire Controllers should be able to support up to 99 lines of scripting code to allow the node to make decision locally based on the local environment. The scripting should also allow the node to communicate with other nodes and pass the local environment parameters.	Vital		

2) Central Management Software

Central Management Software				
#.	**Clause**	**Criticality**	**Compliance** **(Non-Compliance/ Compliant on Customization/ Fully Compliance**	**Remarks**
1	Intellectual Property The supplier needs to own, control, manage and develop 100% of the solution's Intellectual Property" should comply with provision of ISO 27001 and Indian IT act.	Vital		
2	Multi-User Web Application Server The CMS shall be based on an open Web Application Server. Its user interface shall be 100% Web-based and accessible from any computer on the network through a Microsoft Internet Explorer, SAFARI or Chrome web browser	Vital		
3	Enterprise Server The CMS shall be installed on a server that belongs to the organization/customer or to one of our local service or IT sub-contractor.	Vital		

4	100% Web Interface Web user interfaces shall run and be supported on Microsoft Internet Explorer, SAFARI and Chrome on WINDOWS-based PC and MAC OS.	Essential		
5	Based on open technologies The CMS must be developed with open and standardized languages including Java, XML configuration files and SQL database. It shall enable the development of additional features without the need to acquire any development software license.	Vital		
6	Open database engine The CMS shall record all the data in a centralized SQL database and shall be compatible with MYSQL (or similar) to avoid being obliged to purchase additional software license for database engine.”	Essential		
7	User authentication system The CMS shall enable administrator to create, modify, delete users, passwords, groups and access controls. The CMS shall automatically close connections after X	Desirable		

	mns (configurable) of inactivity. Tiered level access and management.			
8	Integrated CMS The CMS shall be an integrated and ready-to-use application that does not require any specific development before being deployed. The CMS should be a flexible and modular application, supporting the management of any type of Smart City services: a dedicated city-wide central management system to manage all types of urban connected devices such as meters, waste bins, parking sensors, traffic lights, pollution sensors,…	Essential		
9	Support multiple types of Control Systems, i.e. Gateways The CMS shall manage and communicate with different types of network devices as listed in the previous sections (gateways, nodes …).	Desirable		
10	Network management The CMS should support		Essential	

	and enable: The management of the narrowband networks The management of the broadband networks The management of the applications The management of the networks configurations The management of the data generated by the nodes and gateways (network data and user data) The Monitoring and configuration of network objects The management of the network links and provide link status, link quality and link reporting Detailed broadband network reporting: wireless transmission power, TCP/IP usage, link utilization, The management of the network as a whole, with network status and network quality The CMS should provide automatically or on request, the status and the related critical events of each managed objects. Those critical events could be:			

	wireless link quality, usage of the objects, outages, battery life-time,			
11	CMS shall provide a user and object management system The CMS shall provide ways to create user profiles, users and access rights to web applications as well as to groups of objects. The CMS shall manage the objects individually or by groups of objects.		Essential	
12	CMS shall log all actions The CMS shall log all the actions from all the users. Recording Node and device history (linking network Nodes, lamps/meters, customer accounts) and keeping track of adds, moves or changes	Desirable		
13	CMS shall provide map-based inventory features The CMS shall enable users to group objects per geographical zone, to move objects, to delete objects and to duplicate objects on the maps. The CMS should display the network topology (objects, links, status…) on a map, in a tree format, and other graphical views to ease the		Essential	

	management of the network			
14	CMS shall support multiple types of objects, enable new attributes to be created and provide inventory import/export features. The CMS shall support Light Points, Segment Controllers, Sensors, Electrical Vehicle Charging Stations, Weather Stations, Energy Meters and other types of objects. It shall enable the import/export of the inventory in a the following formats: standardized CSV formatted file ODBC and text export Via the XML server Via SQL queries into the database	Vital		
15	Configuration of all the parameters of the Gateway and the nodes The CMS shall enable end-users to configure all the parameters of the Gateway and the nodes, including the IP communication parameters, astronomical clock, real time clock, schedulers, Gateway's	Essential		

	inputs/outputs and associated scenario, etc. Auto-discovery of the networks' objects.			
16	Management and configuration of the services	The CMS shall enable the management and configuration of the "Smart City" services, such as the street lighting, meters, …	Essential	
17	Automatic installation process The CMS shall provide end-users with processes and tools to automatically process the installation and configuration of the Nodes.	Essential		
18	Gateways shall "PUSH" data to CMS The data logs (all data read by the Gateway on the Nodes) generated on the Gateway shall be pushed by Gateways to the CMS rather than pulled by the CMS to provide a higher scalability. The data collect process shall not require any manual operation. The data presented by the CMS (related to the network or the services) should be updated dynamically.	Vital		
19	Ready-to-use Web Reports The CMS shall provide ready-to-use web reports to analyze failures, energy consumption and lamp age.	Desirable		

	It shall provide a way to display historical values for any measured attribute of any device in the database.			
20	Customized desktop of Web Reports and Applications The CMS shall manage access control depending on the user profile and provide the according list of web reports and applications on a web desktop. Each application shall display only the geographical zone, devices and data that the user is authorized to access.	Essential		
21	Alarm management The CMS shall enable the administrator to create complex alarm scenario based on the data collected from the Nodes through the Gateways. Such alarms aim at sending only effective alarms to the right end-user. The CMS shall perform and support the following alarm features: Receiving/capturing successful/unsuccessful readings from any node-connected devices, at scheduled timings/intervals or on demand; Reporting about alarms and status indicators,	Essential		

	tamper/thefts, consumption / usage trends from node-connected devices Identifying and reporting critical events from Nodes and devices (failures, memory capacity issues, communication link or network failures, power failures, ...) Notify of events via Email and distribution lists SMS text message The execution of a process An alarm warning on the CMS			
22	Real-time control on maps The CMS shall enable authorized users to control, command and monitor each objects in real-time. It shall provide instantaneous (less than 5 seconds in average) communication (sending commands and/or receiving data) between the nodes/controllers, the gateways and the CMS. Multi-level network topology hierarchy and map visualization to ease the management of the network and the services,	Essential		
23	Provide web service interface for 3rd party	Vital		

	software to leverage the CMS features The CMS shall provide with XML, API and SQL access as well as a set of web service interface to enable third party authorized software to use the CMS features.			
24	Maximum number of managed objects The CMS should be able to support and manage an unlimited number of objects.	Essential		
25	The CMS should have feature for end to end life cycle management including fault management and analytics for decision making	Vital		
26	Energy reports The CMS should provide energy saving reports.	Desirable		
27	External database access The data in the CMS database should be accessible via: • ODBC • Text file export • CSV file export • XML	Essential		
28	Mobile App facility for O and M Support	Vital		

3) Intelligent Street Pole (Smart Pole)-

Make - Ericsson or Equivalent

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	Smart pole should able to meet city aesthetic requirement and it should visual appealing. It should easily blend-in into city light pole master plan.	Essential		
2	The height of pole shall be as per the lighting requirement (9m to 15m). However some poles in especially in chowks may be higher as per the requirement for coverage(up to 25 m)	Essential		
3	It should be possible to house minimum multiple telecom technologies (GSM, WCDMA, LTE, BLE 4.0 and Wi-Fi etc) simultaneously with minimum 2-3 sectors for at least 2-3 operator with 4 port antenna size of 1.5 Mtrs. It should also be possible to support future technologies such as 5G.	Vital		
4	Site passive infra (space and power) sharing among telecom operators is mandatory requirement.	Vital		
5	It should be possible to support LED luminaries as per the primary requirement of Light Pole from reputed OEMs as per city lighting	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	master plan			
6	Smart pole should able to support city as well telecom standards for India such as high wind speed, climate ,aesthetic etc	Essential		
7	It should be possible to support 1 light arm/2 light arm option by smart pole	Vital		
8	It should be possible to support other societal/smart city applications such as surveillance camera, weather monitoring, flood monitoring, Active Geo location transponders, bill board etc.	Essential		
9	It should be possible to provide light connection in daisy chain with separate MCB for lighting and telecom part.	Essential		
10	It should be able to cater to the space, power and functionalities of environmental sensors, billboards and EV charging as and when required.	Essential		
11	It should be possible to support both Fiber as well Microwave connectivity for smart pole.	Vital		
12	The maximum allowed diameter (at	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	bottom section) is 275mm			
13	The camera should be integrated with each light arm and should have feature of night vision.	Vital		
14	The maximum allowable time for smart pole deployment is 1 day (after foundation/Civil works). Design efforts should be made to reduce structure foundation as well as deployment time as much as possible.	Essential		
15	The radio deployment strategy to be followed should be that of Main Remote application to reduce feeder losses by having the radios near the antenna inside the top section.	Vital		
16	It is mandatory to utilize the space inside the top section and facilitate antenna sharing within the operators.	Essential		
17	There should be suitable mounting options for Radio /Antenna unit mounting.	Vital		
18	Pole hat mounting is allowed with suitable mounting option for GPS antenna, small MW antenna (up-to 0.3m dia).	Vital		
19	All cabling, cooling/heating etc should be via/inside the pole and it	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	should not be visible from outside due to aesthetic and security reasons			
20	It should meet EMC requirement of telecom sites as per Indian regulations	Essential		
21	The minimum power backup requirement is 3.5 hrs for telecom equipment	Essential		
22	The structure should be free from any passive intermodulation. Passive intermodulation (PIM) value should be < -150 dBc @ 2 x 43 dBm	Vital		
23	It should be possible to provide multiple color options as asked by municipality/user as per city light pole colors	Desirable		
24	It should be possible to house minimum 6-9 low power radio units with integrated antenna, MW /optical transmission unit, SMPS (AC to DC convertor), batteries, controllers, power distribution etc inside the smart pole.	Vital		
25	There should be provision to have separate connection for light as well for telecom and other secondary equipment for maintenance purpose.	Vital		
26	Hanging of telecom equipment boxes	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	or ground based cabinets at bottom level (outside of structure or integrated with pole) is not permissible, approach needs to have integrated solution which blends into the city scape and would look like a light pole with mandatory underground box for telecom and other equipment.			
27	It should be possible to house telecom equipment's from all reputed OEMs.	Essential		
28	It should be possible to provide light connection in daisy chain with separate MCB for lighting and telecom part	Vital		
29	There should be provision to have separate connection for light as well for telecom equipment for maintenance purpose.	Essential		
30	The camouflaging material for covering the antenna /RF equipment's should be hard material with a minimum life of 10 years	Essential		
31	It should be possible to provide multiple color options as asked by municipality/user as per city light pole colors.	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
32	The paint material (to cover the RF section) should complied to RF /Telecom requirements	Vital		
33	The camouflaging material for covering the antenna /RF equipment should be hard material with a minimum life of 10 years.	Essential		
34	It should be possible to color the complete body (including RF equipment camouflaging) by any paint color	Essential		
35	It should meet EMC requirement of telecom sites as per Indian regulations.	Vital		
36	The camouflaging material (to cover RF equipment's) should have RF transparency with maximum 0.5db of attenuation covering all the radio frequency bands available in India	Vital		
37	The cooling/heating equipment's to cool /heat telecom equipment should be integral part of smart pole Maximum allowable limit for cooling equipment is 100W for cooling solution, efforts should be made to reduce the power consumption as much as possible.	Vital		
38	The smart pole structure should be IP67 up-to 1 meter height from	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	reference ground level.			
39	There should be suitable mounting options for Radio /Antenna unit mounting	Essential		
40	Hanging of telecom equipment's boxes at bottom level (outside of structure) is not allowed	Vital		
41	Support other societal/smart city applications such as surveillance camera , Wi-Fi and Active Geo location transponders.	Essential		
42	The camera should be integrated inside the light arm and should have feature of night vision	Vital		
43	The working ambient temperature requirement is 0-50 deg	Essential		
44	The overall power budget for smart pole should not exceed 2KW (telecom + lights)	Desirable		
45	It should be possible to support 1 light arm/2 light arm option by smart pole	Essential		
46	Underground space (2x2x1M , WxDxH max) should be used for telecom equipment's with suitable telecom grade enclosure box with IP67 protection, size of box not more	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	than 1600x1200x700mm (WxDxH)			
47	The cooling solution so designed would need to be preventive maintenance free for a period of 2 years	Essential		
48	The minimum life requirement of above smart pole structure is 15 years (metal parts)	Vital		
49	Underground equipment box should be maintenance friendly, provision of lifting of equipment (at suitable working height) from maintenance perspective should be available as option up to equipment weight of 200 Kgs. The underground box needs to be available option however selection can be based on operator / city discretion.	Vital		
50	The Bidder should not use any banned /restricted material as per Indian regulations	Essential		
51	The lifting column should be self-powered and operable with the help of external remote / connected switch	Vital		
52	For wind speed requirement IS codes for the applicable city needs to be followed	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
53	Suppliers needs to provide IIT approval certificate for structural stability .	Vital		
54	Sections of the poles which are going to enclose equipment for telecom etc needs to be provided with proper cooling arrangement to cater to heat dissipation from the radio equipment	Vital		
55	Ingress Protection standard for underground box should be IP 67 approved by any International Lab or Govt of India accredited labs	Vital		
56	Pole hat mounting should have suitable option for GPS antenna, small MW antenna (up-to 0.3m diameter).	Essential		
57	The smart pole should support Environmental sensors	Desirable		
58.	For putting the advertisement on Smart poles and all other electric poles Bidder shall require to refer Hoarding policy (UADD/IMC/MPMKVVCL)	Vital		
59	The smart pole should support Active Geo location transponders	Essential		

4) Wi-Fi services

WiFi Services along with Smart poles.

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	Fully redundant cloud based AAA services to be provided (with OTP/ Password), to support Retail and campus network topologies	Vital		
2	Full AAA to AAA integration (Radius/Diameter) required to enable international roaming with Wi-Fi operators.	Vital		
3	Full web based real time NMS system to monitor services working	Essential		
4	Full capability for EAP/SIM, EAP/AKA etc. Mobile Data Offload to be done with Mobile Operators.	Essential		
5	In built NMS to monitor all the network & IT infrastructure against availability, usability & performance	Desirable		
6	To allow ISCDL to download/ view performance of services utilised by subscribers with key information of Username, MAC, IP, Location, Duration, Upload/ Download & Disconnection reason	Vital		
7	Multiple templates for Captive Portal which will be selectable by venue owners to customise	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
8	Multiple payment gateway integration required so subscribers can make the payments using online/ offline mode, including prepaid mobile balance & wallet applications	Vital		
9	Advertising platform integration -AAA to support advertisements from multiple parties	Vital		
10	IOS & Android Applications to be given for seamless connectivity to network –auto detect/auto login Application providers to submit IPR or patent publication for automatic on boarding and off boarding.	Vital		
11	High speed micro-caching solution integrated to Wi-Fi network to deliver entertainment and content with zero broadband cost to user. The content delivery is location specific and therefore the iOS and Android applications should utilise the Geo location transponder's unique signature to validate the registered Citizens mobile phone and thereafter deliver the content. The content may also be advertisements from nearby location specific merchants.	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
12	The content delivery solution should not use internet bandwidth and support minimum of 500 Movies and 1000 songs and provide web/app based interface to download the content with seamless integration with the deployed Wi-Fi Network	Vital		
13	Bidder should share usage data analytics from all monetization across all SSID's with ISCDL on a monthly basis.	Vital		
14	Bidder shall offer multiple monetizing of Wi-Fi Services such as: a) Online advertising b) Partnership with content developers c) Video sponsorships including high speed downloads (1Gb data in less than 5 minutes) d) Wi-Fi sponsorships e) Mobile data offloading for National and/or International Operators (including iPass, Boingo, Aicent, Comfone etc.) that meet commercial terms. f) Exciting Premium Service offers such as hourly package, monthly package, half yearly packages, family packages etc. g) Bidder shall leverage the Citizens Smart phones to either receive (paid content by way of Advertisements or edutainment) or transmit (stream) pictures /	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	videos in real time to nearest police station for accessing support services as a eyewitness to an incident. Similarly the pictures and Videos may also be sent to the Indore ULB departments for registering specific complaints from a curated list. h) Other ways to monetize Wi-Fi Service i) Neutral Hosting: Bidder should allow any Bidder to provide Wi-Fi service by providing SSID at a pre-define rate in a non-prohibitory manner (till 16 SSID)			
15	International Roaming Experience: The Bidder shall have tie-ups with the international roaming Wi-Fi Biddersuch as iPass, Boingo, Aicent and Comfone etc.	Essential		
16	1 SSID for e-Governance is mandatory.	Vital		
17	Bidder should be able to provide minimum 6 SSID for operator data offload, and can be monetized by Bidder at his discretion and at rates which the Bidder deems fit	Desirable		
18	Bidder shall supply a Connection Manager App (Android & iOS) which the Govt. can distribute to subscribers.	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
19	Service 1 – Complimentary Service (Free) Customer will receive free Wi-fi for 30 minutes with maximum download limit of 100 MB per day and an aggregate limit of one GB per month. In this the Customer shall not be able to stream/download any video, audio or any high end application. The speed of surfing shall be restricted upto 1 Mbps. The Bidder shall insert advertisement (s) of a maximum duration of 20 seconds per 10 minute of browsing.	Essential		
20	Service 2 – Premium Service (Paid) Customer can avail the Premium Service based on the Wi-Fi Premium service plan. In this service, the Customers can browse the internet, respond to emails as well as download emails, documents, music, movies, any high-speed application and play movie or song without buffering and advertisement. The payment for the plan shall be done online as well as via physical coupons. The speed of surfing shall be 10 mbps. The secure Wi-Fi service shall be high speed, user-friendly, easily accessible and shall	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	provide customer service support			
21	The Bidder shall also provide the following services: i. Bidder shall authenticate the Customer before logging-in at Wi-Fi Services as per present regulatory guidelines. ii. Bidder shall provide the secured pathway for accessing the Wi-Fi. iii. No malicious contents shall be allowed at Wi-Fi network. iv. Bidder shall follow the guidelines for providing the public v. Wi-Fi Service given by government. vi. Bidder should cover minimum 800 Hotspots by providing at-least 1000 Access points (80/20) IP65 outdoor etc	Essential		
22	Bidder would be responsible for providing backhaul and internet bandwidth	Essential		
23	ISCDL will be responsible only for providing ROW, space and power for deployment	Essential		

5) Minimum Technical Specifications for Wi-Fi Access Point

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	Access Points proposed must be 802.11ac, Wave 2 compliant and must include radios for both 2.4 GHz and 5 GHz.	Vital		
2	It is preferred that AP should include dual band antennas to support both the 2.4GHz and 5GHz operations simultaneously from single antenna	Vital		
3	Option to attach Single band, Dual band Antennas directly on Access Point	Vital		
4	It is preferred that Access Points to be configurable via software to support dual-band OR single-band antennas.	Vital		
5	Must have minimum -97 dB or better Receiver Sensitivity.	Vital		
6	Must support 2X2 multiple-input multiple-output (MIMO) with two spatial streams	Vital		
7	Must support simultaneous 802.11n on both the 2.4 GHz and 5 GHz radios And 802.11ac, wave 2 on 5Ghz	Vital		
8	Access point must support data-rates upto 860 Mbps or Higher	Vital		

9	Must support 80 MHz wide channels in 5 GHz.	Vital		
10	Must support upto 27dbm of transmit power in both 2.4Ghz and 5 Ghz radios.	Vital		
11	Must support Controller-based and standalone (autonomous) deployments	Vital		
12	Must support 802.11 dynamic frequency selection (DFS)	Vital		
13	Access Point should support Wireless Backhaul, point-to-point, point-to-multipoint bridging	Vital		
14	Support Encrypted and authenticated connectivity between all backhaul components	Vital		
15	Mesh Nodes shall provide a 'wired' interface for connection to local area networks or backhaul of local clients.	Vital		
16	Must incorporate radio resource management for power, channel, coverage hole detection and performance optimization	Vital		
17	Access point shall support powering from AC Adapter, DC and POE(802.3af/802.3at+/UPoE).	Vital		

18	Access point shall support pole, wall, and roof mounting options.	Vital		
19	Mounting option support according to Geographic orientation flexibility – tilt angle for pole, wall, and roof mounting units	Vital		
20	The Access point shall be IP67 rated for dust and water ingress	Vital		
22	The Access point shall be rated for operation over an ambient temperature range of -30° to 55°C (-22° to 131°F)	Vital		

The overall wireless proposed solution should able to provide the detection, classification and containment of Rogue Access Point along with the basic WIPS signature etc.

Minimum Technical Specifications for WLAN Controller:

S.N.		Specifications	Compliance (yes/No)
1	Hardware and Standards	Must be compliant with IEEE CAPWAP or equivalent for controller-based WLANs.	
2		WLAN Controller should support minimum of 5000 Access points in a single 1 / 2 RU chassis. Bidders can also propose multiple controllers to meet the requirement incase they don't have single controller. Solution should have N+N redundancy from day one.	
3		WLAN Controller should support up-to 30,000 Clients per chassis and should have two or more 10 Gigabit Ethernet interfaces. Higher number of supported clients and interface count is preferred.	

5		Must have feature for stateful recovery without re-authentication of the client in the event of LAN and WLAN infrastructure disruption to deliver a non-stop client session	
6		Must support hot-swappable redundant power supplies and fans.	
7	RF Management	Must support an ability to dynamically adjust channel and power settings based on the RF environment.	
8		Radio coverage algorithm must allow adjacent APs to operate on different channels, in order to maximize available bandwidth and avoid interference	
9		Must support coverage hole detection and correction that can be adjusted on a per WLAN basis.	
10		Must support RF Management with 40 MHz channels with 802.11n.	
11	IPv6 features	WLC should support First hop security features in IPv6 network like Router Advertisement guard, DHCPv6 guard and IPv6 source guard and should support IPv6 access control lists	
12	Performance	Controller performance must remain the same if encryption is on or off for wireless SSIDs.	
13		Should support ability to adjust Delivery Traffic Indicator Message (DTIM) on a per WLAN basis to improve performance for latency sensitive applications.	
14	Security:	Should adhere to the strictest level of security standards, including 802.11i Wi-Fi Protected Access 2 (WPA2), WPA, Wired Equivalent Privacy (WEP), 802.1X with multiple Extensible Authentication Protocol (EAP) types, including Protected EAP (PEAP), EAP with Transport Layer Security (EAP-	

		TLS), EAP with Tunneled TLS (EAP-TTLS), RFC 4347	
16		Controller should have rogue AP detection, classification and automatic containment feature	
17	Functionality	Must be able to set a maximum per-user bandwidth limit on a per-SSID basis.	
18		Must support user load balancing across Access Points.	
19		Controller must provide Mesh capability for Mesh supported AP.	
20	Roaming:	WLC should support L2 and L3 roaming for IPv4 and IPv6 clients	
21		Solution proposed must support clients roaming across at least 5000 APs.	
22	QOS:	Must support 802.11e WMM	
23		Should have Voice and Video Call Admission and Stream prioritization for preferential QOS	
24		Controller should have Deep Packet Inspection for Layer 4-7 traffic for user for all traffic across the network to analyses information about applications usage and prioritization	
26		To deliver optimal bandwidth usage, reliable multicast must use single session between AP and Wireless Controller.	

6) Optical Fibre (Min 500 kms)

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	OFC being supplied for the project will adhere to ITU-T G.655 standards for Non-zero dispersion shifted Metal-free unarmoured optical fiber cable conforming to TEC specification GR/OFC-07/02. Jul 2007 or latest and the raw material used in its manufacture will conform to TEC Specification TEC/GR/TX/ORM 01/04 Sep 09 or latest.	Vital		
2	Technical Specifications of HDPE Pipe. The HDPE pipe will conform to TEC specification GR/CDS - 08/02 Nov 2004 and latest amendments thereof or better. The HDPE pipe used will be of 40 mm outer diameter with minimum wall thickness of 3.5 mm.	Essential		
3	100% of the network shall be built underground through an appropriate methodology which is non-disruptive, quick to deploy and does not disturb the existing electrical and other cabling installed in the median...	Vital		
4	Alternate methods like Open Trenching/Aerial Cabling/Moiling/Wall Installations etc. shall be allowed only in exceptional cases like bridges, flyovers, subways, crossings, water	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	bodies, or any location where underground drilling is not possible. Approvals shall be issued by the highest levels of the governing board for these exception requests.			
5	Manholes (MH) and Hand Holes (HH) shall be installed at every alternate interval of 250 Meters.	Vital		
6	All the MH and HH shall be pre-fabricated types.	Essential		
7	A minimum of 1 Duct shall be installed on all routes. In cases, where more number of ducts are required based upon the commercial prospects, exceptional decisions shall be taken at the time of the occurrence of the event.	Essential		
8	In cases of bridge/flyover/culvert etc. crossings, GI Pipes of 200mm Diameter shall only be used.	Vital		
9	Electronic Route Markers (ERM) shall be installed in each MH/HH for robust records and location detections.	Vital		
10	For exceptional cases of Open Trenching, minimum depth shall be 0.3 m to 0.5m in median of the street. All the ducts shall be encased in a	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	DWC Pipe of 200mm Outer Diameter.			
11	For exceptional cased of Aerial Cabling, 48F ADSS cable shall only be used. Distance between poles shall not be more than 50-60 meters and height of installation shall not be less than 5 meters.	Vital		
Operation & Maintenance				
12	Periodic maintenance of ducts/Joint Closures (JC)/MH/HH shall be carried out to ensure the upkeep of the buried asset at all times.	Essential		
13	Fault Repair Teams (FRTs) shall be deployed at every 30-40 KMs of the route length on round the clock basis.	Vital		
14	Patrollers shall be deployed at every 30 KM interval on 12 hours day time shift basis.	Vital		
15	KPIs;5% FTs < 2 Hours • 15% FTs < 4 Hours • 60% FTs < 8 Hours • 15% FTs < 48 Hours • 5% FTs > 48 Hours	Vital		

Guidelines for Fibre ring network

Following guidelines need to be opted for designing fibre ring network:

Ring Length:

- Access/ street layer ring deployed to connect various services locations (i.e. Ring for Smart Poles) should not span more than 5 KM.
- Length of Pre-Aggregate ring connecting these access rings will not be more than 10 to 12 KM.
- Length of Aggregation ring connecting these pre-aggregation rings will design keeping in view that total number of six aggregation Switches/Routers will be used.

Number of Nodes/Rings:

- One Access/ street layer Ring will have maximum of 5-6 Nodes.
- One Pre-Aggregation box will have maximum of 6 access Rings.
- One Pre-Aggregation Ring will maximum of 5-6 Nodes.
- One Aggregation box will have maximum of 4-6 pre-aggregation Rings.

Capacity:

- Access/ street layer Ring bandwidth will have to be minimum at 1 Giga Ethernet.
- The Pre-Aggregate ring will have minimum capacity of 10GE and minimum 40% of pre-aggregation location should have provision to scale to capacity of 40G using multiple 10G links.
- The Aggregate ring will have minimum capacity of 10GE. Same is upgradable to /40GE/100GE Capacity.

Dual Homing:

- Access/ street Switches/ Routers preferably be dual homed
- Pre-aggregation and Aggregate Routers should be dual homed
- Common fibre path to be avoided while closing aggregate and access Rings.
- If available third Fibre path for Aggregation router will be also connected to have more redundancy

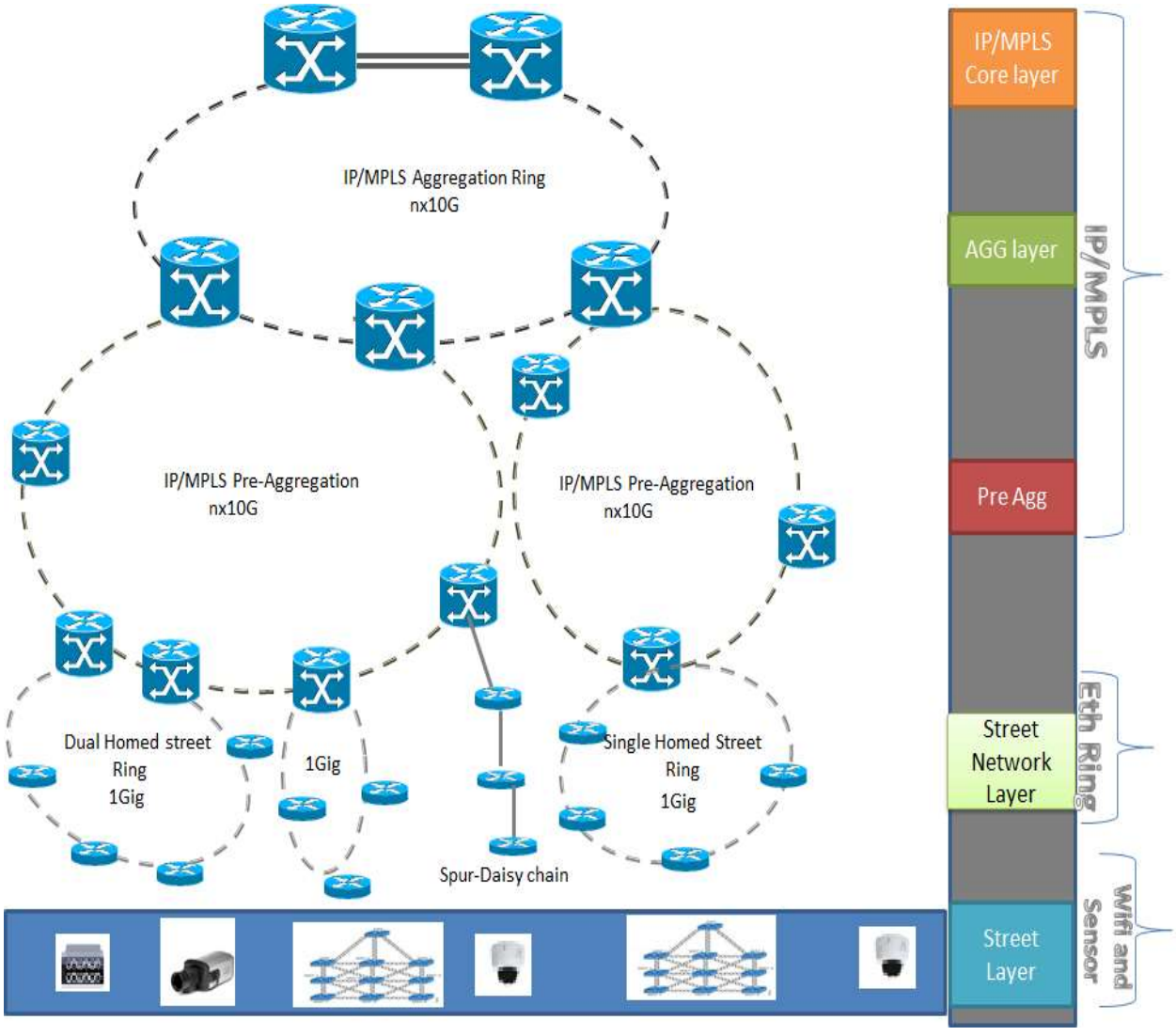
General Guidelines:

- Ring termination on 40% of Pre-aggregation location and all Aggregation and Core should be provided on different cards/slots for redundancy purpose.

Locations to be chosen for Pre-aggregation, Aggregation and Core:

- Applicants are advised to choose City transport network IT POP i.e. MPLS Pre-aggregation, Aggregation and Core locations on ISCDL owned locations only.

1) Citywide Network



Core Layer:

Core layer will deploy High end scalable Routers and will be running IP/MPLS protocols. The capacity will be multiple of 10G which can be further scaled as the traffic grows. Core Layer will hand over traffic to Data Centre.

Aggregation layers:

Aggregation layer will deploy High end scalable Routers and will be running IP/MPLS protocols. The capacity will be multiple of 10G which can be further scaled as the traffic grows. Aggregation Layer will be connected to Core Router.

Pre Aggregation Layer:

Pre Aggregation layer will deploy Modular temperature hardened Chassis and will run IP/MPLS based transport. The capacity will be multiple of 10G which can be further scaled as the traffic grows.

Street layer:

As pointed out in Street layer architecture, street layer switches will be connected to pre Aggregation layer. Street layer Switches will have 1x1G capacity. Pre Aggregation Layer should support dual home Ring, Single home Ring and linear daisy chain network termination. But the most preferred architecture will be dual home ring.

Functional requirement of City Wide IT Network

Functional Requirement of City wide IT Network layer to be implemented by the SI:

- The network should support successful implementation of CCTV, Wi-Fi and other future Smart city initiatives already defined for ISCDL area in RFP document.
- The network should be built to provide the following :
    - Higher Network Uptime
    - Visibility of Network
    - Better Utilization of WAN Links
    - Segregation of Traffic and QOS
    - Better Network Management
- The network should have the capability and facility for Seamless integration with all other component required to build CCTV , Wi-fi network and other services related to Smart city initiatives.
- Network should act as backbone for all the NMDC smart city initiatives which may come in future like for parking, waste management, environment and other e-goverence services like smart energy grid, smart water supply, smart education, smart health, waste management etc.
- Network must support next generation architecture of future applications.

- All the proposed routing devices should support key IP MPLS feature and protocol for enablement of same as and when required.
- Network will be connected in Ring fashion and devices must support the redundancy protocol like MPLS-TE for better convergence.
- The Ring Based architecture must be deployed to meet the following :
    - Redundancy of nodes and Links
    - Less prone to failures
    - Better Link utilization
    - Traffic should not Hog core bandwidth for any to any communication
    - Easy Insertion of new Node without config change at Core switches/Routers.
- Network must support Node and Link protection feature for faster and reliable network convergence.
- RSVP based MPLS Traffic Engineering should be used to Provide the following:
    - Bandwidth guarantee for critical real- time applications in the control plane
    - Optimized utilization of redundant links
    - Handling of unanticipated load in the network.
    - Un even utilization of links.
- Network Convergence methods like MPLS Fast Reroute (FRR-Link and Node) and Bidirectional failure detection needs to be deployed to achieve faster convergence.
- Network must support segregation of traffic using Virtual Routing and Forwarding (VRF).
- QoS enables a network to provide improved service to selected network traffic. The Network must support MPLS QoS features.
- All devices in network should support Hierarchical Quality of Service for Ingress and Egress.
- All devices should support priority queuing for assigning more priority to Voice and Video traffic over non critical data traffic.
- For IT transport network design following criteria should be adopted.
    - All the access & street Layer Ring should be of 1 Giga Ethernet
    - All the Pre-aggregation and Aggregation Ring should be of 10 Giga ethernet
        - All the Rings should preferably be Dual-homed. Single-home rings should be given lesser priority than Dual-homed rings (less marks in technical evaluation)
        - Spur-Daisy chain is the least preferred mechanism for connectivity and where ever proposed applicant should submit the plan to convert the same in to ring with timelines.

- Most preferred ring designed having lesser number of hopes.
- Transport network devices at access and pre-aggregation layer should support extended temperature range upto 65 degree.

- Solution should be scalable to provide ISCDL ability to increase rings capacity. Higher scalability is preferred.

Following are the key consideration for proposing City IT Network solution for ISCDL area:-

Applicant need to propose required MPLS Pre-Aggregation, Aggregation & Core equipments at various City POP locations as defined in technical specification section.

Technical requirement of City Wide Network

Concessionaire should plan the network by carefully after studying the fiber termination requirement for ISCDL access nodes (i.e. Smart Pole) and should design the transport network with Pre-aggregation, aggregation and Core node as per given fiber design guidelines. Design with better scalability, resiliency and redundancy aspects would be preferred.

MPLS Core/ Aggregation Router/ Switch

S. No.	Form Factor / Dimension	General Specifications	Compliance (Yes/No)
1	**Architecture:**	Should be chassis based & modular architecture for scalability with Redundant Route Processor, Power supply, Switching fabric	
		Router should be provided with 1+1 route processor, 1+1 or 1+N switch fabric and 1+1 or 1+N power supply redundancy	
		Should have two free full width payload slots for future expansion.	
		The router shall support following type of interfaces – 100GE, 10GE, 1GE interfaces.; POS - OC-3c/STM-1c, STM4, STM16, STM64, channelized STM-1,channelized STM-4, Channelized E1, E3, Circuit emulation E1, Circuit emulation E3, 10GE G.709 OTN, 10GE WAN PHY	

		The router 10 Gig interfaces for SR,LR & ZR are software configurable for LANPHY/WANPHY/OTU2 mode.	
		The operating system of the router shall have a microkernel-based architecture.	
		The modular operating system shall run all critical functions like various routing protocol, forwarding plane and management functions in separate memory protected modules. Failure of one module shall not impact operations of rest of the OS.In service bug patching should be available	
		The router along with respective line cards should be supplied with timing protocol support such as 1588v2 (with boundary clock as well as ordinary clock (master and slave) and sync E	
		Router should support two free slots for future expansion	
		The 'slot' for any router means a main slot or full slot on the router chassis. Only such a slot shall be counted towards determining the number of free slots. Any sub slot or daughter slot shall not be considered as a slot.	
2	**Performance**	The router shall have minimum of 200 Gig Full Duplex capacity per slot with redundancy. Failure of any switch fabric should not degrade the per slot bandwidth .	
		Router Shall support non blocking capacity of 3.2 Tbps.	
		The router should have capability of minimum 4 million IPv4 routes	
		The router should have capability of minimum 2 Million IPv6 routes	

		The router should support minimum 2 million MAC address, minimum 128k Psedowires .	
		The proposed router should have 12 GB DRAM and 8GB Flash , also should support 30GB storage in SSD	
		Router should have 128k multicast routes.	
		The router should support 32 way BGP load balancing and 32 way ECMP	
		Shall support online insertion and removal (OIR) that is non-disruptive in nature. Online insertion and removal of one line card shall not lead to ANY packet loss for traffic flowing through other line cards for both unicast and multicast traffic.	
		In case of a line card or Route Processor failure on the router; the multicast and Unicast routing, multicast and Unicast distribution and multicast replication architecture of the router shall ensure no impact & zero packet loss of multicast video, audio & data traffic running on rest of the line cards in the system	
		if the any of the feature and functionality asked in the RFP is achieved using any service module that should be quoted in 1+1 redundancy.	
3	**Protocol Support**	Should have IPv4 Routing, IPv6 Routing, Border Gateway Protocol , Intermediate System-to-Intermediate System [IS-IS], and Open Shortest Path First [OSPF]), DHCPv6 and OSPFv3 for IPv6	
		Multicast Protocol: Shall support Multicast routing protocols IGMPv1, v2 ,v3, PIM-SM (RFC2362) and PIM-SSM,MSDP,IGMP v2 snooping, MPLS mVPN (Multicast VPN)	

		MPLS Protocols: Shall Support 6PE & 6VPE, MPLS VPN, Carrier Supporting Carrier (CsC), MPLS TE (Fast re-route), DiffServ-Aware TE, BGP Prefix Independent Convergence, Inter-AS VPN, Resource Reservation Protocol (RSVP),RFC 3107 of Carrying Label Information in BGP-4.	
		Redundancy Protocols: Should support Route Policy Language (RPL), Hot Standby Router Protocol (HSRP)/Virtual Router Redundancy Protocol (VRRP), GRE (Generic Routing Encapsulation) Tunneling,	
		Layer 2 VPN Protocols: Shall Support VPLS ,HVPLS, Ethernet over MPLS , CESoPSN and SAToP as per RFC 4553	
		Router shall support MPLS OAM, Ethernet OAM protocols - CFM (IEEE 802.1ag), Link OAM (IEEE 802.3ah) and ITU Y.1731.	
		The routers shall support both L2 and L3 services on all interfaces	
		Configuration Roll Back to recover the mis-configured router to last good configuration	
4	**QoS Features:**	Shall support the following:	
		Traffic Classification using various parameters like source physical interfaces, source/destination IP subnet, protocol types (IP/TCP/UDP), source/destination ports, IP Precedence, 802.1p, MPLS EXP, DSCP and by some well known application types through Application Recognition techniques.	
		Shall support Strict Priority Queuing or Low Latency Queuing to support real time application like Voice and Video with minimum delay and jitte, Congestion Management: WRED,	

		Priority queuing, Class based weighted fair queuing	
		Shall support standards based RSVP for voice & video call admission control.	
		Ability to configure hierarchical queues in hardware for IP QoS at the egress to the edge. Minimum 128k egress and 64k ingress hardware queues per line card.	
		Platform must support nested hierarchical QOS policies .Router should have 4 level of scheduling for HQOS.	
5	**Security**	Support Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type (IP, UDP, TCP, ICMP etc) and Port Range etc., Time based ACL,AAA using radius or TACACS	
		The routers shall provide hardware accelerated IETF Netflow-v9/J-Flow/equivalent feature. This feature shall be available for all interfaces provisioned on the router with hardware acceleration.	
		Should Support MD-5 authentication for RIP, OSPF,IS-IS and BGP. Also support URPF,DHCP snooping , control plane policing ,SNMPv3 authentication, SSHv2	
6	**Management**	Should have to support Out of band management through Console / external modem for remote management.	
		Event and System logging: Event and system history logging functions shall be available. The Router shall generate system alarms on events. Facility to put selective logging of events onto a separate hardware here the analysis of log shall be available.	

7	**Minimum Port requirement from Day 1**	16 x 10G SFP+ Ports Distributed across minimum two or more line cards and 40 x 1G SFP ports Distributed across minimum two or more line cards	
		Bidder need to size the port & transceivers requirement as per their solution and if required need to include additional ports for the workability of solution	
8	**Certifications**	The Router should be minimum EAL2 / Applicable Protection Profile (NDPP) certified under the Common Criteria Evaluation Program	

MPLS Pre Aggregation-Type-1

S. No.	Form Factor/ Dimension	General Specifications	Compliance (Yes/ No)
1	**Architecture:**	Router shall support redundant Data and control Plane. There should not have impact to Data Plane traffic during software upgrade. Smallest RU factor would be preferred.	
		Router should have redundant controller cards and should support stateful switch over ,non stop forwarding ,Non stop routing and Graceful restart.	
		Router should be CE2.0 and MEF14.0 certified.	
		Router shall support MEF for Ethernet based services like PW,VPLS or ATOM.	

		Router shall support sync any configurations from previous modules to new modules with hot-swap event occurred	
		The router shall support following type of interfaces – 10GE, 1GE interfaces with DWDM.; 10GE WAN PHY and 10G DWDM ,Ch.STM1 and E1.	
		Router shall have minimum 2 free slots for future expansion.	
2	**Performance**	Router shall support non-blocking capacity of 128Gbps.	
		Backplane of each slot should be minimum 20 Gbps.	
		Router shall support 170 Mpps forwarding performance	
		Router shall support 16000 Mac addresses	
		Router shall support 18000 IPv4 routes	
		Router shall support 8000 queues and 128 MPLS VPN's	
		Router shall support aggregation of links. Minimum 8 link should be supported as part of single aggregation.	
		Router shall support IPSLA or equivalent and Y.1731 for performance monitoring.	
3	**High Availability**	Router should support Redundant Power Supply and should also support On line insetion and removal of same.	
		Fan tray should be hot-swappable, and should be a Field Replaceable Unit (FRU). The node can run	

		indefinitely with a single fan failure. Shall Support hot-swappable for all modules. And secure normal operations when hot-swap event occurred	
		All cards should be provided in redundancy.	
		Router shall support MPLS-TE with FRR for sub 50 msec protection.	
		Router must support Traffic Engineering for node and link protection.	
4	**Protocol Support**	Router shall support IPV4, IPV6,ECMP,LDP,BGP,IS-IS,OSPFv2and V3	
		Router shall support IGMP V2/V3,MLD,IGMP and PIM, VRRP, Multicast layer3 VPN	
		Router shall support 6PE and 6VPE mode for IPV6 transport over IPV4,BGP PIC(EDGE and Core) for IPV4 and IPV6,,Loop free alternate FRR (IPFRR). Traffic Engineering and RSVP. The Router should support Point to Point and Point to Multipoint LSP for Unicast and Multicast traffic	
		Router should support high availability for all BFD,BGP ,OSPF and IS-IS and no packet loss during controller switch over.	
		Router shall support layer3 and layer2 MPLS VPN.	
		Router shall support MPLSOAM, EthernetOAMprotocols-CFM(IEEE 802.1ag), Link OAM (IEEE 802.3ah) and ITU Y.1731	
		The router along with respective line cards should be supplied with timing protocol support such as 1588v2	

		(with boundary clock as well as ordinary clock (master and slave) and syncE	
		Router should support RFC 3107 of Carrying Label Information in BGP-4	
5	**QoS Features:**	Router shall support HQOS on all kind of interface in both ingress and egress direction. Similar QOS shall be supported for all type of interface including Bundled interfaces. The proposed router shall support 3 level H-QoS	
		Shall support Ingress classification, marking and policing on physical interfaces and logical interfaces using source/destination IP subnet, protocol types (IP/TCP/UDP), source/destination ports, IP Precedence, MPLS EXP, DSCP,802.1p	
		Shall support Strict Priority Queuing or Low Latency Queuing to support real time application like Voice and Video with minimum delay and jitter.	
		Congestion Management: WRED, Priority queuing, Class based weighted fair queuing	

6	**Security & Management**	Support Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type (IP, UDP, TCP, ICMP etc) and Port Range etc. Should Support per-user Authentication, Authorization and Accounting through RADIUS or TACACS and SNMPv1/v2/V3	
7	**Operating Environmental Requirements:**	For DC : -40ºC to 65ºC operating temperature and 5 to 95%, noncondensing	
8	**Minimum Port requirement from Day 1**	6 x 10G SFP+ Ports Distributed across minimum two or more line cards and 16 x 1G SFP ports Distributed across minimum two or more line cards	
		Bidder need to size the port & transceivers requirement as per their solution and if required need to include additional ports for the workability of solution	
9	**Certifications**	The Router should be minimum EAL2 / Applicable Protection Profile (NDPP) certified under the Common Criteria Evaluation Program	

MPLS Pre- Aggregation-Type-2

S. No.	Specifications	Compliance (Yes/ No)
1	Router should support have 64 Gbps of switching capacity	
2	The router should have 4GB DRAM and 2GB flash	
3	The Router shall be standalone fixed configuration Chassis or stackable system with redundant power supply.	
4	The Router should support multilevel priority scheduling for voice and video applications with minimal jitter, latency and packet loss.	
5	The Routershall support fault-tolerant connections to other network or shared media segment to protect against a primary link failure. If the primary link fails, the backup path shall be automatically activated to maintain network connectivity and throughput.	
6	It shall support Ethernet Ring protection based on ITU-T G.8032 v2	
7	The proposed router shall support 3 level H-QoS	
8	The switch shall support both IPv4 and IPv6	
9	Internet Group Management Protocol versions 2 and 3 (IGMPv2 and v3) ,IP/MPLS,IP FRR,BGP PIC,MPLS LDP,MPLS TE	
10	The Router should support the following protocols: BGP,MPBGP,OSPF ,RFC 3107 ,OSPFv2 and v3,Loop free alternate ,IP FRR,6PE,6VPE,VPLS,Layer2 VPN, uRPF, PIMSM and PIM SSM	
11	The router should support fast convergence protocols like G.8032, IPFRR,MPLS FRR,BGP prefix independent convergence, VRRP or equivalent and BFD for Routing protocols.	
12	The Router should support Point to Point and Point to Multipoint LSP for Unicast and Multicast traffic.	

13	The Router should support layer 2 and layer 3 MPLS VPN	
14	Shall support Frame sizes from 64 bytes to 1600 and to 9216 bytes on all ports	
15	Router shall work as DHCP relay agent	
16	The router should support Zero touch provisioning for ease of management	
17	Router should support Policy Based QOS,WRED,WFQ,HQOS, Ethernet OAM and Y.1731 performance management	
18	The Router along with respective line card should be supplied with timing protocol support such as 1588v2 with Boundary as well as ordinary clock(master and slave) and SyncE	
19	The MER switch must support the following security features:-	
20	Security through ACL filters for layers 2 and layer 3 traffic, MAC address limits and storm control for broadcast, multicast and unknown unicast, Authentication, authorization, and accounting (AAA) with TACACS+ and RADIUS,URPF	
21	The Router should be minimum EAL2 / Applicable Protection Profile certified under the Common Criteria Evaluation Program	
22	2 x 10G SFP+ Ports and 8 x 1G SFP ports	
23	Bidder need to size the port & transceivers requirement as per their solution and if required need to include additional ports for the workability of solution	
24	The Router should be minimum EAL2 / Applicable Protection Profile (NDPP) certified under the Common Criteria Evaluation Program	

7) Environmental Sensors (Min 100 Nos)

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	Environmental sensor should be able to measure temperature, humidity, gas (CO, CO2), noise	Vital		
2	Sensor should be able to communicate over Wi-Fi, 802.11b/g, 2.4GHz GPRS-850MHz/900MHz/1800MHz/1900MHz 3G/GPRS - Tri-Band UMTS 2100/1900/900MHz	Vital		
3	Humidity and temperature sensor: Work Voltage: 3.3V ~ 5V Measuring Range: Humidity: 20% - 90% RH Temperature: 0 ~ 50 °C Accuracy: Humidity: ±5% RH Temperature: ±2°C Sensitivity: Humidity: ±1% RH Temperature: 1°C Signal Collecting Period: 2S	Vital		
4	Pressure sensor should be able to measure pressure: Pressure Range-300/1100hPa	Vital		
5	CO Gas sensor should measure: Measurement range: 30 ~ 1000ppm Resistance at 100ppm: 13.3 ~ 133kΩ Sensitivity: 0.13 ~ 0.31 (ratio between the resistance at 300 ppm and at 100 ppm)	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
6	CO_2 gas sensor should measure: Measurement range: 350 ~ 10000ppm Voltage at 350 ppm: 220 ~ 490mV Sensitivity: 44 ~ 72mV (variation between the voltage at 350 ppm and at 3500 ppm) Supply voltage: 5V ±0.2V DC Operating temperature: -10 ~ +50ºC Response time: 1.5 minutes Average consumption: 50mA	Essential		

8) Electronic Vehicle Charging points (Minimum 50)

#.	Clause		Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	Product or component type	**Charging station**			
1	Poles description	1P + N for power circuit 1P + N for control circuit	Essential		
2	Mounting mode	Wall-mounted	Essential		
3	Offer type	Standard	Essential		
4	Rated supply voltage	220...240 V AC 50/60 Hz control circuit 230 V AC 50/60 Hz power circuit	Essential		
5	Earthing system	IT TN TT	Essential		
6	Socket-outlet number	2	Essential		
7	Socket-outlet type	Left side : T2 / silver plated contacts Right side : T2 /	Essential		

#.	Clause		Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
		silver plated contacts			
8	Supply current	32 A for T2	Essential		
9	Max power	7 kW for T2	Essential		
10	Access control system	Badge RFID conforming to ISO/IEC 15693 Badge RFID conforming to ISO/IEC 14443	Essential		
11	Control type	2 green illuminated push-button function : start/unlock flap 2 red push-button function: stop	Essential		
12	Local signalling	2 red LED on front device function: not operational 2 orange LED on front device function:	Essential		

#.	Clause		Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
		reserved 2 green LED on front device function: available 2 green LED flashing on side device function: on charge			
13	Communication port protocol	OCPP 1.5	Essential		
14	Configuration /Architecture	Standalone Clustered architecture	Essential		
15	Operation and maintenance	Load management Charge detail records Circuit breaker status Postponed charge User privilege	Essential		

#.	Clause		Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
		configuration Diagnosis capabilities			
16	Web server	Embedded	Essential		
17	Ethernet service	Configuration via web server	Essential		
18	Standards	IEC 61851-1 IEC 61851-22	Essential		
19	Product certifications	CE CB EV Ready ZE Ready	Essential		
20	Height	620 mm	Desirable		
27	Environment Environment Protection	IP54 on load conforming to IEC 61851-1 IP54 off load conforming to IEC 61851-1	Essential		

9) Smart Billboard (Min 1600 No.s on both sides of Smart Pole)

Make – Sony/Samsung/LG

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	Smart Billboard should be of size 5' X 4'	Vital		
2	Height of smart billboard should be of 9-10 mtr height	Essential		
3	It should provide access support for 2G, 3G, LTE, Wi-Fi, 5G etc for purpose controlling and managing Bill board.	Vital		
4	It should have ability to house power plant and battery	Essential		
5	It should have provision for incoming power input cables and fiber connectivity	Essential		
6	It shall be pole Mounted	Essential		
7	It should be Vandal Proof	Essential		
8	It should be Aesthetical & Camouflaged finish with respect to environment	Essential		

11) Central Command and Control Centre (Video Wall)

(minimum infrastructure required) Make – Sony/Samsung / LG or Equivalent

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	Bidders are required to provide application software for managing and controlling the LED lights through a controller from a centralized location located in the NOC. The location for Centralized command and control center shall be provided by ISCDL. Only the necessary EMS for monitoring the LED street lights needs to be provided as part of this Project.	Vital		
2	The Bidder shall provide a video projection system based on modular DLP (Digital Light Processing) based high resolution LED based rear projection technology. The VPS will be used to project displays of feed from Cameras Camouflaged in the smart poles. The VPS shall also be able to display Video signals (CCTV/DTH) and other	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	Laptop Computer Feeds. The VPS shall enable users to display inputs from multiple sources/ applications simultaneously in freely resizable and repositionable windows on entire display area to enable effective collaboration and faster decision making. The Bidder shall supply all necessary hardware and software, including panel, multiscreen drivers, adapters and memory to seamlessly integrate the video projection system with the user interface requirements described in the specification.			
3	The video projection systems shall be rear projection systems and shall be complete with all projection modules, supporting structures, cooling system and cabling. Design & installation of the video projection systems shall be coordinated with the Employer during project implementation. The VPS controller shall have SNTP	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	Clients for synchronizing its time. A panel matching with VPS panel shall be supplied for installation of VPS Controller as well as Time and Frequency Display System.			
4	The requirements for each modular VPS wall are as follows: • Video Projection System (VPS), -70" LED Lit, Full HD resolution with 4 nos. Projection modules along with installation service - Module 2x2 • The screens shall be capable of displaying full resolution of the source. • The configuration of the VPS wall (no. of cubes and size of each cube) is defined in the Bill of Quantity. The height of VPS above the ground level shall be decided during detailed engineering based on the layout of the control room and available clear height • The VPS wall should be rugged in nature and shall be designed for 24X7	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	operational environments Necessary cooling arrangement for VPS shall be provided with the VPS VPS. The air-conditioned environment in the Control room shall be provided by the ISCDL			
5	The VPS shall be designed to prevent dust ingress.	Essential		
6	VPS wall Management Software shall be provided	Essential		
7	The Bidder shall provide a video projection system based on modular DLP (Digital Light Processing) based high resolution LED based rear projection technology. The VPS will be used to project displays of feed from Cameras Camouflaged in the smart poles. The VPS shall also be able to display Video signals (CCTV/DTH) and other Laptop Computer Feeds. The VPS shall enable users to display inputs from multiple sources/applications simultaneously in freely	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	resizable and repositionable windows on entire display area to enable effective collaboration and faster decision making. The Bidder shall supply all necessary hardware and software, including panel, multiscreen drivers, adapters and memory to seamlessly integrate the video projection system with the user interface requirements described in the specification.			

- Data Center Switch-Type I

S. No.	Features	Specifications	Compliance (Yes/No)
1	Hardware & Performance Requirements	· Chassis based Multilayer Switch with sufficient modules/line cards to fit required transceivers/UTP ports. Chassis shall have minimum 8 payload slots. The switch must have front to back airflow.	
		· The total aggregate switching capacity shall be scalable to 3 Tbps or more, SI to choose the required bandwidth as per their solution.	
		· There should not be any single point of failure in the switch. All the main components like CPU module, switching fabric, support module, system clock, power supplies and fans etc should be in redundant configuration. Components, like modules/power supplies/fan tray should be Hot Swappable	
		· The switch should have redundant CPU's working in an active-active or active-standby mode. There should not be any traffic disruption during the CPU fail-over/change-over and the fail-over time should be less than 1 sec.	
		· Should Support Hitless software upgrades (ISSU) to reduce downtime during software upgrade. The switch must support Fault isolation per process and process patching to enhance the switch availability	
		· The Switch should support non-blocking Layer 2 switching and Layer 3 routing.	
		· The Backplane should be 100% Passive. Preferrably back plane free design to optimize the airflow and power consumption.	
		· The Switch should have a Truly Distributed Architecture. All Interface Modules should have all the resources for switching and Routing and should offer True Local Switching (Intra-Module and Inter-Module).	
		· The switch must support 1/10G SFP+, 1/10 G Base-T and 40G QSFP based port line cards. The switch must scalability to support minimum 200 nos of 40 G QSFP ports or more. Bidder to choose required	

		ports as epr their solution.	
		· Support for Unidirectional Link Detection Protocol (UDLD) or equivalent, Layer 2 trace route or equivalent to ease troubleshooting	
2	**Layer 2 and Layer 3 Functionality**	· Should support port, subnet based 802.1Q VLANs. The switch should support 4096 vlans. The switch must support Private VLAN or equivalent.	
		· The switch should support 50K no. of MAC addresses	
		· Switch must support spine - leaf topology based on VXLAN and create large layer 2 domains.	
		· Switch must support multi chassis ether channel feature and work with any downstream switch, server from various vendors.	
		· Should support routing protocol IP v4 - Static routing, OSPF v2, BGPv4, IS-IS and IP v6 - BGP, OSPF v3. The switch must support Bidirectional Forwarding detection. The total aggregate switching capacity shall be 3 Tbps or more	
		· Switch should support VRF - Lite and VRF Route leaking functionality..	
		· Should support minimum 32K Route entries for IPv4 and IPv6 routes.	
		· Switch should support 8K Multicast route	
		· Switch must support IP v4 – HSRP/ VRRP and IP v6 - HSRP v6/ VRRP v6. It must also support DHCP Relay V4 and V6.	

3	**Remote Line card and Virtualization support**	· Switch must support IEEE 802.1BR (Bridge Port Extension) or equivalent technology, which in turn enable remote line card functionality to optimize cabling inside the data center.	
		· Switch must support virtualization features like VXLAN Gateway/Bridging and routing functionality. Capability of supporting NVGRE is preferred.	
3	**Minimum Port Requirement – Day 1**	· Switch should have minimum of 72 x 40G Ports	
4	**Compliance/ Certifications**	The switch should be minimum EAL2 / Applicable Protection Profile (NDPP) certified under the Common Criteria Evaluation Program. In case, the OEM has applied for the certificate, then either such OEM shall get the certificate for such switches before the date of Go-Live, or such switches has to be replaced from switches of an OEM having such certificate.	

- Data Center Switch-Type 2

S. No.	Features	Specifications	Compliance (Yes/No)
1	Hardware features	· Proposed network device must be 19'' rack mountable & Maximum 2 RU in size.	
		· It is desirable that the network infrastructure is based on delivering front to back airflow.	
		· Must have Redundancy Power Supply Units (PSUs), Hot-swappable, field-replaceable power supplies, 1:1 power redundancy and Must have N:1 fan module redundancy.	
		· All components (including elements such as I/O cards, Expansion Module, power supplies and fans) must be hot swappable with zero disruption to traffic forwarding (Unicast or multicast).	
		· Must have minimum 48 x 1/10 G SFP+ and 6 X 40 G QSFP port, SI to choose required transceivers	

		as per their solution. Core/ Spine to TOR/ Leaf switch connectivity should be at multiple of 40G links.	
		· Transceivers to be supplied as per minimum BOQ given in RFP.	
		· Must be field upgradeable / license upgradeable to Layer 3 for investment protection.	
		· Must have Line-rate traffic throughput on all ports at Layer 2.	
		· Must have Line-rate traffic throughput on all ports at Layer 3	
		· Must support Bridge Extension Protocol (IEEE 802.1BR) or equivalent - to scale Gigabit & 10 Gigabit Ethernet ports	
		· Must allow building very large L2 domain using Multi-Path Ethernet technologies.	
		· Must support port channeling across multi chassis.	
2	**Switch Features**	Physical standards for Network Device	
		· Must support I IEEE 802.1d, IEEE 802.1w, IEEE 802.1s, IEEE 802.1q, IEEE 802.1ab, IEEE 802.3ad, IEEE 802.1p	
		Routing protocol support when upgraded with Layer3 License	
		· Must support Static IP routing, OSPF, BGPv4,	
		· Must support Protocol Independent Multicast Version 2 (PIMv2) sparse mode, Source Specific Multicast (SSM), Multicast Source Discovery Protocol (MSDP), and Internet Group Management Protocol Versions 2, and 3 (IGMP v2, and v3)	
		· Support for up to 8K multicast routes	
		Must support In-Service Software Upgrade (ISSU) for Layer 2	

		Must have Modular QoS classification compliance	
		It is preferred that switch must support VXLAN (Bridging and Routing) as well as NVGRE orverlay encapsulation protocol in hardware to support multiple hypervisor deployment in the Data Center	
		· Must support Remote Authentication Dial-In User Service (RADIUS) and/or Terminal Access Controller Access Control System Plus (TACACS+)	
3	**Security features**	· Must support AAA using RADIUS (RFC 2138 & 2139) and/or TACACS+, enabling centralized control of the device and the ability to restrict unauthorized users from altering the configuration	
		Must have following Access Control features	
		· Must support Ingress ACLs (Standard & Extended or equivalent) on Ethernet and virtual Ethernet ports	
		· Must have Egress strict-priority queuing or equivalent	
4	**Quality of Service**	· Must support Egress port-based scheduling: Weighted Round-Robin (WRR) or equivalent	
		· Must have ACL-based QoS classification (Layers 2, 3, and 4)	
5	**Compliance / Certification**	The switch should be minimum EAL2 / Applicable Protection Profile (NDPP) certified under the Common Criteria Evaluation Program	

- WAN Services router OR Internet Router

Item	Specifications for WAN services router or Internet Router	Compliance (Yes/No)
Model:		
Form Factor / Dimension	**General Specifications**	
Architecture	The router shall facilitate all applications like voice, video and data to run over a converged IP infrastructure along with hardware assisted IPSEC & Network Address Translation (NAT),capability. The router should also support hitless interface protection, In-band and out-band management, Software rollback feature, Graceful Restart, non stop routing for OSPF, BGP, LDP, MP-BGP etc. The platform shall have modular software that will run service & features as processes having full isolation from each other	
	The router shall provide sub-second IGP convergence, NSF/SSO/NSR, TE FRR, VRRP and ISSU for high availability. The router shall support fast BGP route convergence for IP and MPLS VPN routes with no dependancy of the BGP routing table size.	
	The router line card must support following interface: Fast Ethernet, Gigabit Ethernet, Channelized STM1, STM1, STM16, STM64, 10G Ethernet, POS, ATM, V.35 Serial Ports, E1, Chn E1, E3 Ports. Support for these port requirement can be considered optional for Internet routers	

	Backplane Architecture: The back plane architecture of the router must be modular and redundant. The back plane bandwidth must be 20 Gbps from day one with minimum scalability upto 30 Gbps with minimum routing performance of 20 mpps form day one (1) scalble upto 30 mpps, with minimum three (3) open slots.	
Performance	The Router should have individual dedicated control plane processor and data plane processor module. Data plane Processor module should be independent of the control plane Processor. Control plane Processor should have support for internal memory to support multiple software images for backup purposes and future scalability. The router processor architecture must be multi-processor based and should support hardware accelerated, parallelized and programmable IP forwarding and switching.	
	The router should support the IPv4 and IPv6 DUAL-stack in hardware and software. The router should support minimum 450k IPv4, IPv6 routes from day one (1) & scalable to minimum 1MN IPv4, IPv6 unicast routes, should have 56K Multicast routes & 500 IGMP groups from day one.	
Protocol Support	The router shall have RIPv1, RIPv2, RIPng, BGP, OSPFv2 & v3, Policy Based Routing for both IPv4 & IPv6, IP Multicast Routing Protocols to facilitate applications such as streaming, webcast, command & control including PIM SM, PIM SSM, GRE (Generic Routing Encapsulation) Tunneling with 1000 tunnels enabled from day one	
	Router should support following MPLS features – LDP, Layer 2 VPN such as EoMPLS with LDP signalling, Route Reflector (RR), Traffic Engineering with RSVP-TE, Fast Reroute Link Node & Path protection enabled from day one. Support for these features can be considered optional for Internet routers	

QoS Features	The router shall support QoS policy in the router shall support dual Strict Priority Queue or Low Latency Queue per policy so that voice and video traffic can be put in different queue. It also should have hierarchical QOS (Inbound and Outbound) to ensure bandwidth allocation for all type of traffic during congestion and non congestion scenario.	
	The router shall perform traffic Classification using various parameters like source physical interfaces, source/destination IP subnet, protocol types (IP/TCP/UDP), source/destination ports, IP Precedence, 802.1p, DSCP and by some well known application types through Application Recognition techniques.	
Security Feature	The router should have support for hardware enabled Network Address Translation (NAT) and Port Address Translation (PAT) . The router shall support NAT6to4 function. Mention the number of sessions that it can support. The router shall support vrf-aware NAT function.	
	The router shall meet the following requirements for security: Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type (IP, UDP, TCP, ICMP etc) and Port Range etc. Router should support deep and stateful packet inspection to recognize a wide variety of applications	
	The router shall support firewall service in hardware on all interfaces for enhanced security to protect the backbone from malicious activities. The firewall performance shall be at least 5 Gbps (internal/external). In case of external firewall, bidder should propose the firewall with necessary 10G interface and redundant power supply.	

	Router should have at least 1 Gbps of IPSEC throughput from day one. In case of external VPN box, bidder should propose the hardware with necessary 10G interface and redundant power supply. The proposed router should have embedded support for 2000 IPsec tunnels from day one. The router should support vrf aware IPSEC.should have support for Suite-B crypto engine requirements for IKE and IPsec	
Management	The router must support management through SNMPv1/v2/v3, support RADIUS and TACACS. The router must role based access to the system for configuration and monitoring & deep and stateful packet inspection to recognize a wide variety of applications The router shall be provided with IETF standards based feature so that granular traffic analysis can be performed for advanced auditing, usage analysis, capacity planning or generating security telemetry events, also the router shall have SLA monitoring tools to measure state of the network in real time. The SLA operations shall provide information on TCP/UDP delay, jitter, application response time, Packet Loss etc.	
Interface Requirements:	Router should be provided with 6 x 1 GE port with requiredtransceivers as per solution & one 10 gig interface	
Complaince/ Certifications	The Router should be minimum EAL2 / Applicable Protection Profile (NDPP) certified under the Common Criteria Evaluation Program	

- Blade Chassis

S.no.	Parameter	Description	Compliance (Yes/No)
1	Blade Chassis	Blade chassis shall be 19" Electronic Industries Alliance Standard Width rack mountable and provide appropriate rack mount kit.	
2	Power	The enclosure should be populated fully with power supplies of the highest capacity & energy	

		efficiency of a minimum of 90%.	
3		The power subsystem should support N + N power redundancy (where N is at least equal to 2) for a fully populated chassis with all servers configured with the highest CPU configuration, maximum memory and IO configuration possible	
4	Cooling	Each blade enclosure should have a cooling subsystem consisting of redundant hot pluggable fans or blowers enabled with technologies for improved power consumption and acoustics	
5	Chassis connectivity	The chassis should support redundant modules for connectivity - Ethernet and Fiber Channel /Infiniband modules OR converged fabric modules in lieu thereof	
6	Ethernet Module	Chassis should have sufficient number of redundant 10gb based ethernet modules to provide a minimum of 10 Gbps per blade server and 5 Gbps sustained per blade server (with 1 module failure)for a fully populated chassis for LAN Traffic.	
7	FC Module	Chassis should have sufficient number of redundant 8gb based ethernet modules to provide a minimum of 8 Gbps per blade server and 4 Gbps sustained per blade server (with 1 module failure)for a fully populated chassis for FC Traffic.	
8	Converged Module	In lieu of above mentioned Ethernet and FC module, Chassis can also be provision to have sufficient number of redundant 10gb based converged modules to provide a minimum of 20 Gbps per blade server and 10Gbps sustained per blade server (with 1 module failure)for a fully populated chassis for LAN & SAN Traffic. It should also provide minimum 40Gbps FCOE downlink bandwidth from each module /switch to each x86 server	
9	Management	Must be able to show the actual power usage and actual thermal measurement data of the servers across chassis	
10		Administrators should have the ability to set a cap on the maximum power that the chassis / physical server can draw in order to limit power consumption for non critical applications	

11		Redundancy should be built in the management subsystem so that if one management module fails other should be able to take over automatically. Management solution should be provided so that management upto 10 blade blade chassis can be done from single console.	
12		Role Based Access Control and remote management capabilities including remote KVM should be included	
13		Should support a environment where server identity including - server BIOS version, MAC ID, NIC firmware version, WWPN , FC-HBA firmware version , Management module firmware version, Server Boot Policies, KVM IP etc can be created	
14		Movement of server identity from one slot to another in the event of server failure within chassis as well as across chassis.	
15	Licensing	Should include all necessary licenses for management for a fully loaded chassis.	

- Blade Server – 2 Socket

S.no.	**Parameter**	**Description**	**Compliance (Yes/No)**
1	Processor	Each blade server should be configured with a minimum of two (2) 2.60 GHz E5-2690 v3/ v4 porcessors or higher available in latest series. Proposed processor should be available in the market for atleast last 6 months.	
2	Memory	Should have at least 24 DIMM slots and scalable up to 768 GB memory with the 32 GB memory module and should be populated with minimum 128 GB of memory Day1. Up-gradation to 768 GB should be available without replacing existing DIMMs as proposed by bidder for128 GB Day 1 capacity and without Mixing different capacity DIMMs	
3	HDD	The server should support a minimum of 2 hot plug SAS, SATA and SSD hard disk drives and should be populated with minimum 2 x 600 GB SAS drives of memory Day1	

4	Interface ports	The Blade server should support Ethernet and fiber channel connectivity OR Converged Network Adapters in lieu of the same. The Converged Network Adapters should aggregate both the Ethernet and FC connectivity on a single fabric	
5		The server should be configured to provide for port and card level redundancy	
6	IO bandwidth	The server should provide a minimum of 36Gb aggregate bandwidth per server (2 x 10Gb for Ethernet and 2 x 8 Gb for FC OR 4X10Gb for Converged Network adapter). Server should support the scalability to 80gb of LAN & SAN traffic.	
7		The server bandwidth should be expandable to 80Gb per server	
8	Management	It should suport remote/virtual KVM capability from an external keyboard, video monitor and mouse to all blades installed in the chassis through the management controllers and should also support virtual media for dvd access.	

- Blade Server – 4 Socket

S.no.	Specifications		Compliance (Yes/No)
1	Processor	Each blade shall support up to four (4) Intel Xeon E7 -4800/8800 V3/V4 series of CPUs. Should be populated with min two E7-4820 V3/ V4 CPUs. Proposed processor should be available in the market for atleast last 6 months.	
2	Storage	The Blade should have two front accessible hard disk drives or Solid State Drives (SSD)	
3		The Blade should have support for Boot from SAN	
4	Memory	The server should have at least 16 GB per core DDR 3/DDR 4 memory. After populating DIMMs, Each blade server should have 100% free memory DIMM slots remaining for future expansion. Server should be scalable to 96 DIMM slots per blade. Should have atleast 48 DIMMs slots with 2 CPUs populated.	
5	Network	The Blade server should support Converged Network Adapter , which aggregates both the Ethernet and FC connectivity on a single controller	

6		It should support scalability upto 160 Gb Ethernet connectivity per server. Should be provided with 80 Gbps across two or more cards.	
7	Management	It should support remote KVM capability from an external keyboard, video monitor and mouse to all blades installed in the chassis through the management controllers	
8		Remote KVM should support up to 4 active sessions	
9	Others	The Blade should be hot pluggable	

- Firewall

S.No.	Minimum Specifications / Functionalities / Capabilities	Compliance (Yes/No)
	General Hardware and Interface requirements	
1	The appliance based security platform with multicore CPU should be capable of providing firewall, URL Filtering, Application Visibility and Control (AVC) and VPNfunctionality in a single/ multiple appliance as and when required.	
2	The appliance should have min 6 no. of 10/100/1000 Base-T Gigabit Ethernet ports plus 4 x 10G SFP+ port and should be expandable to support additional 6 x 10/100/1000 GE + 4 x 10G no. of SFP+ ports with 10G SR Transceivers.	

3	Proposed Firewall should not be proprietary based in nature & should be open architecture based on multi-core cpu's to protect & scale against dynamic latest security threats.	
4	Firewall shall have hot swappable 1:1 redundant internal power supply	
	Performance Requirements	
5	Should have Multi- protocol throughput of 10 gbps. Real world profile should include but not limited to HTTP, Bit Torrent, FTP , SMTP and IMAPv4. This is minimum performance required though the required throughout need to be sized by bidder as per their solution.	
6	Firewall Should support DES, 3DES/ AES IPSec VPN throughput of minimum 350 Mbps	
7	Firewall should support atleast 3,500,000 concurrent sessions and Firewall should support atleast 1,80,000 new connections per second	
8	Firewall should support atleast 1000 VLANs	
9	Firewall should support 2 virtual firewalls from day one and scalable to to 200 virtual firewalls as and when required with licenses.	
	Routing Protocols	
10	Firewall should support static Routes, RIPv1/RIPv2, OSPFv2, OSPFv3, BGP4&PIM Multicast routing	
	Firewall Features	
11	Firewall should support for Layer 3 and Layer 4 stateful firewall features, including access control, network address translation, and stateful inspection.	
12	Firewall should support creating access-rules with IPv4 & IPv6 objects simultaneously	
13	Firewall should support operating in routed and transparent mode	
14	In transparent mode firewall should support arp-inspection to prevent spoofing at Layer 2	
15	Firewall should provide application inspection for DNS, FTP, HTTP, SMTP, ESMTP, LDAP, MGCP, RTSP, SIP, SCCP, SQLNET, TFTP, H.323, SNMP etc.	
16	Firewall should support static nat, pat, dynamic nat, pat & destination based nat	

17	Firewall should support integration with RADIUS, TACACS, RSA, LDAPv3 Directory Servers, Kerberos, NT server and Local Database	
18	Firewall should support IKEv2 and Suite B cryptography	
19	Firewall should support Nat-T for IPSec VPN	
	System Management and Administration	
20	Centralized management console can be a separate appliance based solution or software installed on a server. Firewall & Centralized manager should be from same OEM.	
21	Firewall should support SSHv2, SNMPv2c, SNMPv3 and NTP	
22	Firewall should support AAA using RADIUS and TACACS+	
23	Firewall should support software upgrades	
	VPN Features	
24	Should support minimum10,000 vpn tunnels	
25	The security appliance supports the following encryption standards for ESP: DES, 3DES, AES-128, AES-192, AES-256	
26	Supports the use of SHA-2 compliant signature algorithms to authenticate SSL VPN connections that use digital certificates. Support for SHA-2 includes all three hash sizes: SHA-256, SHA-384, and SHA-512	
27	Firewall should support Suite B cryptography including ECDSA, ECDH & SHA- 2	
28	Should support Perfect forward secrecy using Diffie-Hellman (DH) groups 1,2,5 and 7	
	Evaluation Compliance	
29	The Firewall should be minimum EAL2 / Applicable Protection Profile (NDPP) certified under the Common Criteria Evaluation Program	

- IPS

S.No.	Specifications	Compliance (Yes/No)
1	**Advanced Threat Protection**	
1.1	The proposed solution must be based on standard computer technology (not ASICs) so that future enhancements and protocols do not require hardware refresh to support. The proposed solution platforms must be based on a hardened operating system.	
1.2	The detection engine must be capable of operating in both passive (i.e., monitoring) and inline (i.e., blocking) modes.	
1.4	Detection rules must be based on an extensible, open language that enables users to create their own rules, as well as to customize any vendor-provided rules.	
1.5	The detection engine must be capable of detecting and preventing a wide variety of threats (e.g., malware, network probes/reconnaissance, VoIP attacks, buffer overflows, P2P attacks, zero-day threats, etc.).	
1.6	The detection engine must incorporate multiple approaches for detecting threats, including at a minimum exploit-based signatures, vulnerability-based rules, protocol anomaly detection, and behavioral anomaly detection techniques. Identify and explain each type of detection mechanism supported.	
1.7	The detection engine must inspect not only Network Layer details and information resident in packet headers, but a broad range of protocols across all layers of the computing stack and packet payloads as well.	
1.8	Sensors must be capable of performing packet-level forensics and capturing raw packet data in response to individual events without significant performance degradation.	
1.9	The solution must be capable of detecting and blocking IPv6 attacks.	
2	Advanced Malware Protection	
2.1	The solution must be capable of providing network-based detection of malware by checking the disposition of known files in the cloud/on premises using the SHA-256 file-hash as they	

	transit the network (SHA-256 and target IP address should be given to aid remediation efforts).	
2.2	The solution must provide full contextual awareness (user, application & content) with respect to malware detection, propagation and retrospective remediation	
2.3	The solution must be able to track APTs that involve multiple threat elements and associate malware child processes to their parents	
2.4	The solution must run in a stylized sandbox environment that can be used to identify the unknown malwares.	
3	Application visibility and URL Filtering	
3.1	Should support Application Visibility and Control (AVC) supports more than 10000 application-layer and risk-based controls that can invoke tailored intrusion prevention system (IPS) threat detection policies to optimize security effectiveness.	
3.2	Proposed appliance should also provide Reputation- and category-based URL filtering offers comprehensive alerting and control over suspect web traffic and enforces policies on hundreds of millions of URLs in more than 50 categories	
4	**Real-Time Contextual Awareness**	
4.1	The solution must be capable of passively gathering information about network hosts and their activities, such as operating system, services, open ports, client applications, and vulnerabilities, to assist with multiple activities, such as intrusion event data correlation, elimination of false positives, and policy compliance.	
5	**Intelligent Security Automation**	
5.1	The solution must be capable of employing an extensive set of contextual information (e.g., pertaining to the composition, configuration, and behavior of the network and its hosts) to improve the efficiency and accuracy of both manual and automatic analysis of detected events.	
5.2	The solution must be capable of dynamically tuning IDS/IPS sensors (e.g., selecting rules, configuring policies, updating policies, etc.) with minimal human intervention.	
5.3	The solution must be capable of automatically providing the appropriate inspections and protections for traffic sent over non-standard communications ports.	

6	**Control Compliance**	
6.1	The solution must support creation of user-defined application protocol detectors.	
6.2	The solution must have content awareness with comprehensive file detection policies and blocking of files by types, protocols and directions.	
6.3	- Protocols: HTTP, SMTP, IMAP, POP	
6.4	- Direction: Upload, Download, Both	
6.5	- File Types: Office Documents, Archive, Multimedia, Executable, PDF, Encoded, Graphics, and System Files.	
7	**Reporting and Alerting**	
7.1	The management platform must provide robust reporting capabilities, including a selection of pre-defined reports and the ability for complete customization and generation of new reports.	
	Availability	
9.1	Sensors must support built-in capability of failing open, such that communications traffic is still allowed to pass if the inline sensor goes down.	
8	**Performance**	
8.1	Should have minimum Inspected throughput of 10 gbps for all kinds of real word traffic, this is minimum performance required though the required throughout need to be sized by bidder as per their solution.	
8.2	Should support minimum 3,500,000 Concurrent Connections and atleast 180,000 new connections per second	
8.3	Should have minimum 8 monitoring interface of 4x 1 Gbps Copper + 4 x 10G SR	
8.4	Latency should be < 150 microseconds.	
8.6	Must have dedicated 10/100/1000 RJ45 Management Interface.	

- Server/Storage requirement for Video Management

All Cameras video should be recorded at 2MP and 15 FPS for 15 Days.

S.NO.	Item	Feature description	Compliance (Yes/No)
1.	Architecture	Vendor may propose external SAN/NAS or Local Compute Disk Storage to store Video.	
2.	Dual Server Nodes	Should provide Minimum 60 drives or less.	
3.	Processors	Controller shall have a minimum of 12 cores with dual Intel E5 based CPUs.	
4.	Memory	Controller node should provide 128 GB or more memory.	
5.	Upgradability	Server/Controller nodes should be upgradeable to future CPU and memory releases without having to change the entire chassis	
6.	Storage	Should support JBOD, RAID 0, 1, 5, 6, 10 , 50 and 60 raid Levels. Should configure for minimum double disk failure and one hotspare with each storage node.	
7.		In case of failure , individual drives can be replaced without impacting any other drives	
8.		Should use 4 TB or less capacity SAS/NL-SAS 7.2K RPM drives.	
9.		Support onboard Flash Backed Write Cache of up to 4 GB	
10.	Network	Provide Minimum 2*10GBps per controller/server node.	

- Video Surveillance Monitoring Workstation

S. No	Parameter	Minimum Specifications	Compliance (Yes/No)
1	Operating System (OS)	Windows 7 Pro, Ultimate or Enterprise, 64-bit	
2	CPU	Intel Core i7, 3.07 Ghz or Higher	
3	Memory	16 GB DDR3	
4	Graphics Card	Nvidia GeForce GT430 PCIe Nvidia GeForce GTX460 PCIe or faster.	
5	Network connection	Gigabit Ethernet (GigE) network connection required	

12) Surveillance Camera (Min 1600 No.s for 360° monitoring)

Make – Sony / Panasonic or equivalent

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	All the cameras proposed shall support Smart coding Technology i.e. Group of Pictures (GOP) control function removes unnecessary information from the frame for realizing efficient encoding, Multi process Noise Reduction and FDF(Frequency Divided Filter) etc. to reduce the network bandwidth and the disk space of recorder.	Vital		
2	High resolution 4k cameras	Vital		
3	The camera *with 5-25mm Lens,* shall be able to setup and stream out at least four (4) stream of H.264 High profiles simultaneously. Each stream profile can has its own compression, resolution, frame rate and quality independently	Vital		
4	The camera with *Maximum Video Resolution of 12 MP (4000 x 3000),* shall have Wide Dynamic Range of *80 dB* or better and 4K (3840 x 2160) Resolution @30 fps	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
5	The camera shall have Wide Dynamic Range of 133 dB or better	Essential		
6	The camera shall have Image Cropping (4 Areas) and Picture in Picture Function	Vital		
7	The camera shall have minimum 8 Region of Interest Areas to retain higher image quality while the excluded area will have a decreased image quality, which enables to use lower image file size and bit rate	Vital		
8	The High resolution 4K Camera shall have Wide Dynamic Range. Bidders to mention the Dynamic Range in their bid.	Vital		
9	Camera shall have Rain Wash Coating, Fog and Sandstorm compensation	Vital		
10	The camera shall have Full duplex bi-directional audio allows interactive communication between camera site and monitoring site and 3 alarm Inputs.	Vital		

13) Mobile & SoS Application

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
1	Viewing and paying utility bills Gas, Water, Electricity etc	Vital		
2	View complaint status	Vital		
3	Filing of RTI	Essential		
4	Submitting Citizen Grievances	Vital		
5	Provision of eMandi (market rates of pulses etc)	Essential		
6	Payment for traffic challans	Vital		
7	About Indore City	Desirable		
8	Finding nearest police station, fire station, post office etc	Vital		
9	Information about Birth/Death certificate, ration card, voter id etc	Desirable		
10	Online forms	Desirable		
11	Government tenders	Desirable		
12	Government Job Opportunities	Essential		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
13	Citizen Facilities	Vital		
14	Information about Elected and Admin wing	Desirable		
15	Pollution details	Essential		
16	SoS toolkit SoS toolkit: The Citizen shall utilise the Indore Smart City application and choose from a curated list the type of incident and broadcast Live Video and location data to the nearest police station as well as to the Indore Smart City control Room. The display of the Police Station or Indore Smart city control room shall require only a browser. The Video should be recorded on the location machine on which the browser is installed. The location of the Citizen broadcasting the video, along with the citizens mobile	Vital		

#.	Clause	Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	number, name, type of incident and the video itself should be displayed in the browser window along with a location map with the location indicator.			
17	Online Medical Services	Vital		

14) Active Geo Location Transponder:

#.	Clause		Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
	Product or component type	**Geo Location Transponder**			
1	Mounting mode	Wall-mounted	Essential		
2	Power	5V DC (USB) x 4			
3	UUID	Minimum 4	Essential		

#.	Clause		Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
4	Communication protocol	BLE 4.0	Essential		
5	Dimensions:	0.76in (l) x 0.61in (w) x 0.28in (h) (19.3mm x 15.6mm x 7.1mm)	Essential		
6	Weight	1.85 grams x 4	Essential		
7	Antenna	Omni Directional	Essential		
8	Transmission Frequency: Note: These advertising channels are allocated in different parts of the 2.4GHz spectrum and are designed to coexist with 802.11/Wi-Fi.	2.4GHz Channels 37 (2402MHz), 38 (2426 MHz), and 39 (2480 MHz); non-connectable advertisements.	Essential		
9	Transmission Intervals	Configurable off the air via Web manager.	Essential		
10	Transmission Power	Configurable off the air: from -23dBm (Low) up to 0dBm (Full Power)	Essential		

#.	Clause		Criticality	Compliance (Non-Compliance/ Compliant on Customization/ Fully Compliance	Remarks
11	Transmission	Minimum 33 meters, max 50 meters CLS	Essential		
12	Operational Temperature	-10 °C to 65 °C	Essential		
13	Humidity Survival	95% RH	Essential		
14	Compliance	RoHS/REACH Compliant	Essential		

Form 10

Declaration that the Bidder has not been blacklisted

(To be submitted on the Letterhead of the responding Bidder)

Place:

Date:

To,

<name and address>

Ref: RFP Notification no dated

Subject: Declaration of Bidder being not blacklisted

Dear Sir,

We confirm that our company, is not blacklisted in any manner whatsoever by any of the State/UT and/or central government in India on any ground including but not limited to indulgence in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.

Place :

Date :

Bidder's Company Seal :

Authorized Signatory's Signature :

Authorized Signatory's Name and Designation:

ANNEXURE 5

Financial Bid Format

Item	Year-wise Bid Amount (INR Lakh)																	
	Implementation Period			Operations Period														
	1	2	2.5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Grant required from ISCDL				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Revenue Share with ISCDL as Fixed % of Revenue Generated	X	X	X	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Additional Revenue Share with ISCDL	X	X	X															
Total Revenue Share with ISCDL over Concession Period (in addition to Fixed % of Revenue Generated)																		
NPV @ 10% of Total Revenue Share with ISCDL over Concession Period (in addition to Fixed % of Revenue Generated)																		

Note: 1. The Concessionaire shall design Financial Model on the basis of 800 Smart Poles, minimum. Any increase in number of Smart Poles shall result in prorata increase in "Additional Revenue Share with ISCDL" on annualized basis.

Note: 2. The Concessionaire shall design Financial Model on the basis of Installation of 10,000 New Street Light Poles. Any upward (or downward) change in this number shall mean implication of payment to (or payment by) the Concessionaire at a rate of Rs. 50,000 per Street Light Pole, irrespective of its height, location or any other criteria. This rate shall be all inclusive of material, labour and all other items associated with connecting light bracket to power supply panel for the pole, including light fixture.

Note: 3. The Concessionaire shall design Financial Model on the basis of Installation of 65,000 Street Lights. Any upward (or downward) change in this number shall mean implication of payment to (or payment by) the Concessionaire at a rate of Rs. 15,000 per Street Light, irrespective of its wattage, type or any other criteria. This rate shall be all inclusive of material, labour and all other items associated with smart control and communication features.

Note: 4. Grant from ISCDL shall be disbursed only in relation to the physical progress of work, as certified by Engineer-in-charge. Amount of Grant shall be limited to 20% of the Project Cost as certified during Financial Close.

Bill of Quantities for Grant (if any)

Following is the minimum BoQ requirement for the project implementation. The total BoQ cost should match with the aforementioned Grant(if any) sought from ISCDL

S. No	Item	Unit of Measurement	Minimum Qty	Unit Price (INR)	Total Price (without tax)(INR)	Taxes, Duties as applicable	Total Price	Remarks
Field-side Equipments								
1	Camera	No.	1600					Please note the quantities indicated in Row 1 to 7 may not be installed at one go and it is only a minimum indicative number. Bidders are required to
2	Industrial grade Switch as per specifications	No.	As per Design					
3	MPLS Pre-Aggregation switch	No.	As Per Design					
4	MPLS Aggregation switch	No.	As Per Design					
5	MPLS Core Switch	No.	As Per Design					
6	Mobile Application	Software	1					
7	Wi-Fi Access Points	No.	As Per Design					
8	Fibre	Kms	As per Design					

S. No	Item	Unit of Measurement	Minimum Qty	Unit Price (INR)	Total Price (without tax)(INR)	Taxes, Duties as applicable	Total Price	Remarks
9	WLAN Controller	No.	As per Design					quote as per actual requirement
10	Environmental Sensors	No.	50					
	Command and Control Centre							
11	VMS for the number cameras as indicated in Ser No 1	No.	1					
12	Active Geo Location Transponders	No	3200					
13	IT infrastructure (Server and Storage as required for VMS)	As required						
14	WAN aggregation and Internet Router	No.	2					
15	DC Switches Type - 1	No.	2					
16	DC Switch Type – 2	No.	4					
17	Firewall	No.	2					
18	IPS	No.	2					
19	19 inch rack-42 U Rack	No.	1					

S. No	Item	Unit of Measurement	Minimum Qty	Unit Price (INR)	Total Price (without tax)(INR)	Taxes, Duties as applicable	Total Price	Remarks
20	Video Wall (2x 2 Cubes) (Make – Sony/ Samsung/LG)	No.	1					
21	Blade Chassis and Blade Servers	No.	As Per Design					
	Installation and commissioning of above				**Lump sum**			
	Total BoQ Cost inclusive of all Taxes and Duties for Serial No1 to 14							

ANNEXURE 6

Undertaking on Service Level Compliance

No.

Date:

To,

<insert name and address>

Dear Sir,

Subject: Undertaking on Service Level Compliance

1. I/We as Bidder do hereby undertake that we shall monitor, maintain, and comply with the service levels stated in the RFP to provide quality service to ISCDL

Yours faithfully,

(Signature of the Authorized signatory of the Bidding Organisation)

Name :

Designation :

Date :

Time :

Seal :

Business Address :

ANNEXURE 7

Undertaking on Exit Management and Transition

No.

Date:

To,

<insert name and address>

Dear Sir,

Subject: Undertaking on Exit Management and Transition

1. I/We hereby undertake that at the time of completion of our engagement with the Department, either at the End of Contract or termination of Contract before planned Contract Period for any reason, we shall successfully carry out the exit management and transition of this Project to the ISCDL or to an agency identified by ISCDL to the satisfaction of the Department. I/We further undertake to complete the following as part of the Exit management and transition:

   a) We undertake to complete the updation of all Project documents and other artefacts and handover the same to ISCDL before transition.

   b) We undertake to design standard operating procedures to manage system (including application and IT systems), document the same and train ISCDL personnel on the same.

   c) If Department decides to take over the operations and maintenance of the Project on its own or identifies or selects any other agency for providing operations & maintenance services on this Project, then we shall provide necessary handholding and transition support, which shall include but not be limited to, conducting detailed walkthrough and demonstrations for the IT Infrastructure, handing over all relevant documentation, addressing the queries/clarifications of the new agency with respect to the working/performance levels of the infrastructure, conducting Training sessions etc.

2. I/We also understand that the Exit management and transition will be considered complete on the basis of approval from ISCDL.

Yours faithfully,

(Signature of the Authorized signatory of the Bidding Organisation)

Name :

Designation :

Date :

Time :

Seal :

Business Address :

ANNEXURE 8

Undertaking to open an office in Indore

To,

<insert name and address>

Ref: "Selection of Bidder for implementing Smart City Pan City Projects in Indore under PPP DBOOT model".

Bid Reference No:

Sub: Undertaking to Open an Office in Indore

Dear Sir,

We hereby undertake that:

We are willing to open an office in Indore within1monthincasewe are declared successful in the bidding Process.

We have carefully read and understood the entire tender document. We do agree to all the terms and conditions mentioned in the RFP.

Yours faithfully,

Signature:

Name:

Designation:

Address:

Date:

Company Seal

ANNEXURE 9

Data Sheet

Name of the Project:	Selection of Concessionaire for Implementation of Intelligent Street Pole in in Indore under PPP model
Construction Period:	2.5 years
Concession Period:	15 years
Performance Security:	-
Language:	English
Currency:	Indian Rupees
Bid Security:	Bid Security of amount INR 50,00,000/-(Fifty Lakhs) through DD/FDR.
Tender Document Fee	Tender fee of amount INR 50,000 (Rupees Fifty Thousand Only) in the form of online payment.
Method of selection	The method of selection of the Bidder shall be in two stages. Financial bids of only those Bidders would be opened who qualify the minimum technical score as laid out in this tender.

ANNEXURE 10

MP E-procurement guidelines

Please check www.mpeproc.gov.in

Annexure 11

Scope of Project

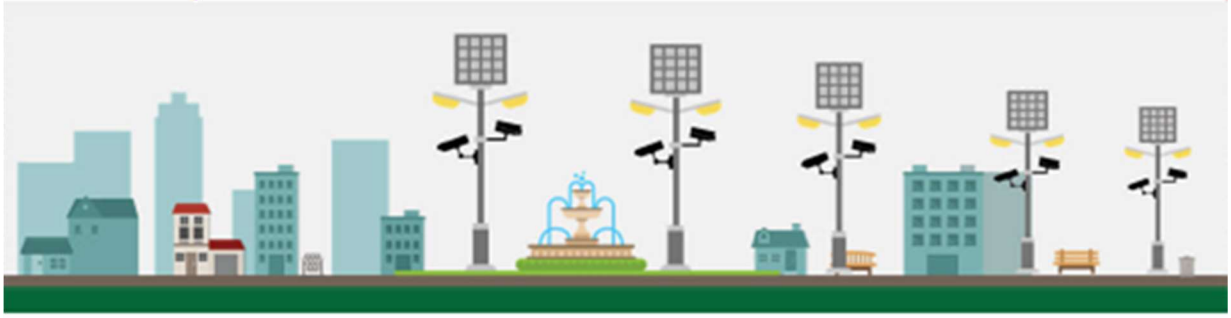
1. Global Objective

The objective is to provide city of Indore a core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. The focus is on sustainable and inclusive development and create a replicable model which will act like a light house to other aspiring cities.

2. Project Objective

The aim of the project is to Design, Develop, Implement, Manage, Operations and Maintenance of smart pole and lighting services on a DBOOT model to improve Indore operation, delivers benefits to citizens and provide seamless integration of smart services & solution inter alia of following;

1. Smart Pole with LED Street light
2. Wi-Fi Services
3. Optical Fibre
4. Surveillance
5. Environmental Sensors
6. EV Charging Points
7. Smart Bill Board
8. SoS Application
9. Mobile Application
10. Central COmmand & Control Centre
11. Managing the Complete Network



The details of each module are provided below.

3. Scope of Work for the Concessionaire

a) The Concessionaire shall be solely and exclusively responsible to design, implement and maintain on a DBOOT (Design, Build, Own, Operate, and Transfer) model the solution and to install the equipment / fixtures as below.

- 800 Smart poles of height (9m to 15m)
- 10,000 New Street poles with LED lights in the specified areas.
- Replacement of existing 65,000 street lights to smart LED lights in the specified areas.

b) The Concessionaire shall have the right to create telecom infrastructure to enable multiple digital services based on Wi-Fi/2G/3G/4G/BLE4.0 to be utilized by all/multiple operators having valid license from Department of Telecom (DoT) on non-discriminatory basis. For this purpose the Concessionaire will be allowed to lay dedicated optical fibre cable at a suitable depth below the ground where these smart poles are going to be installed. ROW required for the purpose shall be provided by Authority to Concessionaire free of cost.

c) The Concessionaire will charge lease rentals from various telecom operators on non-discriminatory basis, as per the business model of the Concessionaire for using these services.

d) All (selected) existing lights to be converted to LED lights. Arm (LED light brackets) may need to be changed. Earthing to be done wherever required.

e) All street lighting poles in the ABD area will have to be replaced with new poles and LED lights.

Overall scope of work for the Concessionaire shall be Design, Develop, Implement, Manage, Operations and Maintenance of following services in whole / part of the IMC area (about 276 sqkm) to improve operation and delivers benefits to citizens and provide seamless integration of smart services and solution inter alia of following:

3.1. Intelligent Street Pole (Smart Pole) with LED Street light (minimum 800 no.s)

a) Electric street lights are essential elements of a municipal environment and services. They affect resident sense of safety while influencing a city's ability to create an inviting environment for business and tourism. Unfortunately, outdoor lights are also a major energy draw. Therefore following are desired in designing and implementation of street lightings:

- Reduce energy consumption, cost, and its maintenance
- Enhance situational awareness, real-time collaboration, and decision making across city
- Add intelligent IT innovations to civic utilities, public safety without adding significantly more physical infrastructure
- Real-time data communications with low latency (or minimal delay), to improve safety and security

b) For the aforementioned reasons, Concessionaire is required to carry out a detailed site survey and replace all existing sodium vapour lamp or any other form of lights by LED lights. It should be possible to monitor and control the LED lights from a centralized location via an EMS.

c) Based on the design of the Concessionaire, Smart Poles with telecom infrastructure will be established at minimum 800 locations in the city which will house the telecom base stations, Wi-Fi, environmental sensor, surveillance camera and other related electronics.

d) The number of smart street poles shall not be less than 800. The actual quantity quoted shall be based on the site survey to be undertaken by the Concessionaire and design for telecom infrastructure.

e) Concessionaire shall be responsible to provide the new site for sheltering the Telecom Base Stations with in a period of 8 weeks after all clearances are obtained from the Authority. In the event of non-adherence of the above there will be penalty to Concessionaire for not adhering to the schedule. Batteries for smart poles need to be brought by Telecom Operators for these equipment.

3.2. Wi-Fi Services at minimum 800 Hot Spots along with Smart Pole

a) Hot Spot Wi-Fi serves as the foundation for creating a connected city to access the wireless internet service with ease and convenience. As part of the Project, free Wi-Fi for first 30 minutes per day, upto 100 MB data usage is envisaged to be provided to Mobile subscribers with an aggregate limit of 1000 MB per month, usage beyond this limit may be chargeable by the Concessionaire. As a part of Wi-Fi solution, the Concessionaire would need to provide e2e like Wi-Fi controller and, DNS, Internet bandwidth from Internet Service Provider (ISP). 1 SSID for E governance shall be reserved for Authority's use, free of charge.

3.3. Optical Fiber (minimum 500 km)

a) In order to provide better bandwidth to the Wi-Fi users/ providing Backhaul to Telecom operators, 48 core (or more) Fiber shall be laid across the city. Fiber shall be laid at a suitable depth below the ground level.

b) For this purpose, it is envisaged that at least 500Kms of Fiber would be required to be laid across the city. Out of this 48 core (or more) Fiber, 10% fibers would be provided to ISCDL for its own as well as other government departments' purposes. Concessionaires could use the balance fiber for various applications, and earn revenue through leasing. While laying fiber, Concessionaires shall use necessary protection material for making the deployment future proof.

c) After laying the fiber, Concessionaire shall be responsible for making good the cuts if any made in the road.

3.4. Citywide IT Network:

IT Network to be created by the concessionaire for ISCDL area under this RFP shall be on MPLS technology. Network should act as backbone for all the ISCDL smart city initiatives which may come in future like for parking, waste management, environment and other e-governance services like smart energy grid, smart water supply, smart education, smart health, waste management etc. Dedicated network should be created for ISCDL so that they can scale to multiple urban smart city services in future without any bandwidth or opex dependencies on Service provider.

3.5. Surveillance Camera (minimum 1600 no. for 360° monitoring)

a) City Safety and Security solution helps protect cities against crime, terrorism, and civil unrest, planning events, monitoring of infrastructure, encroachments etc. It helps law enforcement monitor public areas, analyze patterns, and track incidents and suspects enabling quicker response.

b) Keeping the above perspective, surveillance cameras installed in smart street poles. The cameras should be integrated in the smart poles. It shall be possible to adjust the camera focus from a remote location and capture 360° view.

3.6. Environmental Sensors (minimum 100 no.)

Concessionaire is required to integrate environmental sensor in smart pole for providing air quality, temperature, and humidity related data.

3.7. Active Geo Location Transponders:

Concessionaires are required to integrate active Geo location transponders to provide an umbrella of location based services, through citizen-centric applications envisaged to be developed in Indore Smart City which will utilise the location geo address of the street light to provide services to the Citizens or to various government departments as part of e-governance.

3.8. EV Charging Points (minimum 50 no.)

As part of this project, Concessionaire is required to provide Electronic Vehicle charging points for charging the Electronic Vehicles (ex: Auto Rickshaws, Two wheelers, Four-wheelers). For this purpose necessary EV charging points needs to be provided at appropriate locations on smart poles as part of the solution.

3.9. Smart Bill Board: (Interactive digital information panel for traffic and business, minimum 1600 no.s – on both sides of each Smart Pole)

Concessionaire is required to provide Smart Bill boards as part of smart poles which is capable to provide access support to 2G/3G/4G/LTE/5G and WI-FI technologies for controlling and managing the Smart Bill board and lease them for advertisements for revenue generation. These sites could also provide information about various schemes, policies of Government being implemented for the welfare of citizens of Indore for fixed durations during the day. It shall be possible to change the advertisements /Messages in these smart bill boards from a centralized location.

ISCDL will have the rights for advertisement for a minimum of 10 minutes per hour per day. Further, ISCDL may use this media for displaying new/information for public convenience in case of any natural calamity, emergency etc.

3.10. SOS Switch (minimum 200 no.s)

Smart Pole shall include a conveniently located SOS switch for use by citizens in the event of Emergency, distress, etc. for getting police support and also broadcast live Incident video to the nearest Police station as well as Central Command and Control Centre by choosing an incident type. This functionality may also be available as a software application on smart phones.

3.11. Mobile Application

a) Concessionaire is expected to develop Citizen Service and Convenience Mobile application. The application should have the following basic features:

- The Mobile application shall be connected with Google Map with voice based Local language directions (English & Hindi).
- The mobile application shall work on all Latest versions of Android & iOS, platforms.
- The application may be limited to Indore city limit only. The application shall be free for download for all users.
- Concessionaire shall not charge for WiFi access for this application.
- In addition to the above, Concessionaire may provide all G2C and value added services.

3.12. Centralized Command and Control Centre

a) Concessionaire is required to provide application software for managing and controlling the LED lights through a controller from a centralized location, such as, Centralized command and control centre to be established under the Smart City project.

b) Video Wall, the necessary IT infrastructure and EMS for monitoring the LED street lights need to be provided as part of this Project.

c) EMS for all sub-systems shall be provided at the Command and control centre irrespective of whether asked for or not.

d) Central command and control centre shall house the following:

a. Video Wall
b. Command and control software
c. MSSQL Database as required
d. Dashboard application giving a historical view
e. Servers with adequate storage capacity
f. Routers / DC Switch in redundancy
g. Firewall and IPS in redundancy
h. EMS

3.13. Supplementary Technical Specifications related to Lighting

General applicable standards to BIDDER Street lighting project

Technical specifications in this documents, National Lighting Code by Bureau of Indian Standards (IS)- SP 72, 2010, IS 1944, IS 1977 and IEC Standards shall be complied for design and development of street lighting calculations, selection of lighting fixtures, lighting technologies, pole structure and erection, cable selection and sizing, insulation requirements, conductor specifications etc.

The SP 72 (Part 8), IS 1944 (Parts 1) and IS 1970 (Part 2) provides code of practice for lighting of public streets and specifies the street categorization criteria as detailed in **Table 4**.

Road Classes as per SP 72 (Part 8), IS 1944 (Part 1) and IS 1970 (Part 2)

Main Roads subdivided into two categories	
Class A	
Class A1	Important routes with rapid and dense traffic where safety, traffic speed, and driving comfort are the main considerations
Class A2	Main Roads with considerable volume of mixed traffic, such as main city streets, arterial roads and thoroughfares.
Class B	
Class B1	Secondary roads with considerable traffic such as main local traffic routes, shopping streets

Class B2	Secondary roads, with light traffic
Class C	Lighting for residential and unclassified roads not included in previous Groups
Class D	Lighting for bridges and flyovers
Class E	Lighting for town and city centres
Class F	Lighting for roads with special requirement such as roads near air fields, railways and docks

With reference to above road categorization criteria and information collected through field survey, the roads to be covered under the BIDDER projects are broadly classified as Class A and Class B roads. The illumination levels required to be maintained for lighting installations on different classes of roads as per Standards are detailed in **Table below**

Table

For Indore City following illumination levels are to be maintained (Slightly upgraded from IS code specifications for Class A2, B1 & B2 roads):

Classification	Average Illumination (lux)	Ratio Minimum to average* illumination
Class A1	30	0.4
Class A2	20	0.4
Class B1	10	0.3
Class B2	7	0.3

*In case of roads where the pole to pole distance is not as per the standards, then the guidelines for minimum lux level at the center needs to be adhered. The minimum required lux for different wattages of LED street lights is provided in the **Table below**

In addition to Class A & Class B roads few areas internal to the wards and by-lanes also consist of class C type of roads.

In case of voltage dimming during the time from 11 pm to 5 am following standard illuminations should be maintained. The voltage should not be dimmed below 25% of 240 V between the given time period.

Table Dimming and minimum illumination to be maintained

Classification	Average Illumination to be maintained during operational hours excluding off peak hours (lux)	Ratio Minimum to average illumination	Minimum illumination to be maintained during off peak hours
Class A1	30	0.4	22.5
Class A2	20	0.4	15
Class B1	10	0.3	7

Energy efficient LED based luminaires unit for street lighting

I. SCOPE

The scope includes design, development, manufacturing, testing and supply of energy efficient luminaire complete with all accessories, LED lamps with suitable current control driver circuit including mounting bracket, poles, cabling, control panel as required for street light and High mast light. The luminaire shall be suitable for rugged service under the operational and environmental conditions encountered during service.

The areas and roads which will be covered under the scope of this RFP are mentioned below.

A) Area Based Development Area (ABD area) Indore Smart City Project (742.0 Acre):
A - i. Existing central lighting on roads, width 24 mtrs or more will be covered under this category.

The roads having central lighting tubular poles or one/ both side tubular lighting poles with conventional MH or sodium lamp type of lighting fixtures. ***The conventional lighting fixtures to be replaced with LED type street lighting fixtures*** having smart controls with individual wireless sensors and dimmable drivers. The system will be complete with new poles, underground cabling, new smart control feeder panels, software etc. The existing poles will be replaced with new poles.

The street lighting poles should be continuously tapered conical MS galvanised poles with weather proof PU paint having shape and finish similar to the smart poles installed in this area.

The details of roads are as under:

S.NO.	ROAD WIDE IN MTS.	TYPES OF ROAD	Road Length in ABD	Existing Central Lighting Poles & LED replacement.
1	30-MTS.	6-LANE With Center Median	2.14 Kms.	2.14 Kms. (172 Lighting fixtures only)
2	24-MTS.	4-LANE With Center Median	3.70 Kms.	3.7 Kms. (296 Lighting fixtures)

The quantity of such lighting fixtures shall be 468 approximately. This quantity may vary up to 15% after the detailed survey and design by the Bidder.

A - ii. All existing roads and all future master plan roads to be widened, width 24 mtrs or more with central lighting will be covered under this category.

Entire street lighting on all streets in this area will have new central street lighting poles with LED type street lighting fixtures having smart controls with individual wireless sensors and dimmable drivers. The system will be complete with underground cabling, smart control feeder panels, software etc. The street lighting poles should be continuously tapered conical MS galvanized poles with weather proof PU paint having shape and finish similar to the smart poles installed in this area.

S.NO.	ROAD WIDE IN MTS.	TYPES OF ROAD	Road Length in ABD	New Poles +LED
1	30-MTS.	6-LANE With Center Median	2.36 Kms.	2.36 Kms (190 Fixtures)
2	24-MTS.	4-LANE With Center Median	2.55 Kms.	2.55 Kms (204 Fixtures)

The approximate quantity of street lighting poles in this area will be 394. This quantity may vary up to 15% after the detailed survey and design by the Bidder.

A - iii. All existing roads, width 18 mtrs or below will be covered under this category.

These roads will have ***new LED type street lighting fixtures*** having smart controls with individual wireless sensors and dimmable drivers. The system will be complete with new poles, smart control feeder panels, software etc. The street lighting poles should be continuously tapered conical MS galvanized poles with weather proof PU paint having shape and finish similar to the smart poles installed in this area.

S.NO.	ROAD WIDE IN MTS.	TYPES OF ROAD	Road Length in ABD	On side of road both side
				New Poles +LED
1	18-MTS.	4-LANE Without Center Median	9.40 Kms.	9.40 Kms. (752 Lighting fixtures)
2	15-MTS.	3-LANE Without Center Median	1.00 Kms.	1.00 Kms. (80 Lighting fixtures)
3	12-MTS.	2-LANE Without Center Median	2.40 Kms.	2.40 Kms. (96 Lighting fixtures)
4	Less Than 12-MTS.	2-LANE Without Center Median	46.00 (APP) Kms.	46.00 Kms (APP) (1840 Lighting fixtures)

The approximate quantity of street lighting fixtures on these roads will be 2768 nos approximately. This quantity may vary up to 15% after the detailed survey and design by the Bidder.

A - iv. In this area on the narrow streets of (totaling about 5km length), there should be pole less street lighting designed with sleek shaped LED fixtures suspended on ropes.

B) Pan City area of Indore (excluding ABD area):

B - i. Existing roads and all future master plan roads to be widened for width 24 mtrs or more having central lighting, will be covered under this category:

The roads having central lighting tubular poles or one/ both side tubular lighting poles with conventional MH or sodium lamp type of lighting fixtures: ***The conventional lighting fixtures to be replaced with LED type street lighting fixtures*** having smart controls with individual wireless sensors and dimmable drivers. The system will be complete with new underground cabling wherever required, new smart control feeder panels, software etc. The existing poles will be painted if required and shall be replaced if damaged.

S.NO.	ROAD WIDE IN MTS.	TYPES OF ROAD	Total Road Length Pan City excluding ABD area	Central lighting Existing Poles, only LED replacement.
1	75-MTS.	6-LANE With Service Road & Center Median	50.22 Kms	50.22 Kms. (8195 lighting fixtures including Service road)
2	60-MTS.	6-LANE With Service Road & Center Median	13.47 Kms.	13.47 Kms.(2155 lighting fixtures)
3	45-MTS.	6-LANE With Center Median	10.60 Kms.	10.60 Kms. (848 lighting fixtures)
4	40-MTS.	6-LANE With Center Median	4.49 Kms.	4.49 Kms. (360 lighting fixtures)
5	36-MTS.	6-LANE With Center Median	2.73 Kms.	2.73 Kms. (218 lighting fixtures)
6	30-MTS.	6-LANE With Center Median	47.60 Kms.	47.60 Kms. (3808 lighting fixtures)
7	24-MTS.	4-LANE With Center Median	12.10 Kms.	12.10 Kms. (968 lighting fixtures)

The quantity of such lighting fixtures shall be 16552 approximately. This quantity may vary up to 15% after the detailed survey and design by the Bidder.

B - ii. The roads having central divider but without central lighting or where central divider on 24.00 mts & above roads ,will be constructed in future:

These roads will have new central street lighting poles with LED type street lighting fixtures having smart controls with individual wireless sensors and dimmable drivers. The system will be complete with underground cabling, smart control feeder panels, software etc. The street lighting poles should be MS galvanised poles with weather proof PU paint having shape and finish similar to the smart poles installed in this area.

S.NO.	ROAD WIDE IN MTS.	TYPES OF ROAD	Balance Road Length	central lighting
				New Poles +LED
1	75-MTS.	6-LANE With Service Road & Center Median	1.00 Kms.	1.00Kms. (160 light fixtures)
2	60-MTS.	6-LANE With Service Road & Center Median	22.86 Kms.	22.86 Kms. (3657 light fixtures)
3	45-MTS.	6-LANE With Center Median	16.23 Kms.	16.233Kms.(2597 lighting fixtures)
5	36-MTS.	6-LANE With Center Median	4.23 Kms.	4.23 Kms.(340 lighting fixtures)
6	30-MTS.	6-LANE With Center Median	54.50 Kms.	54.5 Kms. (4360 lighting fixtures)
7	24-MTS.	4-LANE With Center Median	12.55 Kms.	12.55Kms. (1004 lighting fixtures)

The approximate quantity of street lighting fixtures on these roads will be 12118. approximately. This quantity may vary up to 15% after the detailed survey and design by the Bidder.

Note : From above mentioned existing center lighting in a length of 15 kms (app) LED lights are already replaced. The Bidder should make provision for dimming and wireless with individual smart control in these lighting fixtures.

B - iii. Parts of Indore Municipal Corporation where conventional lighting fixtures of 2x24W T5 lamps / 4x24 W T5/T8 lamps or 70W / 150 /250W MH/sodium lamps are installed on existing poles:

All these existing poles will have new LED type street lighting fixtures having smart controls with individual wireless sensors and dimmable drivers. The system will be complete with new AB cable for street lighting with separate phase and neutral wires exclusively for street lighting, smart control feeder panels, software etc. The approximate quantity of street/flood lighting fixtures on the roads / gardens will be 39600 nos. approximately. This quantity may vary up to 15% after the detailed survey and design by the Bidder. The Bidder will have replace all damaged poles, paint the corroded poles. The Bidder will have to install new poles where ever necessary to achieve proper illumination as per contract conditions.

C. High Mast flood lighting pole Pan City:

C - i. The existing High Mast flood lighting pole in Indore city of 12 mtrs / 16 mtrs / 20 mtrs / 25 mtrs / 30 mtrs ht. having conventional MH or sodium vapor flood light fixtures :

The conventional flood lighting fixtures to be replaced with LED type flood lighting fixtures having smart controls with individual wireless sensors and dimmable drivers. The system will be complete with new underground cabling wherever required, new smart control feeder panels, software etc. The existing poles will be painted if required and shall be replaced if damaged.

The approximate quantity of high mast flood lighting poles will be 225 nos approximately, having 3000 fixtures approx..

C - ii. New High Mast Poles with LED flood lights required shall be 75 to 100 nos having 800 fixtures approximately.

Special Conditions to be noted:

1.) ISCDL may direct the Bidder to extend the area in scope of its contract upto any area in Indore city maximum upto the Indore City Municipal limits. Also some area may be deleted as ISCDL decision.

2.) Wherever new poles are installed height of pole shall be as per the illumination design for achieving the illumination level results mentioned in the specifications. The pole design shall be as per the specifications.

3.) In case on any road covered under this RFP already has LED type street light, same has to be retrofitted by Bidder with dimmable driver and communication controller module in each fixture. Along with this smart control panel has to be installed by Bidder.

4) If the existing LED fixture gives less than 15% average illumination level required on any road as per specifications of this RFP than upon directions of ISCDL Bidder has to replace the same with new fixture.

5) The Bidder shall be responsible for replacement of any component of the lighting system like fixture, cable, pole, cable, foundation etc installed and maintained by them which is nonfunctional due to theft, damaged in accident etc on their own cost, ISCDL shall not pay the Bidder for this.

6) In case any road covered in this RFP is widened in future and additional street light poles and LED fixtures are required, the Bidder shall have to install the same as per the conditions of the contract.

7) ISCDL shall not be responsible whatsoever for injury or loss of life of any person of Bidder.

8) The Bidder shall be responsible for the insurance of all material and personnel.

9) The Bidder should have A class electrical contractor license from MP licensing board before commencement of execution of work.

10) The Bidder shall be responsible for all coordination with the power distribution company, telecom companies or any other organization during the contract period.

11) The Bidder shall be responsible to obtain all necessary statutory NOCs from all government or semi government organizations which are necessary for their work.

12) If ISCDL / IMC implement any renewable energy initiative in future and due to which, if it gets rebate in the electricity energy bills of street and area lighting in form of *units* or *rate* of electricity, ISCDL / IMC shall avail full benefit of the same. The Bidder shall not be entitled to get any benefit because of this initiative.

13) The Bidder shall have to carry out all site survey, design, supply, installation, testing, commissioning, operation and maintenance as per the work scope of the contract on his own cost and resources, tools, tackles, instruments, vehicles, infrastructure, office, spares etc.

14) The Bidder shall have to ensure 100% LED lighting in operational condition all the time as per requirement.

II. PRINCIPAL DECIDING FACTORS FOR SELECTION/ PROCUREMENT OF LED LIGHTS

- Height of luminaire fitting as specified in table below
- Minimum Lux level required as specified in table below
- Minimum working hours (50000 hrs) of LEDs
- Minimum warranty shall not be less than 5 years for LED & Driver
- LED make as specified in document, and complete street light fitting can be of any reputed manufacturer who conforms to the specifications.
- Additional cost towards high price of the LED light to be compensated by energy saving and zero maintenance.
- No specific make shall be criteria for selection and procurement of LED luminaires during any tender.

III. TYPE OF LUMINAIRE

The following types of LED luminaires as replacements for conventional fittings are proposed:

Table 7 Selection of LED Luminaire against conventional fittings

Type of existing fitting (Street Light)	Wattage of existing fitting*	Wattage of LED fitting (After Accounting Driver Losses)	Initial Lumen Output
	70W	35-40W	3850 - 4400

HPSV/HPMV	150W	70-90W	7700 - 9900
	250W	120-150 W	13200 - 16500
	400W	180-200W	19800 - 2200
Metal Halide	70W	35-45W	3850-4950
	150W	70-80W	7700-8800
	250W	120-150 W	13200-16500
	400W	180-200W	19800-2200
FTL	1x40/36/28W	25-30 W	2750-3300
	2x40W	40-70 W	4400-7700
CFL	1x85W	40-70 W	4400-7700
T-5	4x24W	70-90 W	7700-9900
T-5	2X24 W	40-60 W	4400-6600

NOTE: Above mentioned figures are indicative of minimum requirement but **average lux level** on the road is the prime requirement.

*** At nominal input voltage of 220V AC**

IV. ELECTRONIC COMPONENTS

The electronic components used shall be as follows:

a. IC (Integrated Circuit) shall be of industrial grade.

b. The resistors shall be preferably made of metal film of adequate rating.

c. The conformal coating used on PCBs should be cleared and transparent and should not affect colour code of electronic components or the product code of the company.

d. The heavy components shall be property fixed. The solder connection should be with good finish.

e. The infrastructure for Quality Assurance facilities as called for in the Specification shall be available for the manufacturing of this product. The compliance shall be indicated clearly in the tender itself.

V. CONSTRUCTION

1. Extruded aluminium and pressure die castaluminium (sand/gravity casting not to be considered). Aluminium grade LM 6063 or LM 6 as applicable or above high conductivity heat sink material. Heat sink must be made of extruded Al or pressure die cast Al only. Efforts shall be made to keep the overall outer dimensions and weight as minimum as possible.

2. All light fittings shall be provided with toughened glass of sufficient strength under the LED chamber to protect the LED and luminaires.

3. Suitable number of LED Lamps shall be used in the luminaires.

4. Suitable lenses with street light distribution shall be provided to modify the illumination angle. The lenses should be mechanically fitted not pasted.

5. The connecting wires used inside the luminaires, shall be low smoke halogen free, tire retardant e-beam/PTFE cable and fuse protection shall be provided in input side.

6. The control gear shall be designed in such a way that the junction temperature of LED should not be more than 25 ºC with respect to ambient temperature.

7. The luminaires shall be such that the glare from individual LED is restricted and shall not cause inconvenience to the public.

8. All the material used in the (luminaires) shall be halogen free and fire retardant confirming to UL 94.

9. The fixture should be impact resistant with suitable protection by cover for driver and LED's.

10. The fixture should have designed for IP66 ingress protection or above.

11. The fixture shall be built in such a way that it can withstand wind speed of 150 Km/Hr.

VI. HIGH POWER AND HIGH LUMEN EFFICIENT LEDS SUITABLE FOR FOLLOWING FEATURES SHALL BE USED:

a. LED Chips of Cree/ Osram/ Philips/ Nichia make shall be used for the purpose. No other make shall be accepted. The manufacturer shall submit the proof of procurement of LEDs from above OMMs at the time of supply.

b. The efficiency of the LED lamps at 110ºC junction temperature shall be more than 80%

c. LED junction temperature should not cross more than 90 ºC for longevity of luminaries

d. Solder point temp should not cross 75ºC

e. The working life of the lamp at junction temperature of 90ºC for 350mA current shall be more than 50,000 hours of accumulative operation and shall be suitable for continuous operation of 24 hours per day these shall be supported with the suitable section of the LM80 report from the manufacturer of LED.

f. Colour temperature of the proposed white colour LED shall be 5000K-6000K.

g. The output of LED shall be more than110 lumen (+-5%) per watt at 350mA to 750 mAmp operating current.

h. The colour rendering index (CRI) shall be minimum 70 with cool white light output.

VII. ILLUMINATION LEVEL (Lux Measurement):

Lux measurement with the help of lux meter shall be done at distance as shown in table below. Value obtained shall not be less than the lux specified in the table there in considering 10% lumen is absorbed by the reflector. For measurement of average illumination on any road 30 point method will be used.

The fitting shall be so designed that the illumination level shall be evenly distributed and shall be free from glare. Illumination level of different types of luminaires shall be as below:

Table 8 minimum desired illumination levels during peak hours

Sl. No.	Type of LED Luminaries	Type of Road	Lamp Mounting height from the floor level (Meters)	Minimum Illumination Level (Lux) at centre of road	Color of Illumination
1	150-260W	Flood Lighting	16-30	(40-50)	5000K-6000K
2	190W	A1	15-18	(25-30)	5000K-6000K
3	150-170W	A1	10-15	(20-25)	5000K-6000K
4	120-150W	A2/B1	9-10	(18-20)	5000K-6000K
5	90-120W	A2/B1	7-9	(15-18)	5000K-6000K
6	70-120W	B1/B2	7-9	(15-18)	5000K-6000K
7	70-90 W	B1/B2/C1	7-9	(12-15)	5000K-6000K

8	45-50W	B1/B2/C1	6-7	(12-15)	5000K-6000K
9	25-30W	B1/B2/C1	6-7	(10-12)	5000K-6000K

1. Variation in illumination level shall be ± 2% is allowed in input voltage range from 180VAC to 250VAC.
2. The illumination shall not have infra-red and ultra-violet emission. The test certificate from the NABL approved laboratory shall be submitted.
3. Electronic efficiency shall be more than 85%.

VIII. ELECTRICAL/TECHNICAL SPECIFICATIONS

Supply of LED streetlight luminaire complete with pressure die cast/extruded aluminum housing and adhering to the following specifications and lighting design requirements will be as per the actual application:

i. The driver card shall cut off at 270V and shall resume normal working when nominal voltage is applied again. This is to ensure protection of luminaires from neutral faults and error in connection at sites.

ii. Efficiency of driver electronics shall be more than 85%.

iii. The LEDs should be driven at the suitable current and within the permissible limits specified by the LED chip/lamp manufacturer.

iv. The fixture shall be designed so as to have lumen maintenance of at least 70% at the end of 50,000 hours.

v. The luminaire should be operable with auto adjustable 100-270V supply Voltage using the same driver.

vi. Power Factor of the electronic driver should be at least > 0.95 with THD < 10%.

vii. The luminaire should throw the perfect amount of uniform light with exactly the desired intensity, and offer best pole spacing, along with better light control. For this purpose, spacing to height ratio calculations must be attached for all installations were the poles are to be newly installed. The Luminaire shall employ individual optical lens for the each of the LED to ensure better uniformity of light distribution.

IX. ABSTRACT OF KEY SPECIFICATIONS

	Electrical specifications	25W to 45 W	60W to 90 W	100W to 250 W
i)	Voltage range or rating: [130 volt – 270volt AC] on single phase	100-270V	100-270V	100-270V
ii)	LED fixture Output (lumen per watt)	>110 (+5%)	>110 (+5%)	>110 (+5%)
iii)	Frequency range (+/-5)	50Hz	50Hz	50Hz
iv)	Power factor:	>/=0.95	>/= 0.95	>/= 0.95
vi)	Colour temperature	5000K-6000K	5000K-6000K	5000K-6000K

vii)	CRI (Colour Rendering Index)	>=70	>=70	>=70
viii)	LED Life Expectancy	50,000 hrs with 70% Lumens	50,000 hrs with 70% Lumens	50,000 hrs with 70% Lumens
x)	Protection level	IP66 minimum	IP66 min	IP66 minimum
xi)	Total Harmonic Distortion (THD)	<10%	< 10%	< 10%
xiii	IK rating	>/= IK 05	>/= IK 05	>/= IK 05
xiii	Surge Protection	Internal 3KV & external 10 KV	Internal 3KV & external 10 KV	Internal 3KV & external 10 KV

X. CONFORMANCE STANDARDS:

Product Certification should be obtained from UL or CPRI or any other NABL certified lab. The following test reports should be provided:

LM-79	Luminaire efficacy (Photometry data)
LM-80	LED chip data
IP 66	Luminaire Ingress Protection
Luminaire Endurance Test	Practical testing of luminaire through 20,000 cycles
EN 60929	Performance
IEC 60598-2, sec-3	Test Report of LED street light luminaire
IEC 61000-3-2	Limits for Harmonic current emission - THD < 10%

XI. QUALITY CONTROL & TESTING INFRASTRUCTURE

The manufacturer should possess the following in-house facilities and shall

Provide calibration reports of the same:

- Prototype Test
- Type Test
- Acceptance Test
- Routine test

- GLOW wire test
- HV Tester
- Adequate number of electrical meters for measurement of different electrical parameter
- Meager (500 Volt)
- Tracking test
- Resistance to heat
- Measuring gauges such as Venire caliper, Micrometers, Dial gauges
- Digital thermometer
- Harmonic analyzer and THD meter
- Digital Weighting machine
- Power analyzer
- Surge Tester
- Temperature simulation facility to test various temperature parameters
- Ingress protection test facility for dust and water jet
- Transportation drop test
- Vibration test
- Compression test
- Humidity test

XII. LIST OF DOCUMENTS TO BE ENCLOSED:

All the luminaires should comply with SP 72 (Part 4) specifications for luminaires and the Bidders shall provide following information for proposed luminaires.

1. Relevant LED and Luminaire data sheets and Type test certificates indicating compliance to the technical specifications / standards.
2. Lumen Depreciation Curves of Lamps
3. Power and lumen output at different voltages.
4. Polar diagram of luminaires.
5. Printout of computer aided calculations for all parameters.
6. Lamp Lumen Maintenance and Survival test data
7. Mounting Instruction sheets
8. Technical catalogue of products.
9. Make of LED, Luminaire and Electronic Driver used.
10. Relevant manufacturing certificates including LM79 and LM 80.
11. IEC 60598 report Part-2, section-3- Report of LED street light luminaire.
12. Manufacturers Type Test Certificate of Lamp, Luminaires & gears from Government Accredited Test Laboratories /R&D Labs to be provided.

XIII TUBULAR POLES FOR LIGHTING:

(Type of pole at any road shall be installed as per directions of ISCDL)

1) CONICAL POLES

Pole 6 to 12 Mtr. Ht. Poles shall be continuously tapered round conical cross section, 3 or 4 mm thick (as per height), MS Galvanised, T washed, primered and painted with PU base colour of choice. The column shall also be provided with flush door at the bottom with proper strengthening to the cutout of the door opening. Bottom diameter of pole shale be 250 mm to 150 mm, top diameter 65 mm to 100 depending upon height of pole. The pole shall be provided with hinged flush door at the bottom with proper strengthening to the cutout of door opening at height of 550mm with 300x100mm size for MCB positioning. A junction / looping box with Heavy duty 3 phase connector shall be built into the pole & its Decorative Arm should be painted with PU colour of the choice of engineer in-charge. Inclusive of supply and installation of bakelite sheet with 6A SP C

curve MCB & stud type terminal block suitable for terminating the respective cable. The fitting should be connected with Copper Flexible wire of 3CX2.5 Sq.mm.The pole as well as bracket shall be painted by polyurethane (PU) paint of approved colour shades. The colour of brackets and that of the pole may be same or may be different. These shall be decided by Engineer In charge, ISCDL. The pole and its RCC foundation shall be designed to with stand maximum wind speed of 47 m/s

DESIGN:

The structure shall conform to IS: 875-Part 3: 1987 relating to wind load. Poles shaft shall be fabricated from special steel plates, 3 mm thick, conforming to ASTM A 572 Gr 65 with yield 450 mpa, cut and folded to form an octagonal section and welded. Steel shall be with less than 0.06 % silicon content to assure a better and lasting quality for galvanising. Poles shall be made in single section. The welding shall be in accordance with AWS. The procedural weld geometry and the workmanship shall be exhaustively tested on the completed welds. Welding shall be checked by using ultrasonic testing methods also.

Poles shall be provided with base plate, which shall be free from any lamination or incursion. The welded connection of the base flange shall be done using a base plate welding machine and shall be fully developed to the strength of the entire section The base of the pole shall be complete in all respects with base plate before hot dip galvanising internally and externally as per ASTM A 123 and 153. Pole shall be hot dip galvanised in single dipping method. No cutting or welding shall be allowed on the pole after hot dip galvanising.

DOOR OPENING: An adequate door opening shall be provided at the base of the pole at a convenient location. The opening shall be such that it permits clear access to the inside of the pole. The door opening shall be complete with a close fitting, vandal resistant, door; provided with a screw type locking facility. The pole shall be additionally reinforced with a welded steel section so that the section at door is unaffected and undue bucking of the cut section is prevented. The base compartment of the built in connector control box shall have provision to have 6mm thick Bakelite sheet of suitable size to accommodate the required electrical accessories with compression gland for termination of incoming & outgoing supply cables. The connector box shall be provided with 2 Nos., 32 Amp heavy duty connectors (3 way) 6 Amp. C series MCB for individual fitting with din channel, earthling stud and other required accessories.

The pole shape and finish should match with the smart poles that are installed in the vicinity.

2) PU PAINTED NON TAPERED STRAIGHT POLE

PU COATED TUBULAR POLES:

Pole 9 to 10 Mtr. Ht. made out of G.I tubular pole B class T washed, premiered and painted with PU base colour of choice. The column shall also be provided with flush door at the bottom with proper strengthening to the cutout of the door opening. Bottom diameter of pole shale be 194 mm, top diameter 114 mm and base plate dim. 400X400X20 mm. The pole shall be provided with hinged flush door at the bottom with proper strengthening to the cutout of door opening at height of 550 mm with 300x100mm size for MCB positioning. A junction / looping box with Heavy duty 3 phase connector shall be built into the pole & its Decorative Arm should be painted with PU colour of the choice of engineer in-charge. Inclusive of supply and installation ofbakelite sheet with 6A SP C curve MCB & stud type terminal block suitable for terminating the respective cable. The fitting should be connected with Copper Flexible wire of 3CX2.5 Sq.mm.The pole as well as bracket shall be painted by polyurethane (PU) paint of approved colour shades. The colour of brackets and that of the pole may be same or may be different. These shall be decided by Engineer In charge, ISCDL The PU colour of the pole as well as bracket shall be guaranteed for at least 5 years from date of handing over the installation. This guarantee shall be given by the manufacture of pole in writing and shall be counter by the contractor.The contractor has to submit a certification to ISCDL from the manufacture of pole that the pole and its bracket will not bend, break, buckle or fall due to wind pressure in the Indore city area and due to weight of the fitting with control gear boxes etc.The approx. weight of pole with twin brackets should be 175-180 kgs.The height of pole should be 9 mtrs without bracket. (The item is inclusive of construction of suitable M20 grade RCC foundation as per the attached specifications).

DESIGN:

The structure shall conform to IS: 875-Part 3: 1987 relating to wind load on structures and also conform to BSEN 40-3:2000 relating to general construction. The MS pipe should be B class as per IS 1239 latest.Foundation bolts will be as per EN 8 grade, IS: 1367.

DOOR OPENING:

The poles shall have door of suitable size at the elevation of 550mm from the base plate. The door shall be hinged flush with locking facility. The pole shall be additionally reinforced with a welded steel section so that the section at door is unaffected and undue bucking of the cut section is prevented. The base compartment of the built in connector control box shall have provision to have 6mm thick bakelite sheet of suitable size to accommodate the required electrical accessories with compression gland for termination of incoming & outgoing supply cables. The connector box shall be provided with 2 Nos., 32 Amp heavy duty connectors (3 way) 6 Amp. C series MCB for individual fitting with din channel, earthing stud and other required accessories.

GALVANIZATION:

The poles shall be single dip, hot galvanized as per IS: 2629/IS 2633/IS 4759 standards with minimum coating thickness of 70 microns. The galvanizing shall be done in single dipping.

BASE FLANGE:

The base plate shall be fabricated from steel plate free from laminations and mounted on RCC Foundation laid as per the drawing.

POLE TESTING FACILITY:

Pole Testing Facility The manufacturing unit shall have in-house pole testing facility for validation of structural design data. The pole testing facility shall conform to BS EN 40-3-2-2000 part 3-2.Manufacturer must have adequate indigenous facility of their own for fabrication & seven tank Pre-treatment & galvanization of poles, for which supporting documents are to be submitted. Concern officials will visit their plant to ascertain the capability and capacity for manufacturing. The Galvanizing bath Tank should be Min 11 Meters. The manufacturer should submit wind tunnel test report of the pole from government recognized lab.

PU COATING:

Exterior grade PU paint should be used. The PU paint procedure followed should be as mentioned below:

Surface Preparation (Cleaning), 2 K PU Primer, Overcoating Haul- 16-24 Hours, Surface Preparation (Sanding & Cleaning), Overcoating Haul- 16-24 Hours, PU Topcoat, Overcoating Haul-16-24 Hours, PU Topcoat, Complete Drying Stage-Hard Dry. Min.72 Hrs, Ready For Inspection. Prior to painting, surface should be free of any visible loose particles, welding spatters or foreign bodies. The surface preparation for painting shall be made by thoroughly descaling & cleaning of surface for application of paint. Proper etching and blast cleaning should be done to prepare surface for painting. Painting of surface should be carried out by Air spray painting methods. Two coats of PU primer should be applied. Finish shall be with PU coat in not less than two coats. Paint

to be mixed as per manufacturer specification to get the required colour. Apply the paint in two or more coats to achieve 75 micron DFT (37.5 micron DFT each coat). The first coat of primer must be applied on dry surface immediately and in any case within 4 hrs of surface treatment. Applied paint shall have required Dry Film Thickness (DFT) after drying. Each coat shall be in a proper state of cure or dryness before the application of succeeding coat. Manufacturer's instruction shall be followed for intercoat interval. All welded joints shall be buffed and coated with stripe coat of Zinc phosphate & epoxy zinc phosphate primer prior to taking up the finished coat.The contractor has to submit salt spray test report as of government recognized laboratory as per ASTM B117 to ensure the quality of PU paint.

POLE FOUNDATION:

RCC foundation should be of size 500 x 500 x 1500-1600 mm (1300 mm in plant and 200 mm above ground level) for installation of pole with providing and laying of mechanically mixed cement concrete with M-20 and providing and placing in position cold twisted & hard rolled deformed steel reinforcement with 12 Nos. Of 12 mm dia 1500 mm long binding with 8 mm dia steel bars and placing in position 4 Nos. GI bar / Anchor bolt of 24 mm dia 500 mm long (420mm in plant and 80mm above the foundation) duly threaded at top upto 70 mm with required nut bolt and washer including clearing of all obstacle at site, complete with excavation and refilling of pit, finishing, levelling, centering, shuttering, curing and suitable hole for entry of conduit 63/50 mm dia painting etc. as required to complete the foundation, Specification and drawing shall be got approved by Engineer In Charge before casting the RCC structure. Change in foundation as per site condition, may be done with the approval of Engineer Incharge. No extra payment shall be done on this behalf. The structural design certificate according to soil and concreting grade certificate from government authorized laboratory are required to be submitted by contractor.

XIV SWITCHING PANEL, SMART MONITORING & CONTROLS:

A standalone unit to be placed at feeder level containing Gateway, Cluster Energy Meter, Relay Controller Unit along with MCB and Change Over/Bypass arrangement.

Enclosure should be made of MS Galvanized powder coated or SMC material with IP 65 and shall have proper lock arrangement.

It shall be protected by an MCB at its AC mains input.

Lamp load connection shall be through an output MCB.

Separate Chamber for Input/output MCB and Change over Circuit for maintenance and manual operation. Door open detection provision, even in case of power failure.

i) Should be capable of controlling of individual street light fixture upto 15 KVA street lighting load distributed in three /single phase as per site requirement. The wattage of each street light will be 40 to 150 watts.

ii) It should be complete with all required switching and protecting devices, contactors, timers, relays, sensors, controller, remote wireless communication devices, wiring, pipe earthing, surge protection device, required software, web server, hosting, etc.

iii) The feeder pillar should perform at least following tasks through remote PC/mobile based web application user friendly interface: Phase wise and individual remote ON/OFF switching of street lights. Monitoring of quantity and electrical parameters of circuit wise full or partially /ON/OFF of street lights in each phase.

iv) In addition to this panel should be able to generate wireless command to give dimming command to the street light fixtures so that light output can be dimmed to 50% of the normal level.

All switchgear shall be tested at site as per the manufacturer's recommendations and shall include the minimum following tests:

- Visual inspection for dimensional check-up, completeness of the equipment as per the manufacturer's documents, furnishing the list of missing components, if any, tightness of all the terminals/equipment, etc.
- Measuring I.R. value.
- High voltage test.

- Testing of protective relays with primary and secondary injection test, wherever applicable.
- Simulation test for all the interlocks, annunciations and for the correct operations of the

switchgear.

- Testing of oil for de-electric strength, wherever applicable.
- Any other tests as recommended by Site Engineers/ Site –in-Charge.
- All the switchgears shall be cleaned with vacuum cleaners before commissioning.
- Plugging/ Sealing of all the unused cut outs for the cable glands in the equipment.
- All panels shall be double earthed with two separate earthing pits.

3). OCTAGONAL POLES:

Hot dipped galvanized octagonal poles in single section made from 3mm thick sheet having lockable weather proof flush door junction box complete erected in an approved manner on provided foundation. Suitable size & type of foundation bolts 4 nos. 'J' type (EN8 grade). For 9 mtrs. to 10 mtrs Height, 155 X 70mm A/F, made from 3mm thick HT plate, 260x260x16mm base plate, 4 nos. X 24 x 750mm bolt. For10 mtrs. Height, 175 X 70mm A/F made from 3mm thick HT plate, 275x275x16mm base plate, 4 nos. X 24 x 750mm bolt. Inclusive of supply and installation of bakelite sheet with 6A SP C curve MCB & stud type terminal block suitable for terminating the respective cable. The fitting should be connected with Copper Flexible wire of 3CX2.5 Sq.mm.The contractor has to submit a certification to ISCDL from the manufacture of pole that the pole and its bracket will not bend, break, buckle or fall due to wind pressure in the Indore city area and due to weight of the fitting with control gear boxes etc. The height of pole should be 9/10mtrs without bracket as per item schedule. (The item is inclusive of construction of suitable M20 grade RCC foundation as per the attached specifications). Guarantee of pole shall be 5 years.

DESIGN:

The structure shall conform to IS: 875-Part 3: 1987 relating to wind load on structures and also conform to BSEN 40-3:2000 relating to general construction. The grade of steel used shall be S-355 as per BSEN-10025 or equivalent Standards, Manufacturing of poles shall be done out of Manufacturer supplies straight sheet to eliminate deformity due to decoiling of rolls.

POLE SHAFT:

The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. The welding of pole shaft shall be done by submerged are welding process. The welding shall be done as per qualified MMAW process. The base plate shall be fixed by welding to the pole shall at two locations i.e. from inside and outside. Bending of the sheet into polygonal shape shall be done through a CNC

controlled. Laser aligned single blade bending process.Foundation bolts will be as per EN 8 grade, IS: 1367.

DOOR OPENING:

Polygonal poles shall have door of suitable size at the elevation of 500mm from the base plate. The door shall be hinged flush with locking facility. The pole shall be additionally reinforced with a welded steel section so that the section at door is unaffected and undue bucking of the cut section is prevented. The base compartment of the built in connector control box shall have provision to have 6mm thick Bakelite sheet of suitable size to accommodate the required electrical accessories with compression gland for termination of incoming & outgoing supply cables. The connector box shall be provided with 2 Nos., 32 Amp heavy duty connectors (3 way) 6 Amp. C series MCB for individual fitting with din channel, earthing stud and other required accessories.

GALVANIZATION:

The poles shall be single dip, hot galvanized as per IS: 2629/IS 2633/IS 4759 standards with minimum coating thickness of 70 microns. The galvanizingshall be done in single dipping.

BASE FLANGE:

The base plate shall be fabricated from steel plate free from laminations and mounted on RCC Foundation laid as per the drawing.

POLE TESTING FACILITY:

Pole Testing Facility The manufacturing unit shall have in-house pole testing facility for validation of structural design data. The pole testing facility shall conform to BS EN 40-3-2-2000 part 3-2.Manufacturer must have adequate indigenous facility of their own for fabrication & seven tank Pre-treatment & galvanization of poles, for which supporting documents are to be submitted. Concern officials will visit their plant to ascertain the capability and capacity for manufacturing. The Galvanizing bath Tank should be Min 11 Meters. The manufacturer should submit wind tunnel test report of the pole from government recognized lab.

POLE FOUNDATION:

RCC foundation should be of size 500 x 500 x 1500-1600 mm (1300-1400 mm in plant and 200 mm above ground level) for installation of pole with providing and laying of mechanically mixed cement concrete with M-20 and providing and placing in position cold twisted & hard rolled deformed steel reinforcement with 12 Nos. Of 12 mm dia 1500 mm long binding with 8 mm dia steel bars and placing in position 4 Nos. GI bar / Anchor bolt of 24 mm dia 500 mm long (420mm in plant and 80mm above the foundation) duly threaded at top upto 70 mm with required nut bolt and washer including clearing of all obstacle at site, complete with excavation and refilling of pit, finishing, levelling, centering, shuttering, curing and suitable hole for entry of conduit 63/50 mm dia painting etc. as required to complete the foundation, Specification and drawing shall be got approved by Engineer In Charge before casting the RCC structure. Change in foundation as per site condition, may be done with the approval of Engineer Incharge. No extra payment shall be done on this behalf. The structural design certificate according to soil and concreting grade certificate from government authorized laboratory are required to be submitted by contractor.

XV SPECIFICATIONS FOR SMART COMMUNICATION AND CONTROL:

S.No.	Item	Description
I.	**Individual Luminary Controller (ILC) Module**	ILC MODULE would be a standalone street lighting controller device that shall be installed on every street light for On/Off/Dim, Electrical Measurements, Fault detection of individual lamp. It may be placed externally or inbuilt to luminary. It shall have inbuilt state of art, IOT ready, Mesh Sub 1GHz 6LoWPAN or equivalent state of art future proof LPRF technology or GPRS with internal antenna wireless technology (which is allowed in India with full compliance to Indian Telecom Act (Latest), Other Govt of India policies & acts, TRAI rules and TSDI standards) to support two-way communication with the Gateway. It shall able to execute **real time** ON/OFF/Dimming commands received from the Central Management Software (through Gateway). It shall have ability to On/Off/Dimming luminary as per predefined schedule by Central Management Software as below: a. Astronomical sunset/dusk and sunrise/dawn b. Defined energy policy. Schedule On/ Off /Dimming in up to 6 to 8 time zones (configurable). It should manage the luminary even in case of a network outage (i.e.

		the stored lighting schedule should apply even if the controller can't communicate with the Central Management System and Gateway. It shall able to measure electrical parameters with Class 1.0 accuracy. Measurable parameters as below at every luminary: a. Voltage b. Current c. Frequency d. Power factor e. Active Power f. Apparent Power g. Cumulative KWh h. Cumulative KVAh i. Burning Hours It shall support fault/alarm detection of at individual luminary and should send the notification to lighting management server software or Gateway. Faults/ Alarm like Over Voltage, Under Voltage, Over Current and Lamp Fail. It should consume less than 2W in stand- by-mode. Lamp shall be dimmable up to 10% of manufacturing wattage. If ILC module ad-hoc to lamp than It should be enclosed with IP65 enclosure whose maximum dimension 100*100*50 (mm). It must be controllable and manageable remotely. **Note***: If GPRS or other technology for which third party rental / data charges have to be paid, is used. Then successful bidder shall have to give an undertaking in the agreement that all such rental or data charges will be borne by him for entire contract period without any extra cost to ISCDL.*
II.	**Gateway**	It shall be a standalone device which should be able to communicate with the wireless IOT ready street lights 6LoWPAN Sub 1 GHz or equivalent state of art future proof technology or GPRS technology (over the allowed frequency in India and reliable technology which is allowed in India conforming to Indian Telecom Act (Latest), Other Govt of India policies & acts, TSDSI standards & TRAI regulations) and with the lighting management server software over GSM / GPRS.

		The Gateway shall bidirectional communication with Lighting Management Server Software over reliable GPRS/ GSM Communication backbone with efficient protocol. Gateway shall capability to form a wireless mesh network with lamps over reliable LPRF Communication 6LoWPAN backbone with UDP protocol. Gateway shall capability to communicate/control/configure intelligent relay controller unit through RS232. Gateway shall support Broadcast and Unicast to address lamps present in the cluster. Gateway should support collection and reporting of the cluster metering data and Individual lamp data at every 10 to 15 minutes Interval to Central Management Software. The interval of reporting shall be configurable. Gateway shall have power failure detection feature. Gateway shall have 4-6 hours battery backup. Gateway should have the capability to apply and store Pattern Formation. Example: Generate Uniform Pattern Formation in different time slots like specific Dim % from 100% to 50%. Any dimming percent or profile can be configure from Web Application Operating Voltage (170-260VAC at 50 HZ) Gateway regularly read and store data from connected individual lamp over wireless signal. Gateway shall manage wireless signal network information Like number of Installed Nodes/ILC MODULE Number of Detected Nodes/ ILC MODULE Channel Information

		Unique System Id/ PAN ID The Gateway shall have an inbuilt RTC with separate battery backup. It should be able to store the schedule locally for switching ON and OFF the lights connected to it as per schedule configured. It should also support real time ON / OFF of luminary. Maximum Power Consumption is less than 3 Watts. Gateway shall capable to communicate with Cluster energy meter over RS232 to read group metering data and group control of connected lamp. Gateway enclosed in Feeder Control Panel with Cluster energy meter. Gateway should capability to form transparent data link with Cluster Energy Meter and Any lamp nodes to Central Monitoring Software. Gateway shall capable to manage automatic wireless signal mesh network without connectivity or GPRS connectivity with Central management software. Gateway must be controlled, configurable and managed remotely. **Note***: If GPRS or other technology for which third party rental / data charges have to be paid, is used. Then successful bidder shall have to give an undertaking in the agreement that all such rental or data charges will be borne by him for entire contract period without any extra cost to ISCDL.*

III.	**Cluster Meter along with Relay Controller Unit (At Feeder Control Panel Unit)**	There shall be a metering unit that shall support three phases or single phase energy measurement along with Intelligent relay controller unit for connected lamps at downside a feeder. It shall be a wired connectivity with Gateway on RS232 The metering unit should support following measurements for the cluster a. Voltage b. Current c. Active Power d. Apparent Power e. Cumulative KWh f. Cumulative KVAh g. Power Failure On/ OFF events h. Power Factor i. Frequency j. Relay On/Off events Record Following Events occurrence and restoration a. Over Voltage in each Phase b. Under Voltage in each Phase c. Over Current / Over Load in each phase d. Panel Open Threshold value can be configured from Central Management Software Relay controller unit shall capable to switch ON/OFF lamps after getting command from central control station instantaneously OR Automatically throughout the year on basis of astronomical clock OR As per Pre Defined scheduler Manual ON/Off facility shall be available for maintenance purpose through change-over or bypass circuit Cluster Energy Meter shall measure consumption of cluster irrespective of maintenance or actual lighting cycle. Energy meter shall local communication port to read metering data through Hand Held Unit. Energy Meter shall be Class 1.0 as per IS 13779

IV.	**Central Management Software (CMS)**	A standalone web based application for user to control and monitor whole solution backbone with cloud server on a static IP. The lighting management server software shall be made such that it can support more than 100,000 street lights. The CMS shall be based on an open Web Application Server. Its user interface shall be 100% Web-based and accessible from any computer on the network through a Microsoft Internet Explorer, SAFARI or Chrome web browser. The resolution of the lighting application shall be such that it can be accessed from a computer / laptop / mobile / tablet. The CMS should have an intuitive user interface, easy to use and navigate. It should support a dashboard which can give a quick view of an area / feeder / luminary. It should typically support - Electrical parameters of the feeder / metering unit voltage, current, KWH. - Status of lights downside the feeder / metering unit – alerts / notification icons. - Button to do an “On demand” ON / OFF / DIM of group of lights below the feeder / metering unit. It should be able to communicate with any individual ILC MODULE or collectively amongst networked switching points for control and monitoring. It should be able to display the power failure details of a particular switching point or feeder level. It should register all fault conditions like excess voltage/current drawn, lamps failure, no-power supply, etc through the instantaneous alert messages (SMS) sent to configured phone numbers. Reports such as energy saving report, lamp failure report, actual hours of operation, uptime (%), etc. should be generated on a daily basis from the data/readings received from the Feeder Control Panels.

		Provision for GIS mapping covering all switching points and the details of each switch point shall be viewable in the web application software through a Google-map interface or web based digital map. The system monitors and records all the following from the Feeder Control Panel. At **Cluster/ Switching/ Feeder level** • Voltages each phase • Current each phase • PF each phase • Metering KWH cumulative • Metering KVAH • Number of operational lights • Number of non-operational lights • Failure of Relay • Status of the incoming supply (power failure) • High /low voltage • Overload on the phases The system monitors and records all the following from the Control panel unit of Every Individual lamp • Voltage • Current • PF • Metering KWH cumulative • Metering KVAH • Burning Hours • Dimming Percentage and Dimming Type Cyber security, safe database management, data retrieval and trouble free operation of software and allied systems (24*7) to be ensured. The CMS should support alerts for faulty lights, over voltage, under voltage, over current, power outage. The CMS should support configurability for thresholds for over voltage, over current, under voltage connected. The server software should be able to configure the ON / OFF / DIM schedule for a switch point or group of switch points based on Sun

		rise / Sunset and shall also support configurability of the time as desired. It should have a mechanism to detect faulty lights downside a feeder / metering unit. The software shall support configuration of maximum five mobile numbers per feeder point for SMS notification of alerts / alarms. In case of faulty light, the SMS sent should also send the Feeder Number or Lamp number with location. It should support user role creation with different access permissions for User / Supervisor / Manager / administrator. The CMS should support summary screen to get a tabular and or graphical overview of the complete installation status with percentage / count of healthy / faulty in a given area, under a feeder and also of the complete city. The CMS should be able to identify the exact location of the light on which the fault has occurred with relevant GPS co-ordinates. Report : Load Profile and Load Survey at feeder level or switching point from Feeder Control Panel. The CMS should support export of the report data in a CSV or PDF format for further analysis. It should have required antivirus, malware and protection against hacking attacks. The CMS shall capable to generate or designed Energy Profile Policy for energy saving. Like Divide into time zones with dim % (max up 6 to 8) pattern formation. Note all communications should be based on open protocol allowed in India. The CMS should be able to communicate in real time and hooked up with central command and control center for Smart City Indore using open protocol.

V.	**Android / IOS based Mobile Application**	The standalone application to On-Off and Dim any individual lamps or Group of lights at feeder level through mobile application. Read following updated status on App a. Feeder Connect/ Disconnect b. Connected lamps **c.** Disconnected lamps Control and Monitor individual lamps To operate application: User shall have internet connectivity.
VI	**Server/Cloud Requirement**	a. The server/Cloud platform shall be of dedicated server with minimum of 16GB RAM with unlimited bandwidth. b. The server/Cloud platform should support unlimited storage. c. Server/Cloud platform provider shall have capable to perform auto backup and restore facilities. d. Server/Cloud platform provider shall have regular maintenance of the server and immediately address in case of server down. e. Server/Cloud platform shall have minimum uptime of 99% g. Server/Cloud should able to handle minimum of 1000 concurrent connections.

RECOMMENDED MAKES FOR LED LIGHTING SYSTEM:

1. LED Street lighting fixtures - Philips /Bajaj /Keselec Schreder /Wipro /Havells /GE Lighting / Crompton Greaves /HPL

(Models of these makes which conforms to the technical specifications of this tender upon prior submission of sample for approval of ISCDL Engineer-in-charge/Consultants.)

2. Poles and brackets - Bajaj / Valmont / Transrail / Keselec Shreder /Wipro.

3. Wire / Cables - Polycab / Finolex / Havells / RPG / Ravin.

4. Switchgear, timer, contactor etc - L&T/ ABB/Siemens / Schneider MG /Legrand.

3.14. Functional Specifications in detail.

3.14.1. Central Management Software

Central Management Software	
1	The supplier's technology needs to own, control, manage and develop 100% of the solution's Intellectual Property
2	The CMS shall be based on an open Web Application Server. Its user interface shall be 100% Web-based and accessible from any computer on the network through a Microsoft Internet Explorer, SAFARI or Chrome web browser
3	The CMS shall be installed on a server that belongs to the organization/customer or to one of our local service or IT sub-contractor. Cloud-based, SaaS model or any server that is web-hosted by a supplier of a part of the solution is not accepted.
4	Web user interfaces shall run and be supported on Microsoft Internet Explorer, SAFARI and Chrome on WINDOWS-based PC and MAC OS.
5	The CMS must be developed with open and standardized languages including Java, XML configuration files and SQL database. It shall enable the development of additional features without the need to acquire any development software license.
6	The CMS shall record all the data in a centralized SQL database and shall be compatible with MYSQL (or similar) to avoid being obliged to purchase additional software license for database engine."
7	The CMS shall enable administrator to create, modify, delete users, passwords, groups and access controls. The CMS shall automatically close connections after X mns (configurable) of inactivity. Tiered level access and management.
8	The CMS shall be an integrated and ready-to-use application that does not require any specific development before being deployed. The CMS should be a flexible and modular application, supporting the management of any type of Smart City services: a dedicated city-wide central management system to manage all types of urban connected devices such as meters, waste

	bins, parking sensors, traffic lights, pollution sensors,…
9	The CMS shall manage and communicate with different types of network devices as listed in the previous sections (gateways, nodes …).
10	The CMS should support and enable: The management of the narrowband networks The management of the broadband networks The management of the applications The management of the networks configurations The management of the data generated by the nodes and gateways (network data and user data) The Monitoring and configuration of network objects The management of the network links and provide link status, link quality and link reporting Detailed broadband network reporting: wireless transmission power, TCP/IP usage, link utilization, … The management of the network as a whole, with network status and network quality The CMS should provide automatically or on request, the status and the related critical events of each managed objects. Those critical events could be: wireless link quality, usage of the objects, outages, battery life-time, …
11	The CMS shall provide ways to create user profiles, users and access rights to web applications as well as to groups of objects. The CMS shall manage the objects individually or by groups of objects.
12	The CMS shall log all the actions from all the users. Recording Node and device history (linking network Nodes, lamps/meters, customer accounts) and keeping track of adds, moves or changes
13	The CMS shall enable users to group objects per geographical zone, to move objects, to delete objects and to duplicate objects on the maps.

	The CMS should display the network topology (objects, links, status…) on a map, in a tree format, and other graphical views to ease the management of the network
14	The CMS shall support Light Points, Segment Controllers, Sensors, Electrical Vehicle Charging Stations, Weather Stations, Energy Meters and other types of objects. It shall enable the import/export of the inventory in a the following formats: standardized CSV formatted file ODBC and text export Via the XML server Via SQL queries into the database • .
15	The CMS shall enable end-users to configure all the parameters of the Gateway and the nodes, including the IP communication parameters, astronomical clock, real time clock, schedulers, Gateway's inputs/outputs and associated scenario, etc… Auto-discovery of the networks' objects.
16	The CMS shall enable the management and configuration of the "Smart City" services, such as the street lighting, parking spaces, meters, …
17	The CMS shall provide end-users with processes and tools to automatically process the installation and configuration of the Nodes.
18	The data logs (all data read by the Gateway on the Nodes) generated on the Gateway shall be pushed by Gateways to the CMS rather than pulled by the CMS to provide a higher scalability. The data collect process shall not require any manual operation. The data presented by the CMS (related to the network or the services) should be updated dynamically.
19	The CMS shall provide ready-to-use web reports to analyse failures, energy consumption and lamp age. It shall provide a way to display historical values for any measured attribute of any device in the database.
20	The CMS shall manage access control depending on the user profile and provide the according list of web reports and applications on a web desktop. Each application shall display only the geographical zone, devices and data that the user

	is authorized to access.
21	The CMS shall enable the administrator to create complex alarm scenario based on the data collected from the Nodes through the Gateways. Such alarms aim at sending only effective alarms to the right end-user. The CMS shall perform and support the following alarm features: Receiving/capturing successful/unsuccessful readings from any node-connected devices, at scheduled timings/intervals or on demand; Reporting about alarms and status indicators, tamper/thefts, consumption / usage trends from node-connected devices Identifying and reporting critical events from Nodes and devices (failures, memory capacity issues, communication link or network failures, power failures, ...) Notify of events via Email and distribution lists SMS text message The execution of a process o An alarm warning on the CMS
22	The CMS shall enable authorized users to control, command and monitor each objects in real-time. It shall provide instantaneous (less than 5 seconds in average) communication (sending commands and/or receiving data) between the nodes/controllers, the gateways and the CMS. Multi-level network topology hierarchy and map visualization to ease the management of the network and the services,
23	The CMS shall provide with XML, API and SQL access as well as a set of web service interface to enable third party authorized software to use the CMS features.
24	The CMS should be able to support and manage an unlimited number of objects.
25	The CMS should have a backup function with a live standby server and automated failover The CMS application and the SQL database should be able to run on different

	servers, if needed, to manage growth. The CMS application and the SQL database should be able to run on their respective server farms, if needed, to manage growth.
26	The CMS should provide energy saving reports
27	The data in the CMS database should be accessible via: • ODBC • Text file export • CSV file export • XML

3.14.2. Smart Poles

#.	Clause
1	Smart pole should able to meet city aesthetic requirement and it should visual appealing. It should easily blend-in into city light pole master plan.
2	Maximum height requirement is up-to 12 meter. However for covering the important area the height required would be 25 meter.
3	It should be possible to house minimum 3-4 telecom technologies (GSM, WCDMA, LTE and Wi-Fi etc) simultaneously with minimum 2-3 sectors. It should also be possible to support future technologies such as 5G.
4	Site passive infra (space and power) sharing among telecom operators is mandatory requirement.
5	It should be possible to support LED luminaries as per the primary requirement of Light Pole from reputed OEMs as per city lighting master plan
6	Smart pole should able to support city as well telecom standards for India such as high wind speed, climate ,aesthetic etc
7	It should be possible to support 1 light arm/2 light arm option by smart pole
8	It should be possible to support other societal/smart city applications such as surveillance camera, weather monitoring, flood monitoring, bill board etc by smart telecom light pole as option
9	It should be possible to provide light connection in daisy chain with separate MCB for lighting and telecom part
10	It should be able to cater to the space, power and functionalities of environmental sensors, billboards and EV charging as and when required
11	It should be possible to support both Fiber as well Microwave connectivity for smart pole
12	The maximum allowed diameter (at bottom section) is 275mm
13	The camera should be integrated with the light arm and should have feature of night vision

#.	Clause
14	The maximum allowable time for smart pole deployment is 1 day (after foundation/Civil works). Design efforts should be made to reduce structure foundation as well as deployment time as much as possible.
15	The radio deployment strategy to be followed should be that of Main Remote application to reduce feeder losses by having the radios near the antenna inside the top section.
16	It is mandatory to utilize the space inside the top section and facilitate antenna sharing within the operators.
17	There should be suitable mounting options for Radio /Antenna unit mounting
18	Pole hat mounting is allowed with suitable mounting option for GPS antenna, small MW antenna (up-to 0.3m dia).
19	All cabling, cooling/heating etc should be via/inside the pole and it should not be visible from outside due to aesthetic and security reasons
20	It should meet EMC requirement of telecom sites as per Indian regulations
21	The minimum power backup requirement is 3.5 hrs for telecom equipment
22	The structure should be free from any passive intermodulation. Passive intermodulation (PIM) value should be < -150 dBc @ 2 x 43 dBm
23	It should be possible to provide multiple color options as asked by municipality/user as per city light pole colors
24	It should be possible to house minimum 6-9 low power radio units with integrated antenna, MW /optical transmission unit, SMPS (AC to DC convertor), batteries, controllers, power distribution etc inside the smart pole
25	There should be provision to have separate connection for light as well for telecom and other secondary equipment for maintenance purpose.
26	Hanging of telecom equipment boxes or ground based cabinets at bottom level (outside of structure or integrated with pole) is not permissible, approach needs to have integrated solution which blends into the city scape and would look like a light pole with mandatory underground box for telecom and other equipment

#.	Clause
27	It should be possible to house telecom equipment's from all reputed OEMs.
28	It should be possible to provide light connection in daisy chain with separate MCB for lighting and telecom part
29	There should be provision to have separate connection for light as well for telecom equipment for maintenance purpose.
30	The camouflaging material for covering the antenna /RF equipment's should be hard material with a minimum life of 10 years
31	It should be possible to provide multiple color options as asked by municipality/user as per city light pole colors
32	The paint material (to cover the RF section) should complied to RF /Telecom requirements
33	The camouflaging material for covering the antenna /RF equipment should be hard material with a minimum life of 10 years
34	It should be possible to color the complete body (including RF equipment camouflaging) by any paint color
35	It should meet EMC requirement of telecom sites as per Indian regulations
36	The camouflaging material (to cover RF equipment's) should have RF transparency with maximum 0.5db of attenuation covering all the radio frequency bands available in India
37	The cooling/heating equipment's to cool /heat telecom equipment should be integral part of smart pole Maximum allowable limit for cooling equipment is 100W for cooling solution, efforts should be made to reduce the power consumption as much as possible.

#.	Clause
38	The smart pole structure should be IP67 up-to 1 meter height from reference ground level.
39	There should be suitable mounting options for Radio /Antenna unit mounting
40	Hanging of telecom equipment's boxes at bottom level (outside of structure) is not allowed
41	It should be possible to support other societal/smart city applications such as surveillance camera , Wi-Fi by smart telecom light pole
42	The camera when procured should be integrated inside the light arm and should have feature of night vision
43	The ambient temperature requirement is 0-50 deg
44	The overall power budget for smart pole should not exceed 2KW (telecom + lights)
45	It should be possible to support 1 light arm/2 light arm option by smart pole
46	Underground space (2x2x1M , WxDxH max) should be used for telecom equipment's with suitable telecom grade enclosure box with IP67 protection, size of box not more than 1600x1200x700mm (WxDxH)
47	The cooling solution so designed would need to be preventive maintenance free for a period of 2 years
48	The minimum life requirement of above smart pole structure is 15 years (metal parts)
49	Underground equipment box should be maintenance friendly, provision of lifting of equipment (at suitable working height) from maintenance perspective should be available as option up to equipment weight of 200 Kgs. The underground box needs to be available option however selection can be based on operator / city discretion
50	The Bidder should not use any banned /restricted material as per Indian regulations
51	The lifting column should be self-powered and operable with the help of external remote / connected switch

#.	Clause
52	For wind speed requirement IS codes for the applicable city needs to be followed
53	Suppliers needs to provide IIT approval certificate for structural stability .
54	Sections of the poles which are going to enclose equipment for telecom etc needs to be provided with proper cooling arrangement to cater to heat dissipation from the radio equipment
55	Ingress Protection standard for underground box should be IP 67 approved by any International Lab or Govt of India accredited labs
56	Pole hat mounting should have suitable option for GPS antenna, small MW antenna (up-to 0.3m diameter).
57	The smart pole should support Environmental sensors
58	For putting the advertisement on Smart poles and all other electric poles Bidder shall require to refer Hoarding policy (UADD/IMC/MPMKVVCL)

3.14.3. Wi-Fi Services

#.	Clause
1	Fully redundant cloud based AAA services to be provided (with OTP/ Password), to support Retail and campus network topologies
2	Full AAA to AAA integration (Radius/Diameter) required to enable international roaming with Wi-Fi operators.
3	Full web based real time NMS system to monitor services working
4	Full capability for EAP/SIM, EAP/AKA etc. Mobile Data Offload to be done with Mobile Operators.

#.	Clause
5	In built NMS to monitor all the network & IT infrastructure against availability, usability & performance
6	To allow ISCDL to download/ view performance of services utilised by subscribers with key information of Username, MAC, IP, Location, Duration, Upload/ Download & Disconnection reason
7	Multiple templates for Captive Portal which will be selectable by venue owners to customize
8	Multiple payment gateway integration required so subscribers can make the payments using online/ offline mode, including prepaid mobile balance & wallet applications
9	Advertising platform integration -AAA to support advertisements from multiple parties
10	IOS & Android Applications to be given for seamless connectivity to network –auto detect/auto login
11	High speed micro-caching solution integrated to Wi-Fi network to deliver entertainment and content with zero broadband cost to user
12	The content delivery solution should not use internet bandwidth and support minimum of 500 Movies and 1000 songs and provide web/app based interface to download the content with seamless integration with the deployed Wi-Fi Network
13	Bidder should share usage data analytics from all monetization across all SSID's with ISCDL on a monthly basis
14	Bidder shall offer multiple monetizing of Wi-Fi Services such as: a) Online advertising b) Partnership with content developers c) Video sponsorships including high speed downloads (1Gb data in less than 5 minutes) d) Wi-Fi sponsorships e) Mobile data offloading for National and/or International Operators (including iPass, Boingo, Aicent, Comfone etc.) that meet commercial terms. f) Exciting Premium Service offers such as hourly package, monthly package, half yearly packages, family packages etc. g) Other ways to monetize Wi-Fi Service h) Neutral Hosting: Bidder should allow any Bidder to provide Wi-Fi service by

#.	Clause
	providing SSID at a pre-define rate in a non-prohibitory manner (till 16 SSID)
15	International Roaming Experience: The Bidder shall have tie-ups with the international roaming Wi-Fi Bidder such as iPass, Boingo, Aicent and Comfone etc.
16	1 SSID for e-governance is mandatory
17	Bidder should be able to provide minimum 6 SSID for operator data offload, and can be monetized by Bidder at his discretion and at rates which the Bidder deems fit
18	Bidder shall supply a Connection Manager App (Android & iOS) which the Govt. can distribute to subscribers.
19	Service 1 – Complimentary Service (Free) Customer will receive free Wi-fi for 30 minutes with maximum download limit of 100 MB per day and an aggregate limit of one GB per month. In this Service, the Customer can browse the Internet, social media sites, download text documents and answer emails. The Customer shall not be able to stream/download any video, audio or any high end application. The Bidder shall insert advertisement (s) of a maximum duration of 20 seconds per 10 minute of browsing. The secured Wi-Fi service shall be low speed of upto 1Mbps, user-friendly, easily accessible and provide customer service support.
20	Service 2 – Premium Service (Paid) Customer can avail the Premium Service based on the Wi-Fi Premium service plan. In this service, the Customers can browse the internet, respond to emails as well as download emails, documents, music, movies, any high-speed application and play movie or song without buffering and advertisement. The payment for the plan shall be done online as well as via physical coupons. The speed of surfing shall be 10 mbps. The secure Wi-Fi service shall be high speed, user- friendly, easily accessible and shall provide customer service support
21	The Bidder shall also provide the following services: i. Bidder shall authenticate the Customer before logging-in at Wi-Fi Services as per present regulatory guidelines. ii. Bidder shall provide the secured pathway for accessing the Wi-Fi.

#.	Clause
	iii. No malicious contents shall be allowed at Wi-Fi network. iv. Bidder shall follow the guidelines for providing the public v. Wi-Fi Service given by government. vi. Bidder should cover minimum 100 Hotspots by providing at-least 1000 Access points (80/20) IP65 outdoor etc
22	Bidder would be responsible for providing backhaul and internet bandwidth
23	ISCDL will be responsible only for providing ROW, space and power for deployment

3.14.4. Optical Fiber

#.	Clause
1	OFC being supplied for the project will adhere to ITU-T G.655 standards for Non-zero dispersion shifted Metal-free unarmoured optical fiber cable conforming to TEC specification GR/OFC-07/02. Jul 2007 or latest and the raw material used in its manufacture will conform to TEC Specification TEC/GR/TX/ORM 01/04 Sep 09 or latest.
2	Technical Specifications of HDPE Pipe. The HDPE pipe will conform to TEC specification GR/CDS - 08/02 Nov 2004 and latest amendments thereof or better. The HDPE pipe used will be of 40 mm outer diameter with minimum wall thickness of 3.5 mm.
3	100% of the network shall be built underground through an appropriate methodology which is non-disruptive, quick to deploy and does not disturb the existing electrical and other cabling installed in the median.
4	100% of the network shall be built underground through Horizontal Direction Drilling (HDD) Method only. The minimum depth shall be maintained at 35 cm to 60 cm for the entire network.
5	Alternate methods like Open Trenching/Aerial Cabling/Moiling/Wall Installations etc. shall be allowed only in exceptional cases like bridges, flyovers, subways, crossings, water bodies, or any location where underground drilling is not possible. Approvals shall be issued by the highest levels of the governing board for these exception requests.
6	Manholes (MH) and Hand Holes (HH) shall be installed at every alternate interval of 250 Meters.
7	A minimum of 1 Duct shall be installed on all routes. In cases, where more number of ducts are required based upon the commercial prospects, exceptional decisions shall be taken at the time of the occurrence of the event.
8	All the MH and HH shall be pre-fabricated types.
9	A minimum of 1 HDPE PLB Ducts of 40mm Outer Diameter and 33mm Inner Diameter shall be installed on all routes. In cases, where more number of ducts are required based upon the commercial prospects, exceptional decisions shall be taken at the time of the occurrence of the event.

#.	Clause
10	In cases of bridge/flyover/culvert etc. crossings, GI Pipes of 200mm Diameter shall only be used.
11	Electronic Route Markers (ERM) shall be installed in each MH/HH for robust records and location detections.
12	For exceptional cases of Open Trenching, minimum depth shall be 0.3 m to 0.4m in median of the street. All the ducts shall be encased in a DWC Pipe of 200mm Outer Diameter.
13	For exceptional cased of Aerial Cabling, 48F ADSS cable shall only be used. Distance between poles shall not be more than 50-60 meters and height of installation shall not be less than 5 meters.
Operation & Maintenance	
14	Periodic maintenance of ducts/Joint Closures (JC)/MH/HH shall be carried out to ensure the upkeep of the buried asset at all times.
15	Fault Repair Teams (FRTs) shall be deployed at every 30-40 KMs of the route length on round the clock basis.
16	Patrollers shall be deployed at every 30 KM interval on 12 hours day time shift basis.
17	KPIs; • 5% FTs < 2 Hours • 15% FTs < 4 Hours • 60% FTs < 8 Hours • 15% FTs < 48 Hours • 5% FTs > 48 Hours

3.14.5. Environmental Sensors

#.	Clause
1	Environmental sensor should be able to measure temperature
2	Environmental sensor should be able to measure pressure
3	Environmental sensor should be able to measure, humidity
4	Environmental sensor should be able to measure gas (CO, CO_2)
4	Environmental sensor should be able to measure noise

3.14.6. Electronic Vehicle Charging points

STERLING AND WILSON/Electrotherm/Ather Energy/equivalent

#.	Clause	
	Product or component type	Charging station
1	Poles description	1P + N for power circuit 1P + N for control circuit
2	Mounting mode	Wall-mounted
3	Offer type	Standard
4	Rated supply voltage	220...240 V AC 50/60 Hz control circuit 230 V AC 50/60 Hz power circuit
5	Earthing system	IT TN TT
6	Socket-outlet number	2

#.	Clause	
7	Socket-outlet type	Left side : T2 / silver plated contacts Right side : T2 / silver plated contacts
8	Supply current	32 A for T2
9	Max power	7 kW for T2
10	Access control system	Badge RFID conforming to ISO/IEC 15693 Badge RFID conforming to ISO/IEC 14443
11	Control type	2 green illuminated push-button function : start/unlock flap 2 red push-button function: stop
12	Local signalling	2 red LED on front device function: not operational 2 orange LED on front device function: reserved 2 green LED on front device function: available 2 green LED flashing on side device function: on charge
13	Communication port protocol	OCPP 1.5
14	Configuration /Architecture	Standalone Clustured architecture
15	Operation and maintenance	Load management Charge detail records Circuit breaker status

<table>
<tr><th>#.</th><th>Clause</th><th></th></tr>
<tr><td></td><td></td><td>Postponed charge
User privilege configuration
Diagnosis capabilities</td></tr>
<tr><td>16</td><td>Ethernet service</td><td>Configuration via web server</td></tr>
<tr><td>17</td><td>Standards</td><td>IEC 61851-1
IEC 61851-22</td></tr>
<tr><td>18</td><td>Product certifications</td><td>CE
CB
EV Ready
ZE Ready</td></tr>
<tr><td></td><td>Environment
<table><tr><td>IP degree of protection</td><td>IP54 on load conforming to IEC 61851-1
IP54 off load conforming to IEC 61851-1</td></tr><tr><td>IK degree of protection</td><td>IK10 socket-outlet conforming to IEC 61851
-22
IK10 charging station conforming
to IEC 61851-22</td></tr></table></td><td></td></tr>
</table>

#.	Clause		
	Ambient air temperature for operation	-25...50 °C conforming to IEC 61851-22	
	Ambient air temperature for storage	-40...80 °C	
	Operating altitude	0...2000 m conforming to IEC 61851-22	
	Relative humidity	<= 95 %	

3.14.7. Smart Billboard

Sony/ Samsung/ LG/ Equivalent

#.	Clause
1	Smart Billboard is mounted on the smart pole.
2	Height of smart billboard shall be decided in consultation and will be uniform
3	It should be able access and manage the bill board by 2G, 3G, LTE, Wi-Fi, 5G etc.
4	It should have ability to house battery
5	It should have provision for incoming power input cables and fiber connectivity
6	It should be Vandal Proof
7	It should have display of 5feet by 4 feet.
8	It should be Aesthetical & Camouflaged finish with respect to environment

3.14.8. Central command and control Centre

#.	Clause
1	Bidders are required to provide application software for managing and controlling the LED lights through a controller from a centralized location located in the NOC. The location for Centralized command and control center shall be provided by ISCDL. Only the necessary EMS for monitoring the LED street lights needs to be provided as part of this Project.
2	The Bidder shall provide a video projection system based on modular DLP (Digital Light Processing) based high resolution LED based rear projection technology. The VPS will be used to project displays of feed from Cameras Camouflaged in the smart poles. The VPS shall also be able to display Video signals (CCTV/DTH) and other Laptop Computer Feeds. The VPS shall enable users to display inputs from multiple sources/ applications simultaneously in freely resizable and repositionable windows on entire display area to enable effective collaboration and faster decision making. The Bidder shall supply all necessary hardware and software, including panel, multiscreen drivers, adapters and memory to seamlessly integrate the video projection system with the user interface requirements described in the specification.
3	The video projection systems shall be rear projection systems and shall be complete with all projection modules, supporting structures, cooling system and cabling. Design & installation of the video projection systems shall be coordinated with the Employer during project implementation. The VPS controller shall have SNTP Clients for synchronizing its time. A panel matching with VPS panel shall be supplied for installation of VPS Controller as well as Time and Frequency Display System.
4	The requirements for each modular VPS wall are as follows: Video Projection System (VPS), -70" LED Lit, Full HD resolution with 4 nos. Projection modules along with installation service - Module 2x2 The screens shall be capable of displaying full resolution of the source. The configuration of the VPS wall (no. of cubes and size of each cube) is defined in the Bill of Quantity. The height of VPS above the ground level shall be decided during detailed engineering based on the layout of the control room and available clear

#.	Clause
	height The VPS wall should be rugged in nature and shall be designed for 24X7 operational environments Necessary cooling arrangement for VPS shall be provided with the VPS VPS. The air-conditioned environment in the Control room shall be provided by the ISCDL
5	The VPS shall be designed to prevent dust ingress.
6	VPS wall Management Software shall be provided
7	The Bidder shall provide a video projection system based on modular DLP (Digital Light Processing) based high resolution LED based rear projection technology. The VPS will be used to project displays of feed from Cameras Camouflaged in the smart poles. The VPS shall also be able to display Video signals (CCTV/DTH) and other Laptop Computer Feeds. The VPS shall enable users to display inputs from multiple sources/applications simultaneously in freely resizable and repositionable windows on entire display area to enable effective collaboration and faster decision making. The Bidder shall supply all necessary hardware and software, including panel, multiscreen drivers, adapters and memory to seamlessly integrate the video projection system with the user interface requirements described in the specification.

3.14.9. Mobile and SoS Application

#.	Clause
1	Viewing and paying utility bills Gas, Water, Electricity etc
2	View complaint status
3	Filing of RTI
4	Submitting Citizen Grievances
5	Provision of eMandi (market rates of pulses etc)
6	Payment for traffic challans

#.	Clause
7	About Indore City
8	Finding nearest police station, fire station, post office etc
9	Information about Birth/Death certificate, ration card, voter id etc
10	Online forms
11	Government tenders
12	Government Job Opportunities
13	Citizen Facilities
14	Information about Elected and Admin wing
15	Pollution details
16	SoS toolkit
17	Online Medical Services

3.14.10. Surveillance Camera

Make - Panasonic / Sony or equivalent

#.	Clause
1	All the cameras proposed shall support Smart coding Technology i.e. Group of Pictures (GOP) control function removes unnecessary information from the frame for realizing efficient encoding, Multi process Noise Reduction and FDF(Frequency Divided Filter) etc. to reduce the network bandwidth and the disk space of recorder.
2	Bidders shall provide high resolution 4k cameras

#.	Clause
3	The camera *with 5-25mm Lens,* shall be able to setup and stream out at least four (4) stream of H.264 High profiles simultaneously. Each stream profile can has its own compression, resolution, frame rate and quality independently
4	The camera with *Maximum Video Resolution of 12 MP (4000 x 3000),* shall have Wide Dynamic Range of *80 dB* or better and 4K (3840 x 2160) Resolution @30 fps
5	The camera shall have Wide Dynamic Range of 133 dB or better
6	The camera shall have Image Cropping (4 Areas) and Picture in Picture Function
7	The camera shall have minimum 8 Region of Interest Areas to retain higher image quality while the excluded area will have a decreased image quality, which enables to use lower image file size and bit rate
8	The High resolution 4K Camera shall have Wide Dynamic Range. Bidders to mention the Dynamic Range in their bid
9	Camera shall have Rain Wash Coating, Fog and Sandstorm compensation
10	The camera shall have Full duplex bi-directional audio allows interactive communication between camera site and monitoring site and 3 alarm Inputs.

3.15. SLA and Penalties

This section is to be agreed by the Successful Bidder as the Service Levels and key performance indicator for this engagement. The following section reflects the measurements to be used for tracking, monitoring and reporting of performance on a regular basis and imposition of penalties for non-performance as per the terms of this RFP.

The purpose of this section is to define the levels of service which shall be provided by the Bidder to for the duration of the contract. Service Level Agreement (SLA) shall become the part of contract between Client and the Bidder. The Bidder has to comply with Service Levels requirements to ensure adherence to project timelines, quality and availability of services, throughout the period of this contract i.e. during implementation phase of 9 months and for a period of fifteen (15) years, post Go-Live (extendable up to 15 years).

For purposes of the SLA, the definitions and terms as specified in the document along with the following terms shall have the meanings set forth below: “Total Time” - Total number of hours in the quarter being considered for evaluation of SLA performance.

a) “Total Time” - Total number of hours in the quarter being considered for evaluation of SLA performance.

b) "Uptime" – Time period for which the specified services/ outcomes are available in the quarter being considered for evaluation of SLA

c) “Downtime”- Time period for which the specified services/ components/outcomes are available in the quarter being considered for evaluation of SLA

d) “Scheduled Maintenance Time”: Time period for which the specified services/ components with specified technical and service standards are not available due to scheduled maintenance activity. The Bidder is required to take at least 10 days prior approval from Client for any such activity. This would be allowed in off peak hours- generally from midnight for a maximum of 4 hours and would be granted once in a quarter and exclude festive timings etc.

e) “Incident”: Any event / abnormalities in the service being rendered, that may lead to disruption in normal operations and services to the end user.

f) “Response Time”: Time elapsed from the moment an incident is reported in the Helpdesk over phone or by any applicable mode of communication, to the time when a resource is assigned for the resolution of the same.

g) “Resolution Time”: Time elapsed from the moment incident is reported to Helpdesk either in person or automatically through system, to the time by which the incident is resolved completely and services as promised are restored.

3.15.1. Timeline for Delivery

T=Date of Signing of Contract

#	Project Activity	Deliverables	Responsibility	Timelines
1	Supply of Hardware / Software/equipment etc from the date of signing the Contract	• Delivery Challan • Invoice Copy • Factory Inspection report by the Bidder • Warranty certificate issued by respective OEMs for each hardware / software (back to back, in the name of Authority also) • License in case of software • MAF	Bidder	T+20 weeks
2	Installation, Configuration Integration of Hardware/ Software/ systems	• Device wise Configuration report stating IP Schema • Routing details • In case of Software, the report should consist of • Software Installation Guide and checklist. • Complete set of Technical/ Operation and Maintenance Manual. • Report formats for approval of Authority UAT/testing report • Helpdesk and SLA compliance report • Configuration change report • Inventory Reports	Bidder	T+30 weeks
3	UAT and Commissioning of entire system as per scope of work	• UAT Report and Successful Commissioning • Certificate/ Rectification activities	Bidder	T+32
4	Rectifications based on UAT	• Test reports and configurations	Bidder	T+34
5	Go-Live	• All project locations	Bidder	T+35

#	Project Activity	Deliverables	Responsibility	Timelines
		working successfully		
6	Operations Phase Satisfactory Working Inspection	• Inspection to be done by Authority followed by submission and approval of Satisfactory Working Inspection Report	Authority	T+36
7	Comprehensive Annual operations period for 15 years	All project locations in working condition (after satisfactory inspection) • Quarterly SLA compliance reports • Quarterly Preventive Maintenance reports • Quarterly Configuration change reports • Quarterly location wise Inventory reports • Other reports as desired • Quarterly user report- Location wise • Quarterly bandwidth utilization report- Location wise • Quarterly report indicating daily uptime-Location wise • Quarterly user feedback reports- Location wise • Quarterly report user complaint- Location wise showing complaint, complaint time & date, solution given, complaint clear time & date	Bidder	Quarterly after Go-live period

The aforementioned schedule is indicative, however Bidders need to provide an exhaustive work plan in their Bid which would be evaluated during technical evaluation.

3.15.2. Service Level Conditions

a) Pre-Implementation SLAs:

These SLAs shall be used to evaluate the timelines for completion of deliverables that are listed in the deliverable. These SLAs for completion of the entire system commissioning till GO LIVE.

For delay of every week in completion & submission of the deliverable mentioned in the section of Deliverables & Timeline, the Bidder would be charged with a penalty as follows:

Delay (Weeks)	Penalty% on the contract value
1week	0.5% per week for the undelivered supply/services
For every week thereafter	0.5% per week for the undelivered supply/services
Maximum for 10 weeks	5% for the undelivered supply/services

In case the Bidder reaches 10% SLA Penalties of the contract value in the form of penalty at any point of time during the duration of pre- implementation phase, Client shall provide relief by correcting timelines by giving a grace period of further 5 weeks. If Bidder fails to set the project schedule right even after the grace period, Client shall reserve the right to invoke the termination clause after following the due Termination Process.

b) Post-Implementation SLAs:

These SLAs shall be used to evaluate the performance of the services on weekly basis but penalties would be levied for cumulative performance for the quarter basis.

a) The SLA parameters shall be measured for each of the sub systems' SLA parameter requirements and measurement methods, through appropriate SLA Measurement tools to be provided by the Bidder and audited by Client for accuracy and reliability. The Bidder would need to configure the SLA Measurement Tools such that all the parameters as defined under SLA matrix given below. Post-implementation SLAs, should be measured and appropriate reports be generated for monitoring the compliance.

3.15.3. SLA for Internet Wi-Fi System

SLA and Penalty Deduction for Wi–Fi systems		
Availability of Wi-Fi on Internet through Access Points(AP) (Per AP hour)		
Sr .No	**Uptime SLA(Quarterly) For AP hours**	**Penalty values per qtr**
1	Uptime up to>= 99.9%	No Deduction
2	>=99.5% &<99.9%	0.1% of the total value of this component in the Price bid.
3	>= 99% &<99.5%	0.2% of the total value of this component in the Price bid.
4	>=98.5% &<99%	0.3% of the total value of this component in thePrice bid.
5	<98.5%	0.9% of the payment the quarter for the component

Note:

For Internet Wi-Fi System:

- Down time means non-working/non-availability of APs at allocations. Uptime shall be calculated as {1-(no. of AP hours not available)/ (Total no of APs*Total hr per quarter)}.For ex if 600 nos. of Aps are deployed at various locations, and 20 AP do not work for 1 hour, the total non-working AP hours with be 20 and the uptime would be {1-(20/(600*90*24)},600 being the number of APs, for 90 days on 24 hours basis. This downtime will be used for penalty calculations on quarterly basis and debited from the quarterly payables. The penalties would be levied for every AP downtime be it for non-availability of network, theft, damage or non-availability of power etc. because the Bidder is responsible for supply of all enabling components on end to end basis.
- Downtime for single AP at any location should not be greater than 12 hours. For every hour beyond this penalty of Rs.1000/- per AP per location would be applicable additional to penalty specify as per SLA and Penalty Deduction for Wi-Fi

3.15.4. SLA for Internet through put

Throughput and Coverage: Minimum throughput and coverage has to 95% of prescribed values of each AP. The throughput will be measure at least 10times on a random basis in a day by the Authority and it shall be acceptable and binding on the Bidder (Authority is open to Successful Bidders representative accompanying the Authority for such measurements).In case throughput falls below the guaranteed level, Authority will be impose the penalty of Rs.1000/-(Rupees one thousand) per instance per location in additional to SLA and Penalty.

3.15.5. SLAs for Environmental sensors, Smart Street lights with control– Based on NON availability

#	Uptime SLA (Quarterly)	Penalty Clause
1	Uptime up to 99.9%	No Deduction
2`	Between 99.9% to 99.5%	0.1% of the total value of the component in the Price bid.
3	Between 99.5% to 99%	0.2% of the total value of the component in the Price bid.
4	Between 99 % to 98.5%	0.3 % of the total value of the component in the Price bid.
5	Below 98.5%	0.5% of the total value of the component in the Price Bid

Note: Uptime definition:

- All devices have to be working and deliver the desired results. The no. of hours that the particular device/equipment does not work will be treated as down time. Uptime shall be calculated as{1-(no. of hours unit was not working)/(Total no of units available*Total hr per quarter for that device)}.For ex, if 10nos. of Sensors for Digital display are deployed at various locations, and 2 device/units does not work for 5Hrs, the total non-working device hours will be 10 unit hours(and the uptime would be{1-(10/(10*90*24)},10 being the number of units, for 90days on 24 hours basis. This downtime will be used for penalty calculations on quarterly basis and debited from the quarterly payables. The penalties would be levied for every unit downtime hour– be it for non- availability o network, theft, damage or non-availability of power etc. because the Bidder is responsible for supply of all enabling components on end to end basis. The same analogy applies to non-working streetlights where 1 streetlight is 1 unit, and likewise for the control room, where 1 display screen is 1 unit,1 server is1 unit,1 storage is 1unit,1router/switch is 1 unit etc.)

3.15.6. SLA and KPI for Optical Fiber

3.15.6.1. MTTR Fiber restoration

Domain	KPI Type	KPI Parameter	Cycle	Performance Indicator	Service Level (Target)
Fiber	Corrective	MTTR for Intra-City Conventional Trenching laid Faults	Monthly	Hrs.	60% within 4Hr, 75 % within 8Hr
Fiber	Corrective	MTTR for Intra-City HDD laid Faults	Monthly	Hrs.	50% within 24Hr, 75% within 36Hr
Fiber	Corrective	MTTR for Aerial laid Faults	Monthly	Hrs.	60% within 4Hr, 75% within 8Hr
Fiber	Permanent Resolution	All Cases	Monthly	Hrs.	≤ 15 days.

3.15.6.2. Fibre Cuts

Domain	KPI Type	KPI Parameter	Performance Indicator	KPI (Target)	
				Metro	Non Metro
Fiber	Fiber Cut	Intra-city Network (Conventional trenching) - Faults / 500 Kms / Month.	Nos.	≤ 14	≤ 12
Fiber	Fiber Cut	Intra-city Network (HDD) - Faults / 500 Kms / Month.	Nos.	≤ 9	≤ 7
Fiber	Fiber Cut	Intra-city Network (Aerial) - Faults / 500 Kms / Month.	Nos.	≤ 18	≤ 18

3.15.7. Other SLAs

Domain	KPI Type	KPI Parameter	Performance Indicator	Target
Fiber	Functional	Compliance to Dark Fiber Monitoring	%	≥ 95%
Fiber	Functional	Compliance to OFC Route Surveillance Schedules.	%	≥ 95%
Fiber	Functional	Compliance to Link Handover and testing (in case of fiber leasing to other Telco's).	Nos.	Within 15 days of receipt of instructions.

3.15.8. Other Penalties

- It is expected that the Bidder should comply with all the Policy/Procedural/ Regulatory Guidelines enforced by Government of India, Government of MP, Department of Science & Technology, Concern Agency, TRAI and other related bodies as on the date of signing the Contract.
- The Bidder should also safeguard the Application Security and Application Integrity.
- Penalty would be applicable for non-compliance of relevant security certifications.
- There would be Zero Tolerance policy against such breaches.
- The penalties across various breaches could be categorized as follows;(this includes but not limited to the following)
  - Information Security Breach: Any data leakage, information sharing, reports sharing without the consent of Concern Agency.
  - Network & System Security Breach: Any instance of hacking, information/data compromise, unauthorized access to public Wi-Fi.
  - Guidelines Breach: Non-compliance to guidelines shared by various government agencies such as complying with standards for website/mobile app development etc.

- For any of the breach for above mentioned category, a penalty would be levied on the Bidder for every instance of occurrence if not responded as per the timelines mentioned in the table below. The response of the same is desired to be provided in the timelines as specified in the table below. The details of the same are given below:

Type	Measurement (Unit)	Response Time(hours)	Penaltyonresponsew.r.t. delay/Unit
Information Security Breach	Hours	1	Rs.1,00,000/-
Network &System Security Breach	Hours	1	Rs.2,00,000/-
Guidelines Breach	Days	7	Rs.1,00,000/-

- The response time refers to immediate remedial action taken and preventive measures updated by the Bidder on occurrence of the event.
- In case the breaches are not responded to in the time frame as specified, penalties would be levied as per the table above and failing to address the breach in desired timeline, recurring penalties would be levied with respect to delay in units as mentioned. E.g. In case of an Information Security Breach, the Bidder has to respond within 1 hour of the event occurrence. If the Bidder responds in 2:15 hours, a penalty equivalent to 2 hours i.e. Rs. 2, 00,000/- would be imposed on the Bidder.
- In case of more than 5 instances of breach within the project year, Authority reserves the right to invoke the termination clause along with legal action would be initiated for serious offence as decided by Authority.
- Guidelines Breach includes non-compliance to certain guidelines as set by various agencies like DIT, DST etc. In such cases, resolution of the issue is also mandatory. The Bidder would be required to respond with the action plan / change request, as applicable, in order to resolve the guidelines breach with the specified response time.

3.15.9. Manpower Availability

- The Successful Bidder needs to supply the onsite manpower as per the defined scope of work. The supplied manpower needs to report on day to day basis to Authority.
- 50% of the total manpower deployed by Bidder should be local citizens of Indore.
- The successful Bidder needs to submit duly authorized attendance report along with the quarterly invoice.

- Penalty on non-deployment of required manpower: Rs. 500 per engineer per day on non-reporting or non-deployment of minimum required manpower.

3.15.10. Helpdesk Response and Resolution time

SLA and Penalty Deduction For Helpdesk Response and resolution time		
Sr No	**Particulars**	**Penalty Amount**
1	For less than 1% of the calls no getting responded in less than or equal to 3seconds per quarter	None
2	For every % calls beyond 1%, a penalty of Rs.1Lac per % calls or part thereof shall be levied calculated per quarter basis.	Rs. 1 Lacs per Percentage beyond 1%. Maximum penalty of Rs. 10 Lacs per quarter.
3	For Grievances and complaints from users, resolutions provided within 4hours	No penalty
4	For Grievances/ complaints calls not resolved within 4hrs for every1% complaints/Grievances, a penalty will be levied.	Rs. 1Lacs per Percentage beyond 1%. Maximum penalty of Rs. 10Lacs per quarter.

Penalties shall not be levied on the Bidder in the following cases:

- There is a force majeure event effecting the SLA which is beyond the control of the Bidder. Force Majeure events shall be considered in line with the clause mentioned in RFP.
- The non-compliance to the SLA has been due to reasons beyond the control of the Bidder.
- Theft cases by default/vandalism would be considered as “beyond the control of Bidder” and will be counted as Force Majeure Condition. However, the Bidder should be taking adequate anti-theft measures, spares strategy, Insurance as required to maintain the desired Required SLA.
- The maximum cumulative penalty that could be imposed on the Bidder for any or all SLA violation post implementation shall not exceed 5% of the revenue realized for the quarter of the year when the incident has occurred.
- The aforementioned penalty shall be the full and final compensation for any SLA violation.

3.15.11. Acceptance Testing and Certification

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

- Infrastructure(Software, Hardware an Network) Compliance Review
- Availability of the project Services in the defined locations Performance Manageability
- SLA Reporting System
- Project Documentation

The Authority shall establish appropriate processes for notifying the Successful Bidder of any shortcomings from defined requirements at the earliest instance after noticing the same to enable the Successful Bidder to take corrective action. All gaps identified shall be addressed by the Successful Bidder immediately. It is the responsibility of the Successful Bidder to take any corrective action required to remove all shortcomings, before/during the roll out of the project.

The Authority may get the acceptance testing done either on its own or through a third party. It is to be noted that the involvement of the third party for acceptance testing and certification, does not absolve the selected Bidder o his responsibilities to meet SLAs as laid out in this RFP document.

Should any Acceptance testing get held up due to reasons attributable to the Authority, the Bidder shall not be held accountable for such delays or shortfalls on the part of Authority

The Authority may also get the system audited either on its own or through a third party at any stage to ensure the success of the project.

Such third-party agency for carrying out the acceptance testing and certification of the entire solution shall be nominated by the Authority.

Following discusses the acceptance criteria to be adopted for the project as mentioned above. The list below is indicative and the activities shall include but not be limited to the following:

1) Infrastructure Compliance Review

Audit agency shall perform the Infrastructure Compliance Review to verify the conformity of the Infrastructure (both IT, non IT as well as Network infrastructure) supplied by the Successful Bidder against the requirements and specifications provided in the RFP and/or as proposed in the Bid submitted by the Successful Bidder. Compliance review shall not absolve the Successful Bidder from ensuring that proposed infrastructure meets the SLA requirements.

2) Manageability Review

The agency shall verify the manageability of the solution and its supporting infrastructure deployed using the Element Management System of the Individual node elements (EMS) proposed by the Successful Bidder. The manageability requirements include requirements such as on line ticket monitoring, remote monitoring, administration, configuration, inventory management, fault identification etc.

3) SLA Reporting System

The Successful Bidder shall design, implement/customize, deploy the Element Management System (EMS) and shall develop any additional tools required to monitor the performance indicators listed as per the SLAs mentioned in the RFP. The Acceptance Testing and Certification agency shall verify the accuracy and completeness of the information captured by the SLA monitoring system implemented by the Successful Bidder and shall certify the same. The EMS deployed for the project, based on SLAs, shall be configured by the Successful Bidder to calculate the payment to be paid by the Authority after deducting the necessary penalties. EMS should be integrated with the toll free call center (established by the Bidder) for site fault reporting.

4) Project Documentation

The Agency shall review the project documents developed by the Successful Bidder including installation, training and administration manuals, version control etc.

Any issues/gaps identified by the Agency, in any of the above areas, shall be addressed to the complete satisfaction of the Department.

4. Responsibility of ISCDL

Following will be the responsibilities of ISCDL during the execution of project;

a) Fibre

- ROW (Right of way) free of cost for laying of fibre will be provided by the Authority within the Project Site. This right shall be available for the entire duration of this agreement.
- The fibre so laid in this ROW can be monetized by the Concessionaire at his discretion and at rates which the Concessionaire deems fit.

b) Smart Pole

- Concessionaire will have the right of way without any charge, for telecom site deployment within the Project Site that it can lease out or license the same to third parties including telecom operators.

- The Concessionaire shall have the right to deploy poles / masts of such specifications and at such locations within the Project Site as it may be required based on the requirement of telecom service providers and on approval of the Authority.
- ISCDL shall endeavour that all telecom sites presently owned by telecom service providers without the requisite approval(s) will be shifted to Smart Poles / telecom sites deployed by the Concessionaire. ISCDL shall endeavour that no further permissions is issued by any statutory authority to any third party on account of any new telecom site / infrastructure within the Project Site.

c) Wi-Fi Access point

- Concessionaire shall have the right of installation of Wi-Fi Access Point on each Smart Pole, free of charge, for provisioning of Wi-Fi Services within the Project Site. This right shall be available for the entire duration of the Concession Period.
- Concessionaire shall have the right to earn revenue on account of usage of Wi-Fi beyond the free period of 30 Minutes / 100 MB per day or 1000 MB per month for each user.
- Concessionaire shall have right to earn revenue from advertisement through WI-FI.

d) Advertisement Rights

- Concessionaire shall have the rights to earn revenue out of advertisements (in compliance with the applicable government policy) on digital billboards installed only on the Smart Poles under this project. Concessionaire will be liable to pay the advertisement tax as applicable from time to time to IMC.

e) EV Charging Rights

- Concessionaire shall have the rights to earn revenue from EV charging, subject to necessary approval/s from the concerned authority/ies such as MPPKVVCL.

f) Other Support

- ISCDL shall provide all necessary assistance, as may be required by the Concessionaire for obtaining the Applicable Permits from the appropriate Government Agencies.
- Authority shall provide warehousing space in Indore for storage of lamps / lighting fixtures brought in by the Concessionaire after replacing with LED bulbs under the Project.
- ISCDL shall ensure that the Concessionaire is not liable or responsible for any municipal or property tax (excluding advertisement tax), upon or in relation to the Project Assets or Project Site.
- ISCDL shall allow the Concessionaire to upgrade any or all of the Project Facilities/ Project Assets upon the advent of any new technology pertaining to the Project Facilities/ Project Assets, at its own cost.

ANNEXURE 12

Guidelines of the Department of Disinvestment

No.6/4/2001-DD-II
Government of India
Department of Disinvestment

Block 14, CGO Complex
New Delhi
Dated 13th July, 2001

OFFICE MEMORANDUM

Sub: Guidelines for qualification of Bidders seeking to acquire stakes in Public Sector Enterprises through the process of disinvestment.

Government has examined the issue of framing comprehensive and transparent guidelines defining the criteria for Bidders interested in PSE-disinvestment so that the parties selected through competitive bidding could inspire public confidence. Earlier,, criteria like net worth, experience etc, used to be prescribed. Based on experience and in consultation with concerned departments. Government has decided to prescribe the following additional criteria for the qualification/disqualification of the parties seeking to acquire stakes in public sector enterprises through disinvestment:

(a) In regard to matters other than the security and integrity of the country, any conviction by a Court of Law or indictment/adverse order by a regulatory authority that casts a doubt on the ability of the Bidder to manage the public sector unit when it is disinvested, or which relates to a grave offence would constitute disqualification. Grave offence is defined to be of such a nature that it outrages the moral sense of the community. The decision in regard to the nature of the offence would be taken on case to case basis after considering the facts of the case and relevant legal principles, by the Government of India.

(b) In regard to matters relating to the security and integrity of the country, any charge-sheet by agency of the Government/conviction by a Court of Law for an offence committed by the bidding party or by any sister concern of the bidding party would result in disqualification. The decision in regard to the relationship between the sister concerns would be taken, based on the relevant facts and after examining whether the two concerns are substantially controlled by the same person/persons.

(c) In both (a) and (b), disqualification shall continue for a period that Government deems appropriate.

(d) Any entity, which is disqualified from participating in the disinvestment process, would not be allowed to remain associated with it or get associated merely because it has preferred anappeal against the order based on which it has been disqualified. The mere pendency of appeal will have no effect on the disqualification.
(e) The disqualification criteria would come into effect immediately and would apply to all Bidders for various disinvestment transactions, which have not been completed as yet.
(f) Before disqualifying a concern, a Show Cause Notice why it should not be disqualified would be issued to it and it would be given an opportunity to explain its position.
(g) Henceforth, these criteria will be prescribed in the advertisements seeking Expression of Interest (EOI) from the interested parties. The interested parties would be required to provide the information on the above criteria, along with their Expressions of Interest (EOI). The Bidders shall be required to provide with their EOI an undertaking to the effect that no investigation by a regulatory authority is pending against them. In case any investigation is pending against the concern or its sister concern or against its CEO or any of its Directors/Managers/employees, full details of such investigation including the name of the investigating agency, the charge/offence for which the investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed, to the satisfaction of the Government. For other criteria also, as similar undertaking shall be obtained along with EOI.

Sd/-
(A.K. Tiwari)
Under Secretary to the Government of India