



INVITATION FOR BIDS



Punjab Masstransit Authority (PMA)

Invites Tender for

Provision, Commissioning, Installation, Calibration,

Integration, Testing and Execution of

IT-SYSTEMS (CCTV SURVEILLANCE,

CONNECTIVITY AND VIDEO-WALL)

FOR MULTAN METROBUS SYSTEM

For details, please download Tender Documents from

www.pma.punjab.gov.pk

ppra.punjab.gov.pk

1. The procurement shall be conducted in accordance with the Punjab Procurement Rules 2014 as modified time to time on Single Stage Two Envelopes Procedure.
2. A single package containing separate technical proposals and financial proposals duly completed, signed, stamped, and in complete conformity with Tender Document should be dropped in the Tender Box placed at reception of the **PMA Office, 5th Floor, Arfa Software Technology Park, 346-B Ferozpur Road, Lahore, no later than 1500 Hours on March 10, 2016.**The Technical Proposal will be opened at 1530 Hours on **March 10, 2016 in PMA office.**
3. Bids which are incomplete, not sealed, not signed, unstamped, late or submitted by other than specified mode will not be considered.
4. Income tax/ Sales Tax Registration Certificate and other documents as mentioned in Tender Documents must accompany the bids. All Taxes will be deducted as per Government of Punjab rules.
5. **Pre-bid meeting will be held at 1030 Hours on March 1, 2016 at PMA office.**
6. PMA reserves the right to reject all bids at any time prior to the acceptance of a bid.
7. All questions/queries/clarifications regarding this procurement should be directed to the representative whose contact details are given below:

General Manager Operations

Punjab Masstransit Authority, 5th Floor, Arfa Software Technology Park (ASTP)
346-B, Main Ferozpur Road, Lahore, Pakistan. TEL: +92 (42) 99028000

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**PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION,
INTEGRATION, TESTING, AND EXECUTION OF IT SYSTEMS (CCTV
SURVEILLANCE, CONNECTIVITY AND VIDEO WALL) FOR MULTAN
METROBUS SYSTEM**



**THE PUNJAB MASSTRANSIT AUTHORITY
GOVERNMENT OF THE PUNJAB**

5th Floor, Arfa Software Technology Park (ASTP)

346-B, Main Ferozpur Road, Lahore, Pakistan.

Phone: +92 42 99028000 Fax: +92 42 9923 2541

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Important Note

Registered companies and Joint ventures complying with criteria given in this document are eligible for this tender, hereafter referred to as Bidders.

There scope of the Bid covers the following two areas:

1. Provision, commissioning, installation, calibration, integration, testing and execution of CCTV Surveillance System, Connectivity, Data Center (Server/Racks/Storages), Video Wall, Uninterruptible Power Supply, Data Cabinet, IP Telephony and Public Address System (IT Systems) for The Multan Metrobus System (including all hardware, software, networking, etc), and configuration, customization, deployment, and maintenance of the entire solution.
2. Operations and Maintenance at PMA stations, Corridor, Command and Control Center and utilize the deployed IT Systems.

For a more elaborate list of roles and responsibilities in each case above, please refer to Clause 9 ("Services Required") in this document.

Purchaser will evaluate received bids in the following order:

The successful bidder shall supply all necessary IT Systems **services**, which include furnishing, installing and operating all hardware, software, networking, etc. at its own cost. In addition the successful bidder shall configure, customize, deploy, and maintain the entire IT Systems solution; and manage it at PMA stations, Corridor, and Command and Control Center (C&C) by fully utilizing the deployed IT Systems.

Purchaser, would award accordingly as per rules, and while the Purchaser reserves exclusive rights to cancel/annul or reject all bids submitted at any time without giving any reason thereof.

Bidders must ensure that they submit all the required documents indicated in the Bidding Documents without fail. Bids received without, undertakings, valid documentary evidence, supporting documents and various requirements mentioned in the Bidding Documents or test certificates are liable to be rejected at the initial stage itself. The data sheets, valid documentary evidences for the critical components as detailed hereinafter should be submitted by the Bidder for scrutiny. It is intimated that no objection/revisions/supplement shall be entertained regarding the terms and conditions of the Bidding Document submitted by the bidder.

Applicability of Punjab Procurement Rules, 2014

This Bidding Process will be governed under Punjab Procurement Rules, 2014, as amended from time to time and instructions of the Government of the Punjab received during the completion of the project

Important Dates

- 1. Last date of Bid Submission: Thursday, **March 10th, 2016 (3:00pm)**–5th floor Arfa Software Technology Park, Ferozepur Road, Lahore.**
- 2. Pre-bid meeting: Tuesday, **March 1st, 2016 (10:30am)** – 5th floor Arfa Software Technology Park, Ferozepur Road, Lahore.**

1. Invitation to Bid

The Punjab Masstransit Authority (PMA), Government of the Punjab (the purchaser), invites bids for the

“PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION, INTEGRATION, TESTING, AND EXECUTION OF IT SYSTEMS (CCTV SURVEILLANCE, CONNECTIVITY AND VIDEO WALL) FOR METROBUS SYSTEM IN MULTAN”.

1.1 PPRA Rules to be followed

Punjab Procurement Rules 2014 will be strictly followed. These may be obtained from PPRA’s website:

<http://ppra.punjab.gov.pk/downloads>

In this document, unless otherwise mentioned to the contrary, "Rule" means a Rule under the Punjab Procurement Rules 2014.

1.2 Mode of Advertisement(s)

As per Rule 12, this Tender is being placed online at PPRA's website, as well as being advertised in print media.

The bidding document carrying all details can be downloaded from PPRA’s website [www.ppra.punjab.gov.pk](http://ppra.punjab.gov.pk), PMA’s website <http://www.pma.punjab.gov.pk>.

1.3 Type of Open Competitive Bidding

As per Rule 38(2)(a), Single Stage - Two Envelope Procedure shall be followed.

This is as follows:

- i. The bid shall comprise of a single package containing two separate envelopes. Each envelope shall contain separately the financial proposal and the technical proposal;
- ii. The envelopes shall be marked as “FINANCIAL PROPOSAL” and “TECHNICAL PROPOSAL” in bold and legible letters to avoid confusion;
- iii. Initially, only the envelope marked “TECHNICAL PROPOSAL” shall be opened;
- iv. The envelope marked as “FINANCIAL PROPOSAL” shall be retained in the custody of the procuring agency without being opened;

- v. The technical proposal will be evaluated in a manner as per the clauses mentioned in this document; and proposals which do not conform to the specified requirements as listed in said document will be rejected.
- vi. During the technical evaluation, no amendments in the technical proposal shall be permitted;
- vii. The financial proposals of technically qualified bidders shall be opened publicly at a time, date and venue announced and communicated to the bidders in advance;
- viii. After the evaluation and approval of the technical proposal, the procuring agency shall, at a time within the bid validity period, publicly open the financial proposals of the technically accepted and qualified bids only. The financial proposal of bids found technically non-responsive shall be returned un-opened to the respective bidders.
- ix. The technically qualified bidder with lowest financial bid will be the successful bidder, subject to approval of the Competent Authority.

2. Bidding Details (Instruction to Bidders)

All bids must be accompanied by tender security as part of technical proposal in favor of “The **Punjab Masstransit Authority**” as per Clause No. 22 (Tender Security) of this document.

The bids along with the Tender Security, Tender Forms, Affidavits, etc., must reach the office of the Punjab Masstransit Authority located at 5th floor, Arfa Software Technology Park, 346-B, Ferozpur Road, Lahore, Pakistan, on or before **3:00 pm on March 10th, 2016**. The Technical bids will be publicly opened in the Committee Room of the Punjab Masstransit Authority, 5th Floor, Arfa Software Technology Park, 346-B, Main Ferozpur Road, Lahore, at 3:30 pm on **March 10th, 2016**.

Any Bid received by the Purchaser after the abovementioned deadline for submission of Bids shall be returned unopened to such Bidder. Delays in the mail, delays of person in transit, or delivery of a Bid to the wrong office shall not be accepted as an excuse for failure to deliver a Bid at the proper place and time. It shall be the Bidder’s responsibility to determine the manner in which timely delivery of his Bid will be accomplished either in person, by messenger, courier service or by mail.

Queries of the Bidders (if any) for seeking clarifications regarding the specifications of the services must be received in writing to the PMA by **1st March 2016**. All queries shall be responded to within due time.

The bidder must submit bids in full conformity of the requirements mentioned vide this document. Failure to meet this condition will cause disqualification of the bidder and subsequent rejection of the relevant bid. The attention of bidders is drawn to the provisions of Clauses 20, 27 & 29 on “**Preparation / Submission of Bid**”, “**Determination of Responsiveness of Bid**” and “**Rejection & Acceptance of Tender/Bids**”, respectively, before preparing and submitting their bids.

The contact details for all correspondence in relation to this bid are as follows:

The Punjab Masstransit Authority (PMA)
5th Floor, Arfa Software Technology Park,
346-B, Ferozpur Road, Lahore, Pakistan.
Telephone: +92 42 99028000 Ext: 6006
FAX: +92 42 99232541
Email: it.systems@pma.punjab.gov.pk

Bidders should note that during the period from the advertisement of the tender till the receipt of the bids, all queries should be communicated in writing via e-mail at the above contact detail.

Bidders are also required to state, in their proposals, the name, title, fax number and e-mail address of the bidder’s authorized representative through whom all communications shall be directed until the process has been completed or terminated.

Purchaser will not be responsible for any costs or expenses incurred by bidders in connection with the preparation or delivery of bids.

As authority competent to accept the tender, Purchaser reserves the right to cancel the tender, accept or reject one or all bids without assigning any reason thereof.

3. Definitions

- 3.1 "PMA" is The Punjab Masstransit Authority, Government of the Punjab.
- 3.2 "IT Systems" PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION, INTEGRATION, TESTING AND EXECUTION OF IT SYSTEMS INCLUDING CCTV SURVEILLANCE SYSTEM, CONNECTIVITY, DATA CENTER EQUIPMENT, VIDEO WALL, UNINTERRUPTIBLE POWER SUPPLY, IP TELEPHONY AND PUBLIC ADDRESS SYSTEM FOR THE MULTAN METROBUS SYSTEM as asked for in the Tender Document. Initial phase is for IT Systems implementation for approximately 21 Metrobus stations, Corridor and Command & Control Center in Multan.
- 3.3 "Client/Procuring Agency/Purchaser" means The Punjab Masstransit Authority (PMA), Government of the Punjab or any other person/entity for the time being or from time to time duly appointed in writing by the Purchaser to act as Purchaser.
- 3.4 "MBS" Metrobus System
- 3.5 "IT Systems Service Provider" or "Successful Bidder": The technically qualified bidder with lowest financial bid, who has the probability of award of contract for IT Systems Project, subject to approval of the Competent Authority.
- 3.6 "Confirmation" means confirmation in writing.
- 3.7 "Bidder/Tenderer" means a Registered Company or Joint Venture that has submitted its bid as per the criteria/specifications listed.
- 3.8 "Contractor" means successful Bidder/Tenderer.
- 3.9 "Contract" means the contract proposed to be entered into between the procuring entity and the Bidder, including all attachments, appendices, and all documents incorporated by reference therein.
- 3.10 "Contract Price" means the price payable to the Contractor under the Contract for the full and proper performance of its contractual obligations.
- 3.11 "Pre-Bid Conference/Meeting" means the meeting conducted by the procuring entity on given date and time prior to actual date of bid opening.
- 3.12 "Procurement Methods" means any one of the procurement modes / methods as provided in the Punjab Procurement Rules 2014 published by the Punjab Procurement Regulatory Authority (PPRA), Government of the Punjab.
- 3.13 "RFP" means Request for Proposals, including any amendments that may be made by the procuring entity for the selection of bidder.
- 3.14 "Proposal" means the Technical Proposal and the Financial Proposal for the provision of the Services submitted by a bidder in response to this RFP/Tender Document.
- 3.15 "SBD" means Standard Bidding Documents.
- 3.16 "SCC" means the Special Conditions of Contract.
- 3.17 "Services" means the tasks to be performed by the bidder pursuant to the Contract as mentioned vide this document.
- 3.18 "TEC" means the Technical Evaluation Committee, constituted for the purpose of evaluating the Proposals received.
- 3.19 "Terms of Reference" or "TOR" means the document which explains the objectives, scope of work, activities, task to be performed, respective responsibilities of the procuring entity and the bidder, and expected results and deliverables of the assignment.
- 3.20 "Works" means work to be done by the Contractor under the Contract.

- 3.21 "Corridor" means MBS Corridor.
- 3.22 "GoPb" means Government of the Punjab.

4. Headings and Titles

In this document, headings and titles shall not be construed to be part thereof or be taken into consideration in the interpretation of the document and words importing the singular only shall also include the plural and vice versa where the context so requires.

5. Notice

5.1 In this document, unless otherwise specified, wherever provision is made for exchanging notice, certificate, order, consent, approval or instructions amongst the Contractor and the Purchaser, the same shall be:

5.1.1 in writing;

5.1.2 issued within reasonable time;

5.1.3 served by sending the same by courier or registered post to their principal office in Pakistan or such other address as they shall notify for the purpose; and

5.1.4 The words "notify", "certify", "order", "consent", "approve", "instruct", shall be construed accordingly.

6. Tender Scope

6.1 The Punjab Masstransit Authority (PMA) (The Purchaser), invites/requests Proposals (hereinafter referred to as "the Tenders") for the provision, commissioning, installation, Calibration & Testing, Operation and Maintenance of CCTV Surveillance System, Fiber Optic Connectivity, Data Center equipment (Server/Racks/Storages), Video Wall, UPS, Data Cabinet, IP Telephony and Public Address System (IT Systems) for the 21 MBS Stations, Corridor and Command & Control Center in Multan, Pakistan.

6.2 The Integrated IT Systems solution needs to be rolled out for approximately 21 MBS stations, Corridor and Command and Control Center. Eventually the IT systems would be extended for other Routes in Phase Wise as well.

6.3 The IT Systems comprises the following core components along with associated equipment and services:

CCTV Surveillance System

Video Wall & Controllers

Computer Servers, Infrastructure Racks (Imported) & Data Storages

Public Address System

UPS

IP Telephony

Connectivity

7. Overview and Objectives

Multan is the 3rd largest city in the Province Punjab. It is located on National Highway (N-5) leading to Bahawalpur and Muzaffargarh / Dera Ghazi Khan enroute to Karachi. The city lies east of Chenab River, more or less in the geographic center of the country, at a distance of about 966 km from Karachi. Punjab's current population is approaching to 100 million, which is approximately 56% of the country's population. Five major cities of the province include Lahore, Gujranwala, Faisalabad, Rawalpindi and

Multan. Under the devolved local government system, Multan has been declared a City District, comprising of six Towns, each administered by a Town Municipal Administration (TMA).The towns are further divided into a total of 129 union councils.

Multan has enormous intra city and intercity movement of passengers through conventional transportation modes. The road network is sharing the major load, and is overburdened, thus causing numerous problems to the residents of Multan. The vehicles ownership in Multan district increased sharply by 277% between 2009 and 2014. Among vehicle types, motorcycles are dominant in Multan with a share of 76% while passenger cars represent only 15%. The number of motorized vehicles is 261 per 1,000 residents for year 2014.

7.1 Passenger Trips

In Multan, the transport demand amounts to 2.06 million daily person trips, as shown in table.

Table: Passenger Trips by Vehicle Type

No.	Mode	No. of Trips (,000)	%
1	Walking	720	34.94%
2	Bicycle	95	4.60%
3	M/C Driver	367	17.81%
4	M/C Pax	145	7.02%
5	Car Driver	29	1.43%
6	Car Pax	24	1.18%
7	Wagon	71	3.43%
8	Mazda	8	0.38%
9	Public Bus	30	1.48%
10	Qinqi	422	20.47%
11	Rickshaw	94	4.55%
12	Taxi	1	0.05%
13	Tourist Bus	1	0.03%
14	Company Bus	5	0.22%
15	School Bus	49	2.38%
16	Others	1	0.03%
Total		2060	100%

7.2 Passenger Trips by Vehicle Type

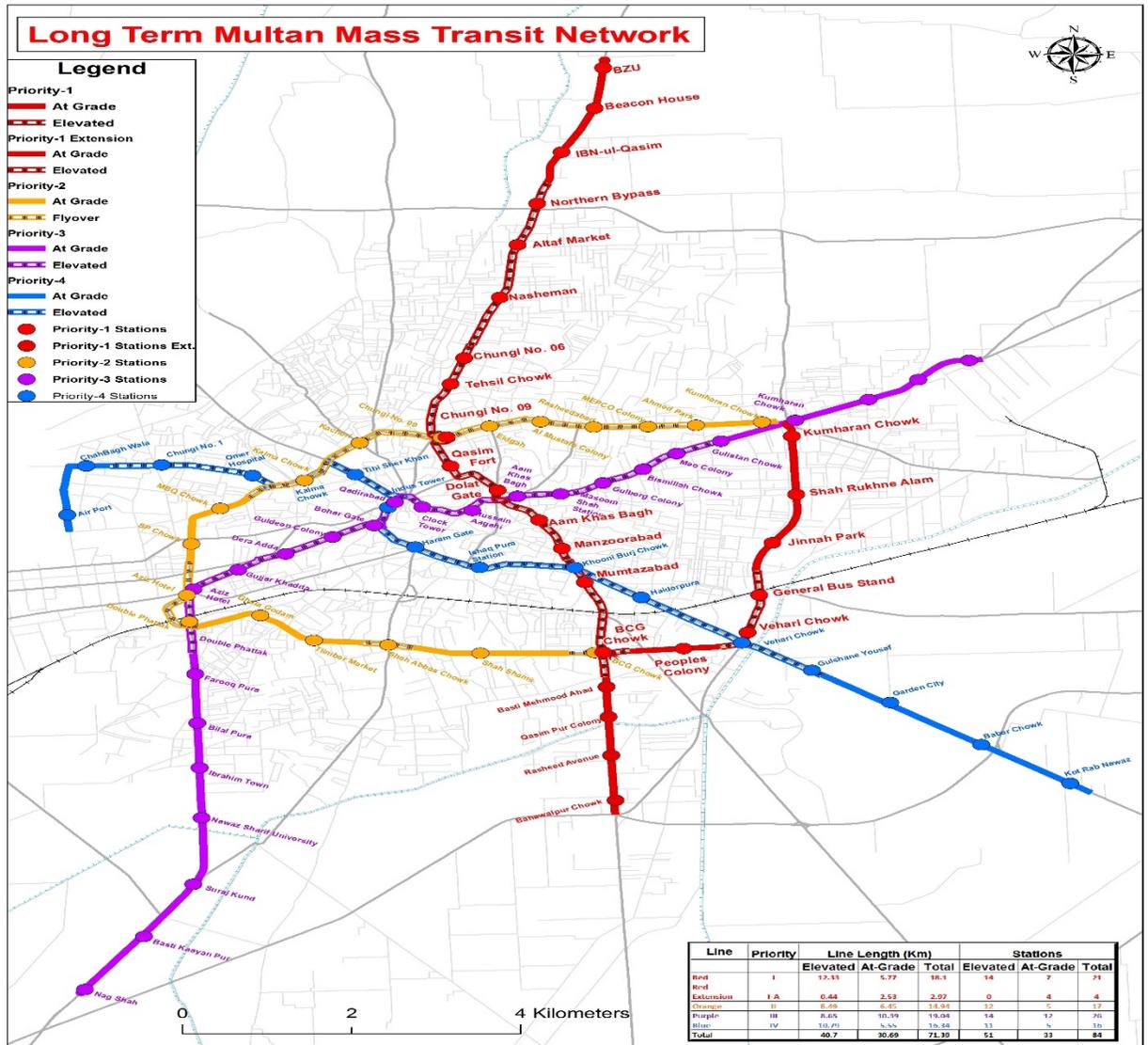
Table below shows the estimated mode share and trip making in Multan.

Table: Passenger Trips by Vehicle Type

Mode	Trips (,000)	Proportion
Public Transport (Wagon, Mazda, Public Bus & Qinqi)	531	39.5
Private Vehicles	Cars	203
	Motorcycles/Bicycles	607
Total	1341	100%

7.3 Multan Metrobus System

The objective of providing mass transit system is to overcome growing problems of urban transport such as increasing congestion, accidents, safety, air quality etc. The figure below shows long term mass transit network for Multan;



The priority corridor identified initially for implementation is Red Line from BZU to Chowk Kumahara via BCG Chowk. The route detail of the corridor are as under:

Length of Route: 18.50 KM

i. At Grade 6 KM

ii. Elevated 12.5 KM

Bus Stations:

7

i. At Grade

14

ii. Elevated

21

Total

7.4 Future Expansion Plans

The following are future plans for the city:

Expansions of Metrobus corridor to completed whole network;

Expansion of public transport routes throughout the city to have integrated Public Transportation System.

SUMMARY OF ROUTES				
	No. of Routes	Route Length (Km)	Number of Buses	Type of Buses
Phase-I	11	68.53	100	Mini Bus
Phase-II	8	46.34	78	Mini Bus
Phase-III	6	40.61	66	Standard Bus
Phase-IV	6	78.04	87	Standard Bus
Phase-V	9	279.00	62	Standard Bus
MBS	4	68.82	131	Articulated
Total	44	581.34	524	

7.5 The Punjab Masstransit Authority (hereinafter called "PMA") invites applications from bidders/Consortium (herein after called "Bidder") for the execution and completion of a project involving the provision, commissioning, installation, Calibration & Testing, Operation and Maintenance of CCTV Surveillance System, Connectivity, Data Center Server/Racks/Storages, Video Wall, UPS, Data Cabinet, IP Telephony and Public Address System for the MBS Stations, Corridor & Command & Control Centre in Multan, Pakistan (hereinafter called the "Project"). The scope of work is limited to area of Multan Metrobus corridor. The key components of the scope are provided below.

7.5.1 Video surveillance

- a. Installation of cameras
- b. Set up of Command and Control Centre and provision of live feed of cameras on Video Wall and workstations of command and control center.
- C. View only option of each station cameras in Security room of each station.

7.5.2 IP Telephony and Public Address System

- a. Integrated Communication Platform of Voice Communication System to provide User Interface for IP telephony and Public Address system communications on Stations from station to Command & Control Center and vis-à-vis.

7.5.3 Data center

- a. Furnish and install Data Centre equipment and requisite hardware (computing and switching) at co-located data center.
- b. Deployment and Installation of hardware including servers, storage, racks etc.
- c. Detailed solution architecture
- d. Bidders are required to provide computing/switching as per proposed solution

7.5.4 Network

- a. Providing connectivity through reliable media (fiber 10G GPON main corridor) from MBS Stations, Corridor to DC to Command and Control Centre; Command and Control Centre to DC; DC to Command and Control Center.
- b. Detail network diagram with network architecture
- c. Provide all network components include all active and passive equipment.

7.5.5 Command & Control Centre hardware

- a. Video Wall with allied accessories, Data center, LAN, switch/router, workstations, equipment etc.
- b. Electrical design and requirement/provision of Network cabling etc.

7.5.6 Integration

- a. Provisioning and Integration of all IT System on Turnkey as per industry standards.

7.5.7 Training

- a. Essential training to the operational staff of Purchaser shall be provided locally.

The bidders are required to submit a comprehensive detailed system and network architectures of proposed solution as well as the detailed specifications of proposed hardware components.

Once, the IT Systems solution is successfully adopted for current phase of Metrobus, there are plans to roll out the solution for later phases of Metrobus, and eventually local transport Operations (Feeder

Routes) will be included as well.

8. Contract type and duration

Contract period is (06) six years, extendable based on needs, compliance to defined Service Level Agreement (SLA), satisfactory audit reports, and compliance to other requirements stated in this Tender Document, and formal contract.

9. Services Required

Contractual obligations of the successful bidder's (IT Systems Service Provider's roles and Responsibilities):

IT Systems Solution Deployment and onsite technical support:

1. Provision, Install, configure, customize, deploy, thoroughly test, maintain and operate all IT Systems components - including all related equipment and software necessary for the smooth running of the system, in accordance with provisions of this tender document, good industry practices, applicable laws, and technical specifications of components stated in this document.
2. Provision, Install, maintain and operate a robust, scalable, secure, and efficient data communications network connecting PMA stations, corridor and the datacenter/hosting site as well as the central PMA control center.
3. Deploy suitably skilled personnel (dedicated team) for configuration/customization, installation, and prompt and efficient technical support/maintenance of all IT Systems components.
4. Adequate spare parts must be in place, in order to ensure uptime defined in the Service Level Agreements. Cost to be borne by service provider/successful bidder.
5. Submit detailed design, specifications, documentation, and manuals (also in softcopy) of related IT Systems components being implemented - for approval.
6. Establish formats, standards, database parameters, and protocols for communication among the different sub-systems of IT Systems.
7. Adhere to timelines of the IT Systems project implementation specified in this RFP/Tender Document.
8. Provide monthly/weekly reports on progress of IT Systems implementation as per scope defined in this Tender Document.
9. Ensure quality, robustness, security, and functionality of all hardware, software components associated with the IT Systems.
10. Implement a secure and protected access control system to IT Systems software application systems and databases, limiting access to authorized personnel only. Also provision of hosting sites and ensure regular and tested data backup.
11. Implement appropriate security measures for the information and data generated from operations of IT Systems, and deploy standard management procedures, contingency plans, and back-up plans to cope with any system failure.
12. Impart meaningful and timely training to all staff associated with IT Systems as well as selected staff of PMA.
13. Develop/Document detailed equipment and IT Systems component

maintenance plan, in consultation with PMA, and implement it. The plan must cover procedures and parameters for preventive and break-down maintenance, as well as maintenance review procedures.

14. Guarantee up-time and adequate performance of IT Systems components at Bus Stations, on the Corridor, Control Center and Datacenter.
15. Guarantee smooth operations and functioning of all IT Systems components during the entire contract period
16. Plan and conduct regular recovery drills, security audits, and performance tuning activities. Timely submit associated plans, schedules, and results for review.
17. Coordinate all equipment and software maintenance activities well in advance with authorized/designated personnel at PMA.
18. Replace faulty equipment, hardware, software at its own cost so as to ensure adherence to stated service-level parameters.
19. Regularly check, and timely upgrade and maintain all possible ICT infrastructure including hardware, software, and network infrastructure and ensure adherence to stated service-level parameters.
20. Integrate with other Intelligent Transport Systems (ITS) add-ons, if any.
21. Ensure that only authorized personnel of PMA should have secure access to add or change key configuration parameters.
22. Provide authorized PMA staff secure, 24x7 access to Management Information System reports and features -covering all critical aspects of IT Systems operations, alerts, faults, and audit logs.
23. Obtain all necessary permits under all applicable Laws required to proceed with IT Systems Project implementation, and comply with applicable laws, regulations, and permits during the contract period.
24. Cooperate with all other service providers and facilitate their operations in the PMA In case of damages to PMA or other Service Provider property on the part of the IT Systems Service Provider the damages shall be recovered from the IT Systems Service Provider by the Purchaser.
25. Be responsible for the conduct and functioning of all staff employed on the IT Systems project towards passengers and PMA staff as well as authorized staff of other relevant government agencies. The service provider shall ensure efficient services, polite and courteous behavior of its employees. The Service Provider shall be liable for any misconduct or unreasonable offense of its employees and shall take prompt and appropriate action.
26. Participate in all meetings, committees, etc, as directed by PMA from time to time.
27. Ensure prompt and efficient 'response time' related to all service delivery aspects.
28. Timely raise alerts to the PMA control center staff in case of issues with equipment or system functioning.
29. Ensure scalability of the IT Systems to cater to the future requirements and needs.

30. Engage and deploy suitably skilled personnel for development, installation, operation and maintenance of the IT Systems project, and maintenance/replacement of all related equipment/component in a timely manner and at its own cost.
31. Take prompt and reasonable action for resolution of each complaint, including complaints received from passengers as well as from PMA, related to IT Systems operations and generate log of each complaint along with the details of the resolution.
32. Engage a suitable and renowned third party inspection for qualitative verification of the deployed IT Systems solution and hardware.
33. Contractor must provide interfaces to PMA to generate/update reports on the fly.
34. For all software and hardware related components comprehensive training must be provided.
35. Adequate resources from the contractor's side must be available to ensure smooth operations of IT Systems.
36. The Contractor must provide automated mechanism in the form of system generated real time alerts/reports viewable via centralized dashboard to determine downtime and performance of equipment installed on corridor, stations, data centers and networks.
37. Purchaser reserves the right to purchase additional IT Systems solutions from any other third party through competitive bidding as per the specifications mentioned in the tender document. The Contractor is responsible to integrate with all such IT Systems solutions in an efficient & timely manner.
38. The Contractor is liable to cooperate fully with the assigned Information System Auditor's and shall extend all necessary access, support & cooperation for the completion of said audits (as and when required).
39. The Contractor is responsible for operating the entire IT Systems including all its components and peripherals, reliably and securely at all times during the course of the contract. After completing the initial system deployment, User Acceptance Testing (UAT) and Commissioning of the system, the Contractor shall not make any changes to the system configuration parameters and security settings without prior written approval of the Client in a timely manner.

10. Key Service-level parameters

1. Services are required during operations of the PMA buses – tentatively decided, as 24 hours a day 7 days a week and 365 days a year.
2. Adequate spare parts and fully functional maintenance lab must be in place, in order to ensure uptime defined in the Service Level Agreements.

Any breach of defined service level will entail penalties which shall not exceed more than 10%

of the monthly payments to service provider; service level parameters are outlined in Annexure-J.

11. PMA's Responsibilities

The Purchaser shall:

1. Provide IT System service provider necessary project site so that IT Systems service provider can perform its obligations in a timely manner
2. Facilitate the Contractor in obtaining required NOC's for Provisioning of Site.
3. Grant timely approvals and make timely payments
4. Contract signing, Contract Payments and monitoring project and operations.
5. Assist/facilitate the Service Provider to file FIR against any person or other Service Providers/Contractors responsible for causing damages to the equipment deployed by Service Provider for rendering services to the Purchaser.
6. Not hold the Service Provider responsible for delays, if any, in deploying equipment or fiber optic due to improper/incomplete construction by the Civil works contractor engaged by Multan Development Authority (MDA). Improper construction shall be deemed to include all equipment/material deployed by the Civil Works Contractor, that does not meet the design specifications subject to rejection of such equipment/material by the design/supervision Consultant engaged by the MDA.

12. Key components of the solution

The overall objective of the project is to have an Integrated Command and Control Centre with modernize infrastructure, systems and capabilities to proactively monitor the stations/MBS corridor and effectively respond to incidents on a real time basis. Integrated Command and Control Centre will bring the innovative Concept of Operations to provide a solution that delivers:

1. New technology and process infrastructure to provide real-time information and intelligence to facilitate operational staff for making evidence based decisions.
2. Provision of information to ensure that informed decisions are made with regard to priority and allocation of the most appropriate resources.
3. Delivery of flexible operational systems that can evolve and expand with the evolving needs.

The overall aim of the integrated Command and Control Center is to improve operational efficiency by deploying new hardware using up-to-date technology that will enable to adopt more efficient working practices and new operating concepts. The Integrated Command and Control Center operations will integrate the Command, Control, and Communication functions through but not limited to below mention Services areas:

- o CCTV Surveillance System is responsible for displaying video streams having analysis of the video streams of the CCTV Cameras.
- o Video Wall System (video wall) alongwith controllers to display video streams on the video wall.
- o IP Telephony to communicate between stations and Command and Control Center
- o Public address system to make announcement at stations and from Command and Control Centre
- o Data Center

The system will operate as a receiving and recording point for CCTV videos that are available for viewing at work-stations and/or for display on the video-wall including System Control and Management, Digital Recording and Archiving, Specific Analysis Tools, Video Walls and Control Systems, Data Centre, structured cabling, storages, connectivity as well as system integration and testing.

The System consists of CCTV Surveillance System, IP Telephony, Public Address System, Uninterruptible Power Supply (UPS), Data Cabinets, Switches, Connectivity and other allied IT equipment's installed at MBS stations, Corridor, between the MBS Stations, and Data Center Server/Racks/Storages, Video Wall, Uninterruptible Power Supply (UPS), Data Cabinet, and other allied IT equipment's at Command and Control Center (C&CC). The requirement is to interconnect all onsite equipment to the central control system at the C&CC using data communication & transmission equipment with the following characteristics:

- High Availability
- High Reliability
- Easy to install and operate

- Scalable
- High degree of flexibility

12.1 Power Backup

Uninterruptible Power Supply (UPS) equipment is needed to ensure backup power supply for all IT Systems equipment/components deployed at each station. UPS backup should last for at least 4 hours at any given time. This does not apply to power outages in case of hurricane, flood, earthquake and/or any other extenuating circumstances. Power backup to be proposed must take into account the capacity required to run all components of IT Systems at the stations.

12.2 System availability and data backup

IT System solution must be able to function on a 24x7x365 basis. CCTV Surveillance backups (30 days as per defined highest resolution) are critical features of the overall solution. System should be hosted in adequate data center, providing high availability access. Upon purchaser request, data backups must be maintained for specific videos.

12.3 Connectivity

24/7 connectivity to all stations must be ensured, and data transmission to central data center must also be ensured on 24/7 basis. This shall involve all necessary integration with primary fiber optic network to ensure connectivity at all points of time.

12.4 Servers/Storage

Setup of servers, storage devices and any other hardware/software necessary for the proposed solution to work efficiently is an integral component of the system.

12.5 PMA Control Center

PMA shall set up a central control center for authorized PMA staff. All Information collected via IT Systems shall be made accessible via secure, interface to authorized PMA staff on real-time basis, by the Contractor/Service Provider. Contractor/Service Provider is responsible to provide adequate IT Systems support staff at the PMA Control Center.

12.6 It is expected that the bidders submits their response based on thorough study. Following is the list of items which should be taken in account by the bidders and appropriate response shall be given:

- Surveillance cameras: Cameras to be deployed on the station, corridor Includes fixed, PTZ cameras.
- Network: List of locations along with the required network type at each location. It should include all fixed/ wired / fiber communication points.

- Integration: Bidder is required to do all integration. These include stations, corridor and Command and Control Centre.
- Develop the surveillance layout for the identified area; recommend the risk mitigation strategy and a structured plan.
- Provide a detailed proposed system and network architecture for an integrated solution involving command and control elements, Data Centre equipment, communication, procedures and personnel.
- Design for the Integrated Communications Platform

Bidder is expected to provide end-to-end services of designing, procurement, installation and commissioning of the systems.

12.6.1. Video surveillance

a. Installation of cameras

- Cameras need to be deployed to monitor Stations and corridor.
- Bidder needs to install configure the type of the camera i.e. PTZ, fixed etc. based on the location.
- Any work related to installation of camera like, customization, cabling etc. would be part of bidder's scope of work.

b. Set up of Command and Control Centre

- Command and Control Center to be set up at the location near chungi No. 9.
- Furnish 24/7 Communication and Information services at the command & control center.
- Electrical and network design and cabling.
- Any work related to installation of screens, making of video wall, cabling, networking, installation of workstation is part of bidder's scope of work.

12.6.2. Public Address and IP Telephony System

- Solution incorporates a Public Address System and IP Telephony System which will allow PMA Staff, Operators to accomplish all their voice communications, broadcast voice messages at stations and command & control center.

12.6.3. Data center (DC)

- a. Co-locate IT System at a suitable place in Punjab/Islamabad (DC) of his own choice, according to best practices to meet SLA requirements (preferably in Data center standards with Tier 3 compliance). Furthermore, DC has to be connected with Command & Control Center.
- b. Including preferably:
 - Dynamic and efficient precision cooling system should be available for DC
 - Electrical and Mechanical actual load consumption shall be considered
- c. Provisioning and installation of hardware including servers, storage, racks etc.
 - Bidder will supply all the hardware required for the data center including servers, monitors, storage, racks etc. The proposed hardware must be scalable.
 - Operating systems, Applications, Real time Network Monitoring System and all Licensing required for commissioning of the hardware shall also be provided by the bidder.
 - Bidder shall also set up monitoring mechanism for the DC with the required hardware/software.
 - Bidder shall also provide Anti-Virus, DMS, and VPN etc.

12.6. 4. Network

- a. Providing fiber optic connectivity on GPON Network from Station, Corridor to DC; DC to Command and Control Center.
 - The project includes provision of network for last mile connectivity, as well as final system design, documenting all system components, preparation of input like messages, dynamic sign contents, response/ action plans, etc. according to the Client's requirements, coordination with the PMA and maintenance by providing technical support.
 - Bidder will provide primary connectivity between the locations. It is expected that there would be minimum connectivity failure (99.5% Uptime) at any point of time.
- b. Provide all network components including active and passive components

- In addition to the connectivity, bidder shall provide all network components such as routers, switches, cable at all the required locations.

12.6.5. Office hardware

a. Supply and install office LAN, office switch/ router, workstations for Command and Control Center etc.

- For the proper functioning of the IT system, bidder is required to propose certain office hardware based on requirements.
- Hardware shall be commissioned by the bidder and also maintained by the bidder during the maintenance period.

12.6.6. Integration

Integration services include complete integration on Turnkey basis of all IT systems having following components:

- Command and Control Center
- Video Surveillance
- IP Telephony and Public Address System
- Location/Station and Corridor
- Video Wall
- Data Center

Note: Major components and their quantities are listed section (76); Bidder must provision any other/more equipment required to integrate the system and to make it functional.

12.6.7. Training

a. The scope of the training shall be to train the skills, knowledge, behaviors, technology functionality, processes of the new roles for, but not limited to Operators and supervisors

12.6.8. Maintenance

- Bidder shall ensure all the equipment installed in the outdoor shall be vandal proof and in case the equipment's get damaged they shall be replaced by the Bidder in the shortest time, as defined in the Service Level Parameters.

- The service provider needs to adhere to defined Service Levels and is expected to keep spares of implemented products for smooth and uninterrupted functioning of the system.
- Preventive maintenance shall be carried out once in a quarter alongwith corrective maintenance and also when calls are placed by officer in-charge, respective officers /authority.
- Bidder shall provide manpower to give maintenance support for 24/7 at the system and wherever the bidder feels necessary for the period of service contract.
- Bidder shall offer maintenance of the various equipment, components and installations to a high level of operational integrity for the contract period
- In addition to maintenance during the contract period, the service provider shall be fully responsible for all maintenance activities for the period between installations of equipment

12.6.9. Manpower

- a. Bidder shall provide adequate number of personnel each responsible for a specific role within the system.
- b. Bidder must provide clear definition of the role and responsibility of each individual personnel. Bidder shall have a defined hierarchy and reporting structure for various teams that shall be part of the project. Bidder shall independently estimate the teams' size required to meet the requirements of this project and their credentials. Bidder shall propose qualified technical personnel with adequate skill levels to manage the infrastructure.
- d. Some of the required personnel are:
 - Project Head
 - Project manager
 - Surveillance expert
 - PAS Expert
 - IP Telephony Expert

- Video Wall Expert
- Solution architect (solution, network, hardware)
- Data center expert
- Handholding staff
- Trainers
- Facilities management engineer

The systems/equipment shall consist of a high capacity, high availability in according to relevant International Standards. The details of equipment's to be installed at MBS Stations, Corridor & Command and Control Centre are available with descriptions, to give an overview of the system/equipment requirements at Annex-K.

13. Functional Requirements

All the systems/ equipment's shall provide high availability with 99.9% uptime 24h/7d, 365 days a year alongwith the onsite installation, commissioning, calibration, integration, testing, operation & maintenance as per SLA. The bidders are required to submit their proposals against the entire system.

14. Other high-level requirements

14.1 IT Systems must have following features:

14.1.1 Availability of user-definable criteria and rules for various functions/ auto alerts.

14.1.2 Inventory report of stock in hand and in use.

14.1.3 Online dashboard based on configurable parameters.

14.1.4 Report writer for generating quick on the fly reports/analysis.

14.1.5 Ability to generate automated alerts – e.g. SMS, email, fax.

14.1.6 User security roles definition and availability of interface to reassign roles.

14.1.7 Secure, reliable and password protected system.

14.1.8 Detailed audit log of critical user activities in the system.

14.1.9 Automated data backup facility.

14.1.10 The IT System must have provision of integration with any other systems in future.

14.2 Networks & Data Connectivity

14.2.1 Setting up the IT System components on each PMA station, including the data network, so as to ensure timely, un-interrupted transmission of data between IT Systems at stations, corridor and at C&CC & datacenter.

14.2.2 Reliable/redundant network availability onto the stations.

14.2.3 Linking any network equipment etc to UPS, with at least 4 hours of backup power supply.

14.2.4 Usage of automated tools to monitor network performance at every station, access must be provided to stakeholders.

14.3 Station Equipment

14.3.1 Deployment (and security during construction period i.e. before start of Metrobus Operations) of Cameras, UPS, cabling for networks, routers/switches/signal boosters, and/or any other component required to run IT System efficiently, adequately, and as per industry standards as well as to ensure compliance to parameters mentioned in the Service Level Agreement. A Data cabin space will be provided on each platform/station where station equipment will be placed.

14.4 Centralized/Back-office systems and reliable hosting

14.4.1 All transactional data will remain property of the purchaser and may not be shared with anyone without written consent of the Purchaser.

14.4.2 Purchaser will have access to all transactional data and audit logs, logged into the system for at least the past twelve months (30 days for CCTV surveillance Record as per defined highest resolution), at all times. And will be provided regular data backups by the contractor for long-term storage and archival purposes on reliable storage media.

14.5 Equipment Installation/Maintenance and Software Support

14.5.1 Installation, maintenance, and operations of all equipment as listed in relevant sections of this tender document.

14.5.2 Continuous support of all software and hardware components associated with proposed IT System - via dedicated support staff accessible via help desk, all services must be provided based on the service-level parameters defined in this document.

14.6 Human Resources

The successful bidder must employ adequate, well-trained staff to perform all duties and responsibilities stated in this tender document – including all roles/duties to be performed at the stations, corridor at the central datacenter, and to support PMA authorized staff on the

complete solution.

15. Tender/Bidder Eligibility

15.1 An eligible Tenderer/Bidder is a Tenderer/Bidder who:

15.1.1 is a provider of Services and Equipment as outlined in the document

15.1.2 Services can only be supplied / sourced / routed from “origin” in “eligible” member countries.

a. “Eligible” is defined as any country or region that is allowed to do business in Pakistan by the law of Government of Pakistan.

b. “Origin” shall be considered to be the place where the company / firm is incorporated

15.1.3 has a registered office in the respective country of origin

15.1.4 has been registered for at least 5 years in country of origin, and has proven experience of deploying solution (applicable to any partner in case of Joint Venture/Consortium).

15.1.5 has the required relevant qualified personnel and adequate financial and technical strength to fulfill the requirements.

15.1.6 Conforms to the clause of “Responsiveness of Bid” and “Preparation/Submission of Tender” given herein this tender document.

15.1.7 Verifiable proof for all the above shall be required.

15.1.8 Local companies forming part of the joint venture must be registered under the prevailing related rules or Companies Ordinance and Punjab Revenue Authority (PRA).

16. Tender Cost

The Tenderer/bidder shall bear all costs / expenses associated with the preparation and submission of the bid and the Purchaser shall in no case be responsible / liable for those costs / expenses.

17. Joint Venture / Consortium

Joint venture/Consortium is also eligible for this tender, as long as the joint venture complies with the following conditions:

a. The Tenderers may form a joint venture of maximum four Tenderers/bidders. An Agreement Deed legally executed to that effect, or a Memorandum of Understanding (MOU), signed by all the partners shall be submitted with the Tender and shall remain valid throughout the currency of the Contract.

b. One partner of formulated joint venture will be designated the lead partner and would be get into legal contract with the Purchaser and would be liable to incur liabilities, receive payments and receive instructions for and on behalf of any or all partners. A power of attorney to that effect, legally executed, signed by all the partners shall be submitted with the Tender/bid.

c. There must be at least one locally registered company (Partner) of good repute, with relevant experience and proven track record, in the joint venture.

d. All the partners shall be jointly and severally liable for the execution of the Contract in accordance with the terms and conditions of the Contract. The Tender, and in case of successfully qualifying both technical and financial evaluation, the Contract Deed, to that effect, shall be signed by the lead partner.

- e. Partners other than the lead would also be bound by the terms and conditions of the contract.
- f. No partner of the formulated joint venture can be replaced, removed or added without the prior approval of purchaser.

18. Examination of the Tender Document

The Tenderer is expected to examine the Tender Document, including all instructions and terms and conditions thereof.

19. Amendment of the Tender Document

19.1 The Procurer may, at any time prior to the deadline for submission of the Tender, at its own initiative or in response to a clarification requested by the Bidder(s), amend the Tender Document, on any account, for any reason. All amendment(s) shall be part of the Tender Document and binding on the Bidder(s).

19.2 The Procurer shall notify the amendment(s) in writing to the prospective Tenderers.

19.3 The Procurer may, at its exclusive discretion, amend the Tender Document to extend the deadline for the submission of the Tender, in which case all rights and obligations of the Procurer/ Purchaser and the Tenderers previously subject to the deadline shall thereafter be subject to the deadline as extended.

20. Preparation / Submission of Tender

20.1 The Tenderer is allowed to bid for complete services only.

20.2 The Tenderer is not allowed to bid in partial in this tender.

20.3 The Tender and all documents relating to the Tender, exchanged between the Tenderer/bidder and the Purchaser or Procurer, shall be in English. Any printed literature furnished by the Tenderer/bidder in another language shall be accompanied by an English translation which shall govern for purposes of interpretation of the Tender.

20.4 The Tender shall be submitted accompanied by the prescribed Forms, Annexes, Schedules, Charts, Drawings, Documents, Brochures, Literature, detailed design, operations and maintenance plan and detailed project plans with milestones etc. which shall be typed, completely filled in, stamped and signed by the Tenderer or his Authorized Representative. In case of copies, signed and stamped photocopies may be submitted.

20.5 Further required information as part of the bid is listed below, as in continuation to other requirements listed in the document:

20.5.1 List of firm's major international and national clientele.

20.5.2 Details related to experience in implementing, maintaining and supporting such solutions with all supporting documents and documented proofs.

20.5.3 Complete details of all the projects being carried out by the bidder with all supporting documents and documented proofs.

20.5.4 Details of similar type of projects executed by the Bidder with all supporting documents and documented proof.

20.5.5 Details/Profile of Staff (Management / Technical) team

20.5.6 Valid Sales Tax, Income Tax and NTN company registration certificates (for local company and the same prevalent documents as applicable in the region/origin of operations of enterprise operating outside Pakistan).

20.5.7 SECP Registration Certificate.

- 20.5.8 Registered service provider with Punjab Revenue Authority (PRA)
- 20.5.9 Disaster Recovery Plan
- 20.5.10 Information Security Management practices
- 20.5.11 Details of proposed solution with logical diagrams, functionality and features and the proposed deployment plan with timelines
- 20.5.12 Availability confirmation of all resources which will be used in the proposed solution.
- 20.5.13 Bidder will provide sample reports which the system can generate.
- 20.5.14 Detailed Project Plan highlighting timelines, resource allocations and deliverables for each milestone leading to solution roll out.
- 20.5.15 Detailed quality assurance plan including methodology.
- 20.5.16 Detailed Communications Management Plan.
- 20.5.17 Details of hardware/equipment used along with warranties.
- 20.5.18 Detailed features of the software systems.
 - 20.5.18.1 Provide an overview of software organization.
 - 20.5.18.2 Define external interfacing data format, semantics, and protocols.
 - 20.5.18.3 Include complete documentation of non-application components such as operating system, communications handlers, database, and report generators.
 - 20.5.18.4 Detail the procedures for building and managing software configuration.
 - 20.5.18.5 Describe the metrics embedded in IT Systems to evaluate its performance.
 - 20.5.18.6 Identify the error conditions detected through the Automated system, and the messages or Indications for those conditions.
- 20.5.19 Data collection and management methodology.
- 20.5.20 Detailed workflow of proposed IT Systems.
- 20.5.21 Integration between all IT Systems.
- 20.6** The Technical and Financial proposals shall be submitted in two separate envelopes and the envelopes will be clearly marked 'Technical Proposal' and 'Financial Proposal'. Electronic copy (CD/DVD/USB) of Microsoft Word/Excel file format (as applicable) of offered bid documents (technical section only) prepared by the bidder (not manufacturer) must be furnished. Each proposal shall be in two sets bid i.e. the original and the copy.
- 20.7** In the event of any discrepancy between the original and the duplicate, the original shall govern.
- 20.8** The **Technical Proposal** shall contain following, without quoting the price:
 - 20.8.1 Technical Proposal Form (Annexure-A)
 - 20.8.2 Affidavit and Undertaking (All terms & conditions and qualifications listed anywhere in the RFP have been satisfactorily vetted) (Annexure-E&F)
 - 20.8.3 Covering letter duly signed and stamped by authorized representative. (Annexure-C)
 - 20.8.4 Authorized Certificate / document from the principle / manufacturer.
 - 20.8.5 Evidence of eligibility of the Tenderer and the Services.
 - 20.8.6 Evidence of conformity of the Services to the Tender Document
 - 20.8.7 Technical Brochures / Literature
 - 20.8.8 The statement must be signed by the authorized representative of the Bidder
 - 20.8.9 Financial Capacity as per Annexure-I
 - 20.8.10 Valid Registration Certificate for Income Tax, Sales Tax and / or other allied agencies / organizations / regulatory authorities (Principal, Local Representative Company).
 - 20.8.11 Income Tax & Sales Tax Returns for the last three tax years.

20.8.12 Power of Attorney, if an authorized representative is appointed (Annexure-D)

20.9 The **Financial Proposal** shall comprise the following:

20.9.1 Financial Proposal Form (Annexure-B)

20.9.2 Price Schedule

20.9.3 Bid Security **(for a sum of PKR ten (10) million amount as mentioned vide clause 22 regarding Bid Security of this tender document)**

20.10 The Tenderer shall seal the Original Technical Proposal in an envelope duly marked as under:

Original Technical Tender for
Tender Name. [Number/Name of Tender]

[Name of the Procurer]
[Address of the Procurer]

[Name of the Tenderer/Bidder]
[Address of the Tenderer/Bidder]
[Phone No. of the Tenderer/Bidder]

20.11 The Tenderer shall seal the Duplicate Technical Tender in an envelope duly marked as under:

Duplicate Technical Proposal for
Tender Name. [Name of Tender]

[Name of the Procurer]
[Address of the Procurer]

[Name of the Tenderer/Bidder]
[Address of the Tenderer/Bidder]
[Phone No. of the Tenderer/Bidder]

20.12 The Tenderer shall follow the same process for the Financial Tender.

20.13 The Tenderer shall again seal the sealed envelopes of Original Technical Proposal and the Original Financial Proposal in an outer envelope, duly marking the envelope as under:

Original Tender for
Tender Name. [Name of Tender]

Strictly Confidential

Open on [Last Date of submission of the Tender]

[Name of the Procurer]

[Address of the Procurer]

[Name of the Tenderer/Bidder]

[Address of the Tenderer/Bidder]

[Phone No. of the Tenderer/Bidder]

- 20.14** The Tenderer shall again seal the sealed envelopes of Duplicate Technical Proposal and the Duplicate Financial Proposal in an outer envelope, duly marking the envelope as under:

Duplicate Tender for

Tender Name. [Name of Tender]

Strictly Confidential

Open on [Last Date of submission of the Tender]

[Name of the Procurer]

[Address of the Procurer]

[Name of the Tenderer/Bidder]

[Address of the Tenderer/Bidder]

[Phone No. of the Tenderer/Bidder]

- 20.15** The Tenderer shall enclose soft copies of the Technical Proposal and the Financial Proposals, including all Forms, Annexes, Schedules, Charts, Drawings, Documents, Brochures, Literature, etc., in the form of MS Word Documents, MS Excel Worksheets and Scanned images, with the hard copies.

- 20.16** This is made obligatory to affix authorized signatures with official seal on all original and duplicate (copies) documents, annexures, copies, certificates, brochures, literature, drawings, letters, forms and all relevant documents as part of the bids submitted by the tenderer.

21. Tender Price

- 21.1** The quoted price shall be:

21.1.1 best / final / fixed and valid until completion of all obligations under the Contract i.e. not subject to variation / escalation;

21.1.2 Inclusive of all charges up to the delivery point at the Project site in Multan for IT System related components;

- 21.1.3 in Pak Rupees (PKR);
- 21.1.4 Is inclusive of all applicable taxes, duties, levies, insurance, freight, etc., as per Laws of the Government of Pakistan, but shall be exclusive of Sales Tax on Services which shall be added by the Purchaser over and above the quoted amount, as applicable/required under the relevant Tax Laws, to arrive at the Contract Price. Accordingly, the Contract Price shall be subject to adjustments for change in rate of Sales Tax on Services.
- 21.1.5 If not specifically mention in the Tender, it shall be presumed that the quoted price is as per the above requirements.
- 21.2** Where no prices are entered against any item(s), the price of that item shall be deemed to have been distributed among the prices of other items, and no separate payment shall be made for that item(s).
- 21.3** The price hereby quoted by the Bidders would cover the whole scope of services for the contract period.

22. Bid/Tender Security

- 22.1** The Tenderer shall furnish the Tender Security/Bid security as under:
- 22.2 As part of technical bid envelope in a separate envelop**, failing which will cause rejection of bid.
- 22.3** Bid security should be submitted by the Bidder;
- 22.3.1 Demand Draft / Pay Order / Bank Guarantee, issued by a scheduled bank operating in Pakistan, in the name of the Client, , as per the format provided in the Tender Document[Annexure-G];
- 22.3.2 for a sum of PKR ten (10) million;
- 22.3.3 denominated in Pak Rupees;
- 22.3.4 have a minimum validity period of **180 days** from the last date for submission of the Tender or until furnishing of the Performance Security, whichever is earlier.
- 22.4** The proceeds of the Tender Security shall be payable to the Purchaser, on the occurrence of any / all of the following conditions:
- 22.4.1 If the Tenderer withdraws the Tender during the period of the Tender validity specified by the Tenderer on the Tender Form; or
- 22.4.2 If the Tenderer does not accept the corrections of his Total Tender Price; or
- 22.4.3 If the Tenderer, having been notified of the acceptance of the Tender by the Purchaser during the period of the Tender validity, fails or refuses to furnish the Performance Security, in accordance with the Tender Document.
- 22.4.4 If the Tenderer fails to provide the performance security in stipulated timeframe, format, amount and currency.
- 22.4.5 The Tenderer refuses or fails to submit the Performance Security as per agreed timelines, amount and format.
- 22.5** The Tender security shall be returned to the technically unsuccessful Tenderer with unopened/sealed financial bid while the unsuccessful bidders of financial bid opening procedure will be returned the tender security only. The Tender Security shall be returned to the successful Tenderer on furnishing the Performance Security.

23. Tender Validity

The Tender shall have a minimum validity period of one hundred and eighty days (180) days from the last date for submission of the Tender. The Procurer may solicit the Tenderer's consent to an extension of the validity period of the Tender. The request and the response thereto shall be made in writing. If the Tenderer agrees to extension of validity period of the Tender, the validity period of the Tender security shall also be suitably extended. The Tenderer may refuse extension of validity period of the Tender, without forfeiting the Tender security.

24. Modification / Withdrawal of the Tender

24.1 The Tenderer may, by written notice served on the Procurer, modify or withdraw the Tender after submission of the Tender, prior to the deadline for submission of the Tender.

24.2 The Tender, withdrawn after the deadline for submission of the Tender and prior to the expiration of the period of the Tender validity, shall result in forfeiture of the Tender Security.

25. Opening of the Tender

25.1 Tenders shall be opened, at the given place, time and date, in the presence of the Tenderer(s), if available, for which they shall ensure their presence without further invitation.

25.2 The Tenderer's name, modifications, withdrawal, security, attendance of the Tenderer and such other details as the Procurer may, at its exclusive discretion, consider appropriate, shall be announced and recorded.

25.3 No tenderer or its representative shall be allowed to keep any digital device (camera, audio recorder, cell phone etc.) during tender opening meeting at given time and location. Non-compliance will cause the rejection of respective bidder.

26. Clarification of the Tender by the Purchaser

The Procurer shall have the right, at his exclusive discretion, to require, in writing, further information or clarification of the Tender, from any or all the Tenderer(s). No change in the price or substance of the Tender shall be sought, offered or permitted except as required to confirm the corrections of arithmetical errors discovered in the Tender. Acceptance of any such correction is solid discretion of the purchaser

27. Determination of Responsiveness of the Bid (Tender)

27.1 The Procurer shall determine the substantial responsiveness of the Tender to the Tender Document, prior to the Tender evaluation, on the basis of the contents of the Tender itself without recourse to extrinsic evidence. A substantially responsive Tender is one which:

27.1.1 meets the eligibility criteria for the Tenderer for the Services;

27.1.2 meets the Technical Specifications for the Services;

27.1.3 meets the delivery period / point for the Services;

- 27.1.4 meets the rate and limit of liquidated damages;
 - 27.1.5 offers fixed price quotations for the Services;
 - 27.1.6 is accompanied by the required Tender Security as part of technical bid envelope;
 - 27.1.7 is otherwise complete and generally in order;
 - 27.1.8 Conforms to all terms and conditions of the Tender Document, without material deviation or reservation.
- 27.2** A material deviation or reservation is one which affects the scope, quality or performance of the Services or limits the Purchaser's rights or the Tenderer's obligations under the Contract.
- 27.3** The Tender determined as not substantially responsive shall not subsequently be made responsive by the Bidder by correction or withdrawal of the material deviation or reservation. However, the Purchaser may waive off any minor non-conformity or inconsistency or informality or irregularity in the Tender; but subject to approvals of Tender Evaluation Committee.

28. Correction of errors / Amendment of Tender

- 28.1** The Tender shall be checked for any arithmetic errors which shall be rectified, as follows:
- 28.1.1 if there is a discrepancy between the amount in figures and the amount in words for the Total Tender Price entered in the Tender Form, the amount which tallies with the Total Tender Price entered in the Price Schedule, shall govern.
 - 28.1.2 if there is a discrepancy between the unit rate and the total price entered in the price Schedule, resulting from incorrect multiplication of the unit rate by the quantity, the unit rate as quoted shall govern and the total price shall be corrected, unless there is an obvious and gross misplacement of the decimal point in the unit rate, in which case the total price as quoted shall govern and the unit rate shall be corrected.
 - 28.1.3 if there is a discrepancy in the actual sum of the itemized total prices and the total tender price quoted in the Price Schedule, the actual sum of the itemized total prices shall govern.
- 28.2** The Tender price as determined after arithmetic corrections shall be termed as the Corrected Total Tender Price which shall be binding upon the Tenderer.
- 28.3** Adjustment shall be based on corrected Tender Prices. The price determined after making such adjustments shall be termed as Evaluated Total Tender Price.
- 28.4** No credit shall be given for offering delivery period earlier than the specified period.
- 28.5** The Tenderer shall state the Tender Price for the payment terms outlined in the Conditions of Contract which will be considered for the evaluation of the Tender.

29. Rejection & Acceptance of Tender/Bids

- 29.1** The Procurer / Purchaser shall have the right, at his exclusive discretion, to increase / decrease the quantity of any or all item(s) of services required without any change in unit prices or other terms and conditions, accept a Tender reject any or all tender(s), cancel / annul the Tendering process at any time prior to award of formal Contract, without assigning any reason or any obligation to inform the Tenderer of the grounds for the Procurer's/ Purchaser's action, and without thereby incurring any liability to the Tenderer and the decision of the Purchaser shall be final.

29.2 The Tender shall be rejected if it is:

29.2.1 substantially non-responsive; or

29.2.2 submitted in other than prescribed forms, annexes, schedules, charts, drawings, documents / by other than specified mode; or

29.2.3 incomplete, un-sealed, un-signed, printed (hand written), partial, conditional, alternative, late; or

29.2.4 subjected to interlineations / cuttings / corrections / erasures / overwriting; or

29.2.5 the Tenderer submits more than one Tenders against; or

29.2.6 the Tenderer refuses to accept the corrected Total Tender Price; or

29.2.7 the Tenderer has conflict of interest with the Purchaser; or

29.2.8 the Tenderer tries to influence the Tender evaluation / Contract award; or

29.2.9 the Tenderer engages in corrupt or fraudulent practices in competing for the Contract award.

29.2.10 there is any discrepancy between bidding documents and bidder's proposal i.e. any non-conformity or inconsistency or informality or irregularity in the submitted bid.

29.2.11 the Tenderer submits any financial conditions as part of its bid which are not in conformity with tender document.

29.2.12 the Tenderer refuses or fails to submit the Performance Security as per agreed timelines, amount, currency and format.

30. Acceptance Letter (LOA)

The Purchaser shall, send the Acceptance Letter (LOA) to the successful Tenderer, prior to the expiry of the validity period of the Tender, which shall constitute a contract, until execution of the formal Contract. However, the Purchaser reserves exclusive rights to cancel the Acceptance letter (LOA) at any time without giving any reason thereof.

31. Performance Security

31.1 The successful Tenderer shall furnish Performance Security as under:

31.1.1 within ten (10) working days of the receipt of the Acceptance Letter from the Purchaser;

31.1.2 in the form of a Bank Guarantee, issued by a scheduled bank operating in Pakistan, as per the format provided in the Tender Document[Annexure-H];

- 31.1.3 denominated in Pak Rupees;
- 31.1.4 Have a minimum validity period of one year from the date of Award Notification or until the date of expiry of yearly support period.
- 31.1.5 The technically and financially successful tenderer submits a sum equivalent to 10% of the one year contract value, on a yearly basis, with an undertaking to renew the Bank Guarantee before the end of each year, one month before the expiry period of the submitted bank guarantee.
- 31.2** The proceeds of the Performance Security shall be payable to the Purchaser, on occurrence of any / all of the following conditions:
 - 31.2.1 If the Contractor commits a default under the Contract;
 - 31.2.2 If the Contractor fails to submit the bank guarantee for the next year one month before the expiry of already submitted bank guarantee.
 - 31.2.3 If the Contractor fails to fulfill any of the obligations under the Contract
 - 31.2.4 If the Contractor violates any of the terms and conditions of the Contract.
 - 31.2.5 If the Tenderer refuses or fails to submit the Performance Security as per agreed timelines, amount and format.
- 31.3** The Contractor shall cause the validity period of the performance security to be extended for such period(s) as the contract performance may be extended. The Performance Security shall be returned to the Tenderer within thirty working days after the expiry of its validity on written request from the Contractor.

32. Redressal of Grievances

- 32.1** The Procurer shall constitute a committee comprising of odd number of persons, with proper powers and authorizations, to address the complaints of bidders that may occur prior to the entry into force of the procurement contract.
- 32.2** Any bidder feeling aggrieved by any act of the Procurer after the submission of his bid may lodge a written complaint concerning his grievances not later than fifteen days after the announcement of the bid evaluation report.
- 32.3** The committee shall investigate and decide upon the complaint within fifteen days of the receipt of the complaint.
- 32.4** Mere fact of lodging of a complaint shall not warrant suspension of the procurement process.
- 32.5** Any bidder not satisfied with the decision of the committee of the procuring agency may follow the process mentioned vide Statutes and Regulations.

TERMS & CONDITIONS OF THE DRAFT CONTRACT

**Draft Contract for
PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION, INTEGRATION, TESTING
AND EXECUTION OF IT SYSTEMS INCLUDING CCTV SURVEILLANCE SYSTEM,
CONNECTIVITY, DATA CENTER EQUIPMENT, VIDEO WALL, UNINTERRUPTIBLE POWER
SUPPLY, IP TELEPHONY AND PUBLIC ADDRESS SYSTEM FOR THE MULTAN METROBUS
SYSTEM**

between

[Purchaser]

and

[Contractor]

Dated:

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I. Agreement

This CONTRACT/ AGREEMENT is made on this ____ day of ____, 2014 (hereafter referred to as **“Agreement”**)

BY AND BETWEEN

Managing Director, Punjab Masstransit Authority (hereinafter referred to as **“PMA”**), Government of the Punjab (hereinafter referred to as **“The Client”**) which term shall, wherever the context so permits or requires, mean and include its successors-in-interest, nominees, legal representatives, executors, administrators, transferees, attorneys and permitted assigns

AND

[full legal name of Operator /Successful Bidder] through its Managing Director having its registered office at [Address of Operator/Successful Bidder] on the other part (hereinafter called the **“Operator/Service Provider”** which expression shall include its successors-in-interest, legal representatives, executors, administrators, transferees, attorneys and permitted assigns)The Client and the Service Provider are hereinafter collectively referred to as the "Parties" and individually as the "Party"".

RECITALS

WHEREAS,

- (a) GOP the Purchaser, intends to spend a part of its budget / funds for making eligible payments under this contract. Payments made under this contract will be subject, in all respects, to the terms and conditions of the Contract in lieu of procurement of provision of IT Systems and services as described in the contract.
- (b) The Purchaser has requested the Contractor to provide certain IT Systems and Services as described in Tender Document; and
- (c) The Contractor, having represented to the Purchaser that it has the required professional skills, and personnel and technical resources, has agreed to provide such services on the terms and conditions set forth in this Contract.

NOW THEREFORE, the Parties to this Contract agree as follows:

1. The Contractor hereby covenants with the Purchaser to supply the equipment and services, in conformity in all respects with the provisions of the Contract, in consideration of the payments to be made by the Purchaser to the Contractor.
2. The Purchaser hereby covenants with the Contractor to pay the Contractor, the Contract Price or such other sum as may become payable, at the times and in the manner, in conformity in all respects with the provisions of the Contract, in consideration of supply of the Services.
3. The following shall be deemed to form and be read and construct as part of this Contract:
 - a. The Tender Document/RFP
 - b. Bidder's Proposal
 - c. Acceptance Letter (LOA)
 - d. Terms and Conditions of the Contract
 - e. Special Stipulations
 - f. The Technical bid / Specifications
 - g. Tender Form
 - h. Price Schedule
 - i. Affidavit(s)
 - j. Authorized Dealership / Agency Certificate
 - k. Performance Security
 - l. Service Level Agreement (SLA),
 - m. Non-Disclosure Agreement (NDA), if required
 - n. Any Standard Clause acceptable for Purchaser
4. This Contract shall prevail over all other documents. In the event of any discrepancy / inconsistency within the Contract, the above Documents shall prevail in the order listed above.

Draft Service Level Agreement is elaborated in Annexure-J.

IN WITNESS whereof the Parties hereto have caused this Contract to be executed in accordance with the laws of **Pakistan** as of the day, month and year first indicated above.

For **[full legal name of the Purchaser]:**

For **[full legal name of the Contractor]:**

Signature _____

Signature _____

Name _____

Name _____

Witnessed By: _____

Witnessed By: _____

WITNESSES

Signature _____
 CNIC # _____
 Name _____
 Designation _____
 Address _____

Signature _____
 CNIC # _____
 Name _____
 Designation _____
 Address _____

II. General Conditions of Contract

33. Contract

The Purchaser shall, after receipt of the Performance Security from the successful Tenderer, send the Contract provided in the Tender Document, with any modification mutually agreed between the Purchaser & successful tenderer, to the successful Tenderer. Within ten (10) working days of the receipt of such Contract, the Tenderer shall sign and date the Contract and return it to the Purchaser.

34. Contract Documents and Information

The Contractor shall not, without the Purchaser's prior written consent, make use of the Contract, or any provision thereof, or any document(s), specifications, drawing(s), pattern(s), sample(s) or information furnished by or on behalf of the Purchaser in connection therewith, except for purposes of performing the Contract or disclose the same to any person other than a person employed by the Contractor in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.

35. Contract Language

The Contract and all documents relating to the Contract, exchanged between the Contractor and the Purchaser, shall be in English. The Contractor shall bear all costs of translation to English and all risks of the accuracy of such translation.

36. Patent Rights and Rights to the Contents of the Program

The Contractor shall indemnify and hold the Purchaser harmless against all third party claims of infringement of patent, trademark or industrial design rights arising from use of the Service or any part thereof. The Purchaser will hold the exclusive rights to the contents of this program.

37. Packing

The Contractor shall provide such packing of the Goods as is sufficient to prevent their damage or deterioration during storage / transit to their final destination as indicated in the Contract. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the final destination and withstand, without limitation, rough handling, exposure to extreme temperatures, salt and precipitation at all points in storage / transit. The Contractor shall arrange and pay for the packing of the Goods to the place of destination as specified in the Contract, and the cost thereof shall be included in the Contract Price.

38. Insurance

The Contractor shall provide such insurance of the Goods as is sufficient to protect against their damage or deterioration during course of the project, storage / transit to their final destination as indicated in the Contract. The Contractor shall arrange and pay for the insurance of the Goods to the place of destination and time, as required by the Purchaser.

39. Warranty

39.1 The Contractor shall warrant to the Purchaser that the Goods/Services supplied by the Contractor, under the Contract are genuine, brand new, non- refurbished, un-altered in any

way, of the most recent or current model, imported through proper channel, and incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

39.2 The Contractor shall further warrant that the Goods/Services supplied by the Contractor, under the Contract shall have no defect, arising from design, materials, workmanship or from any act or omission of the Contractor that may develop under normal use of the supplied Goods/Services.

39.3 Free, on site repair / replacement of defective / damaged parts and labor. Engage and deploy suitably skilled personnel for development, installation, operation and maintenance of the IT system, and maintenance/replacement of all related equipment/components in a timely manner and at its own cost during the course of the contract.

39.4 The Contractor must, within the prescribed time period as per Service Level Agreement, after/in anticipation of any complaint/notice, repair or replace the defective / damaged Goods/Equipment/Software/Items or parts thereof on site, without any cost to The Purchaser.

40. Execution Schedule

The Contractor shall submit an Execution Schedule, giving details of services rendered, as required under the Contract, to the Client, within five (5) days of the signing of the Contract.

41. Payment

41.1 The Contractor shall submit an Application for Payment (Invoice), in the prescribed form, to the Client. The Application for Payment shall: be accompanied by such invoices, receipts or other documentary evidence as the Client may require; state the amount claimed; and set forth in detail, in the order of the Price Schedule, particulars of the Services provided, up to the date of the Application for Payment and subsequent to the period covered by the last preceding Certificate of Payment, if any.

41.2 The Contractor shall issue invoices to the Purchaser on a calendar month basis, i.e. on 1st working day of the month following the month in which services have been rendered.

41.3 The Contractor shall not issue any invoice to the Purchaser until the following delivery conditions have been met:

41.3.1 Complete Delivery/Quantitative Inspection

41.3.2 Qualitative Inspection

41.3.3 Commissioning.

41.4 Subject to Clause No. 41.3 above, the Contractor may issue the first invoice after the occurrence of any one of the following two dates i.e. (A) and (B):

A. Date of commencement of Metrobus Operation in Multan or

B. 180 days after the issuance of LOA subject to complete fulfillment of all of the delivery conditions mentioned in clause 41.3 above, provided that non-fulfillment of any of the delivery conditions solely due to reason(s) attributable to unavailability of station(s)/site/Non-commencement of Metrobus Operation in Multan shall be deemed to have been fulfilled.

41.5 Invoices issued for the period preceding the commencement of Metrobus Operation in Multan shall include, 70% of total price inclusive of Sales Tax on Services, mentioned in the Price Table. The amount so paid shall be adjusted equally in the invoices issued for the first ten (10) months after commencement of the Metrobus Operations. The duration of contract period will be

extended till the number of months the 70% payment is made. However, for these 'ten' months no change shall be effected in determination of upper cap of penalties i.e 10% of the actual Monthly Service Charge (as per quoted bid value)

- 41.6** The Purchaser shall issue a Certificate of Payment, in the prescribed form, with a copy to the Contractor, verifying the amount due, within fifteen days of receipt of an Application for Payment. The Purchaser shall deduct the amount of penalties that may be levied in accordance with the SLA (Annexure-J), against the exclusive of Sales Tax amount mentioned in the Invoice and recalculate Sales Tax amount, while issuing the Certificate of Payment. The Client may withhold a Certificate of Payment on account of defect(s) / short coming(s) in the services provided. The Client may make any correction or modification in a Certificate of Payment that properly be made in respect of any previous certificate.
- 41.7** The Purchaser shall pay the amount verified in the Certificate of Payment within fifteen (15) days of receipt of a Certificate of Payment provided that the Contractor furnishes a sales tax invoice within such period. Payment shall not be made in advance. The Purchaser shall make payment for the Services provided, to the Contractor, as per payment schedule **through crossed cheque.**
- 41.8** Payments shall be made against successful delivery of services per each Phase of the Program
- 41.9** No advance payments will be made. Monthly payments will be made on a prorated basis by the Purchaser, taking into account the number of stations, Corridor and C&CC for which IT System has been successfully provisioned.
- 41.10** The Purchaser at its discretion may withhold the forth invoice after the commencement of Operations if the Contractor fails to obtain the User Acceptance Test (UAT) from the Purchaser.

42. Contract Price

The Contractor shall not charge prices for the equipment and services provided and for other obligations discharged, under the Contract, varying from the prices quoted by the Contractor in the Financial Proposal (Form of Bid/Financial Proposal Submission Form) or not agreed by the Purchaser as per this Contract. The quoted price, in the financial bid, is inclusive of all applicable taxes, as per Laws of the Government of Pakistan, except Sales Tax on Services which shall be added by the Purchaser over and above the quoted amount, as applicable/required under the relevant Tax Laws, to arrive at the Contract Price. Accordingly, the Contract Price shall be subject to adjustments for change in rate of Sales Tax on Services as and when applicable, as well as subject to Clause 41.5.

43. Contract Amendment

- 43.1** The Purchaser may, at any time, by written notice served on the Contractor, alter, amend, omit, increase, decrease quantity and scope, of all / any of the Services / the Works, in whole or in part.
- 43.2** The Contractor shall, within ten working days of receipt of such notice, submit a cost estimate and execution schedule of the proposed change (hereinafter referred to as the Change), to the Purchaser.
- 43.3** The Contractor shall not execute the Change until and unless the Purchaser has allowed the said Change, by written order served on the Contractor.
- 43.4** The Change, mutually agreed upon, shall constitute part of the obligations under this Contract, and the provisions of the Contract shall apply to the said Change.
- 43.5** No variation in or modification in the Contract shall be made, except by written amendment signed by both the Purchaser and the Contractor.

44. Assignment / Subcontract

- 44.1** The Contractor will not assign or sub-contract its obligations under the Contract, in whole or in part, except with the Purchaser's prior written consent.

44.2 The Contractor shall guarantee that any and all assignees / subcontractors of the Contractor shall, for performance of any part / whole of the work under the contract, comply fully with the terms and conditions of the Contract applicable to such part / whole of the work under the contract.

45. Extensions in time for performance of obligations under the Contract

If the Contractor encounters conditions impeding timely performance of any of the obligations, under the Contract, at any time, the Contractor shall, by written notice served on the Purchaser, promptly indicate the facts of the delay, its likely duration and its cause(s). As soon as practicable after receipt of such notice, the Purchaser shall evaluate the situation and may, at its exclusive discretion, without prejudice to any other remedy it may have, by written order served on the Contractor, extend the Contractor's time for performance of its obligations under the Contract.

46. Liquidated Damages

If the Contractor fails / delays in performance of any of the obligations except in situations of force majeure, under the Contract, or violates any of the provisions of the Contract or commits breach of any of the terms and conditions of the Contract; the Purchaser may, without prejudice to any other right of action / remedy it may have, deduct from the Contract Price, as liquidated damages, a sum of money as per following schedule:

- i. @0.25% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation, for first 30-days
- ii. @2% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation, next one week after expiry of first 30-days
- iii. @3% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation after expiry of period mentioned at serial (ii) above i.e. from the 38th day

The amount so deducted as LDs shall not exceed, in the aggregate, the amount of the performance guarantee. LDs shall be attributable to such part of the Services/Works as cannot, in consequence of the failure / delay, be put to the intended use, between the scheduled delivery date(s), with any extension of time thereof granted by the Purchaser, and the actual delivery date(s). However, LDs shall not be levied if:

- a. the Purchaser; for Main corridor, stations and command and control center; hands over the site to the Contractor and allows a period of no less than 45 days for execution of services;

47. Forfeiture of Performance Security

If the Contractor fails / delays in performance of any of the obligations, under the Contract or violates any of the provisions of the Contract or commits breach of any of the terms and conditions of the Contract; the Purchaser may, without prejudice to any other right of action / remedy it may have, forfeit the Performance Security of the Contractor.

Failure to supply required items/services within the specified time period shall invoke penalty, as specified in (reference to Penalty Clauses/Annex) of this document. In addition to that, the Performance Security amount may also be forfeited and the company may not be allowed to participate in future tenders as well.

48. Termination for Default

48.1 If the Contractor fails / delays in performance of any of the obligations, under the Contract or violates any of the provisions of the Contract or commits breach of any of the terms and conditions of the

Contract or engages in any illegal activities; the Purchaser may, at any time, without prejudice to any other right of action / remedy it may have, by written notice served on the Contractor, indicate the nature of the default(s) and terminate the Contract, in whole or in part, without any compensation to the Contractor. Provided that the termination of the Contract shall be resorted to only if the Contractor does not cure its failure / delay, within fifteen working days (or such longer period as the Client may allow in writing), after receipt of such notice.

48.2 If the Purchaser terminates the Contract for default, in whole or in part, the Purchaser may procure, upon such terms and conditions and in such manner as it deems appropriate, Services / Works, similar to those undelivered, and the Contractor shall be liable to the Purchaser for any excess costs for such similar Services / Works. However, the Contractor shall continue performance of the Contract to the extent not terminated.

49. Termination for Insolvency

If the Contractor (or any member of the Joint Venture) becomes bankrupt or otherwise insolvent, the Purchaser may, at any time, without prejudice to any other right of action / remedy it may have, by written notice served on the Contractor, indicate the nature of the insolvency and terminate the Contract, in whole or in part, without any compensation to the Contractor.

50. Termination for Convenience

50.1 The Purchaser may, at any time, by written notice of thirty (30) days served on the Contractor, terminate the Contract, in whole or in part.

50.2 The Services which are complete or to be completed by the Contractor, within thirty (30) working days after the receipt of such notice, shall be accepted by the Purchaser. For the remaining services, the Purchaser may elect:

50.2.1 to have any portion thereof completed and delivered; and/or

50.2.2 to cancel the remainder and pay the Contractor by:

- Purchasing all equipment provisioned till date by the Contractor (taking into consideration depreciated values) For the purposes of this clause the price of equipment will include taxes, custom duties, freight charges, registration charges and the interests charged by the financing institutions.
- Making payments for services already rendered (if any are outstanding),
- Paying a reasonable allowance for overheads, not exceeding 10% of value of utilized equipment and services.

51. Force Majeure

51.1 Force majeure shall mean any event, act or other circumstances not being an event, act or circumstance under the control of the purchaser or of the contractor. Non-availability of materials/supplies or of import license or of export permit shall not constitute Force majeure. If by reasons of Force Majeure supplies or services cannot be delivered by the due delivery date then the delivery date may be extended appropriately by the purchaser keeping in view all the circumstances and requirements of the Purchaser.

- 51.2** The Contractor shall not be liable for liquidated damages, forfeiture of its Performance Security, blacklisting for future tenders, termination for default, if and to the extent of his failure / delay in performance /discharge of obligations under the Contract is the result of an event of Force Majeure.
- 51.3** If a Force Majeure situation arises, the Contractor shall, by written notice served on the Purchaser, indicate such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Contractor shall continue to perform under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
- 51.4** Force Majeure shall not include (i) any event which is caused by the negligence or intentional action of a Party or Agents or Employees, nor (ii) any event which a diligent Party could reasonably have been expected to both (A) take into account at the time of the conclusion of this Contract and (B) avoid or overcome in the carrying out of its obligations here under.
- 51.5** Force Majeure shall not include insufficiency of funds or failure to make any payment required hereunder.

52. Dispute Resolution

- 52.1** The Purchaser and the Contractor shall make every effort to amicably resolve, by direct informal negotiation, any disagreement or dispute arising between them under or in connection with the Contract.
- 52.2** If, after thirty working days, from the commencement of such informal negotiations, the Purchaser and the Contractor have been unable to amicably resolve a Contract dispute, either party may, require that the dispute be referred for resolution by arbitration under the Pakistan Arbitration Act, 1940, as amended, by one or more arbitrators selected in accordance with said Law. The place for arbitration shall be Lahore, Pakistan. The award shall be final and binding on the parties.

53. Statutes and Regulations

- 53.1** The Contract shall be governed by and interpreted in accordance with the laws of Pakistan. The Contractor shall, in all matters arising in the performance of the Contract, conform, in all respects, with the provisions of all Central, Provincial and Local Laws, Statutes, Regulations and By-Laws in force in Pakistan, and shall give all notices and pay all fees required to be given or paid and shall keep the Purchaser indemnified against all penalties and liability of any kind for breach of any of the same.
- 53.2** The Courts at Lahore shall have the exclusive territorial jurisdiction in respect of any dispute or difference of any kind arising out of or in connection with the Contract.

54. Taxes and Duties

The Contractor shall be entirely responsible for the payment, if any is required, of all Pakistani Income Tax, Duties any other taxes, duties and other such levies imposed make inquiries on income arising out of the Contract, and the financial bid mentioned in Financial Proposal Submission Form/Form of Bid shall be deemed to cover all such taxes.

55. Bidder to inform himself

The Bidder is advised to obtain for himself, at his own cost and responsibility, all information that may be necessary for preparing the Bid and entering into a Contract for execution of the Works/facility. This shall include but not be limited to the following:

- a) relevant laws, rules, and regulations of Pakistan including tax / sales tax to the concerned authorities of Income Tax and Sales Tax laws/rules
- b) customs duties and other import taxes applicable in Department, Government of Pakistan
- c) Information regarding port clearance facilities, loading and unloading facilities, storage facilities, transportation facilities and congestion at Pakistan seaports.

Investigations regarding transport conditions and the probable conditions which will exist at the time the Equipment will be actually transported.

56. Contract Cost

The Contractor shall bear all costs / expenses associated with the preparation of the Contract and the Purchaser shall in no case be responsible / liable for those costs / expenses e.g. Contract Stamp duty charges etc.

57. Authorized Representative

The Purchaser, or the Contractor may, at their exclusive discretion, appoint their Authorized Representative and may, from time to time, delegate any / all of the duties / authority, vested in them, to their authorized Representative(s), including but not limited to, signing on their behalf to legally bind them, and may, at any time, revoke such delegation.

The Authorized Representative shall only carry out such duties and exercise such authority as may be delegated to him, by the Purchaser, or the Contractor.

57.1 Any such delegation or revocation shall be in writing and shall not take effect until notified to the other parties to the Contract.

57.2 Any decision, instruction or approval given by the Authorized Representative, in accordance with such delegation, shall have the same effect as though it had been given by the Principal.

57.3 Notwithstanding any of the above Clauses, any failure of the Authorized Representative to disapprove Services or Works shall not prejudice the right of the Client to disapprove such Services or Works and to give instructions for the rectification thereof.

57.4 If the Contractor questions any decision or instruction of the Authorized Representative of the Purchaser / the Client, the Contractor may refer the matter to the Purchaser / the Client who shall confirm, reverse or vary such decision or instruction.

58. Waiver

Failure of either party to insist upon strict performance of the obligations of the other party, under the Contract, shall in no way be deemed or construed to affect in any way the right of that party to require such performance.

59. Training

59.1 The Contractor shall arrange and undertake a comprehensive training program for the staff nominated by the Purchaser / the Client to ensure that they shall acquire a good working knowledge of supply of such Services to be supplied under the Contract.

59.2 In case of non-compliance with instructions, non-cooperation or other difficulties experienced by the Contractor with regard to any of these personnel, the Contractor shall apprise the Purchaser / Client and proceed to implement suitable remedial measures after consultation with them.

60. Standards

The Goods and the Services supplied under this Contract shall conform to the authoritative latest/leading industry standards and best practices.

61. Commercial Availability

The Goods/Equipment/Software/Items and Services supplied under this Contract shall be commercially available at the time of signing of the contract. Commercial availability means that such Goods/Equipment/Software/Items shall have been sold, installed and operationalized in at least one(01) installations globally and comply to open standards as listed in the tender document.

62. Labeling

The Goods/Equipment/Software/Items supplied under the Contract, shall be clearly labeled so as to correspond with the delivered documentation, with proper labeling scheme. All equipment, cables, connectors, ports, boxes shall be clearly labeled.

63. Delivery

63.1 The IT Systems setup delivery time is one hundred (100) calendar days from the issuance of Acceptance Letter (LOA) with complete deployment, commissioning and installation. The Contractor shall deliver the services at Multan, as specified by The Purchaser/The Client.

63.2 The Goods/Equipment/Software/Items shall remain at the risk and under the physical custody of The Contractor until the delivery/commissioning in the live environment is completed.

63.3 The Contractor shall ensure that the Goods/Equipment/Software/Items shall be delivered complete to enable the testing to proceed without interruption. If it shall appear to The Purchaser that the Goods/Equipment/Software/Items have been or are likely to be delayed by reason of incomplete delivery or for any other reasons, he may require the Contractor to dispatch the missing items of the Goods/Equipment/Software/Items or suitable replacements thereof, at the Contractor's expense, to the site of delivery by the fastest available means including air freight.

63.4 The Contractor will deliver all the equipment in the contractor warehouse and intimate the Purchaser to inspect the Goods/Equipment/Software/Items. Purchaser will nominate the inspection team and will issue a certificate. All the expenses related to the warehousing and inspection will be borne by the contractor.

64. Installation and Implementation

64.1 The Contractor shall ensure that the implementation design conforms to an open standard by which new Goods can be added without disruption to existing Goods/Equipment/Software/Items.

64.2 The Contractor shall ensure that the implementation is fault tolerant. This is accomplished by supplying a set of programs and procedures that allow the system recovery or roll back when a fault is detected.

64.3 The Contractor shall provide all the recent patches and updates for Software

Firmware/Hardware, on a reliable media, with proper labeling, during the installation to The Purchaser on free of Charge basis.

64.4 The Contractor shall configure the system for high availability and reliability, of hardware as per Acceptance Letter (LOA) and specifications given in this Contract.

64.5 The Contractor shall submit detailed and complete installation, transition and cutover plan for the new system, installation procedures for the new components specifying equipment checkout, installation constraints, operational cutover, maintenance prior to Client acceptance and if special security and/or access arrangements are required.

65. Maintenance

All the patches updates as deployed shall be maintained free of charge throughout the project life by the contractor/subcontractor with existing features without any implications on cost. This is to assure that IT Systems will stay operational within the existing scope.

66. Updates

The Contractor during the contract period shall provide free of charge (FOC) updates for the IT Systems, including but not limited to, any changes required due to operational needs of the Client.

67. Site Preparation

67.1 The Contractor shall be responsible to survey the central site, determine power, air conditioning and floor space requirements etc., identify, for the proposed equipment (if required).

67.2 The Purchaser shall facilitate the Contractor in discharge of the above responsibilities and indemnify the Contractor for any delays in making such arrangements. Deployment time mentioned in this Contract will be accordingly adjusted (if required).

68. Power

The Goods/Equipment/Software/Items supplied under the Contract, unless otherwise specified, shall be capable of operating normally with single phase AC power, within the range of 220-240V, and should be protected from over-voltage, over-heating and out-of-tolerance current surges. Contractor must ensure that all equipment, as installed on the Stations, Corridor, C&CC and DC, does not undergo power outage resulting from malfunctioning of Uninterruptible Power Supply (UPS) (for clarity, the UPS must provide uninterrupted power supply for at least 4 hours in all cases to all IT Systems related equipment deployed on the station, corridor, C&CC and DC). Purchaser will be

Responsible for the provisioning of power at all stations.

69. Safety

69.1 The Contractor shall be responsible for the embedding of safety features in the inherent design of the Goods/Equipment/Software/Items, for elimination of identified hazards, including but not limited to high voltage, electromagnetic radiation, sharp points and edges, etc., and reduction of associated risk to personnel and equipment.

69.2 The Contractor shall be responsible for the detailed survey and submission of the report in regards to the protection of the power sources, controls, and critical components of the redundant systems and subsystems by shielding or physical separation when possible.

70. Support and Maintenance

The contractor will support and maintain Goods/Equipment/Software/Items for the period of contract including all renewals if applicable.

71. Test Equipment and Tools

The Contractor to provide automated mechanism for real time alerts/reports viewable via centralize dashboard to determine downtime of equipment installed on, Stations, Corridor, data centers, command and Control Center and networks.

72. Spare Parts and Support

72.1 The Contractor shall ensure that the Goods/Equipment/Software/Items provided by The Contractor, under the Contract are standard and incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

72.2 The Contractor shall further ensure that the Goods/Equipment/Software/Items provided by The Contractor, under the Contract shall have no defects, arising from design, materials, installation, configuration, or from any act or omission of The Contractor that may develop under normal use of the Goods.

72.3 The Contractor shall maintain sufficient backup stock of spare parts and tools, for the maintenance of the supplied Goods/Equipment/Software/Items, to be replaced/ repaired at contractor's cost for the time of contract including all renewals.

72.4 The Contractor shall also identify the following:

72.4.1 Items (repairable spares, parts and consumable supplies) that are needed to maintain design performance, reliability and availability standards prescribed in the Technical Specifications. The quantity of spare parts and consumable items provided and must have sufficient operating stock for the period of contract subsequently applying to all renewal years.

72.4.2 Critical items, whose failure would cause a system failure.

72.4.3 Items of high cost and/or long lead time over thirty (30) working days.

73. Inspection and Testing

73.1 The Purchaser shall conduct the quantitative inspection of the Goods/Equipment/Software/Items and Services supplied under the Contract, to ensure the complete delivery as per the contract.

73.2 The Contractor shall engage a third party (internationally recognized & competent) for qualitative inspection and testing of the Goods/Equipment/Software/Items and Services supplied under the Contract, to verify their conformity to the Technical Specifications.

73.3 The Purchaser's post-delivery right to inspect, test and, where necessary, reject the Goods/Equipment/Software/Items shall in no way be limited or waived by reason of pre-delivery inspection, testing or passing of the Goods.

73.4 The inspections and tests shall be conducted at the premises of the Contractor / its subcontractor(s) / at the final destination. Where conducted at the premises of the Contractor / its subcontractor(s), / the final destination shall provide all-reasonable facilities and assistance, including access to drawings, production data and online verification from official web site of the Manufacturer, to the Inspectors, at no charge to The Purchaser.

73.5 The Purchaser may reject the Goods/Equipment/Software/Items and Services if they fail to conform to the Technical Specifications/Requirements, in any test(s) or inspection(s) and The

Contractor shall either replace the rejected Goods/Equipment/Software/Items and Services or make all alterations necessary to meet the Technical Specifications/Requirements, within seven (7) working days, free of cost to The Purchaser.

74. Blacklisting

74.1 If The Contractor fails / delays in performance of any of the obligations, under the Contract / violates any of the provisions of the Contract / commits breach of any of the terms and conditions of the Contract The Purchaser may, at any time, without prejudice to any other right of action / remedy it may have, blacklist The Contractor, either indefinitely or for a stated period, for future tenders in Public Sector

74.2 If The Contractor is found to have engaged in corrupt or fraudulent practices in competing for the award of contract or during the execution and currency of the Contract, The Purchaser may, at any time, without prejudice to any other right of action / remedy it may have, blacklist The Contractor, either indefinitely or for a stated period, for future tenders in public sector.

75. Special Stipulations

SCHEDULE-A, SPECIAL STIPULATIONS	
For ease of Reference, certain special stipulations are as under:	
Tender Security	<p>Tender security should be submitted by the Bidder.</p> <p>The Contractor shall furnish the Tender Security as under: Demand Draft / Pay Order / Bank Guarantee, issued by a scheduled bank operating in Pakistan, in the name of the Client, , as per the format provided in the Tender Document[Annexure-G] or in another format acceptable to the Purchaser; for a sum of PKR ten (10) million; denominated in Pak Rupees;</p> <p>Have a minimum validity period of one hundred and eighty days (180) from the last date for submission of the Tender or until furnishing of the Performance Security, whichever is later</p>
Performance Security	<p>The successful Contractor shall furnish Performance Security as under: within ten (10) working days of the receipt of the Acceptance Letter from the Purchaser; in the form of a Bank Guarantee, issued by a scheduled bank operating in Pakistan, as per the format provided in the Tender Document to the Purchaser; denominated in Pak Rupees; Have a minimum validity period of one year from the date of Award Notification or until the date of expiry of yearly support period. The technically and financially successful tenderer submit a sum equivalent to 10% of the yearly contract value, for a period of one year, on a yearly basis, with an undertaking to renew the Bank Guarantee before the end of each year, one month before the expiry period of the submitted bank guarantee.</p>
Start operation of Services after installation, configuration, deployment, commissioning, testing, and training	<p>Fully functional IT Systems setup for 21 stations, corridor and command and control center of PMA within 100 Calendar Days from the issuance of LOA.</p>
Liquidated damages for failure / configuration of Services by the Contractor	<p>If the Contractor fails / delays in performance of any of the obligations except in situations of force majeure, under the Contract, or violates any of the provisions of the Contract or commits breach of any of the terms and conditions of the Contract; the Purchaser may, without prejudice to any other right of action / remedy it may have, deduct from the Contract Price, as liquidated damages, a sum of money as per following schedule:</p>

	<ul style="list-style-type: none"> iv. @0.25% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation, for first 30-days v. @2% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation, next one week after expiry of first 30-days vi. @3% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation after expiry of period mentioned at serial (ii) above i.e. from the 38th day <p>The amount so deducted as LDs shall not exceed, in the aggregate, the amount of the performance guarantee. LDs shall be attributable to such part of the Services/Works as cannot, in consequence of the failure / delay, be put to the intended use, between the scheduled delivery date(s), with any extension of time thereof granted by the Purchaser, and the actual delivery date(s). However, LDs shall not be levied if:</p> <ul style="list-style-type: none"> a. the Purchaser; for Main corridor, stations and command and control center; hands over the site to the Contractor and allows a period of no less than 45 days for execution of services;
Legal Status to Work in Pakistan	The Bidder must be allowed and meet all conditions set forth by the Government to work with all concerned parties.

76. Technical Evaluation Criteria

A point system will be used for technical qualifying for the contractors.

PASS MARKS: An eligible bidder, based on conditions listed in Section below, not meeting the 60% pass mark limit will be rejected in Technical evaluation, and its Financial Proposal will be returned to it unopened. All bidders scoring greater than or equal to 60% of the marks will be accepted in technical proposal, and their respective financial bids will be opened as per rules and regulations.

According to the Technical Proposal, the Technical bids will be rated as follows. Bidders may fill in the below evaluation sheet and do their own evaluation for submission, but the evaluation done by the Procurer/ Evaluator shall be the valid evaluation and shall hold:

For each component listed below, provide detailed specifications with relevant materials including information on standards compliance.

COMPLIANCE SHEET FOR BIDS

For each component listed below, provide detailed specifications with relevant materials including information on standards compliance.

Note: Major components and their quantities are listed below; Bidder may list (sr.no. 27) any other/more equipment required to integrate the system and to make it functional.

Sr. No.	Component	Estimated Quantity	Requirements Met (Y/N)
1	CCTV Fixed Cameras for Stations (outdoor)	140	
2	CCTV PTZ Camera (Outdoor) at Stations and Corridor	200	
3	Network Video Recorder	1 Solution	
4	CAMERA CONSOLE	28	
5	Ethernet Switches (Manageable) Stations	21	
6	Ethernet Switches (Manageable) NOC	4	
7	VPN Firewall for stations	21	
8	Ethernet Switches (FOR LAN)	4	
9	STATION CABINETS (with accessories)	As Per Actual	
10	DATA CABINETS (with accessories)	As Per Actual	
11	Video Wall with Controller	2	
12	SERVER FORM (CHASSIS) FOR BLADE SERVERS	As Per Actual	
13	SERVER FORM (MID RANGE BLADE SERVERS)	10	
14	Server Infrastructure Rack 42U (Imported/Branded)	6	
15	SAN STORAGE (500 TB)	1	

16	STORAGE (100 TB) (Direct Attached Storage)	1	
17	Uninterruptible Power Supply (UPS) 30kVA for Control Center	2	
18	Public Address System for Station and Command & Control Center	22	
19	IP TELEPHONY	70	
20	IP Telephony (IP PBX)	1	
21	Data Center Core Switches (Data Center)	2	
22	Data Center Firewall (Data Center)	2	
23	Rack Mount Sine Wave 5000VA 230V UPS	21	
24	DESKTOP COMPUTERS (with Dual monitor)	28	
25	Modules, Hardware and Passive Materiel	As per Actual	
26	Connectivity (Fiber Optic)	Solution	
27	Any other Hardware/software/component required	As per Actual	

Mandatory requirements given above must be adhered to in order to qualify for evaluation against the criteria given.

Technical Evaluation Criteria

References and supporting documentation required as evidence for each:

It is mandatory to score minimum 60 marks

In case of JV, marks shall be evaluated jointly for all members unless stated otherwise.

The requirement of documents for evidence as indicated in the table below is applicable to all members of JV unless specified otherwise.

Sr No.	Criteria	Max. Marks	Comment/Description	Documents required
1	Number of Projects implemented CCTV Video surveillance system having at least 50 cameras	10	3 projects or more = 10 Points 2 Projects = 07 Points 1 Project = 05 Points 0 Project = 0 Points	Contract Document OR Letter of Award OR Any other valid document for evidence
2	Number of successful Projects implemented Video Wall system	10	3 projects or more = 10 Points 2 Projects = 07 Points 1 Project = 05 Points 0 Project = 0 Points	Contract Document OR Letter of Award OR Any other valid document for evidence
3	Number of Projects	10	3 projects or more = 10 Points	Contract Document OR Letter of

	implemented Lay out and Connectivity (fiber optics) system		2 Projects = 07 Points 1 Project = 05 Points 0 Project = 0 Points	Award OR Any other valid document for evidence
4	Number of Projects implemented Public Address System or IP Telephony	05	3 projects or more = 5 Points 2 Projects = 3 Points 1 Project = 2 Points 0 Project = 0 Points	Contract Document OR Letter of Award OR Any other valid document for evidence
5	Number of system years of Maintenance & Support (M&S) Experience from commencement date of each project as mentioned at Sr. # 1,2,3	10	$Y = \sum (\text{No. of years of CCTV M\&S}) + \sum (\text{No. of years of Connectivity M\&S}) + \sum (\text{No. of years of Video Wall M\&S})$ Y>15 years (10 points) Y>10 up to 15 years (7 points) Y>05 up to 10 years (5 points) Y>03 up to 1 (3 points) Y=0 (zero point) Where \sum is sum of all projects	Contract Document OR Letter of Award OR Any other valid document for evidence (In case of JV, applies to any one single member with maximum years of experience)
6	The prospective bidder shall have implemented at least five (05) ICT related projects (worth Rs 50 million each) in last three years. 4 points per project	20	Number of project Implemented:- Less than 1 = 0 Points 5 = 20 Points 4 = 16 Points 3 = 12 Points 2 = 8Points 1= 4 Points 0= 0 Points	Copy of Contract Document OR Letter of Award OR Completion Certificate OR Any other valid document for evidence
7	No. of Project Managers with more than 5 years of Project Management's Experience	05	5 or more = 5 Points 3 to 4 = 3 Points 1 to 2 = 2 Points 0= 0 points	Cvs of Human Resources Employed stating Designation and numbers
8	Team members in the equipment maintenance team with more than 3 years of experience in the related field	05	11 or Greater = 5 Points 6 to 10 = 3 Points 5 to 3 = 2 Points Less than 3 = 0 Points	CVs of Human Resources Employed stating Designation and numbers
9	Setting up local workshops or	05	1 local workshop =5 Points 0 local workshop =0 Points	Documentary Evidence

	engaging local partner for maintenance of equipment deployed – detailed plan must be shared			
10	Average Annual Turnover last three years in Millions	10	$\geq 350 = 10$ Points $\geq 250 = 5$ Points $< 250 = 0$ Points	Financial Statements for the Fiscal years 2011-2012, 2012-2013, 2013-2014 OR Calendar Years 2012-2013, 2013-2014, 2014-2015 whichever is applicable in the country origin of operations.
11	Net Worth Last Year in Millions (Total Assets - Total Liabilities)	10	More than 30 = 10 Points More than 20 to 30 = 7 Points More than 10 to 20 = 5 Points More than 5 to 10 = 3 Points Less than 5 = 0 Points	Same as of Criteria for Average Annual Turnover at Sr. # 10
TOTAL		100	Minimum Passing Marks = 60	

77. Financial Cost/ Price Schedule/ Bid Price / Form of Bid

MUST BE SUBMITTED IN SEPARATE ENVELOPE HIGHLIGHTED AS FINACIAL PROPOSAL

Financial Cost/ Price Schedule

(Will be used for the purposes of estimating and analyzing solution costs)

Price Table

Bid Price

Technically qualified bidders with the lowest value in “Z” will be considered successful.

Price Table:

Sr. No	Item	Price
1	Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for 21 MBS stations excluding fiber optic connectivity	
2	Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for 95 PTZ cameras on 18.5 km MBS Corridor-Surveillance excluding fiber optic connectivity	
3	Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for 18.5 km MBS Corridor- Fiber Optic Connectivity	
4	Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for services in Command & Control Center	
5	Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for all back office services including Data center co-location, Switches, Routers, storages etc.	
TOTAL		Z

The contract will be awarded at the lowest evaluated value of Z.

Important note:

- i. The financial bid is inclusive of all applicable taxes, as per Laws of the Government of Pakistan, but is exclusive of all Sales Tax on Services which shall be added by the Purchaser over and above the quoted amount, as applicable/required under the relevant Tax Laws, to arrive at the contract price. Accordingly, the Contract Price shall be subject to adjustments for change in rate of Sales Tax on Services as and when applicable.
- ii. Installation of equipment along with successful testing and commissioning will be the

- responsibility of bidder for which bidder may not propose price separately.
- iii. No advance payments will be made. Monthly payments will be made on a prorated basis by the Purchaser taking into account the number of stations.
 - iv. New stations and/or modules may be added at any time during the contract period at the same average monthly service charge (per Station, per module, as the case may be) as mentioned above in Price Table.

Date _____

Place _____

Signature of authorized person

Name:

(Company Seal)

In the capacity of

Duly authorized by

Note: No cutting or overwriting is allowed. Any cutting or overwriting will lead to rejection of the financial bid.

Annexure-A: Technical Proposal Submission Form

Technical Proposal Submission Form

[Location, Date]

To __(Name and address of Procurer/Evaluator)___

Dear Sir,

We, the undersigned, offer to provide the __(insert title of assignment)___ in accordance with your Request for Proposal/Tender Document dated __(insert date)___ and our Proposal. We are hereby submitting our Proposal, which includes the Technical Proposal and the Financial Proposal sealed in two separate envelopes.

We undertake, if our Proposal is accepted, to provide supply of _____ related to the assignment.

We also confirm that the Government of Pakistan / Punjab has not declared us, or any, ineligible on charges of engaging in corrupt, fraudulent, collusive or coercive practices. We furthermore, pledge not to indulge in such practices in competing for or in executing the Contract, and we are aware of the relevant provisions of the Proposal Document.

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Authorized Signature

(In full and initials)

Name and Designation of Signatory

Name of Firm

Address

Annexure-B: Financial Proposal Submission Form (Part of Financial Bid Envelope)

Financial Proposal Submission Form (Part of Financial Bid Envelope)

[Location, Date]

To __ (Name and address of Procurer/Evaluator) __

Dear Sir,

We, the undersigned, offer to provide the __ (Insert title of assignment) __ in accordance with your Request for Proposal dated __ (insert date) __ and our Technical Proposal. Our attached Financial Proposal is for the sum of __ (insert amount in words and figures) __. This amount is inclusive of all applicable taxes, as per Laws of the Government of Pakistan, but is exclusive of all Sales Taxes on Services which shall be added by the Purchaser over and above the quoted amount, as applicable/required under the relevant Tax Laws, to arrive at the contract price. Accordingly, the Contract Price shall be subject to adjustments for change in rate of Sales Tax on Service as and when required

Our Financial Proposal shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Proposal, i.e. before the date indicated in _____ of the Proposal Data Sheet.

We also declare that the Government of Pakistan / Punjab has not declared us or any Sub-Contractors for any part of the Contract, ineligible on charges of engaging in corrupt, fraudulent, collusive, or coercive practices. We furthermore, pledge not to indulge in such practices in competing for or in executing the Contract, and are aware of the relevant provisions of the Proposal Document.

We understand you are not bound to accept any Proposal you receive.

Signed

In the capacity of:

Duly authorized to sign the proposal on behalf of the Applicant.

Date:

Annexure-C: Format for Covering Letter

To

(Name and address of Procurer/Evaluator)

Sub: _____.

Dear Sir,

- a) Having examined the tender document and Appendixes we, the undersigned, in conformity with the said document, offer to provide the said items on terms of reference to be signed upon the award of contract for the sum indicated as per financial bid.
- b) We undertake, if our proposal is accepted, to provide the items/services comprise in the contract within time frame specified, starting from the date of receipt of notification of award from the client Department / Office.
- c) We agree to abide by this proposal for the period of ____ days (as per requirement of the project) from the date of bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- d) We agree to execute a contract in the form to be communicated by the (insert name of the Purchaser)_, incorporating all agreements with such alterations or additions thereto as may be necessary to adapt such agreement to the circumstances of the standard.
- e) Unless and until a formal agreement is prepared and executed this proposal together with your written acceptance thereof shall constitute a binding contract agreement.
- f) We understand that you are not bound to accept a lowest or any bid you may receive, not to give any reason for rejection of any bid and that you will not defray any expenses incurred by us in bidding.
- g) We would like to clearly state that we qualify for this work as our company meets all the pre-F criteria indicated on your tender document. The details are as under:

Authorized Signatures with Official Seal

Annexure-D: Instructions for preparation of power of attorney

- a)** To be executed by an authorized representative of the bidder.
- b)** The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants and when it is so required the same should be under common seal affixed in accordance with the required procedure.
- c)** Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution/power of attorney in favor of the Person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.
- d)** In case the Application is signed by an authorized Director / Partner or Proprietor of the Applicant, a certified copy of the appropriate resolution / document conveying such authority may be enclosed in lieu of the Power of Attorney.

Format of Power-of-Attorney

POWER OF ATTORNEY

(On a Legal / Revenue Stamp Paper of PAKISTAN / of the bidder's country in the relevant value
OR on the bidder's letter head officially signed and stamped)

We (name of the company and address of the registered office) do hereby appoint and authorize Mr. / Ms. (full name and residential address) bearing Pakistan's Computerized National Identity Card (CNIC) no. (complete CNIC no.) who is presently engaged with us and holding the position of as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our proposal for (name of the project) in response to the tenders invited by the (name of the Purchaser) including signing and submission of all documents and providing information/responses to (name of the Purchaser) in all matters in connection with our Bid.

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.

Dated this _____ day of _____ 20__

For _____

(Signature)

(Name, Designation and Address)

Accepted

(Signature)

(Name, Title and Address of the Attorney)

Date:

Annexure-E: Undertaking

UNDERTAKING

It is certified that the information furnished here in and as per the document submitted is true and correct and nothing has been concealed or tampered with. We have gone through all the conditions of tender and is liable to any punitive action for furnishing false information / documents.

Dated this _____ day of _____ 20__

Signature

(Company Seal)

In the capacity of

Duly authorized to sign bids for and on behalf of:

Annexure-F: Affidavit

AFFIDAVIT

Integrity Pact

We _(Name of the bidder / supplier)_ being the first duly sworn on oath submit, that Mr. / Ms. _____ (if participating through agent / representative) is the agent / representative duly authorized by _(Name of the bidder company)_ hereinafter called the Contractor to submit the attached bid to the _(Name of the Procurer/Evaluator)_. Affiant further states that the said M/s (Bidding Firm/Company Name) has not paid, given or donate or agreed to pay, given or donate to any line officer or employee of the _(Name of the Procurer/Evaluator)_ any money or thing of value, either directly or indirectly, for special consideration in the letting of the contract, or for giving undue advantage to any of the bidder in the bidding and in the evaluation and selection of the bidder for contract or for refraining from properly and thoroughly maintaining projects implementations, reporting violation of the contract specification or other forms of non-compliance.

Signature & Stamp

Subscribed and sworn to me this _____ day of _____ 20__

Notary Public

Annexure-G: Tender Security Form

TENDER SECURITY FORM

WHEREAS [Name and Address of the Contractor] (hereinafter called "the Contractor") has submitted Tender against Tender Name (hereinafter called "the Tender") to the [Name and Address of the Procurer] (hereinafter called "the Procurer").

AND WHEREAS [Name of the Bank] having registered office at [Address of the Bank] (hereinafter called "the Guarantor") has agreed to give the Contractor a Guarantee;

THEREFORE the Guarantor hereby affirms to bind himself, his successors and his assigns to the Procurer, for the sum of PKR (in figures _____) (in words _____) and undertakes to pay to the Procurer / Purchaser, upon receipt of his written demand(s), any sum(s) as specified by him, not exceeding the above limit in aggregate, without cavil / argument and without the Procurer having to substantiate / prove or to show grounds / reasons for such claim(s), on the occurrence of any / all of the following conditions:

1. If the Contractor withdraws the Tender during the period of the Tender validity specified by the Contractor on the Tender Form; or
2. If the Contractor does not accept the corrections of his Total Tender Price; or
3. If the Contractor, having been notified of the acceptance of the Tender by the Purchaser during the period of the Tender validity, fails or refuses to furnish the Performance Security, in accordance with the Tender Document.

Provided that the Procurer / Purchaser shall specify the occurred condition(s) owing to which the said sum is due to him.

Provided further that any demand(s) / claim(s) from the Purchaser shall reach the Guarantor within thirty working days after the expiry of the Guarantee.

This guarantee shall remain valid up to _____ or until furnishing of the Performance Security, whichever is earlier.

Date this _____ day of 20__.

GUARANTOR

Signature _____

CNIC # _____

Name _____

Designation _____

Address _____

Annexure-H: Performance Security

PERFORMANCE SECURITY

Issuing Authority:

Date of Issuance:

Date of Expiry:

Claim Lodgment Date:

WHEREAS [Name and Address of the Contractor] (hereinafter called "the Contractor") has agreed to supply the Services and render the Services against Tender Name (hereinafter called "the Contract") for the Contract Value of PKR (in figures _____) (in words _____).

AND WHEREAS it has been stipulated in the Tender Document that the successful Contractor shall furnish Performance Security, within ten (10) working days of the receipt of the Acceptance Letter from the Purchaser, in the form of a Bank Guarantee, issued by a scheduled bank operating in Pakistan, as per the format provided in the Tender Document to the Purchaser, for a sum equivalent to Rs. _____ (to 10% of the one year contract value, on a yearly basis, with an undertaking to renew the Bank Guarantee before the end of each year, one month before the expiry period of the submitted bank guarantee) valid from the date of issue until all obligations have been fulfilled in accordance with the Contract; AND WHEREAS [Name of the Bank] having registered office at [Address of the Bank] (hereinafter called "the Guarantor") has agreed to give the Contractor a Guarantee;

THEREFORE the Guarantor hereby affirms to bind himself, his successors and his assigns to the Purchaser, for the sum of PKR (in figures _____) (in words _____) and undertakes to pay to the Purchaser, upon receipt of his written demand(s), any sum(s) as specified by him, not exceeding the above limit in aggregate, without cavil / argument and without the Purchaser having to substantiate / prove or to show grounds / reasons for such claim(s), on the occurrence of any / all of the following conditions:

1. If the Contractor commits a default under the Contract;
2. If the Contractor fails to fulfill any of the obligations under the Contract;
3. If the Contractor violates any of the provisions of the Contract.

Provided that the Purchaser shall specify the occurred condition(s) owing to which the said sum is due to him.

Provided further that any demand(s) / claim(s) from the Purchaser shall reach the Guarantor within thirty working days after the expiry of the Guarantee.

This guarantee shall remain valid up to _____ or all obligations have been fulfilled in accordance with the Contract, whichever is later.

Date this _____ day of 20__.

GUARANTOR

Signature _____

CNIC # _____

Name _____

Designation _____

Address _____

Annexure-I: Financial Capacity of the Bidder

Additionally, the following financial data form shall be filled out for the Bidder. The Purchaser reserves the right to request additional information about the financial capacity of the Bidder. A Bidder that fails to demonstrate through its financial records that it has the financial capacity to perform the required Supply/Services may be disqualified.

Financial Information	Historical information for the previous three years (most recent to oldest in (PAK Rupees))		
	Year 1 (Year)	Year 2 (Year)	Year 3 (Year)
Information from Balance Sheet:			
(1) Total Assets (TA)			
(2) Current Assets (CA)			
(3) Total Liabilities (TL)			
(4) Current Liabilities (CL)			
Information from Income Statement:			
(5) Total Revenue (TR)			
(6) Profits before Taxes (PBT)			
Net Worth (1) – (3)			
Current Ratio (2) / (4)			

Provide information on current or past litigation or arbitration over the last three (3) years as shown in the form below.

Litigation or arbitration in the last three (3) years: No: _____ Yes: _____ (See below)

Litigation and Arbitration During Last three (3) Years

Year	Matter in Dispute	Value of Award Against Contractor in PAK Rupees
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Authorized Signatures with Official Seal

Annexure-J: Service Level Agreement

DRAFT SERVICE LEVEL AGREEMENT (SLA)

This SERVICE LEVEL AGREEMENT (SLA) is made on this ___day of _____, 20__ (hereinafter referred to as “SLA”)

NOTE: SLA as listed below will be reviewed by PMA periodically and may be updated accordingly with mutual consent. The amendments as made at the time of review will be binding on the contractor.

Scope:

The SLA describes target performance levels which the contractor must aim to deliver for the Services outlined in tender document/contract. It also lists the procedures for managing unavailability of Services, and associated penalties which will be applied if contractor fails to deliver any service performance targets in accordance with this SLA.

Service Monitoring:

Contractor must provide the mechanisms, data, online system with access rights through which PMA authorized personnel will check Service Level Compliance.

An overall uptime of 99.9% is expected from all components and services associated with IT Systems (Components/Modules/Services as listed in tender document/ contract).

The contractor, through its monitoring system must provide the data that is sufficient to allow analysis and reporting of performance and availability of components, equipment, modules – to the detail and frequency described in this SLA.

The Contractor will additionally use data gathered from its monitoring of the Components to inform & take approval from competent authority for its decisions in respect of any changes to its infrastructure which in its sole discretion, deems necessary to maintain or improve the availability and performance of the services delivered to PMA.

The contractor must also make available a helpdesk and complaint management system with access to PMA authorized personnel.

Periodic reviews will be scheduled by the Government of the Punjab via its concerned departments and organizations. The reports from the contractor’s service monitoring system shall form an agenda for such reviews.

Scheduled Maintenance:

Scheduled maintenance should fall outside normal working hours, and not exceed a total of 4 hours per month. The contractor must seek approval from PMA for all pre-planned/scheduled maintenance work by submitting a detailed maintenance work plan along with reasons for scheduled maintenance, and impact on services (if any), and on service levels - at least one week prior to planned execution of the scheduled maintenance work.

After completion of the planned work, the contractor will report the outcome to the PMA in writing and by updating contractor's call management system and associated website. PMA will have access to call management system to log calls and to assign categories.

- The contractor will ensure use of licensed software and products, where applicable.
- The contractor must ensure that the support personnel are properly qualified to support all software/hardware related issues.
- The contractor will be responsible for providing timely and comprehensive analysis and reports to PMA or the concerned department based upon the information/data gathered in the system.
- The contractor would be responsible for security of the data being entered into and processed by the applications.
- The contractor will provide trainings to the PMA. The training should cover all operations of the system. The contractor will also document all the training material and provide it to the client in any format requested by the client.
- The contractor will be responsible for timely resolution of reported issues. The contractor will also ensure timely escalation of issues to the PMA as and when required.
- The contractor must ensure effective and efficient support via online complaint management system, phone, email and onsite presence as and when needed throughout the period of contract.
- Accurately and thoroughly logging service request into issue tracking system.
- The focal person at the client is notified about the creation of all critical service requests through email, SMS, and phone call and intimation on complaint management system.
- Documenting all technical inquiries and developing solutions for the knowledge base.
- Updating service requests in the issue tracking system with detail analysis of the issue, documenting each step as it was solved.
- Responding to service request via email, phone or in person.
- Raising issues in the timely manner before they become critical show stoppers.
- Escalating issues at the appropriate level in a timely and efficient manner.
- Resolving issues both on site and remotely.
- The contractor will be responsible for providing support throughout the period of contract. Application support should cover aspects such as performance / load management, system /security hardening, system configuration, patch management etc.
- Contractor must submit and conform to a detailed, agreed upon quality management plan. The contractor will follow up all closed tickets along with response time and quality services delivered to ensure level of services provided to the client in reaching resolution.
- The Contractor shall provide a step-by-step procedure for application recovery and take all necessary actions to restore the system in a timely manner.
- Ownership of all data entered into the system along with any customizations in addition to the licensed product, configuration and other components of the system stays as the property of Client and shall be transferred in fully operational condition on completion of support contract.
- The contractor is bound to support the integration of All IT System with existing and future systems of PMA like Automated Fare Collection and Bus Scheduling System (AFC-BSS),

Intelligent Transport System (ITS) etc. Any up gradation and rectification in IT systems should not affect its ability to integrate with other systems.

- The PMA envisioned facilitating other Government Department regarding sharing of live video feed. The Service Provider shall be bound to provide interface for sharing of live feed from aggregation point, if required.
-

FAULT LEVEL CATEGORIES:

Fault Level Categories as described below will be assigned by the Client/Contractor; however Client may amend based on factors as present on the ground.

Fault levels Category	Definition	Initial Response	Resolution
Critical	The system is unable to be used for normal business activities. There is no viable workaround. Downtime will lead to service loss.	Within 15 minutes	Within 90 minutes
Urgent	There is a problem with a part of the system which impacts decision-making and there is a likelihood of service loss.	Within 1 hour	Within 3 hours
High	The efficiency of the system users is being impacted, but a viable workaround exists.	Within 2 hours	Within 6 hours
Normal	A fault with low impact and no possibility of service loss. A viable workaround exists.	Within 6 hours	Within 12 hours

Issues Reported by Contractor:

Every issue reported by contractor’s designated operational staff must be logged against the fault level category as mentioned above; in centralized complaint management system available to all stakeholders. Client may disagree to the fault level assigned by the contractor based on the factors as present on the ground. For equipment/scenarios where automated alert system is not available, issues will be reported via phone call to contractor’s helpline.

Pertaining to issues reported on helpline by operations staff of contractor, all must be entered into centralized complaint management system.

Issues Reported by Surveillance Teams:

Issues as occurred on the ground may also be reported by PMA officials or surveillance teams of PMA. Such an interface to report any of these issues must be provided. PMA officials or surveillance teams may report via phone call to contractor’s helpline and/or logging complaint into complaint management system. PMA officials or surveillance teams will log complaint but may not assign fault level category which will be assigned initially by the contractor. Client may disagree/amend to the fault level assigned by the contractor based on the factors as present on the ground.

Initial Response:

Time taken by the contractor’s qualified representative to arrive at the premises where the failure occurred, after the problem is reported by the automated alert system where applicable.

Resolution:

Time it takes to resolve the problem.

Issues as reported must be visible to all stakeholders involved via complaint management system. In addition contractor must notify the fault to the Authority, via email, fax, and/or telephone, as soon as it becomes aware of the fault, and must also keep the monitoring cell informed of progress towards resolution in a timely manner. Any fault that is not fixed within the stated resolution time will be escalated to the executive management of the contractor.

Faults/Issues/Complaints will not be closed until resolution is verified on the ground by PMA.

In case of breach of SLA parameters, penalties will apply. Depending upon the nature, severity, and duration of the breach, penalties in the form of stated percentage of monthly service charges will be imposed. Further to this client may invoke forfeiture of any amount of performance guarantee deemed suitable, by requesting, purchaser in writing.

Minimum service levels associated with various key aspects of the services, components, and operations related to the IT Systems, are defined below:

Service Level Agreement:

Sr No	Service	Parameter	Service level	Validation	Penalty
1	Helpdesk	Resolution of issues logged as per fault level categories definitions above	99%	Generated from complaint management system	If 95%-98.99% calls resolved on-time, then 2% penalty on monthly charges 90%-94.99% calls resolved on time, then 5% penalty on monthly charges. <90% of complaints

					being resolved on time 10% of monthly charge.
2	System Configuration and Report Generation	System Configuration and Required Report Generation Resolution logged as per fault level categories definitions above.	99%	Report	If 95%-98.99% are resolved on-time, then 2% penalty on monthly charges. 90%-94.99% resolved on time, then 5% penalty on monthly charges. <90% resolved on time 10% of monthly charge.
3	Asset/ Inventory Management System	Conduct annual physical asset verification	100%	Satisfaction report to be signed off by authorities	Stock not being available/ faulty must be fixed/provided/ settled by contractor. 0.5% of 12 monthly charges, if issues not addressed in given timeframe.
4	Quarterly Evaluation	Evaluation of contractor's performance on quarterly basis	N/A	Management approval of contractor's performance evaluation report	0.5% of quarterly charges
5	Backup Management	Successful bidder must take data backups of Surveillance Record identified by PMA Staff.	N/A	Report	If the negligence is found, contractor will be fined Rs 25,000/- per negligence.
6	Problem Management	Contractor shall provide a root-cause report every month if there are more than 10 incidents of the same type. Successful bidder must take appropriate and timely corrective	100%	Root cause report stating problems faced by the users Document detailing corrective	5% penalty on monthly charges if the contractor does not submit a problem report for that month for any of such case. Another 5% penalty if contractor does not perform corrective

		action to prevent further issues from same cause.		action	action for more than one calendar month for any of such case.
7	Change Management	Resolution of Change Request	100%	Report	5% of monthly charge, if standardized change management patches are not updated onto servers in one calendar month. The Purchaser may grant more time for any Change Request in its sole discretion depending on its complexity before logging the Change Request.
8	UPS Failure	Any IT equipment being installed at bus stations must not undergo power outage due to UPS/Battery failure. This does not include power outage exceeding 4 hours.	100%	PMA Record Report	Rs 25,000/- on each incident
9	Real time Surveillance feed loss Main MBS Corridor	CCTV surveillance cameras live feed loss	99.8%	Real time Data Feeds	1% penalty on monthly charges for less than 99.8%. 3% monthly charges for less than 99.5% 5% monthly charges for less than 99% 10% monthly charges for less than 99%
10	Non provisioning of camera local video record	In case connectivity is down and local recording from off line camera is not provisioned on demand as per fault level category	N/A	PMA record	Rs 25,000/- on each incident

11	Video Wall Equipment	Video Wall Not Operational	99.8	PMA Record	1% penalty on monthly charges for less than 99.8%. 3% monthly charges for less than 99.5% 5% monthly charges for less than 99%
12	Unable to sync off line camera local video record	In case, connectivity is restored and local recording from off line camera does not sync with the system	N/A	Report	Rs 5,000/- on each incident
13	Network Monitoring & Management	Contractor to monitor the Network link for 100% uptime.	99.5%	Downtime Reports Reports on Network Performance	2% penalty on monthly charges for less than 99.5%. 5% monthly charges for less than 97%. 10% monthly charges for less than 95% as reported by monitoring system.
		Contractor to monitor the active equipment of Network for 99% uptime.	99%	Downtime Reports Reports on Network Performance	1% penalty on monthly charges for less than 99%. 3% monthly charges for less than 98% 5% monthly charges for less than 95% as reported by monitoring system.
14	IP Telephony	All IP Telephones Not Operational	N/A	PMA Record	25,000 on each incident
15	PAS Equipment	Audio Interface: Audio Input/Output Channels	N/A	Real time audio feeds from PMA Command and Control Center to stations.	2% of monthly charge for every slippage

16	Loss of Video feeds before one month	Per Camera	N/A	PMA Record Report	50,000 on each incident
17	Failed to submit invoice in first 10 working days of the month	N/A	N/A	N/A	30,000 on each incident
18	System time not confirms with Pakistan Standard Time	N/A	N/A	PMA Record Report	5,000 on each incident
19	Misbehavior of Service Provider Staff with PMA staff, passenger and staff of other service provider.	N/A	N/A	PMA Record Report	25,000 on each incident
20	Violation of scope of work/services (Any act of nonconformance to PMA rules, instructions, scope of services if not covered in SLA)	N/A	N/A	PMA Record Report	Rs. 500*A Where A = 1 to 100 depending on the sensitivity of the nonconformance as per decision of the Purchaser.
21	Wrong Tagging of Camera	Per Camera	N/A	PMA Record Report	5,000 on each incident

22	Camera constantly blurry	Per Camera	N/A	PMA Record Report	15,000 on each incident
23	Maintenance and cleanness of camera	Per Camera	N/A	PMA Record Report	15,000 on each incident

In case network link got down, upon availability of network Contractor to warrant all CCTV surveillance cameras should retrieve the video record from cameras Memory card and sync it with data center to ensure that no video feed is lost.

Calculation of Uptime:

$[(\text{Actual Uptime} + \text{Scheduled Downtime}) / \text{total number of operation hours in a month}] * 100$

"Total Operation Hours" means the total hours over the measurement period i.e. one month (24 * number of days in the month for 24 hours operation and 18 * number of days in the month for 18 hours operation).

"Actual Uptime" means, of the Total Operation Hours, the aggregate number of hours in any month during which each equipment is actually available for use.

"Scheduled Downtime" means the aggregate number of hours in any month during which each equipment, is down during Total Operation Hours, due to preventive maintenance, scheduled maintenance, infrastructure problems or any other situation which is not attributable to the Contractor's (or Contractor's) failure to exercise due care in performing Contractor's responsibilities.

For 24/7 hours operation, the PMA would provide a maximum of 04 hours of planned downtime for the preventive maintenance (as part of scheduled downtime) per month per equipment/service. In other case the PMA would not provide any planned downtime for the preventive maintenance (as part of scheduled downtime) per month per equipment/service.

The downtime for scheduled maintenance (patch application, upgrades – OS, Database, etc.) would need to be mutually agreed between PMA and the Contractor for 24/7 hours operation. To reduce this time, various maintenance activities can be clubbed together with proper planning. Like above the planned downtime would not be the case if we are not having 24/7 operations. The Scheduled Downtime is 0 if we are not having 24/7 hours operation.

Downtime Calculation:

The recording of downtime shall commence at the time of registering it with Contractor for any downtime situation for the equipment. The registration could be done through auto alert, Downtime shall end when the problem is rectified and the application/ service is available to the user. Down time will not be considered for Pre-scheduled preventive maintenance and health checks (Scheduled Downtime).

- a) The compliance report shall be submitted monthly, by the Contractor.
- b) These compliance reports shall be verified by PMA officials or the nominated representatives of PMA. Any disputes on the compliance report shall be escalated to a nominee of the senior management of PMA and the decision of that nominee shall be binding on both the parties.
- c) The compliance to the SLA metrics as listed above shall be monitored on the monthly basis.

Breach of SLA:

In case the Contractor does not meet the service levels mentioned in document, for three (03) continuous time periods, it will be treated as a breach of the SLA. The following steps may be taken in such a case:

- 1. A show cause notice will be issued
- 2. Contractor must respond to the notice within 3 working days
- 3. If PMA is not satisfied with the reply, it may initiate contract termination process

Exclusions:

The service provider will be exempted from delays or slippages on SLA parameters arising out of delays in execution due to delay in approval or review from PMA's side. Any such delays will be notified in writing.

Monitoring and Auditing:

PMA will review the performance of Contractor against the SLA parameters each month, or at any periodicity defined in the contract document. The review / audit report will form basis of any action relating to imposing penalty or breach of contract.

Any such review / audit can be scheduled or unscheduled. The results will be shared with the Contractor as soon as possible. PMA reserves the right to appoint a third-party auditor to validate the SLA.

Reporting Procedures:

The Contractor will prepare and distribute to PMA the SLA performance reports in an agreed upon format by the 3rd working day of subsequent month of the reporting period. The reports will include "actual versus target" SLA performance, a variance analysis and discussion of appropriate issues or significant events.

As such, this document also defines the following management procedures:

- 1. A process for negotiating changes to the SLA.
- 2. An issue management process for documenting and resolving particularly difficult issues.

3. PMA and Contractor management escalation process to be used in the event that an issue is not being resolved in a timely manner.

SLA Change Control:

General:

It is acknowledged that this SLA may change as PMA's business needs evolve over the course of the contract period. **The PMA reserves the right to review the SLA periodically and update it accordingly with mutual consent. The review amendments will be binding on the Contractor.**

SLA Change Process:

Both the parties may amend this SLA by mutual SLA in accordance. Changes can be proposed by either party. Normally the forum for negotiating SLA changes will be PMA monthly review meetings.

Version Control:

All negotiated SLA changes will require changing the version control number. As appropriate, minor changes may be accumulated for periodic release (e.g. every quarter) or for release when a critical threshold of change has occurred.

Issue Management Procedures:

General:

This process provides an appropriate management structure for the orderly consideration and resolution of business and operational issues in the event that quick consensus is not reached between PMA and Contractor. It is expected that this pre-defined process will only be used on an exception basis if issues are not resolved at lower management levels.

Issue Management Process:

Either PMA or Contractor may raise an issue by documenting the business or technical problem, which presents a reasonably objective summary of both points of view and identifies specific points of this SLA with possible solutions.

PMA and Contractor's representative will determine which committee or executive level should logically be involved in resolution.

A meeting or conference call will be conducted to resolve the issue in a timely manner. The documented issues will be distributed to the participants at least 24 hours prior to the discussion if the issue is not an emergency requiring immediate attention.

Management of PMA and Contractor will develop a temporary, if needed, and the permanent solution for the problem at hand. The Contractor will then communicate the resolution to all interested parties.

Management Escalation Procedures:

The purpose of this escalation process is to provide a quick and orderly method of notifying both parties that an issue is not being successfully resolved at the lowest possible management level. Implementing this procedure ensures that PMA and Contractor management are

communicating at the appropriate levels. Escalation should take place on an exception basis and only if successful issue resolution cannot be achieved in a reasonable time frame.

1. All issues would be raised to the project management team, which is completely responsible for the day to day aspects of the implementation. The project management team shall classify the issues based on their severity level and resolve them within appropriate timelines.
2. If project management team is unable to resolve an issue, the issue would be escalated to the top management with options/risks detailed for decision. Top management will make decisions based on the options/risks presented by the PMA.

Training Requirements:

Training is an important activity for the successful implementation of Work. To make the Work a success, the following training programs shall be arranged by the Contractor from time to time depending on the requirement and understanding of the PMA, operators, participating users, etc. For all these training programs, the Contractor shall provide adequate course material documents. The following are the trainings to be imparted by the Contractor:

1. Contractor shall impart training to PMA nominated staff, so that they are aware of the operations of the solution and further impart training to the relevant staff of PMA ensuring smooth running of System at the selected sites.
2. Contractor shall also be responsible for re-training the PMA nominated trainers staff whenever changes are made in the System and it shall be the responsibility of the Contractor to ensure that the operators are familiar with new versions of system and its allied services.

System Availability:

The System could be required to be functional round the clock, and the availability of the System should be in excess of 99% of the operations time.

Performance Reporting:

The Contractor shall record performance and availability of each of the Components and report this information to the Client. Where periodic account reviews are agreed by both parties to be held between the Client and the Contractor, these reports will form an agenda for such reviews. The Contractor will enable the Client to view the reports via the Contractor's service system.

General Maintenance Conditions:

- The maintenance shall include both Preventive Maintenance and Corrective Maintenance.
- This Service Level Conditions shall cover each and every part/component of the System. The Contractor shall examine, clean, lubricate and adjust various components/parts of the entire System including all parts and components every month and shall take necessary measures to maintain the units in proper working conditions in accordance with the Specifications in the Service Level Conditions.

- The Contractor shall supply and replace any part/components which are discovered to be potentially detrimental to the safety of the user and/or to the efficient and cost effective operation of the units and which require immediate replacement.
- In case of need to replace any part/component, the Contractor shall provide original make genuine parts/components of similar/higher quality.
- In case of emergencies, the Contractor shall respond immediately to take the necessary actions irrespective of the provisions regarding time limits.
- The Contractor shall be liable for any kind of damage to the user of the units caused by poor maintenance, delay in any repair/maintenance works and shall pay for the damage.
- Repairs may be carried out generally during non-operational hours.

IN WITNESS whereof the parties here to have caused this Contract to be executed in accordance with their respective laws the day and year first above written.

Annexure-K: Reference Specifications

Note: Referenced Specifications of the Major components are listed below. Bidder should provision and integrate the complete solution on Turnkey basis.

Notes:

1. All hardware equipment supplied as part of IT System must carry industry standard certifications to ascertain that the equipment have been manufactured and certified based on international standards.
2. The Equipment supplied shall withstand the harsh working conditions of vibration, heat, dust, moisture, rough usage, Radio interference. The Service Provider shall implement application software to track the devices that are installed in the network using suitable identification methods.

Surveillance cameras shall be installed at predefined locations to provide surveillance coverage for stations and corridor of MBS. The total length of MBS corridor is 18.5 kilometer having 21 stations. The installation plan for each station is given in below table.

Cameras Installation on MBS			
Sr. No	Location	Type	Quantity
1	Escalator	Fixed	2
2	Ticketing Both	Fixed	1
3	Turnstile	Fixed	2
4	Gen Set	Fixed	1
5	Pedestrian Bridge	PTZ	2
6	Docking Base	PTZ	2
7	Platform	PTZ	1
Total			11

To cover the MBS corridor 95 PTZ cameras are estimated. Selected vendor is responsible for all the necessary arrangements for end to end connectivity through the near station alongwith live feeds in Command & Control Center of PMA by 24x7 for corridor cameras.

CCTV Fixed Cameras for Stations (outdoor):

2 Megapixel Outdoor Network IR Bullet Camera		Yes	NO	Qty
Image Sensor	2 MP WDR Sensor			140
Effective Pixels	1920 x 1080			
Video Streaming Protocols	H.264/MPEG/MJPEG			
Multistream	Supports 3 or higher independent streams			
Video Output	SDTV - Composite Video			
Frames per Second	30fps @1080p, 720p, SXGA, D1, VGA, QVGA, QQVGA			
Lens	2.8mm to 10mm Varifocal lens,			
Wide Dynamic Range	110dB dual exposure Wide Dynamic Range(WDR),			
Image Setting	Compression, Brightness, Contrast,			

	Mirroring, Sharpness, AWB, AES, AGC, BLC, Day/Night Mode, WDR, 4 Privacy Mask Regions			
Audio	Audio In/Out,			
IR	IR Cut Filter, 30 meter or above IR range,			
Lux	0.1 lux BnW, 0 lux with IR,			
Security	Password, IP Address Filtering, User Privileges			
Network Protocols	TCP/IP, UDP, DHCP, PPPoE, HTTP, HTTPS, DNS, DynDNS, NTP, FTP, SMTP, RTP, RTSP, RTCP, , UPnP, IPv4, SAMBA Client (NAS) or equivalent , IGMP, ICMP, ARP			
API	ONVIF			
Alarm Trigger	Periodical Timer, Intelligent Video, Network Ping Loss, Network Disconnect			
Alarm Event	File Upload via FTP, Email Notifications with Snapshot Attachment, External Output, File Recording to SD Card			
Environmental	IP 66 or higher Weatherproof			
Operating Conditions	-10°C~60°C (-40°F~140°F) Humidity: 20%~80% RH			
Vandal Proof	Yes			
Housing	Metal (Aluminum) with cable management bracket			
Local Storage	MicroSD/SDHC card slot with 32 GB micro SD card or higher. SD card slot for onboard storage support for local recording of video stream for 24 hr. Can re-write automatically once full. In case of link down Update the record automatically when connectivity is up.			
Power	As per proposed camera and POE 802.3af			
Approvals	FCC Part15 Subpart B, CE EN55022 Class B, EN55024, LVD, RoHS or equivalent			

2	Installation	Onsite Cabling (FTP) & electrical along with Installation / calibration/ Testing, integration, with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects. (Per Camera Job)			140 Nos
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model & Sub-Model (if any):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity within time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

2 Megapixel Outdoor IR PTZ Camera For Metrobus Corridor and Stations		Yes	No	Qty
Specification	Details			200
Image Sensor	2MP			
WDR	Dual Shutter upto 110 Db			
Num. of Effective Pixels	1920 x 1080 HxV			
Lens	30 X or higher Optical Zoom, 4.5 ~ 135mm F1.6			
Minimum Illumination	0.1 Lux, 0 lux (IR:ON)			
Shutter Time(Sec.)	1/3~1/15000 or 1/4~1/15000 Selectable			
Auto Iris	DC Drive			
S/N Ratio	More than 39 dB or above			
Video Compression	Motion JPEG, MPEG-4/H.264 High Profile			
H.264/MJPEG	30 FPS @ 1080p, 720p, SXGA, 1024x768, 800x600, D1, VGA, QVGA, QQVGA			
MPEG4	30fps @ 1080p, 720p, SXGA / 1024 x 768 / 800 x 600 / D1 / VGA / QVGA / QQVGA			
Video Streaming	Multiple Stream: Controllable Framerate and Bandwidth CBR/VBR			
Image Setting	Compression, Brightness, Contrast, Mirroring, Sharpness, AWB, AES, AGC, BLC, Day/Night Mode, WDR			
Audio Compression	G.711(u-law and a-law)/G.726/AAC			
Audio Input	Line In x 1			
Audio Output	Line Out x 1			
Security	Password Protection, IP Address Filtering, User Access Privilege			
Network Protocols	TCP/IP, UDP, DHCP, PPPoE, HTTP, HTTPS, DNS, DynDNS, NTP, FTP, SMTP, UDP, RTP, RTSP, RTCP, , UPnP, IPv4, SAMBA Client(NAS) or equivalent, IGMP, ICMP, ARP			
Intelligent Video	Video Motion Detection			
Alarm Trigger	Periodical Timer, Intelligent Video, Network Ping Loss, Network Disconnect			

Alarm Event	Intelligent Video, File Upload via FTP and E-mail, E-mail Notification with Snapshot Attachment, External Output Activation, File Recording to microSD Card Remote FTP or Remote NAS			
Web Browser	Microsoft IE 8.0 or above/Mozilla Firefox/Google Chrome			
Local Storage	microSD/SDHC Card Support with 32 GB SD card or higher			
Casing	Metal (Aluminum), IP66, Vandal-proof			
Power	Max 50W, 90~240Vac or 24 Vac			
Pan/Tilt Movement	Pan:360 degrees endless, Tilt 180 degrees			
Pan/Tilt Speed	Pan: 200 degrees per second, 100 degrees per second			
Failover	microSD/SDHC Auto-recovery, Reset			
Approvals	FCC Part15, Subpart B, CE EN55022 Class A, EN55024, LVD, RoHS or equivalent			
IR Range	80 Meter			
IR Wavelength	850 nm			

	Mounting	Standard mounting accessories with brackets / clumps etc (mount kit for pole/ceiling).			
2	Installation	Onsite Cabling (FTP network & electrical) along with Installation / calibration/ testing with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects (Per Camera Job)			200 Nos.

Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			

Agreed with other terms & conditions:		
Signed & Stamped documents:		

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

Network Video Recorder

S.No.	DESCRIPTION	Yes	No	QTY
1	The Network Video Recorder solution be capable to display and manage the entire surveillance system video streams for a minimum of 500 Channels IP video streams coming from the above cameras; the system may be split into several Network Video Recorders / systems each having good recording throughput to accommodate a total of 500 IP video streams recording, playback, at 2MBs per camera etc.			01 (Solution)
	The NVR should be capable of supporting variety of devices such as cameras, video encoders, video decoders, PTZ controller, NAS/SAN/ and other backup device etc.			
	The software should Support flexible 1/2/4/16 Windows Split screen display mode or scroll mode on the PC monitor or on preview monitor as per requirement.			
	The software should be able to control all cameras i.e. PTZ control, Iris control, auto / manual focus, and color balance of camera, Selection of presets, Video tour selection etc.			
	Storage: The NVR should have data storage Capacity of 30 days using SAN.			
	The NVR should support different resolutions CIF/ 4CIF, SD/ HD, MP/ 1.3MP/2.0MP etc resolutions.			
	The NVR should support screen pop-ups on motion or alarm activation.			
	The system should support user access authority Configurable on per device or per device group basis.			
	The user shall have the facility to request the access of any Camera and can control the camera.			
	The hardware design should be of robust nature to avoid single points of failure, preferably with redundant fans and Power Supply			
	Ability to serve 16/32 or more simultaneous playback Streams per NVR.			
	The solution should have its own system manager for administer right and privileges for all devices, logs, etc.			
	The system administrator should be able to add, edit & delete users with rights.			

It shall be possible to view ability / rights of each user or the cameras which can be viewed & controlled as per the permission assigned by the administrator.			
The system should support recording modes viz. continuous, manual, or programmed modes on date, time and camera- wise. All modes should be disabled and enabled using scheduled configuration.			
It should also be possible to search and replay the recorded images on date, time and camera-wise.			
It should provide onscreen controls for remote operation of PTZ cameras.			
It should have the facility for scheduled recording. Different recording speeds (fps) and resolution for each recording mode for each camera should be possible. Different protocol/compression has been mentioned in NVR Software.			
The System should support programmable motion detection and recording, to be defined area-wise.			
System must be able to support video motion detection algorithms to detect and track objects.			
The system settings shall be individually configurable for each alarm and each camera prerecord duration.			
The system should also be working on a browser based system for remote users.			
This will allow any authorized user to display the video of any desired camera on the monitor with full PTZ and associated controls.			
Retrieval: The CCTV application should allow retrieval of data instantaneously or any date / time interval chosen through search functionality of the application software.			

High Definition support for recording and viewing			
Recording up to 32 MB/s of image data			
Support up to 30 images per second per camera channel			
RAID 5 Support			
Software with Analytics features i.e. zones , integration alarms , tripe wires etc.			
ONVIF cameras & encoders			
HD, HD H.264, HD panoramic cameras			
H.264 support			
MPEG4 support			
MJPEG support			
JPEG2000 support			
HD professional cameras			
30 days recording capacity at 25 FPS @ 1920x1080			

	Automated device discovery.			
	Pre-event video recording.			
	Simultaneous recording to archive and real-time surveillance.			
	Synchronous playback of video footage recorded by several cameras.			
	Playback with fast- or slow-motion in forward or reverse.			
	Archive navigation through events recognized by video analytics or tagged by operators.			
	Event-driven response scenarios: recording, alarm generation, activation of relays and starting PTZ camera through user defined presets, notification by SMS, e-mail or through camera speaker output. Continuous or alarm recording (including initiated by an operator).			
	Multi-level user rights.			
	Support for widescreen displays and cameras, and touch screen displays.			
	Capability to use different streams from a camera for recording and display.			
	Capability to choose the right location and recording parameters for various cameras and for various events that initiate recording.			
	It is preferred that the system to be capable of automatically opening Violation Report form after capture of photo. The form shall automatically record information such as location of camera, user ID, User Name, date and time, picture, and must have comment section for operator to record observation			

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System		
Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE :

1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

CAMERA CONSOLE

SR. No.	ITEM	DESCRIPTION	Yes	No	Qty
1	Camera console	Stand alone/Network camera console for PTZ operations with joy stick for PTZ control functions alongwith standard accessories.			28Nos
Installation		Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			

Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

Stations & Corridor Network Active Equipment

ETHERNET SWITCHES

SR. No.	ITEM	DESCRIPTION	Yes	No.	Qty
1	Ethernet Switches (Manageable) Stations	24-port 10/100/1000BASE-T PoE Ethernet Switch with four SFP Gigabit Ethernet uplink ports. Throughput 56 Gbps or above, 41 Mpps or above, OSPF v1/v2, IGMP v1/v2/v3, PIM, IEEE 802.1 Q-in-Q, Bidirectional Forwarding Detection (BFD), IEEE 802.1ag (Connectivity Fault Management) and VRF-Lite, Layer 2 QoS , • Layer 3 QoS Onsite Installation along with electrical, calibration/Testing with accessories including Piping/Ducting, electrification			21 Nos.
2	Ethernet Switches (Manageable) DC	24-port 10/100/1000BASE-T PoE Ethernet Switch with four SFP Gigabit Ethernet uplink ports. Throughput 56 Gbps or above, 41 Mpps or above, OSPF v1/v2, IGMP v1/v2/v3, PIM, IEEE 802.1 Q-in-Q, Bidirectional Forwarding Detection (BFD), IEEE 802.1ag (Connectivity Fault Management) and VRF-Lite, Layer 2 QoS , • Layer 3 QoS Onsite Installation along with electrical, calibration/Testing with accessories including Piping/Ducting, electrification			4 Nos.
	VPN Firewall for stations	Firewall performance (max) 700Mbps IPS performance (NSS 4.2.1) 75 Mbps AES256+SHA-1 / 3DES+SHA-1 65 Mbps VPN performance Maximum concurrent sessions 32K New sessions/second (sustained, TCP, 3-way) 1,800			21 (for access sites)
	Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			

Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

Ethernet Switches (FOR LAN)

SR. No.	ITEM	DESCRIPTION	Yes	No	Qty
1	Ethernet Switches (Manageable)	48-port 10/100/1000BASE-T Ethernet Switch with four SFP Gigabit Ethernet uplink ports. Throughput 104 Gbps or above, 77 Mpps or above, OSPF v1/v2, IGMP v1/v2/v3, PIM, IEEE 802.1 Q-in-Q, Bidirectional Forwarding Detection (BFD), IEEE 802.1ag (Connectivity Fault Management) and VRF-Lite, Layer 2 QoS , • Layer 3 QoS Onsite Installation along with electrical, calibration/Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning of entire Site System			04 Nos.
	Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			

Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

STATION CABINETS (with accessories)

SR. No.	ITEM	DESCRIPTION	Yes	No	Qty
1	Station cabinets with accessories (for Network Equipments) (Imported/branded)	12U station cabinet for network communication equipment. 24 port patch panel for 10/100/1000BaseT with tagging. 24x3 meter STP Ethernet patch cords, 1x 200 meter fiber patch cords, front glass, 2 full width PDU (imported), lockable, wall mount, cable In/out points, 2 fan etc. Installation of the same.			At Actual

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			

Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

DATA CABINETS (with accessories)

SR. No.	ITEM	DESCRIPTION	Yes	No.	Qty
1	Data cabinets with accessories (for Network Equipments) (Imported/branded)	14U data cabinet for network communication equipment. 48 port patch panel for 10/100/1000BaseT with tagging. 48x3 meter STP Ethernet patch cords, 2x 200 meter fiber patch cords, front glass, 1 full width PDU (imported), lockable, wall mount, cable In/out points, 2 fan etc. Installation of the same.			At Actual

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			

Agreed with other terms & conditions:		
Signed & Stamped documents:		

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

Video Wall with Controller

Sr. No	Item Description				QTY
1					02 Nos.
	Item	Description	Yes	No	
	Diagonal size	Diagonal size of the display modules shall be minimum 55" or more			
	Matrix	(8) Eight horizontal by (3) Three vertical matrix (8x3) cubes			
	Screens	24 screens for each wall			
	Item	Item Sub-Description	Yes	No	
	LCD Technology	DID technology for extensive usage, Anti Image Retention circuitry, black			
	Resolution	Full HD (1920 x 1080)			
	Backlight	Direct LED			
	Pixel Density	40 dpi			
	Refresh rate	60 Hz			
	Luminance	700 cd/m ² (max)			
	Contrast	3500:1 (typ.)			
	Viewing Angle	178°			
	White point	10,000 K			
	Color	8 bits - 16.7 M colors			
	Backlight lifetime	50,000 h			
	MTBF	> 50,000 h			

	Active screen diagonal	55"			
	Bezel width	Ultra Narrow Bezel or higher (less than 5.7mm)			
	AC input Voltage	220 VAC, 50 Hz \pm 10%			
	VGA	Separate sync DSUB-15P in + (out (optional))			
	DVI	Single link DVI-D in + (out (optional)) with HDCP			
	Display port	Display port input + (out (optional))			
	HDMI	HDMI Type A with HDCP			
	CVBS	BNC in/out			
	S-video (Optional)	Mini-DIN S-terminal in/out			
	Control Manager	Server connected via RS232 chain, Remote client application: on/off, wall setup, source selection, status, brightness, contrast and color adjustments			
	Component video	2xBNC in/out			
	control signal	RS-232 DSUB9 PIN in/out			
	Operating humidity	20-80% non-condensing			
	Operational temperature	0-40°C			
	Item	Item Sub-Description	Yes	No	

	<p>Controller(s) for above screens with Control Software:</p>	<p>Should feature built-in integration of digital network video streams / IP Camera Streams and OR required hardware for conversion to analog streams or other data sources</p> <p>Should allow users to place windows of any size anywhere on the video wall, without any compromises on quality</p> <p>The controller shall provide independent color depth selection of video, RGB, and graphic window</p> <p>The controller should support the display of real-time IP Camera video sources through operator work stations (14 inputs and 24 outputs).</p> <p>The controller shall feature redundant, hot-swappable critical components for high overall system reliability including Redundant hot- swap power supplies, Redundant hot-swap RAID Level 1 or RAID Level-5 hard disk, Redundant Ethernet / Fiber Optic adapter</p> <p>The redundancy components shall be continuously monitored; audio and video alarms shall be triggered in case of failure</p> <p>The controller should support video outputs up to 1920 x 1082 pixels and Mega Pixels Format</p> <p>The controller should provide real-time source display</p> <p>The controller shall be equipped with latest processor technology.</p> <p>The controller should support Network and other inputs</p> <p>The controller should have Outputs for above screen matrix</p> <p>Inputs of for above LCD Real-time DVI/RGB inputs, image resolution 1920 x 1080 pixel and should display real-time input sources through operator work stations.</p>			
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		<p>The Outputs should support all above screens DVI, maximal image resolution 1920 x 1080 pixel.</p> <p>Control Software: Simple GUI for the configuration of the wall management software</p> <p>Administration: Privileges, hierarchical administration and division of the large screen wall into different areas can be defined for every user Multiple display walls can be controlled simultaneously. Multiple users can operate the large screen system simultaneously. Control the full range of analog video, Streaming video sources, RGB computer images, and local and server applications residing on the LAN. Enable operators to access and display the screen contents of any Windows workstation in the LAN as well as control it with the local keyboard and mouse without a need for special hardware.</p> <p>Software has to allow comfortable desktop management : Dynamic GUI / window administration Definition of presets layouts The software must enable the control of the wall-desktop with the local keyboard and mouse of the operator-workstation via LAN. The software must provide certain alarm management tools, i.e. incoming alarm messages and business critical alarms can be detected and visualized automatically. Operating systems: WINDOWS / UNIX / LINUX</p>			
	Image Retention	Anti Image Retention Circuitry to ensure no permanent image burn-in.			
	LCD Maintenance access etc.	Front / Rear access to ensure easy maintenance & service, brackets, controllers, stands & software etc. complete in every aspect including installation, cabling, calibration etc.			
2.	Onsite Installation/ commissioning / Calibration/testing integration with all systems etc. of the above video walls				02Nos.

Offered Brand	Provide Name	Yes	No
(Attachments):			
Make / Brand Name:			
Model Name:			

Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE :
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

S#	ITEM	DESCRIPTION	Yes	No	Qty
	Blade Chassis (Quantity as Per requirement of the Proposed Blades)		-	-	At Actual
1	Chassis	Latest Chassis Supporting GbE, 10GbE, 8G FC & Infiniband Connectivity.			
2	Blades Supported	Should support a wide variety of Blades including Dual & Quad Processor Based Blades			
3	Power Supply	Redundant power sufficient to support a fully loaded chassis (N+N Redundancy)			
4	Cooling	Redundant Cooling sufficient to support a fully loaded chassis (N+N Redundancy)			
5	Back Plane	Passive Midplane with no Active components			
6	Rack Mount Kit	Complete rack mount kit with all accessories			
7	Management Modules	Redundant Chassis Management Modules			
8	Ethernet Switches (Management)	2 x 1GbE Ethernet Switch Modules (24-Ports or Higher) Should have 1 GbE & 10GbE Uplinks with all required SFP's installed			
9	Ethernet Switches (Data)	2 x 10GbE Ethernet Pass-through Modules Along with SFP Modules and FC Cables			

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE:
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.
5- The vendor is responsible for the installation of Configuration, Management, software, Server Operating System, and provides training for the efficient configuration and management of the system.
6- Please mention the country of origin / manufacturing / assembly of the quoted brand / Model

SERVER FORM (MID RANGE BLADE SERVERS)

Compute Blades (Quad Processor Xeon Blades)		Yes	No	10
1	Installed Processors	2 x Intel XeonE5-4650V2 (2.40GHz/10core) or higher		
2	Max Processors Supported	4 Processors		
3	RAM	64GB Installed (Scalable upto 512GB or Higher)		
4	Integrated NIC's	2-Port 1 Gigabit Network Adapter/mezz		
5	10Gig NIC's	2-Port 10 Gigabit Network Adapter		
6	Hard Disk Drives	2 x 600G 10K 2.5" SAS HDD		

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE:
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.

4- The local authorized dealers should mention their service and setup, details of qualified engineers, etc.
5- The vendor is responsible for the installation Configuration, Management, software, Server Operating System,
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and provides training for the efficient configuration and management of the System.

6- Please mention the country of origin / manufacturing / assembly of the quoted brand /model

Server Infrastructure Rack 42U (Imported/Branded)

SR. No.	ITEM	Description	Yes	No	Qty
1	Server Rack 42U (Imported) Painted Rack	Server Infrastructure Rack 42U fitted (imported/branded) with same server brand			As per Actual
		Fans, front & back doors, side panels, door locks, Painted Rack with stand			
		Monitored 42U full height PDU to support above servers/ storages optimal load with power cords & Industrial socket etc.			
		The rack design should be designed to maximize air flow for cooling.			

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE:

1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.
- 4- The local authorized dealers should mention their service and setup, details of qualified engineers, etc
- 5- The vendor is responsible for the installation Configuration, Management, software, Server Operating System, and provides training for the efficient configuration and management of the system.

SAN STORAGE (500 TB)

SAN Storage Solution (High End) - 500 TB					
S#	ITEM	DESCRIPTION	Yes	No	Qty
	SAN Storage Solution		-	-	1
1	Architecture	Multi-Protocol storage, supporting simultaneous FC & iSCSI Access			
2	Cache	Minimum 48 GB cache for Storage Controllers			
3	Storage Controller	Redundant Storage Controllers with Active-Active configuration			
4	Front End Ports	8 x 8Gbps FC Ports for SAN (Required) or 4 x 10Gbps iSCSI Ports for SAN (Required)			
5	Supported Protocols	FC, iSCSI			
6	RAID	Supporting RAID 0, 1, 5, 6, 10			
7	Redundancy	End to end redundant connections with no single point of failure			
8	RAW Storage	5 x 400GB SSD Drives (Used as SSD Caching to Improve overall system Performance) 125 x 4TB 3.5 Inch 7.2k NL-SAS Disk Drives			
9	FC Cables	8 x 5m Fiber Optic Cable LC-LC			
10	Modular Design	Should have a Modular Design. Ability to Add or Replace Host connectivity Ports as Required			
11	Multi-path Software	Multi-path software providing path fail-over for all blades connecting to storage			
12	Power & Cooling	Redundant power and cooling			
13	Rack Rails	Rack mount kit with all accessories			
14	Management	Management software along with Storage			
15	Expandability	Should support a minimum of 350 Disk drives or more			
16	Drive Form Factor	Should support both 2.5" /3.5" Disk Drives			

17	SAN to SAN Replication (optional)	Should Support SAN to SAN Replication (If Required in Future)			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE:
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.
4- The local authorized dealers should mention their service and setup, details of qualified engineers, etc.
5- The vendor is responsible for the installation , Configuration, Management, software, Server Operating System, and provides training for the efficient configuration and management of the system.

STORAGE (100 TB) (Direct Attached Storage)

IF PMA management want to save specified video clips/record for a longer period of time i.e. more than 30 days they will be saved on DAS.

S#	ITEM	DESCRIPTION	Yes	No	Qty
Storage Solution					
			-	-	1
1	Architecture	Multi-Protocol storage, supporting simultaneous FC & iSCSI Access			
2	Cache	Minimum 16 GB cache for Storage Controllers			
3	Storage Controller	Redundant Storage Controllers with Active-Active configuration			
4	Front End Ports	4 x 10Gbps iSCSI Ports for SAN (Required)			
5	Supported Protocols	FC, iSCSI			
6	RAID	Supporting RAID 0, 1, 5, 6, 10			
7	Redundancy	End to end redundant connections with no single point of failure			
8	RAW Storage	25 x 4TB 3.5 Inch 7.2k NL-SAS Disk Drives			
9	FC Cables	8 x 5m Fiber Optic Cable LC-LC			
10	Modular Design	Should have a Modular Design. Ability to Add or Replace Host connectivity Ports as Required			
11	Multi-path Software	Multi-path software providing path fail-over for all blades connecting to storage			
12	Power & Cooling	Redundant power and cooling			
13	Rack Rails	Rack mount kit with all accessories			
14	Management	Management software along with Storage			
15	Expandability	Should support a minimum of 150 Disk drives or more			
16	Drive Form Factor	Should support both 2.5" and 3.5" Disk Drives			
17	SAN to SAN Replication optional	Support SAN to SAN Replication (If Required in Future)			

Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			

Agreed with other terms & conditions:		
Signed & Stamped documents:		

NOTE:
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.
4- The local authorized dealers should mention their service and setup, details of qualified engineers, etc.
5- The vendor is responsible for the installation , Configuration, Management, software, Server Operating System, and provides training for the efficient configuration and management of the system.

Uninterruptible Power Supply (UPS) 30kVA for Control Center

Item	Description	Yes	No	Qty
Input	Nominal Input Voltage: 380V 3PH(as per Pakistan standard) Input Frequency: 50/60Hz Input Connections: Hard Wire 5-wire (3PH + N + G) Number of Power Cords: 1 Load Capacity: 30kVA			02
Output	Nominal Output Voltage: 230VAC,380VAC 3PH Output Connections: 1x Hard Wire 5-wire (3PH + N + G)			
Agency Certifications	cUL Listed, UL 1778, UL Listed or equivalent			
Environmental Requirements	Operating Temperature: 32-104°F (0-40°C) Humidity: 0% Elevation: 0-3333' (0-999.9 m) Storage Temperature: 32-104°F (0-40°C) Humidity: 0%			

	Elevation: 0-10,000' (0-3000 m)			
	Serial/USB Port & RJ45 communication, Plug and Play, Built-in SNMP card for monitoring.			
	Standard back up time			

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed to provide the required warranty of the equipment:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE:
1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.
4- The local authorized dealers should mention their service and setup, details of qualified engineers, etc.
5- The vendor is responsible for the installation, Configuration, Management, software, and provides training for the efficient configuration and management of the system.

Public Address System for Station and Command & Control Center

SR. No.	ITEM	DESCRIPTION	Yes	No	Qty
1	Public Address System (imported) at Stations	Localized public address system at station platforms with imported / branded			22 Nos.
		4 speakers (wall mount) at platform & 2 speakers(wall mount) at pedestrian bridge with complete announcement system			
		1 heavy duty imported / branded amplifier			
		Microphone with stand etc.			
		DVD player with line-In, line-out etc. or USB port in			
		Other standard features etc.			
		Wall mount lockable cabin, Complete system in all aspects			
2	Installation of Public Address System	Installation/ commissioning/cabling (electrical & audio) / testing of the above system on stations and command & Control Center.			22 Nos.

Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE:

1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.

3. Vendor/Assembler to provide verification of serial numbers of all products.
4. The local authorized dealers should mention their service and setup, details of qualified engineers etc.

IP TELEPHONY

SR. No.	ITEM	DESCRIPTION	Yes	No	Qty
1	IP Phone (Executive) (Hard phone)	Hard IP Phone for executive with color screen display alongwith standard features to connect through LAN to call manager etc.			40 Nos.
2	IP Phone (Non-Executive) (Hard phone)	Hard IP Phone for non-executive with mono screen display alongwith standard features to connect through LAN to call manager etc.			24 Nos.
3	IP Phone (Non-Executive) (Hard phone)	Hard IP Phone for field operations with mono screen display alongwith standard features to connect through LAN to call manager etc.			06 Nos.

4	<p>IP Telephony (IP PBX)</p>	<p>Minimum of 100 Extensions Ports Analog trunk with CLI,PRI Cards, Analog Extensions with CLI, IP Gate way Card of same manufacturer with built in 16 IP Trunks and 70 IP Extensions (Expandable to 128 IP Extensions) ,SIP Phone Licenses of the same manufacturer (Not Third Party) ,Music on Hold Feature, Documents Manual (CD), Local, Onsite Training of the same according to requirements, auto attendant 12 Ports simultaneous access (not 3rd party), Standalone operating system. Call logging software with Telephone directory for All Extension and trunk status Same manufacturer with CLI, Recall and other standard function (exchange must be compatible for nonproprietary telephone sets) Digital Tele Phone Sets SIP/IP Phones of Same manufacturer MDF Box 20 line with surge protection for Trunk & Extensions. Rack Mounted PABX, Brochures & compliance sheets etc 100 % Speech Path ,64 Different Class of services for different users The vendor must have PTA Approved Letter of quoted model and manufacturers authorization letter Support minimum one (01) PRI Line.</p>			01 Nos.
5	<p>Installation</p>	<p>Onsite installation/commissioning/cabling integration (FTP cabling at 24Nos stations & Command & Control and Data Center (from ticket booth to station cabinet to Command and Control Center /testing of the above system.</p>			1 Job

Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			

Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):		
Direct / Authorized Distributor/Dealership certificate (Offered Brand)		
Agreed to provide the requisite quantity with in time frame:		
Agreed to provide the required warranty of the equipment:		
Agreed with other terms & conditions:		
Signed & Stamped documents:		

NOTE:

1. Maximum down time for all components including replacement of the whole unit as per SLA.
2. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
3. Vendor/Assembler to provide verification of serial numbers of all products.
4. The local authorized dealers should mention their service and setup, details of qualified engineers etc.

	Features	Data Center Core Switches (Data Center) Description	Unit	QTY	Compliance	
			No's	02	Yes	No
Data Center Core Switches (Data Center)	Chassis	Eight-slot modular chassis				
	High Availability	1+1 Routing Engine Redundancy Redundant Switch Fabric Redundant Power Supplies				
	Backplane Speed	6.2 Tbps or higher				
	Throughput	960 Mpps or higher				
	Layer 2 features	Jumbo frames (9216 Bytes) <ul style="list-style-type: none"> • 4,096 VLANs • VLAN Registration Protocol (GVRP) • Private VLAN (PVLAN) • 802.3ad – Link Aggregation Control Protocol (LACP) • 802.1D – Spanning Tree Protocol (STP) • 802.1w – Rapid Spanning Tree Protocol (RSTP) • 802.1s – Multiple Instance Spanning Tree Protocol (MSTP) • VLAN Spanning Tree Protocol (VSTP) • IEEE 802.1p: Class-of-service (CoS) prioritization • IEEE 802.3u: 100BASE-T • IEEE 802.3ab: 1000BASE-T • IEEE 802.3z: 1000BASE-X 				

		• IEEE 802.3ae: 10-Gigabit Ethernet				
	Layer 3 Features	<ul style="list-style-type: none"> • Internet Group Management Protocol (IGMP) v1/v2/v3 • IGMP snooping v1/v2/v3 • Protocol Independent Multicast PIM-SM, PIM-SSM, PIM-DM, MSDP • RIP/RIPNG, OSPF, BGP, IS-IS • IPv6 				
	Quality of service (QoS)	<ul style="list-style-type: none"> • 8 egress queues per port • Weighted Random Early Drop (WRED) scheduling • Shaped Deficit Weighted Round Robin (SDWRR) queuing • Strict priority queuing 				
		HTTP/HTTPS, SSHv2, SNMP v1,2,3, RMON, NTP, DHCP server, DHCP Relay, RADIUS, TACACS+, SYSLOG logging				

	SERVICES	SERVICES				
	Core Switches Installation	Onsite Installation & along with electrical, calibration/ Testing with accessories including Piping/Ducting, electrification Etc. (Core Switches Job) Testing & Commissioning of entire Site System	No's	02		
		Offered Brand (Attachments)	YES	NO		
	Mentions	Provide Name No: _____ _____ Make / Brand Name: _____ _____ Model Name: _____ _____ Sub-Model (if any): _____ _____				
		Boucher / Technical Datasheet with Make, Model & Sub-Model (if any):				
		Direct / Authorized Distributor/Dealership certificate (Offered Brand)				
		Agreed to provide the requisite quantity within time frame:				
		Agreed with other terms & conditions:				

		Signed & Stamped documents: _____ -				
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	Data Center Firewall (Data Center)	Unit	QTY	Compliance	
Features	Description	No's	02	Yes	No
Firewall performance	55 Gbps				
IPS performance	15 Gbps				
AES256+SHA-1 / 3DES+SHA-1 VPN performance	15 Gbps				
Maximum concurrent sessions	2.25 M sessions or more				
New sessions/second	270,000 or more				
available slots	6 slots				
Fixed I/O ports	Minimum 8 10/100/1000 BaseT				
LAN interface options	16 x 1 10/100/1000 copper 16 x 1 Gigabit Ethernet small form-factor pluggable transceivers (SFP) 2 x 10 Gigabit Ethernet XFP				
High-availability support	Active/Passive, Active/Active or Interface aggregation groups across chassis cluster				
	Application Identification				
	Application Denial of Service Protection (AppDoS)				
	AppTrack				
	AppQoS				
	AppFW				
Firewall	Network attack detection				
	DoS and DDoS protection				
	TCP reassembly for fragmented packet protection				
	Brute force attack mitigation				
	SYN cookie protection				
	Zone-based IP spoofing				
	Malformed packet protection				
	GPRS stateful inspection				
Intrusion Prevention System	Stateful protocol signatures				
SERVICES	SERVICES				

Firewall Installation	Onsite Installation & along with electrical, calibration/ Testing with accessories including Piping/Ducting, electrification Etc. (Firewall Job) Testing & Commissioning of entire Site System	No's	02		
	Offered Brand (Attachments)	YES	NO		
Mentions	Provide Name No: _____ - Make / Brand Name: _____ - Model Name: _____ - Sub-Model (if any): _____ -				
	Boucher / Technical Datasheet with Make, Model & Sub-Model (if any):				
	Direct / Authorized Distributor/Dealership certificate (Offered Brand)				
	Agreed to provide the requisite quantity within time frame:				
	Agreed with other terms & conditions:				
	Signed & Stamped documents: _____				

Rack Mount Sine Wave 5000VA 230V UPS

	Item	Description	Unit	QTY	Compliance	
			No's	21	Yes	No
Rack Mount Sine Wave 5000VA 230V UPS	Form Factor	Rack mount				
	Output Power Capacity	4500 Watts / 5000 VA				
	Nominal Input/ Output Voltage	230V				
	Output Voltage Distortion	Less than 3%				
	Topology	Double Conversion Online				
	Waveform Type	Sine wave				

Output Connections	IEC 320 C13/ IEC 320 C19 / IEC Jumpers 				
Bypass	Internal bypass (Automatic /Manual)				
Input Connections	Hard wire , 3 wire (IPH +N +G)				
Nominal Input Voltage	230				
Battery Type	Maintenance free lead acid , Battery with suspended electrolyte , leak proof				
Typical recharge time	3 hours (50% to 100 %)				
Surge Protection and Filtering	480 Joules				
Interface Port(s)	Contact Closure, RJ-45 10/100 Base-T,RJ-45 Serial, Smart-Slot, USB				
RoHS	Compliant				
Network Management Card (Included)	Fast Ethernet management from Web based management				
Back up Time	4 hours				
SERVICES	SERVICES				
Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. (Per UPS Job) Testing & Commissioning of entire Site System	No's	21		
	Offered Brand (Attachments	YES	NO		
	Provide Name No: _____ Make / Brand Name: _____ Model Name: _____ Sub-Model (if any): _____				
	Boucher / Technical Datasheet with Make, Model & Sub-Model (if any):				
	Direct / Authorized Distributor/Dealership certificate (Offered Brand)				
	Agreed to provide the requisite quantity within time frame:				

		Agreed to provide the required warranty of the equipment:				
		Agreed with other terms & conditions:				
		Signed & Stamped documents:				

	Features	Description Modules, Hardware and Passive Materiel	No's		Yes	No
SERVICE S Modules, Hardware and Passive Materiel	SFP Module 1 G	48x1G optical (SPF) line card with 16x1G multimode optical transceivers (for NOC switching uplinks and other future uplinks). (Core Switches)	No's	At Actual		
	SFP Module 10 G	24x10G optical (SPF+) line card with 12x10G multimode SFP+ optical transceivers (for servers and storage connectivity to main Core switch) (Core Switches)	No's	At Actual		
	SFP Module 10 G	8x10G single mode (10km) SFP+ optical transceivers (for stations ring network connectivity to main core switch) SFP Single Mode (Core Switches)	No's	At Actual		
	SFP Module 8 Gbps	8 Gbps Short-wave Length SFP Modules (Blade Servers)	No's	At Actual		
	SFP Module 1 G	Layer – 2 Manageable Ethernet Switches (NOC)	No's	At Actual		
	SFP Module 1 G	4xGE SFP ports (Layer – 2 Manageable Ethernet Switch (Metro Bus Stations Site Data Cabinet)	No's	At Actual		
	SC to SC 1-G	SC to SC 1-G Patach cord 3-meter	No's	At Actual		
	SC to SC 10-G	SC to SC 10-G Patach cord 3-meter	No's	At Actual		
	SC to SC 10-G (Single Mode)	SC to SC 10-G Patach cord 3-meter	No's	At Actual		
	STP Cable Roll	STP CAT 6 Cable Roll, 1000-Feet/Box	No's	At Actual		
	Patch Cords	Patch Cords Cat-6 Patch Cords 3 Meter	No's	At Actual		
	Patch Cords	Patch Cords Cat-6 Patch Cords 3	No's	At Actual		
	Cable Manager	Cable Manager	No's	At Actual		
	Patch Panel	Patch Panel Cat 6 24 Port	No's	At Actual		
	IO's (Face Plate with Input/ Output IO's)	Dual Port Face Plate with CAT 6 IO's	No's	At Actual		
	SERVICES					
Entire Network,	Installation Testing, integration & Commissioning the Entire Network,	JOB	01			

	STP Cabling/ Networking	STP/Pipe: Cable Laying for STP and Pipe/Duct Fixing with essentials Material, Patch Panel, Cable manager and IO'S Fixing/Testing Which Includes(Data Center, NOC and station Site)				
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DESKTOP COMPUTERS (with Dual monitor)

S. No	Item	Description	Yes	No	QTY
1.	Brands	Foreign renowned brands			
	Processor	Intel Core i7 4770K or higher			28 Nos
	Mother Board	Latest available chipset supporting above processor			
	Memory	16 GB DDR3 1600 MHZ bus or more			
	Hard Disk Drive	500 gb sata 3 or more (preferably SSD)			
	Optical Drive	16X or above DVD +/- RW Drive or Higher			
	Display Card	Can display 16 video pans of CCTV surveillance system simultaneously			
	Sound Card	Integrated on-board Sound card			
	Network Adapter	10/100/1000 Ethernet LAN on system board (Microsoft Windows 2000/XP/2003/vista/7, Red Hat Linux Supportive).			
	Monitor	2 x 19" (Two monitor "work as dual/ multi monitor") or higher Flat TFT/LCD Screen of high quality.			
	Mouse & Keyboard	Standard Keyboard and 2-Button Optical Mouse with Scroll			
	Casing	Mini Tower Casing with manufacturer Power Supply according to above load.			

I/O Interfaces and Expansion Slots	Video: 15-pin VGA video connector, DVI, USB: 6 or more USB Ports (2 front, 4 back), 1-2 Display ports with adapters + cables etc to connect two monitor, Audio: back-panel & front-panel connectors. Other: 1 Serial, 2 PS/2 for Keyboard and Mouse, 1 RJ-45 10/100/1000. At one PCIe slots etc. HDCP,HDMI One Dual Link DVI-I, One Dual Link DVI-D, One HDMI, One Display Port Standard Display Connectors Internal Audio Input for HDMI			
Dual DVI cards for workstations	Multi-display graphics cards support up to eight high-resolution monitors from a single board and deliver advanced desktop management features to drive productivity. Drive Multi-Display Applications with Extraordinary Performance			56

Installation	Onsite networking Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity with in time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

NOTE:
1. down time for all components including replacement of the whole unit as per SLA.
5. Please mention the country of origin/manufacturing/assembly of the quoted brand/model.
6. Vendor/Assembler to provide verification of serial numbers of all products.

Connectivity Specifications

Provision of fiber optics media is required at MBS route to fulfill the connectivity requirements of **IT SYSTEMS** and to cater for the future needs at **MULTAN METROBUS SYSTEM**. The media will be initially used for IT Systems and data transmission from other service provider and must have the provision of following items

Dedicated Fiber Optics cable deployment is required on
Twenty one (21) Bus Stations and MBS track.

The network media should be capable to cater for the initially data requirements of IT Systems
And AFC- BSS:

- All backbone connectivity (end to end) is required on state of the art GPON (10G) (Gigabit passive optical Network)
- Provision of duct (4'' Inches PVC) pipe is already available on MBS track
- Layer 3 connectivity is required on each node for IT System
- Provision of independent multiple VPNs and VLANs
- Provision of IP Pool on each nodes and aggregation site is required as per actual basis
- Aggregation on DC
Handoff is required on Gigabit interface
- Operations and Maintenance of the fiber network will be the sole responsibility of solution provider
- Guaranteed Network uptime 99.5% is required
- Laying, installation and deployment of following items

GPON complete solution keeping in view of RFP need to be proposed, including all hardware i.e. OLT, ONT and other accessories etc.

Sr.	Item	Type
1	Single mode Fiber Cable	48 core Fiber (Steel Armoured)
2	ODF / Attachments / Misc	As per industry Standard

Note: The above feature list covers the bare minimum requirements, however any services provider can proposed any value added features.