



# INVITATION FOR BIDS



## **Punjab Masstransit Authority (PMA)**

**Invites Tender for**

### **Provision, Commissioning, Installation, Calibration, Integration, Testing and Execution of IT-SYSTEMS (CCTV SURVEILLANCE AND CONNECTIVITY) FOR FEEDER ROUTES IN MULTAN**

For details, please download Tender Documents from

**[www.pma.punjab.gov.pk](http://www.pma.punjab.gov.pk)**

**[ppra.punjab.gov.pk](http://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, 5<sup>th</sup> Floor, Arfa Software Technology Park, 346-B Ferozpur Road, Lahore, no later than 1500 Hours on October 20, 2015. The Technical Proposal will be opened at 1530 Hours on October 20, 2015 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 1500 Hours on October 7, 2015, 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, 5<sup>th</sup> Floor, Arfa Software Technology Park (ASTP)  
346-B, Main Ferozpur Road, Lahore, Pakistan. TEL: +92 (42) 99028000**

**Fax: +92 (42) 99232541**

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**PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION,  
INTEGRATION, TESTING, AND EXECUTION OF IT SYSTEMS (CCTV  
SURVEILLANCE & CONNECTIVITY) FOR FEEDER ROUTES IN  
MULTAN**

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

5<sup>th</sup> Floor, Arfa Software Technology Park (ASTP)

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

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

URL: [www.pma.punjab.gov.pk](http://www.pma.punjab.gov.pk)



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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) (IT Systems) for The Feeder Routes in Multan (including all hardware, software, networking, etc), and configuration, customization, deployment, and maintenance of the entire solution.
2. Operations and Maintenance at Feeder Routes & 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 Feeder Routes and Command and Control Center (C&CC) 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: Tuesday, October 20<sup>th</sup>, 2015 (3:00pm)–5th floor Arfa Software Technology Park, Ferozepur Road, Lahore.**
- 2. Pre-bid meeting: Wednesday, October 07<sup>th</sup>, 2015 (3:00pm) – 5<sup>th</sup> 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) FOR FEEDER ROUTES 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://www.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 5<sup>th</sup> floor, Arfa Software Technology Park, 346-B, Ferozepur Road, Lahore, Pakistan, on or before **3:00 pm on October 20<sup>th</sup>, 2015**. The Technical bids will be publicly opened in the Committee Room of the Punjab Masstransit Authority, 5<sup>th</sup> Floor, Arfa Software Technology Park, 346-B, Main Ferozepur Road, Lahore, at 3:30 pm on **October 20<sup>th</sup>, 2015**.

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 **07<sup>th</sup> October 2015**. 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)  
5<sup>th</sup> Floor, Arfa Software Technology Park,  
346-B, Ferozepur Road, Lahore, Pakistan.  
Telephone: +92 42 99028000 Ext: 6006  
FAX: +92 42 99232541  
**Email:** [it.systems@pma.punjab.gov.pk](mailto: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 FOR THE FEEDER ROUTES IN MULTAN as asked for in the Tender Document. Initial phase is for IT Systems implementation for approximately eleven (11) Feeder Routes 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, Connectivity, Data Center Server/Racks/Storages, for the Feeder Routes and Command & Control Centre in Multan, Pakistan.

6.2 In the first phase, the Integrated IT Systems solution needs to be rolled out for approximately eleven (11) Feeder Routes. Eventually the IT systems will be extended for other Routes in Phase Wise as well.

6.3 The Purchaser intends to augment the existing system by adding the following components in the subsequent phases within first three (03) years from the commencement of the operations.

- 100% more cameras alongwith all allied components for feeder routes.
- Storage as per requirement

The contractor upon receiving a written order from the purchaser shall incorporate the additional services into the existing system. Payments for the additional services shall be made against quoted rates on prorated basis from the date of commissioning for the remainder of the contract.

If such phase are undertaken by the purchaser after three (03) years of commencement of operations, the Contract may be extended accordingly with mutual consent of both parties. However, during such extension(s) of the contract the payment shall be made at quoted rates on prorated basis.

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

CCTV Surveillance System  
Data Center/Servers, Infrastructure Racks (Imported) & Data Storages  
Connectivity

6.5 High-level requirements for these systems are outlined in relevant sections in this document. It is mandatory that interested bidders propose only reliable, proven, deployed solutions, incorporating industry best practices.

## 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%
<b>Total</b>		<b>2060</b>	<b>100%</b>

### 7.2 Passenger Trips by Vehicle Type

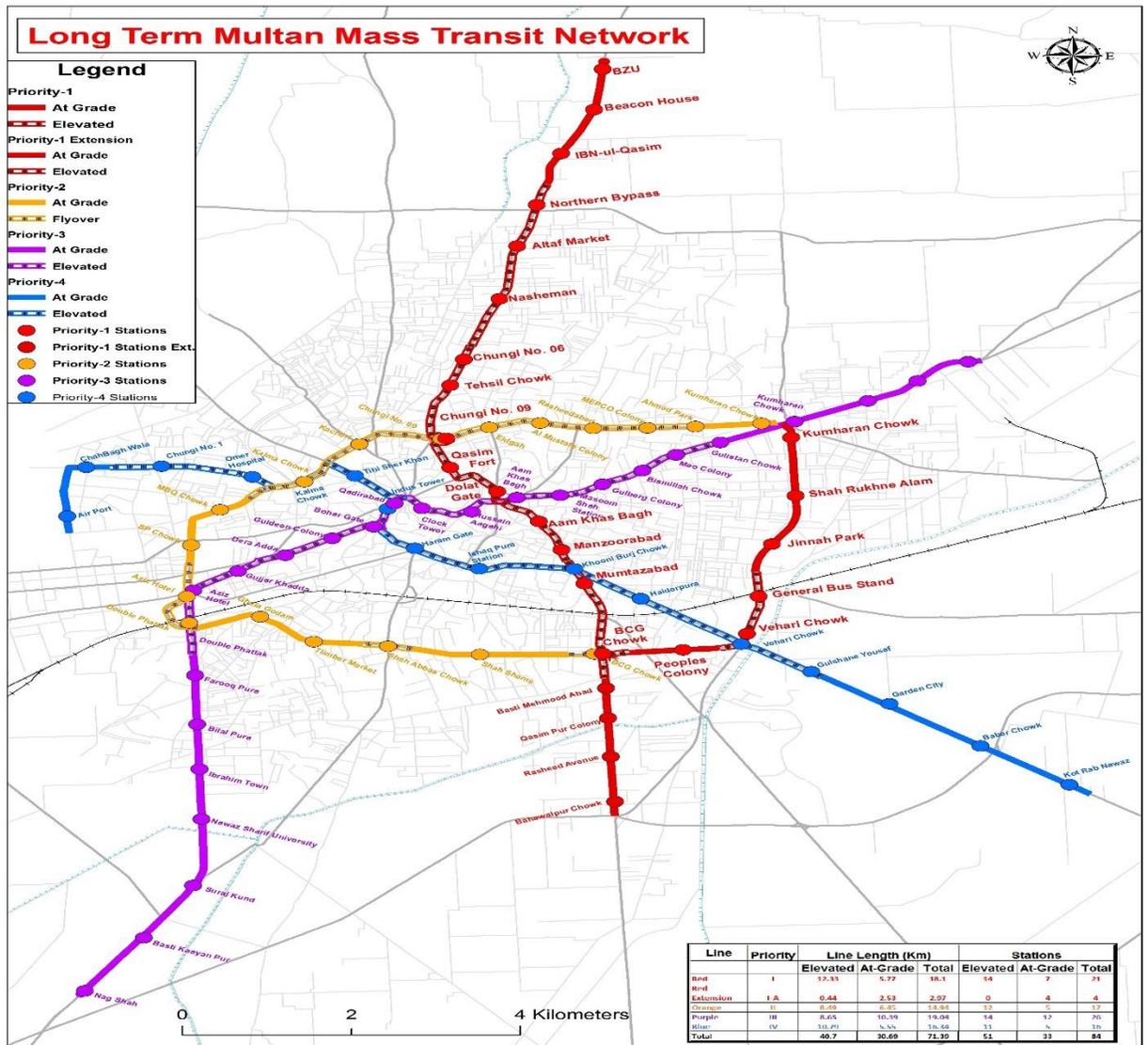
Table below shows the estimated mode share and trip making in Multan.

Table: Passenger Trips by Vehicle Type

Mode		Trips (,000)	Proportion
Public Transport ( Wagon, Mazda, Public Bus & Qinqi)		531	39.5
Private Vehicles	Cars	203	15.13
	Motorcycles/Bicycles	607	45.26%
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:

<b>Length of Route:</b>	<b>18.50 KM</b>
<b>i. At Grade</b>	<b>6 KM</b>
<b>ii. Elevated</b>	<b>12.5 KM</b>
<b>Bus Stations:</b>	
<b>i. At Grade</b>	<b>7</b>
<b>ii. Elevated</b>	<b>14</b>
<b>Total</b>	<b>21</b>

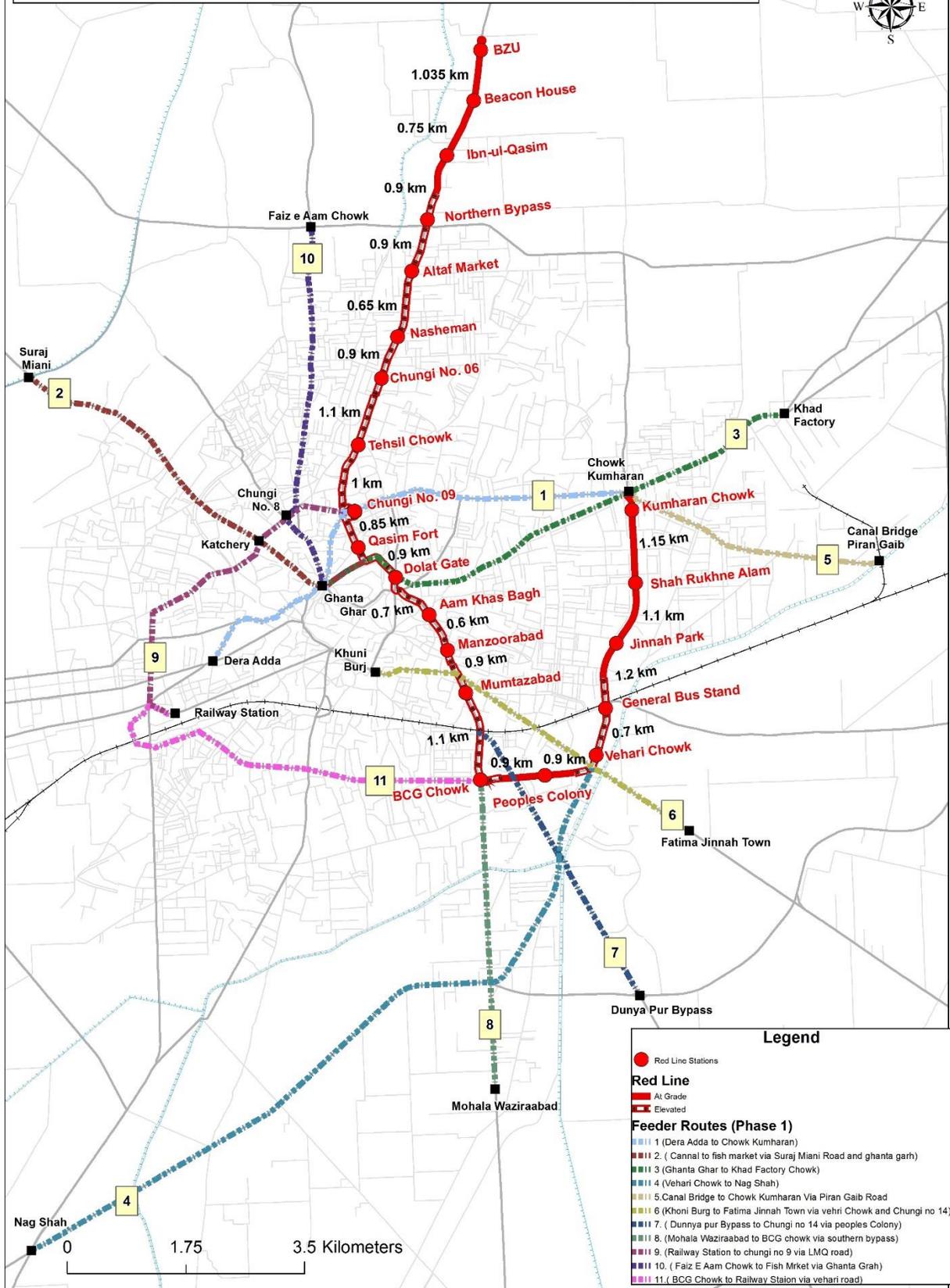
#### **7.4 Feeder Bus System**

The GoPb intends to facilitate the passengers of Multan Metrobus System and provide integrated transport system. The physical, operation and fare integration aspect of integrated transportation system will be catered for between Metrobus and feeder bus system. The feeder routes will be operated to board and alight passengers in order to feed Metrobus stations. The services hours and frequency will match the Metrobus operation.

PMA initially plans eleven (11) feeder routes; having total route length of 68 Km's to feed the Multan Metrobus stations. The numbers of feeder buses to be operated on the eleven routes are 100 in number. The feeder buses will have automated fare collection system coupled with necessary hardware and software to authenticate entry/exit of passengers into Feeder buses, and to monitor adherence to bus schedules. The Metrobus card will be used both in Metrobuses and feeder routes to get free or discounted transfer. Smart cards may be recharged to a stated, agreed upon max limit, for travel onto Metrobus stations and feeder routes.

The Driver Console Unit installed on buses shall be used to track buses accurately and reliably. The back-end system shall be able to produce MIS reports and bus-schedule adherence report and kilometers travelled by each bus of the operator. To accomplish this, The Client will receive live passenger data, financial data, and Automatic Vehicle Location data in Metrobus Command and control center. The Feeder routes operation will be monitored via Surveillance camera installed along the Metrobus Corridor. The whole operation will be monitored and controlled by Punjab Metrobus Authority from Command and Control Centre.

# Multan Integrated Public Transport Network (Phase 1)



## 7.5 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.

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

7.6 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, Data Cabinet for the Command & Control Centre and Feeder Routes in Multan, Pakistan (hereinafter called the "Project").

7.7 The scope of work is limited to area of feeder routes in Multan. The key components of the scope are provided below.

### 7.7.1 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.

### 7.7.2 Data center

- a. Furnish and install Data Centre equipment and requisite hardware (computing and switching).
- 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

### 7.7.3 Network

- a. Providing connectivity through reliable media (fiber and wireless) from Feeder Routes to DC to Command and Control Center; 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.

**7.7.4 Command & Control Centre hardware**

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

**7.7.5 Integration**

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

**7.7.6 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.

**7.8 Future Expansion Plans**

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 feeder routed to 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 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 centralize dashboard to determine downtime and performance of equipment installed on Feeder Routes, 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.
40. The Purchaser intends to augment the existing system by adding the following components in the subsequent phases within first three (03) years from the commencement of the operations.
  - 100% more cameras alongwith all allied components for feeder routes.
  - Storage as per requirement

The contractor upon receiving a written order from the purchaser shall incorporate the additional services into the existing system. Payments for the additional services shall be made against quoted rates on prorated basis from the date of commissioning for the remainder of the contract.

If such phase are undertaken by the purchaser after three (03) years of commencement of operations, the Contract may be extended accordingly with mutual consent of both parties. However, during such extension(s) of the contract the payment shall be made at quoted rates on prorated basis.

## **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.

## **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 Feeder Routes 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 Provision of video streams on Video Wall System (video wall) to display video streams on the video wall.
- 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, Data Cabinets, Switches, Connectivity and other allied IT equipment's installed at Feeder Routes, and Data Center Server/Racks/Storages, 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**

Uninterruptible Power Supply is needed to ensure power supply for all IT Systems equipment/components deployed at Feeder Routes. Power backup to be proposed must take into account the capacity required to run all components of IT Systems at the Feeder Routes.

#### **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. Regular data backups must be maintained.

#### **12.3 Connectivity**

24/7 connectivity 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 has 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 feeder routes.
- Network: List of locations alongwith the required network type at each location. It should include all fixed/ wired /wireless/ fiber communication points.
- Integration: Bidder is required to do all integration. These include Feeder Routes 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 Feeder Routes.
- Bidder needs to install configure the cameras on the location.
- Any work related to installation of camera like, customization, cabling etc. would be part of bidder's scope of work.

##### b. Integration with Command and Control Centre

- Command and Control Center will be established at Chungi No. 9, Multan.

- Furnish 24/7 Communication and Information services at the command & control center.
- Electrical and network design and cabling.
- Any work related to integration with video wall, workstations cabling, networking, and installation is part of bidder's scope of work.

#### 12.6.2. Data center (DC)

a. Provision IT System according to best practices (Data center standards Tier 3 compliant (bidder will provide undertaking that provisioned datacenter is Tier 3 compliant)). The contractor shall establish a Data Center at a suitable place of his own choice.

- Bidder is required to secure all equipment at Tier3 compliant DC at the appropriate location.
- DC to be connected with Command & Control Center.

b. Including:

- Dynamic and efficient precision cooling system should be available for DC
- Precision Cooling System for DC should be available with no single point of failure, best of breed products, maximum flexibility, scalability and accessibility for maintenance.
- Electrical and Mechanical actual load consumption shall be considered for design of power system
- Floor plan and flooring would also be part of bidder's scope of work.

c. Provisioning and installation of hardware including servers, storage, racks etc.

- Bidder is 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.

#### 12.6.3. Network

- a. Providing connectivity on fiber/wireless from Feeder Routes to DC; DC to Command and Control Center; Command and Control Center to DC. All switching/routing is the part of connectivity. The network media should be capable to cater for all the data requirements of IT Systems.
  - 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 connectivity between the locations. It is expected that there would be minimum connectivity failure 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.

#### 12.6.4. Office hardware

- a. Supply and install office LAN, office switch/ router, 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.

#### 12.6.5. Integration

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

- Command and Control Center

- Video Surveillance
- Location/Feeder Routes
- 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
  - 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 Feeder Routes, 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 PMA Feeder Routes, including the data network, so as to ensure timely, un-interrupted transmission of data between IT Systems at feeder routes and at C&CC& datacenter.
- 14.2.2 Reliable/redundant network availability.
- 14.2.3 Linking any network equipment etc. and power supply.
- 14.2.4 Usage of automated tools to monitor network performance at Feeder Routes Locations, access must be provided to stakeholders.

#### **14.3 Feeder Route Equipment**

- 14.3.1 Deployment (and security) of Cameras, 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.

#### **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 Feeder Routes, C&CC, 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.

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 FOR THE FEEDER ROUTES IN MULTAN**

between

**[Purchaser]**

and

**[Contractor]**

Dated:

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### III. Technical Specifications

## 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 \_\_\_\_\_

Signature \_\_\_\_\_  
 CNIC # \_\_\_\_\_  
 Name \_\_\_\_\_

Designation \_\_\_\_\_

\_\_\_\_\_  
Address \_\_\_\_\_

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 1<sup>st</sup> 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 Feeder Routes Operation in Multan or
- B. 180 days after the issuance of LOA from the date of 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 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 Feeder Routes/Cameras 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
- 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 38<sup>th</sup> 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 Service Provider, provides evidence to establish that he has followed all the codal formalities to enable himself to initiate works on the site and provided that 15 days have elapsed in such efforts and provided that necessary permissions are not granted by the concerned authorities to carry out such works at that site;

**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 and sixteen 120 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 Feeder Routes, C&CC and DC, does not undergo power outage resulting from malfunctioning of Uninterruptible Power Supply (UPS).

**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 centralized dashboard to determine downtime of equipment installed on, Feeder Routes, 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**

74.1.1 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:	
<b>Tender Security</b>	<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>
<b>Performance Security</b>	<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>
<b>Start operation of Services after installation, configuration, deployment, commissioning, testing, and training</b>	Fully functional IT Systems setup for feeder routes of PMA <b>within 120 Calendar Days</b> from the issuance of LOA.
<b>Liquidated damages for failure / configuration of Services by the Contractor</b>	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

	<p>per following schedule:</p> <ul style="list-style-type: none"> <li>iv. @0.25% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation, for first 30-days</li> <li>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</li> <li>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 38<sup>th</sup> day</li> </ul> <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> <p>the Service Provider, provides evidence to establish that he has followed all the codal formalities to enable himself to initiate works on the site and provided that 15 days have elapsed in such efforts and provided that necessary permissions are not granted by the concerned authorities to carry out such works at that site;</p>
<b>Legal Status to Work in Pakistan</b>	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. 28) 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 PTZ Camera (Outdoor) Feeder Routes	257	
2	Network Video Recorder	1 Solution	
3	CAMERA CONSOLE	28	
4	Ethernet Switches (Manageable) NOC	4	
5	Ethernet Switches (FOR LAN)	4	
6	CABINETS (with accessories)	As Per Actual	
7	DATA CABINETS (with accessories)	As Per Actual	
8	SERVER FORM (CHASSIS) FOR BLADE SERVERS	As Per Actual	
9	SERVER FORM (MID RANGE BLADE SERVERS)	10	
10	Server Infrastructure Rack 42U (Imported/Branded)	6	
11	SAN STORAGE (700 TB)	1	
12	STORAGE (100 TB) (Direct Attached Storage)	1	
13	Data Center Core Switches (Data Center)	2	
14	Data Center Firewall (Data Center)	2	
15	Modules, Hardware and Passive Materiel	As per Actual	
16	Connectivity for Feeder routes	Solution	

17	<b>Data Centre</b>	Solution	
18	<b>Solar for PTZ Cameras on Feeder Routes</b>	257	
19	<b>Poles for PTZ Cameras for Wireless and Solar Equipment at Feeder Routes</b>	257	
20	<b>Any other Hardware/software/component required</b>	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 Projects implemented  Lay out and Connectivity (fiber optics and Wireless) 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 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)

4	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
5	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
6	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
7	Setting up local workshops or engaging local partner for maintenance of equipment deployed – detailed plan must be shared	05	1 local workshop =5 Points 0 local workshop =0 Points	Documentary Evidence
8	Average Annual Turnover last three years in Millions	10	≥350= 10 Points ≥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.
9	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	Same as of Criteria for Average Annual Turnover at Sr. # 10

			More than 5 to 10= 3 Points Less than 5= 0 Points	
<b>TOTAL</b>		<b>85</b>	<b>Minimum Passing Marks = 60%</b>	

**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	<b>Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for 257 camera installation at Feeder Routes of Multan</b> (including but not limited to provision, commissioning, installation, calibration, integration, testing and execution of CCTV surveillance system, connectivity (fiber optic) , Solar System, Pole (IT Systems) for the Feeder Routes in Multan)	A
2	<b>Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for 257 camera installation at Feeder Routes of Multan</b> (including but not limited to provision, commissioning, installation, calibration, integration, testing and execution of CCTV surveillance system, connectivity (Wireless) , Solar System, Pole (IT Systems) for the Feeder Routes in Multan)	B
<b>SUB TOTAL</b>		C
3	<b>Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for all back office services including Data center, Switches, Routers etc. (including but not limited to provision, commissioning, installation, calibration, integration, testing and execution of (IT Systems) for the Feeder Routes in Multan)</b>	

4	Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for all back office services including Command & Control Center equipment, Switches, Routers etc. (including but not limited to provision, commissioning, installation, calibration, integration, testing and execution of (IT Systems) for the Feeder Routes in Multan)	
5	Monthly Service Charges for provisioning and maintaining all IT Systems services stated in this RFP – for all back office services including Storages etc. (including but not limited to provision, commissioning, installation, calibration, integration, testing and execution of Storages (IT Systems) for the Feeder Routes in Multan)	
<b>SUB TOTAL</b>		<b>X</b>
<b>TOTAL</b>		<b>Z</b>

Where  $Z = X + C$

And  $C = D \times 0.8 + E \times 0.2$

**D = Minimum of A and B**

**E = Maximum of A and B**

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

**The successful bidder shall provide 80% of the solution at cost PKR ‘D’ per month and a 20% of the solution at cost of PKR ‘E’ per month.**

**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 Feeder Routes/Cameras.
- iv. New Feeder Route/modules may be added at any time during the contract period at the same average monthly service charge (per module, as the case may be) as mentioned above in Price Table.

Date \_\_\_\_\_

Place \_\_\_\_\_

Signature of authorized person

Name:

(Company Seal)

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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-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

\_\_\_\_\_  
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.**

<b>Fault levels Category</b>	<b>Definition</b>	<b>Initial Response</b>	<b>Resolution</b>
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 action to prevent	100%	Root cause report stating problems faced by the users Document detailing corrective action	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 for more than one calendar month for any of such case.

		further issues from same cause.			
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	Real time Surveillance feed loss Feeder Route	CCTV surveillance cameras live feed loss	85%	Real time Data Feeds	1% penalty on monthly charges for less than 85%. 3% monthly charges for less than 83% 5% monthly charges for less than 81% 10% monthly charges for less than 80%
9	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
10	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
11	Network Monitoring & Management	Contractor to monitor the Network link for 85% uptime.	85%	Downtime Reports Reports on Network Performance	2% penalty on monthly charges for less than 85%. 5% monthly charges for less than 83%. 10% monthly charges for less than 80% as reported by monitoring system.

		Contractor to monitor the active equipment of Network for 85% uptime.	85%	Downtime Reports Reports on Network Performance	1% penalty on monthly charges for less than 85%. 3% monthly charges for less than 83% 5% monthly charges for less than 80% as reported by monitoring system.
12	Loss of Video feeds before one month	Per Camera	N/A	PMA Record Report	50,000 on each incident
13	Failed to submit invoice in first 10 working days of the month	N/A	N/A	N/A	30,000 on each incident
14	System time not confirms with Pakistan Standard Time	N/A	N/A	PMA Record Report	5,000 on each incident
15	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
16	Violation of scope of work/services (Any act of nonconformance to PMA rules, instructions, scope of services if not covered in	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.

	SLA)				
17	Wrong Tagging of Camera	Per Camera	N/A	PMA Record Report	5,000 on each incident
18	Camera constantly blurry	Per Camera	N/A	PMA Record Report	15,000 on each incident
19	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:**

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

**"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 (150 meter plus minus) to provide surveillance coverage for Feeder Routes. To cover the Feeder Route in Phase-I 367 PTZ cameras are estimated. Selected vendor is responsible for all the necessary arrangements for end to end connectivity throughout Feeder Routs alongwith live feeds in Command & Control Center of PMA by 24x7.



<b>2 Megapixel Outdoor IR PTZ Camera For Feeder Routes</b>		<b>Yes</b>	<b>No</b>	<b>Qty</b>
Specification	Details			257
Image Sensor	1/2 2MP			
WDR	Dual Shutter upto 110 Db			
Num. of Effective Pixels	1920 x 1080 HxV			
Lens	30 X or higher Optical Zoom, 4.5 ~ 148.5mm 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)			257 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:		

<b>NOTE :</b>
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 should have its own/embedded operating system and 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 (System)
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 NVR should have built-in facility to store configuration of any kind of IP cameras. The System should be compatible with the Central Management System/Video Management System.				
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/3.0MP 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				
Power supplies and RAID storage for optimum reliability. Automatic load balancing, Active-Active Failover within a storage pool, multicast recording, and redundant recording.				
Ability to serve 16/32 or more simultaneous playback Streams per NVR.				
The system 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 128 camera channels			
Support up to 30 images per second per camera channel			
RAID 5 hard drive configuration			
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.			
	Micro-module and distributed architecture for unprecedented reliability.			
	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		
<b>Offered Brand (Attachments):</b>	<b>Provide Name</b>	<b>Yes</b>	<b>No</b>
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:		

<b>NOTE :</b>
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:			

<b>NOTE :</b>
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 Active Equipment**

**ETHERNET SWITCHES**

SR. No.	ITEM	DESCRIPTION	Yes	No.	Qty
1	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.

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:			

<b>NOTE :</b>
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
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1	<b>Ethernet Switches (Manageable)</b>	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.
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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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<b>Offered Brand (Attachments):</b>	<b>Provide Name</b>	<b>Yes</b>	<b>No</b>
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:			

<b>NOTE :</b>
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.

**CABINETS (with accessories)**

SR. No.	ITEM	DESCRIPTION	Yes	No	Qty
1	<b>Cabinets with accessories (for Network Equipments)</b> (Imported/branded)	12U 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:			

<b>NOTE :</b>
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
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1	<b>Data cabinets with accessories (for Network Equipments)</b> (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
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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:			

<b>NOTE :</b>
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
	<b>Blade Chassis (Quantity as Per requirement of the Proposed Blades)</b>		-	-	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:			

<b>NOTE:</b>
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)**

<b>Compute Blades (Quad Processor Xeon Blades)</b>		<b>Yes</b>	<b>No</b>	<b>10</b>
<b>1</b>	Installed Processors	2 x Intel XeonE5-4650V2 (2.40GHz/10core) or higher		
<b>2</b>	Max Processors Supported	4 Processors		
<b>3</b>	RAM	64GB Installed (Scalable upto 512GB or Higher)		
<b>4</b>	Integrated NIC's	2-Port 1 Gigabit Network Adapter/mezz		
<b>5</b>	10Gig NIC's	2-Port 10 Gigabit Network Adapter		
<b>6</b>	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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<b>Offered Brand (Attachments):</b>	<b>Provide Name</b>	<b>Yes</b>	<b>No</b>
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:			

<b>NOTE:</b>
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.

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 (700 TB)**

<b>SAN Storage Solution (High End) - 700 TB</b>					
S#	ITEM	DESCRIPTION	Yes	No	Qty
	<b>SAN Storage Solution</b>		-	-	<b>1</b>
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) 175 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" and 3.5" Disk Drives			

17	SAN to SAN Replication	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:			

<b>NOTE:</b>
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
<b>Storage Solution</b>			-	-	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	Should Support SAN to SAN Replication (If Required in Future)			
<b>Offered Brand (Attachments):</b>					
<b>Provide Name</b>			<b>Yes</b>	<b>No</b>	
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:		
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<b>NOTE:</b>
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.

	Features	Data Center Core Switches (Data Center)	Unit	QTY	Compliance	
		Description	No's	02	Yes	No
<b>Data Center Core Switches (Data Center)</b>	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) • 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				

		<ul style="list-style-type: none"> <li>• IEEE 802.3u: 100BASE-T</li> <li>• IEEE 802.3ab: 1000BASE-T</li> <li>• IEEE 802.3z: 1000BASE-X</li> <li>• IEEE 802.3ae: 10-Gigabit Ethernet</li> </ul>				
	Layer 3 features	<ul style="list-style-type: none"> <li>• Internet Group Management Protocol (IGMP) v1/v2/v3</li> <li>• IGMP snooping v1/v2/v3</li> <li>• Protocol Independent Multicast PIM-SM, PIM-SSM, PIM-DM, MSDP</li> <li>• RIP/RIPNG, OSPF, BGP, IS-IS</li> <li>• IPv6</li> </ul>				
	Quality of service (QoS)	<ul style="list-style-type: none"> <li>• 8 egress queues per port</li> <li>• Weighted Random Early Drop (WRED) scheduling</li> <li>• Shaped Deficit Weighted Round Robin (SDWRR) queuing</li> <li>• Strict priority queuing</li> </ul>				
		HTTP/HTTPS, SSHv2, SNMP v1,2,3, RMON, NTP, DHCP server, DHCP Relay, RADIUS, TACACS+, SYSLOG logging				

SERVICES	SERVICES	No's	02		
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				
	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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	<b>Data Center Firewall (Data Center)</b>	<b>Unit</b>	<b>QTY</b>	<b>Compliance</b>	
<b>Features</b>	<b>Description</b>	<b>No's</b>	<b>02</b>	<b>Yes</b>	<b>No</b>
<b>Firewall performance</b>	55 Gbps				
<b>IPS performance</b>	15 Gbps				
<b>AES256+SHA-1 / 3DES+SHA-1 VPN performance</b>	15 Gbps				
<b>Maximum concurrent sessions</b>	2.25 M sessions or more				
<b>New sessions/second</b>	270,000 or more				
<b>available slots</b>	6 slots				
<b>Fixed I/O ports</b>	Minimum 8 10/100/1000 BaseT				
<b>LAN interface options</b>	16 x 1 10/100/1000 copper 16 x 1 Gigabit Ethernet small form-factor pluggable transceivers (SFP) 2 x 10 Gigabit Ethernet XFP				
<b>High-availability support</b>	Active/Passive, Active/Active or Interface aggregation groups across chassis cluster				
	Application Identification				
	Application Denial of Service Protection (AppDoS)				
	AppTrack				
	AppQoS				
	AppFW				
<b>Firewall</b>	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				
<b>Intrusion Prevention System</b>	Stateful protocol signatures				
<b>SERVICES</b>	<b>SERVICES</b>				

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: _____				

	Features	Description Modules, Hardware and Passive Materiel	No's		Yes	No
<b>SERVICE S Modules, Hardware and Passive Materiel</b>	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 feeder route 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 ( Feeder Routes Site Data	No's	At Actual		

		Cabinet)				
	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 (Mulex/Amp/3M/Systimax)	No's	At Actual		
	Patch Cords	Patch Cords Cat-6 Patch Cords 3 Meter (Mulex/Amp/3M/Systimax)	No's	At Actual		
	Patch Cords	Patch Cords Cat-6 Patch Cords 3 (Mulex/Amp/3M/Systimax)	No's	At Actual		
	Cable Manager	Cable Manager (Mulex/Amp/3M/Systimax)	No's	At Actual		
	Patch Panel	Patch Panel Cat 6 24 Port (Mulex/Amp/3M/Systimax)	No's	At Actual		
	IO's (Face Plate with Input/ Output IO's)	Dual Port Face Plate with CAT 6 IO's (Mulex/Amp/3M/Systimax)	No's	At Actual		
	<b>SERVICES</b>					
	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 Site)				

## WIRELESS SPECIFICATIONS for Feeder routes

The following critical features of the industrial wireless system shall be considered.

- The radio solution Point to Point and Point to Multipoint should be based on licensed frequency band. Solutions based on free band or ISM band are not acceptable. It is the bidder's responsibility to acquire the desired frequency spectrum from PTA or use its own existing spectrum
- Industrialized radio for harsh environments.
  - Extended temperature
  - Corrosion proof;
  - Water/Dust impermeability
  - Availability of industrial accessories
- Variable DL/UL ratio permitting higher uplink capacity for applications such as video surveillance and big data applications.
- Capability to handle large and small packets with no effect on throughput and latency.

- Strong robust authentication mechanism (x509 or ECC-elliptic curve cryptography) & secure transmissions with an equivalent military level/standard of encryption is preferable. All the radio data transmission through the network shall be secure using IP based encryption meeting AES 128/256-bit protection requirements. The encryption system shall be fully integrated into the radio modem and protect all communications over the radio links end-to-end.
- Higher throughput, higher packets per second transmission, lower latency, NLOS coverage: all allowing for smaller antennas and lower towers and masts.
- NLOS: Radios must be able to connect with near or non-line of sight to avoid the use of tall masts. To this effect, advanced diversity techniques, known as MIMO-A/MIMO B must be supported on both DOWNLINK & UPLINK. .
- Security for management: SSH, HTTPS, SNMP V3, RADIUS
- Over the air software upgrade support with dual memory banks for download while in service
- Operating temperature -40 C to +70 C

## **MONITORING AND MANAGMENT**

- 1.1.1. The BIDDER shall provide a centralized monitoring and management system located at the central control center. All active equipment and links shall be capable of being monitored and managed remotely using open standards and protocols e.g., SNMP, telnet, and/or HTTP..
- 1.1.2. The management system shall provide for Fault, Configuration, Administration, Provisioning, and Security (FCAPS) management functionality for the deployed systems
- 1.1.3. The NMS shall support the provisioning of equipment parameters, equipment states, passwords and logins in the radio terminal NEs, with appropriate safeguards against affecting in-service connections and facilities
- 1.1.4. The EMS/NMS shall maintain a log of historical alarm information. It shall have the ability to differentiate alarm severity and filter alarms. For example, alarms can be designated as critical, major or minor and displayed with color-coding on maps and tables.
- 1.1.5. If there is loss of connectivity to a Radio terminal NE, a major alarm shall be created by the NMS. The severity of this alarm shall be configurable.
- 1.1.6. The EMS/NMS shall be able to filter/forward SNMP event notifications to external management systems and to individuals or distribution lists by email. The bidder shall describe the external notification capabilities for the management system.

- 1.1.7. The proposed radio system shall offer management by standards based SNMP and the bidder shall state the MIB files supported by the system with a listing of MIB files describing standards based and proprietary MIB files supported.
- 1.1.8. The radio system shall generate autonomous alarms to the operations interfaces in reaction to detection of transmission faults, equipment failures and RF failures.
- 1.1.9. The BIDDER shall indicate which performance and alarm indicators are available. All alarm, equipment status and provisioning information contained in the NE shall be available to the user through the user interface via a retrieve command.
- 1.1.10. The radio system shall include all of the Fault Detection and Monitoring, signal generation, and alarm generation requirements. The device shall perform continuous background self-monitoring and maintain an onboard log file with node status and monitoring results.
- 1.1.11. The radio system shall monitor its software processes and operating system and shall provide a notification to the operational interfaces whenever a fault condition is detected via the diagnostic system.
- 1.1.12. The management system shall offer redundancy with automated background monitoring and fail over. The bidder shall describe the redundancy architecture with facilities for fail-over and system lock-out for maintenance.

**Data Centre Solution:**

- Precision Cooling preferred In-Row DX /Chilled water as per DC load with N+1 redundancy
- DC physical structure should be supported Minimum 6 Racks and maximum 8 load racks, cooling and UPS rack will be over and above of this
- Raised floor should be EU brand and having 1 hour fire resistant option
- False ceiling also be fire resistant
- Fire Suppression System be with Novec-1230
- Hot swappable UPS with 2(N+1) with built-in Power Distribution and capable of SNMP supported
- PDPM should be hot swappable
- Deasil GENSET as per bidder's equipment calculated load with configuration of N+1 redundancy with fueling.

**Solar Solution for Feeder Routes:**

	<b>Quantity</b>
Estimated power load for PTZ camera, switch, wireless equipment and related accessories is to be as per bidders proposed solution. However, it is clarified that the purchaser requires a most efficient solution with least energy requirement.. Service Provider has to propose complete solution for 24/7 solar back up by using state of the art PVC , inverters ,Dry batteries ,cabinets and related cabling and accessories .	<b>257</b>

**Poles for PTZ Cameras for Wireless and Solar Equipment at Feeder Routes:**

	<b>Quantity</b>
Max bus height is 3.8 meter Service Provider has to propose GI pipe based pole with at least 6mm solid metal sheet keeping in view that camera should be installed at height that provide clear view of bus. Minimum height of poles should not be less than 40 ft. All accessories related to poles i.e. foundation , ropes have to be arranged by Service Provider to make vibration/jerk free solution while mounting the solar panel , batteries , inverter , wireless equipment , switch , cabinet and PTZ camera . Vendor has to arrange electrical earthing for all equipment as well. Design file of Pole in soft copy i.e. AutoCAD version to be submitted along with the proposal.	<b>257</b>

**Annex-L Drawings**

<b>APPROX. CAMERA LOCATIONS FOR FEEDER ROUTES (COORDINATES)</b>			
<b>Sr. No</b>	<b>Name</b>	<b>Longitude</b>	<b>Latitude</b>
1	Jinnah Town 2	71.44648582	30.21293338
2	Jinnah Town 1	71.44645480	30.21315507
3	Jammu Wala 2	71.45905904	30.17463776
4	Jammu Wala 1	71.45938062	30.17469890
5	Shah Abbas Chowk 2	71.46493469	30.17418412
6	Shah Abbas Chowk 1	71.46574289	30.17418356
7	Ghalla Mandi 2	71.46879165	30.17335833
8	Ghalla Mandi 1	71.46956239	30.17333016
9	Ayub Center 2	71.47237275	30.17251119
10	Ayub Center 1	71.47317690	30.17254330
11	Basti Alrpur	71.50777683	30.15501929
12	Akbar Colony	71.50266828	30.16312003
13	Mohalla Wazir Abad 1	71.49336424	30.12253210
14	Mohalla Wazir Abad 2	71.49312391	30.12299696
15	Jinnah Garden	71.51229538	30.14786895
16	duniya pur/ Haji pura Bypass	71.51515275	30.14338569
17	Head Nau Bahar 2	71.50389764	30.16147210
18	Shama Ghee Mills 2	71.49285875	30.13170652
19	Shama Ghee Mills 1	71.49301762	30.13137712
20	Head Nau Bahar 1	71.50520050	30.15915908
21	Elementry School	71.50988506	30.15166381
22	Mumtazaabad	71.49176446	30.17842769
23	Bhawalpur Chowk 4	71.49244332	30.14449501
24	Madina Town 1	71.49243314	30.15407456
25	Canal Nau Bahar 2	71.49201583	30.16025293
26	Super Store 2	71.49430078	30.17636659
27	BCG Chowk 2	71.49150757	30.17196241
28	Govt. High School Qasim Pur 1	71.49212751	30.16690089
29	Govt. Girls College 2	71.49192084	30.16337477
30	Bhawalpur Chowk 1	71.49267656	30.14596585
31	Govt. Girls College 1	71.49222244	30.16291545
32	Govt. High School Qasim Pur 2	71.49184652	30.16742973
33	BCG Chowk 1	71.49166848	30.17186066

34	Canal Nau Bahar 1	71.49232610	30.16007793
35	Bhawalpur Chowk 2	71.49232454	30.14631831
36	Madina Town 2	71.49210156	30.15429166
37	Bhawalpur Chowk 3	71.49265720	30.14420627
38	Basti Shorkot 2	71.49270585	30.13695787
39	Basti Shorkot 1	71.49288355	30.13677738
40	Super Store	71.49594664	30.17388500
41	Allah Wasya Chowk	71.49726037	30.17163652
42	Sadat Colony	71.50050422	30.16675043
43	Multan Bypass	71.50334949	30.16229402
44	U-turn Nau Bahar	71.50281417	30.15783721
45	Railway Station 1	71.44452988	30.18200853
46	Railway Station 2	71.44404846	30.18193587
47	Al Aziz Hotel 1	71.44119134	30.18336527
48	Al Aziz Hotel 4	71.44103544	30.18409535
49	Al Aziz Hotel 3	71.44145300	30.18379947
50	Bomanji Square 1	71.44126349	30.18723235
51	Bomanji Square 2	71.44149587	30.18697765
52	Railway Station 3	71.44470643	30.18179932
53	Al Aziz Hotel 2	71.44192938	30.18309856
54	SP Chowk	71.44164366	30.19194641
55	MBQ Chwok	71.44187142	30.19557308
56	Kalma Chowk 1	71.45137117	30.20066850
57	Kalma Chowk 2	71.45140528	30.20042693
58	State Bank	71.45498263	30.20147632
59	Pul Moj Darya	71.45469116	30.20112654
60	Katchery	71.45877717	30.20513998
61	Katchery	71.45926265	30.20512709
62	MDA Chowk 2	71.45001780	30.20959095
63	MDA Chowk 1	71.44890265	30.21036240
64	MEPCO 2	71.49972552	30.20959299
65	MEPCO 1	71.49908845	30.20970920
66	Khursheed Hospital 2	71.50177489	30.20961509
67	Khursheed Hospital 1	71.50249629	30.20983283
68	Jan Muhammad Chowk 2	71.49755180	30.20263298
69	Jan Muhammad Chowk 1	71.49770231	30.20285387
70	Nag Shah 1	71.42103622	30.11043742
71	Masoom Shah Darbar 1	71.49237222	30.20044000
72	Masoom Shah Darbar 2	71.49191150	30.20006279

73	Meo Colony	71.49998826	30.20457901
74	Bismillah Chwok 1	71.50723499	30.20720702
75	Rahim Chowk 1	71.50986334	30.20814642
76	Manzoor Colony 1	71.51939092	30.21146467
77	Khaad factory	71.53958612	30.22006985
78	NFC	71.53837032	30.21987594
79	Buwa Pul Chowk 1	71.53396823	30.21895384
80	Buwa Pul Chowk 2	71.53139384	30.21670983
81	Usman Ghani Chowk 1	71.53004263	30.21550428
82	Usman Ghani Chowk 2	71.52909163	30.21494789
83	Hassanabad 1	71.52555265	30.21366179
84	Hassanabad 2	71.52437410	30.21324252
85	Manzoor Colony 2	71.51840334	30.21111279
86	Chowk Kumharan 1	71.51573908	30.21017697
87	Chowk Kumharan 2	71.51398373	30.20948329
88	Shah Rukn e Alam Town 1	71.51196729	30.20889865
89	Shah Rukn e Alam Town 2	71.51178261	30.20861987
90	Rahim Chowk 2	71.50939900	30.20778676
91	Bismillah Chowk 2	71.50688508	30.20688439
92	Gulistan Chowk 1	71.50491964	30.20638258
93	Gulistan Chowk 2	71.50460625	30.20607347
94	Wilayat Hussain College 1	71.48702722	30.19871749
95	Wilayat Hussain College 2	71.48450185	30.19851246
96	Ali Chowk 1	71.48187266	30.19825730
97	Dolat Gate 1	71.48011844	30.19777198
98	Dolat Gate 2	71.47918321	30.19780467
99	Fish Market 1	71.47931538	30.19981598
100	Fish Market 2	71.47646579	30.20227876
101	Qasim Fort	71.47469678	30.20176379
102	Water Tank	71.47146863	30.20017011
103	Ghanta Ghar 1	71.46934995	30.19868865
104	Ghanta Ghar 2	71.46844893	30.19812052
105	Nag Shah 2	71.42131315	30.11088242
106	Wali Muhammad City 1	71.43629219	30.11805798
107	Wali Muhammad City 2	71.43620600	30.11779033
108	Askari Bypass 1	71.44958183	30.12451129
109	Askari Bypass 2	71.44899414	30.12402686
110	Admore Pump 1	71.45910847	30.12928946
111	Admore Pump 2	71.46025553	30.12992380

112	Basti Baghwala 1	71.46440224	30.13347585
113	Basti Baghwala 2	71.46400149	30.13286860
114	Civil Hospital 1	71.47527465	30.14157630
115	Civil Hospital 2	71.47629226	30.14269266
116	Dera Muhammadi 1	71.48367387	30.14529283
117	Dera Muhammadi 2	71.48439018	30.14510697
118	Bahawalpur Bypass 1	71.49187015	30.14545133
119	Bahawalpur Bypass 2	71.49145929	30.14526753
120	Bahawalpur Bypass 3	71.49341107	30.14553818
121	Bahawalpur Bypass 4	71.49367932	30.14539967
122	Gulshan e Faiz Morr 1	71.50035514	30.15409009
123	Gulshan e Faiz Morr 2	71.50045558	30.15372715
124	Head Nau Bahar 1	71.50329889	30.16131310
125	Jamia Anwar Ul Islam 1	71.50563674	30.16850948
126	Jamia Anwar Ul Islam 2	71.50573523	30.16816514
127	Piran Gaib 1	71.55289147	30.20007236
128	Piran Gaib 2	71.55350091	30.20013230
129	WAPDA Gate 1	71.54779149	30.20042100
130	WAPDA Gate 2	71.54719792	30.20027436
131	Oxford School	71.54360316	30.20087737
132	OGDCL	71.54282554	30.20076349
133	SNGPL	71.53957034	30.20133314
134	Husnain Town	71.53899634	30.20120720
135	Zainab Town 1	71.53511134	30.20185969
136	Zainab Town 2	71.53466546	30.20174805
137	Al Saleh CNG 1	71.52088058	30.20733850
138	Novera Hospital	71.52405355	30.20606969
139	Faisal Market 1	71.52578191	30.20539374
140	Faisal Market 2	71.52644776	30.20511851
141	Chowk Bag e Hussain 1	71.52936349	30.20313396
142	Chowk Bag e Hussain 2	71.52993957	30.20286265
143	Garden City 1	71.52616674	30.16321620
144	Garden City 2	71.52523805	30.16380795
145	Al Hilal Industry 1	71.52263604	30.16541794
146	Al Hilal Industry 2	71.52220248	30.16569483
147	Fatima Garden 1	71.51651089	30.16923263
148	Fatima Garden 2	71.51573079	30.16969296
149	SWEDISH College	71.51107986	30.17253513
150	Nehar Nau Bahar	71.51061739	30.17293076

151	Vehari Chowk	71.50927305	30.17319061
152	Vehari Chowk 2	71.50802103	30.17423915
153	Vehari Chowk 2	71.50812382	30.17451849
154	Truck Stand 1	71.50445695	30.17657058
155	Truck Stand 2	71.50441338	30.17644232
156	Phattak 1	71.50037734	30.17898634
157	Phattak 2	71.50022158	30.17923294
158	Aik Minar Masjid 1	71.49501197	30.18238817
159	Aik Minar Masjid 2	71.49527338	30.18208460
160	Chungi No. 11	71.49201441	30.18427962
161	Chungi No. 11	71.49245656	30.18386636
162	Chungi No 14	71.48812317	30.18647431
163	Lakar wala Tall 1	71.48516617	30.18677836
164	Lakar wala Tall 2	71.48470044	30.18691178
165	Dehli Gate 1	71.47923494	30.18704179
166	Dehli Gate 2	71.47888435	30.18682845
167	Khuni Burj 1	71.47513641	30.18739288
168	Khuni Burj 2	71.47426409	30.18747920
169	Pak Gate 1	71.47279994	30.18830086
170	Pak Gate 2	71.47255384	30.18817651
171	Haram Gate 1	71.46965896	30.19002690
172	Haram Gate 2	71.46929738	30.19019178
173	Haram Gate 3	71.46936074	30.18979460
174	Chowk Kumharan 3	71.51393662	30.20998467
175	Daewoo	71.51028932	30.20988377
176	Ali Hospital 1	71.49514440	30.20970050
177	Ali Hospital 2	71.49448536	30.20957843
178	Rasheedabad 1	71.48964085	30.20974105
179	Rasheedabad 2	71.48958356	30.20997397
180	Science College 1	71.48374910	30.21100824
181	Science College 2	71.48339785	30.21094765
182	Eidgah 1	71.47850705	30.21016793
183	Eidgah 2	71.47805098	30.20983317
184	Chungi No 9	71.47220597	30.20810914
185	Chuni No 8	71.46546494	30.20921767
186	Chungi No 8	71.46604738	30.20945414
187	Ahmed Market 1	71.47017978	30.20589306
188	Ahmed Market 2	71.46997894	30.20534587
189	Madni Chowk 1	71.46944823	30.20170620

190	Madni Chowk 2	71.46924965	30.20128193
191	Ghanta Ghar 3	71.46739963	30.19851421
192	Fatimah Jinnah Hospital 1	71.46539817	30.19686967
193	Fatimah Jinnah Hospital 2	71.46583549	30.19718577
194	Children Complex 1	71.46216566	30.19556608
195	Children Complex 2	71.46199288	30.19514113
196	Govt Vocational Institute 1	71.45939229	30.19418664
197	Govt Vocational Institute 2	71.45833105	30.19398723
198	Nawa Shehar 1	71.45517884	30.19417158
199	Nawa Shehar 2	71.45472794	30.19361626
200	Dera Adda 1	71.45130219	30.18923787
201	Dera Adda 2	71.45126680	30.18857547
202	Dera Adda 3	71.45039015	30.18835965
203	Dera Adda 4	71.44972626	30.18852143
204	Razabad 1	71.44463380	30.21514012
205	Razabad 2	71.44496345	30.21509500
206	Learner Castle School 1	71.45344930	30.20748332
207	Learner Castle School 2	71.45274551	30.20765757
208	Katchery 1	71.45838525	30.20503747
209	Katchery 2	71.45784358	30.20510578
210	Katchry 3	71.45901116	30.20437234
211	Katchry 4	71.45933255	30.20437183
212	Katchery 5	71.45872189	30.20470355
213	Katchrey 6	71.45856252	30.20478507
214	Center Orchard 1	71.46331669	30.20142255
215	Center Orchard 2	71.46283374	30.20166038
216	Ghanta Ghar 4	71.46586930	30.19920719
217	Ghanta Ghar 5	71.46781225	30.19871331
218	Chungi No 7	71.46281350	30.20802064
219	Chungi No 7	71.46236020	30.20740634
220	Chungi No 9	71.47160976	30.20839367
221	Chungi No 9	71.47157913	30.20788719
222	Faiz E Aam Chowk 1	71.46771735	30.24620919
223	Faiz E Aam Chowk 2	71.46763926	30.24560486
224	Faiz E Aam Chowk 3	71.46781688	30.24532108
225	Nawa Bhatta	71.46709018	30.23982869
226	Chungi No 5	71.46737295	30.23434500
227	Dewan Ka Bagh	71.46742235	30.23128856
228	Dewan Ka Bagh	71.46752637	30.23109487

229	Chowk Lodhi Colony 1	71.46707158	30.22736458
230	Chowk Lodhi Colony 2	71.46724887	30.22704762
231	Muhallah Usmania 1	71.46616275	30.22103286
232	Muhallah Usmania 2	71.46624966	30.22062624
233	Basti Khair Shah	71.46532485	30.21539148
234	Pul Munday Wali	71.46453161	30.21064303
235	Al Khair Chowk	71.46458729	30.20878727
236	BCG Chowk 3	71.49137016	30.17221046
237	BCG Chowk 4	71.49099706	30.17208100
238	Garrison College 1	71.48675843	30.17214595
239	Garrison College 2	71.48719571	30.17224491
240	PTCL Exchange 1	71.48012824	30.17239521
241	PTCL Exchange 2	71.47905260	30.17231603
242	Timber Market 1	71.45416072	30.17599593
243	Timber Market 2	71.45355034	30.17633504
244	Chungi No 22	71.45195919	30.17794452
245	Chungi No 22	71.45162729	30.17801686
246	Galla Godam 1	71.44907670	30.17951438
247	Galla Godam 2	71.44834873	30.17942213
248	Naz Cinema 1	71.44654930	30.17896189
249	Naz Cinema 2	71.44589948	30.17863639
250	Double Phattak 1	71.44138098	30.17756603
251	Double Phattak 2	71.44119269	30.17758986
252	Double Phattak 3	71.44112409	30.18278770
253	Pepsi Cola Factory	71.44064429	30.21977440
254	Muhammadi Bazar	71.43813830	30.22145000
255	Afzal City	71.43103865	30.22350530
256	Suraj Miani 1	71.42389291	30.22702840
257	Suraj Miani 2	71.42394369	30.22703700

# Feeder Route Cameras Location (Phase-1)



**Legend**

- Cameras Location
- Red Line Stations

**Red Line**

- At Grade
- Elevated

**Feeder Routes**

- Feeder Route 1
- Feeder Route 2
- Feeder Route 3
- Feeder Route 4
- Feeder Route 5
- Feeder Route 6
- Feeder Route 7
- Feeder Route 8
- Feeder Route 9
- Feeder Route 10
- Feeder Route 11
- Airport
- Railway Station
- University

