



INVITATION FOR BIDS



Punjab Masstransit Authority (PMA)

Invites Tender for

Development, Implementation, Operations and Long-Term Maintenance of Proven Globally Deployed AUTOMATED FARE COLLECTION AND BUS SCHEDULING SYSTEM (AFC-BSS) FOR MULTAN METROBUS SYSTEM AND FEEDER ROUTES

For details, please download Tender Documents from

www.pma.punjab.gov.pk

ppra.punjab.gov.pk

1. The procurement shall be conducted in accordance with the Punjab Procurement Rules 2014 as modified time to time on Single Stage Two Envelopes Procedure.
2. A single package containing separate technical proposals and financial proposals duly completed, signed, stamped, and in complete conformity with Tender Document should be dropped in the Tender Box placed at reception of the **PMA Office, 5th Floor, Arfa Software Technology Park, 346-B Ferozpur Road, Lahore, no later than 1500 Hours on November 13, 2015. The Technical Proposal will be opened at 1530 Hours on November 13, 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 1100 Hours on November 05, 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, 5th Floor, Arfa Software Technology Park (ASTP)
346-B, Main Ferozpur Road, Lahore, Pakistan. TEL: +92 (42) 99028000

Fax: +92 (42) 99232541

Tender Document

DEVELOPMENT, IMPLEMENTATION, OPERATIONS AND LONG-TERM MAINTENANCE OF PROVEN GLOBALLY DEPLOYED AUTOMATED FARE COLLECTION & BUS SCHEDULING SYSTEM (AFC-BSS) FOR MULTAN METROBUS SYSTEM AND FEEDER ROUTES



THE PUNJAB MASSTRANSIT AUTHORITY

Government of the Punjab

5th Floor, Arfa Software Technology Park (ASTP)

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

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

URL: 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 are two components to be assumed by bidders:

1. Supply all necessary AFC-BSS items (including all hardware, software, networking, fare media etc), and configure, customize, deploy, and maintain the entire AFC-BSS solution.
2. Manage ticketing operations at PMA stations and sale points on feeder routes and utilize the deployed AFC-BSS solution. This includes bank transactions, ticket sales and refunds, and customer facilitation at turnstiles etc.

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

The successful bidder shall supply all necessary AFC-BSS **services**, which include furnishing, installing and operating all hardware, software, networking, fare media etc. at its own cost. In addition the successful bidder shall configure, customize, deploy, and maintain the entire AFC-BSS solution; and manage the ticketing operations at PMA stations and sale points on feeder routes by fully utilizing the deployed AFC-BSS solution, carrying out bank transactions, managing ticket sales and refunds, and offering customer facilitation at turnstiles etc.

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: November 13, 2015 (3pm) – 5th floor
Arfa Software Technology Park, Ferozpur Road, Lahore.**
- 2. Pre-bid meeting: Thursday, November 05, 2015 (11am) – 5th floor
Arfa Software Technology Park, Ferozpur Road, Lahore.**

1. Invitation to Bid

Punjab Masstransit Authority (PMA), Government of the Punjab (The Purchaser), invites bids for the **“Development, Implementation, Operations, and Long-Term Maintenance of Proven Globally Deployed Automated Fare Collection and Bus Scheduling System (AFC-BSS) for Multan Metrobus System and Feeder Routes”**.

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, PMA’s website <http://www.pma.punjab.gov.pk>.

As per Rule 12(2), this Tender is being placed online at PPRA's website, as well as being advertised in print media.

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.

2. Bidding Details (Instruction to Bidders)

All bids must be accompanied by tender security as part of technical proposal in favor of “**Punjab Masstransit Authority**” (As per provisions of Tender Security clause 22 of this document).

The bids along with the Tender Security, Tender Forms, Affidavits, etc., must reach PMA’s office located at 5th floor, Arfa Software Technology Park, 346-B, Ferozepur Road, Lahore, PAKISTAN, on or before **1500 hours on November 13, 2015**. The Technical bids will be publicly opened in the Committee Room of Punjab Masstransit Authority, 5th Floor, Arfa Software Technology Park, 346-B, Main Ferozepur Road, Lahore, at **1530 hours on November 13, 2015**.

Queries of the Bidders (if any) for seeking clarifications regarding the specifications of the services must be received in writing by the PMA by **5th November, 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 detail for all correspondence in relation to this bid is as follows:

Email: afc.bss@pma.punjab.gov.pk
Punjab Masstransit Authority (PMA)
5th Floor, Arfa Software Technology Park,
346-B, Ferozepur Road, Lahore, Pakistan.

Bidders should note that during the period from the advertisement of the tender till the receipt of the bid, 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 or reject all bids without assigning any reason thereof.

3. Definitions

- 3.1 "PMA" is Punjab Masstransit Authority, Government of Punjab.
- 3.2 "AFC-BSS" Automated Fare Collection and Bus Scheduling System, as asked for in the Tender Document. Initial phase is for AFC-BSS implementation for approximately 21 Metrobus stations and 11 feeder routes in Multan.
- 3.3 "Client/Procuring Agency/Purchaser" means 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 "AFC-BSS Service Provider" or "Successful Bidder": The technically qualified bidder with lowest financial bid, who has the probability of award of contract for AFC-BSS Project, subject to necessary approvals and applicable policies.
- 3.5 "Confirmation" means confirmation in writing.
- 3.6 "Bidder/Tenderer" means a registered company or joint venture that has submitted its bid as per the criteria/specifications listed.
- 3.7 "Contractor" means successful Bidder/Tenderer.
- 3.8 "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.
- 3.9 "Contract Price" means the price payable to the Contractor under the Contract for the full and proper performance of its contractual obligations.
- 3.10 "Pre-Bid Conference/Meeting" means the meeting conducted by the procuring entity on given date and time prior to actual date of bid opening.
- 3.11 "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 Punjab.
- 3.12 "RFP" means Request for Proposals, including any amendments that may be made by the procuring entity for the selection of bidder.
- 3.13 "Proposal" means the Technical Proposal and the Financial Proposal for the provision of the Services submitted by a bidder in response to RFP.
- 3.14 "SBD" means Standard Bidding Documents.
- 3.15 "SCC" means the Special Conditions of Contract.
- 3.16 "Services" means the tasks to be performed by the bidder pursuant to the Contract as mentioned vide this document.
- 3.17 "TEC" means the Technical Evaluation Committee, constituted for the purpose of evaluating the Proposals received.
- 3.18 "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.
- 3.19 "Works" means work to be done by the Contractor under the Contract.
- 3.20 "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 Punjab Masstransit Authority (PMA), Government of the Punjab (The Purchaser), invites/requests Proposals (hereinafter referred to as "the Tenders") for the Development, Implementation, Operations, and Long-Term Maintenance (on turnkey basis) of proven, globally deployed Automated Fare Collection and Bus Scheduling System (AFC-BSS).

6.2 In the first phase, the AFC-BSS solution needs to be rolled out for approximately 21 stations of Metrobus (1 platform at each station, and 6 turnstiles at each platform) having off-board ticketing and 11 feeder routes having onboard ticketing, on which 100 mini-buses will be operated. As a policy, one (01) validator shall be provided in Mini buses and two (02) in standard buses. In Phase I, only 100 mini buses with 100 validators and 100 driver consoles having GPS trackers will be operated on the 11 feeder routes. The AFC vendor is also required to ensure sale of cards and recharge of card at twelve (12) localities specified by the PMA on the feeder routes in the city, either by setting up their own offices/shops or through collaboration with already established offices/shops or combination thereof. The AFC vendor is also required to provision and maintain fifteen (15) handheld ticket validators for spot checking, to facilitate PMA assigned ticket inspectors.

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

- 300 Driver Consoles having GPS trackers and 515 validators for (300 additional buses (215 standard and 85 mini buses) on other feeder routes in the next phases)
- 15 additional sale points on other feeder routes
- 20 additional handheld ticket validators for spot checking

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 phases 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 prorate basis.

- 6.4 The AFC-BSS software comprises of the following core components and its associated equipment and services:
- Automated Fare Collection System
 - Bus Scheduling and Vehicle Location system
 - Passenger Information System

Special Note on AFC-BSS Software:

The Purchaser is currently in possession of AFC-BSS software with complete rights and privileges in Punjab. However the bidders while preparing their bids must not assume that such rights and privileges to the Purchaser owned software will be extended to any successful bidder. Therefore, all prospective bidders are instructed to include the price of their proposed AFC-BSS software in the bid.

Special Note on AFC-BSS Data Center Equipment:

The Purchaser is currently in possession of AFC-BSS data center equipment in Lahore. However the bidders while preparing their bids must not assume that such any access rights to the Purchaser owned data center equipment will be extended to any successful bidder. Therefore, all prospective bidders are instructed to include the price of their proposed data center facility and equipment in the bid.

- 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, globally 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-I

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

7.2. Passenger Trips by Vehicle Type

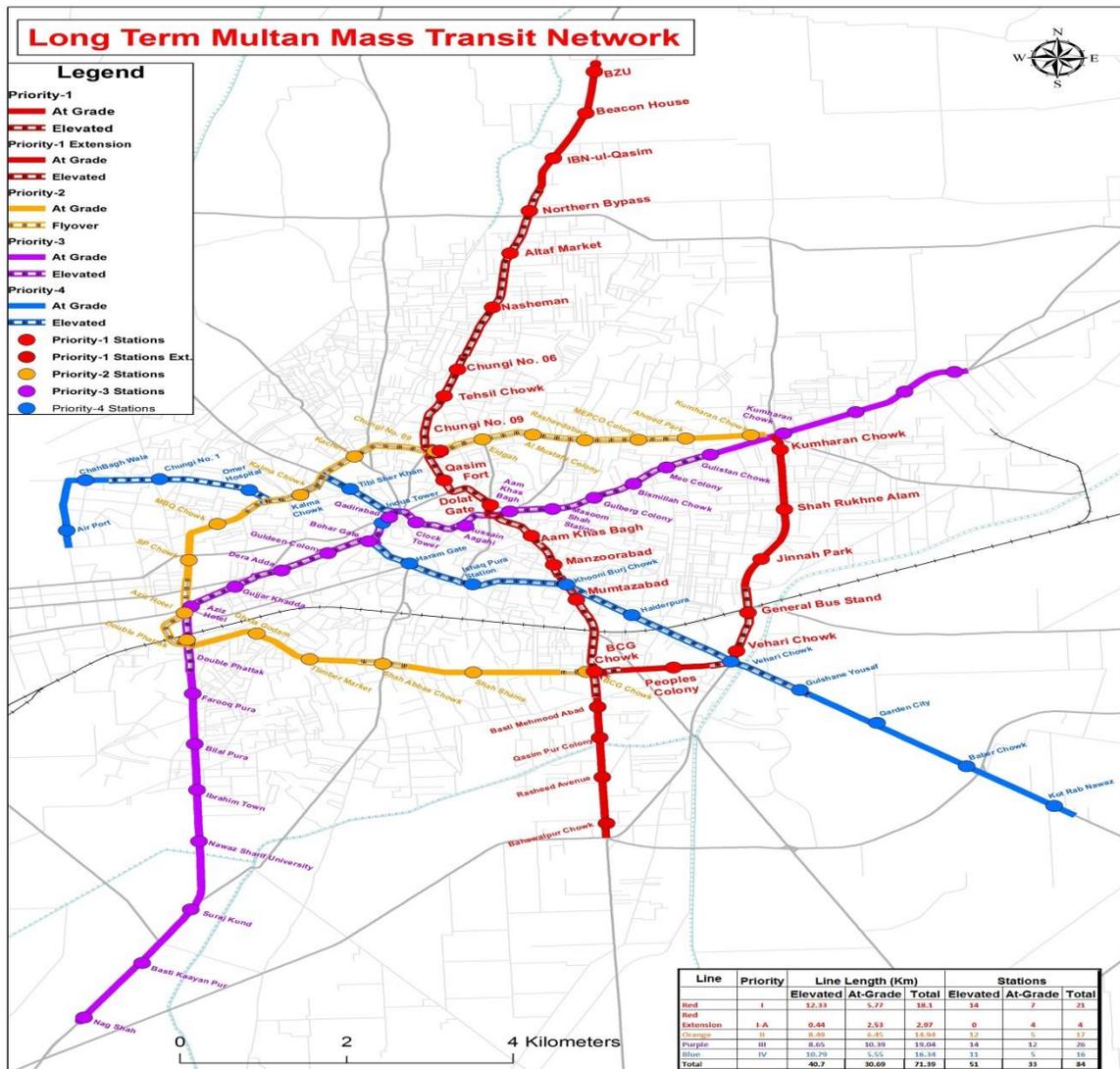
Table below shows the estimated mode share and trip making in Multan.

Table: Passenger Trips by Vehicle Type-II

Mode		Trips	Proportion
Public Transport (Wagon, Mazda, Public Bus &		531	39.5
Private Vehicles	Cars	203	15.13
	Motorcycles/Bicycles	607	45.26%
Total		1341	100%

7.3. Multan Metrobus System

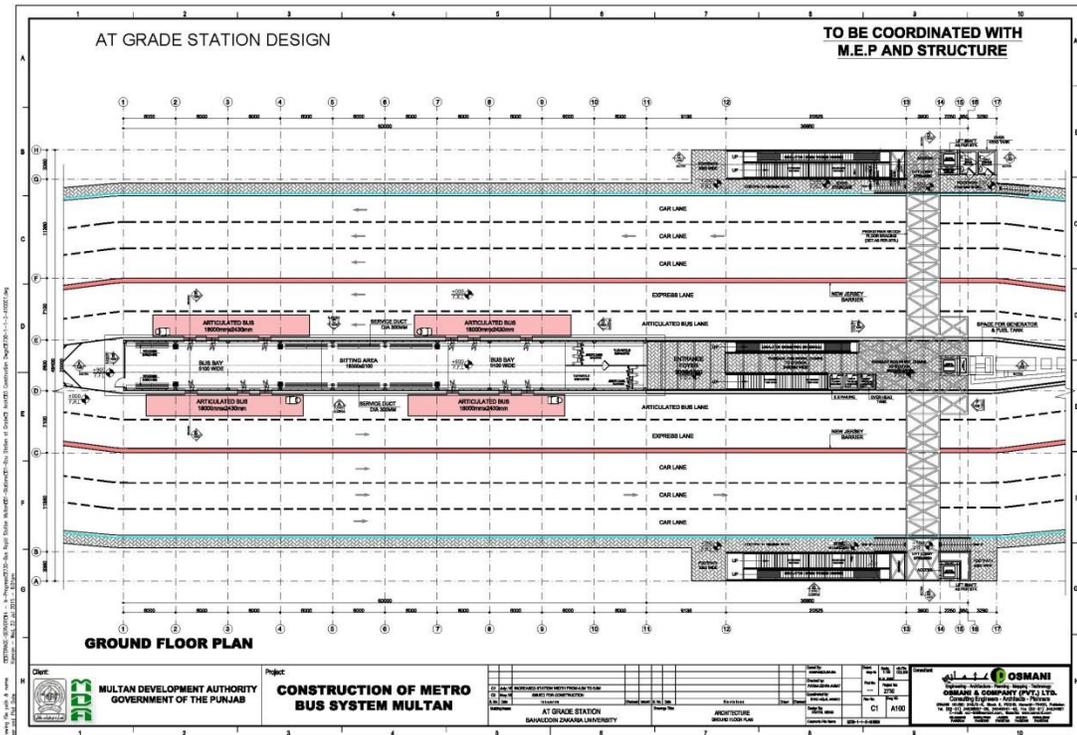
The objective of providing mass transit system is to overcome growing problems of urban transport such as increasing congestion, accidents, safety, air quality etc. The figure below shows long term mass transit network for Multan;

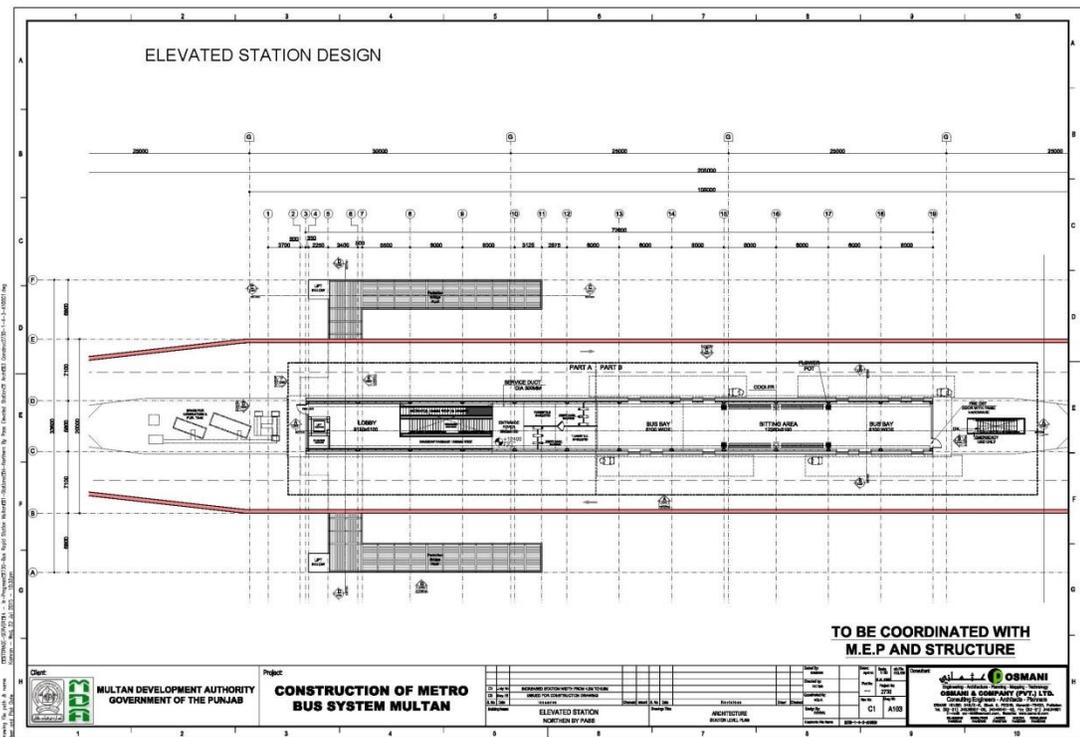
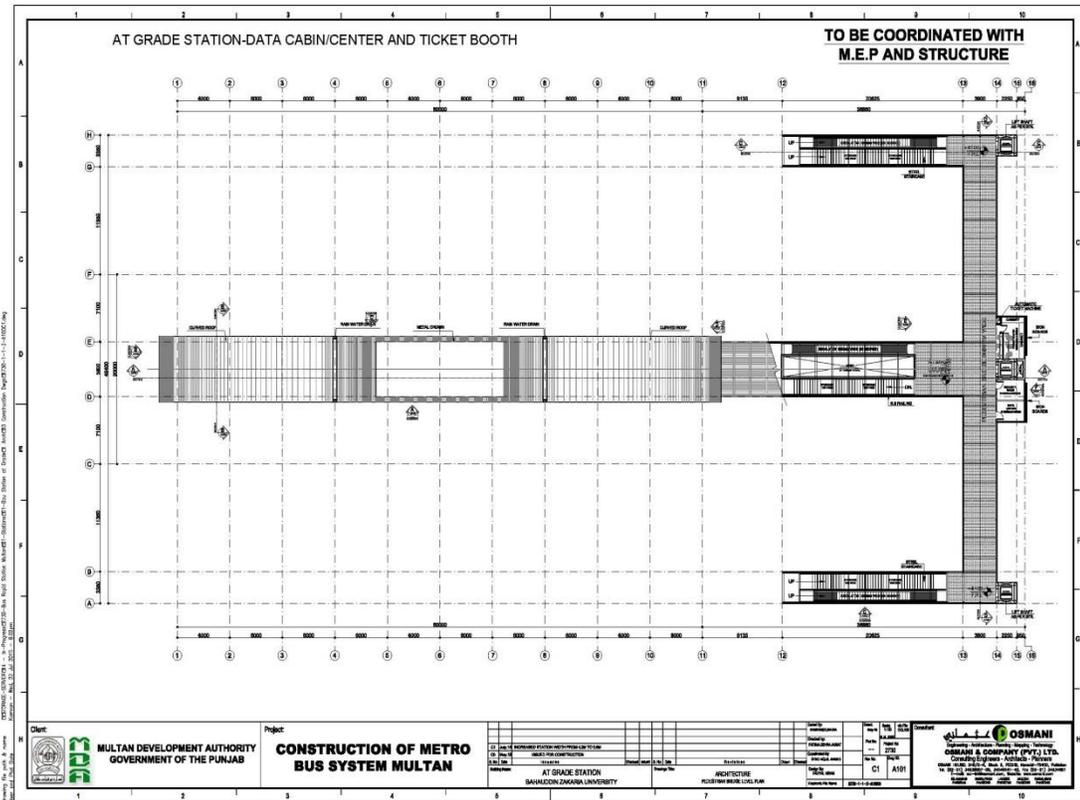


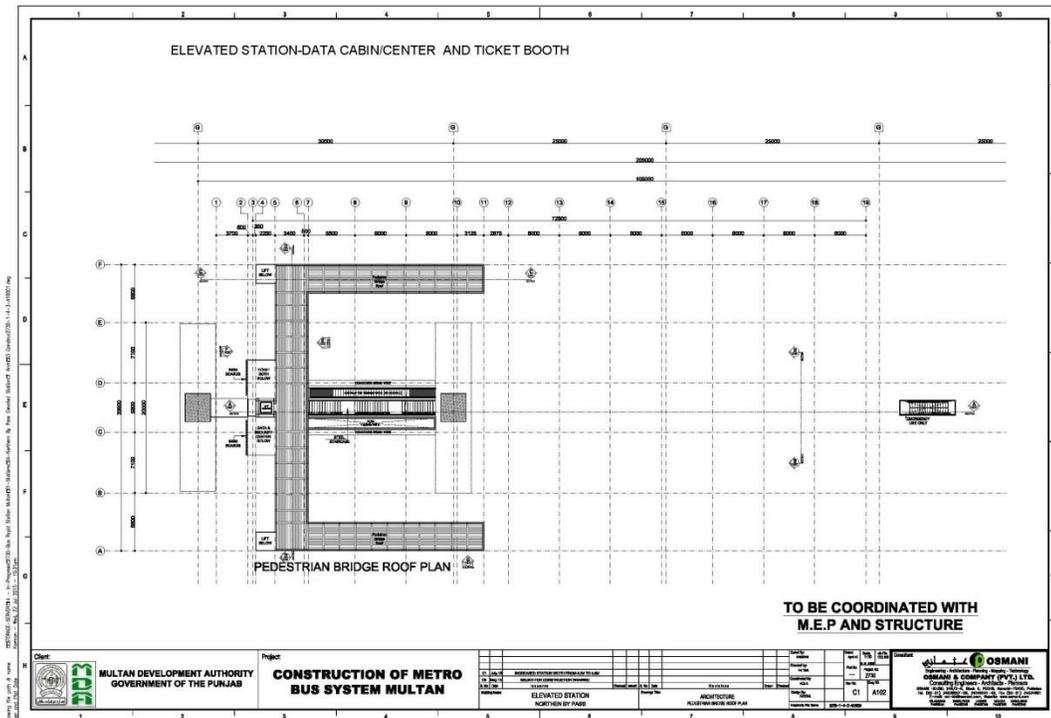
The priority corridor identified initially for implementation is Red Line from BZU to Chowk Kumahara via BCG Chowk. The details of the corridor are as under:

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

All the stations have Single entry and Exit design. The station design drawings showing positions of turnstiles, Ticket office, Data cabin etc of a typical At-Grade station and an elevated station is attached below.





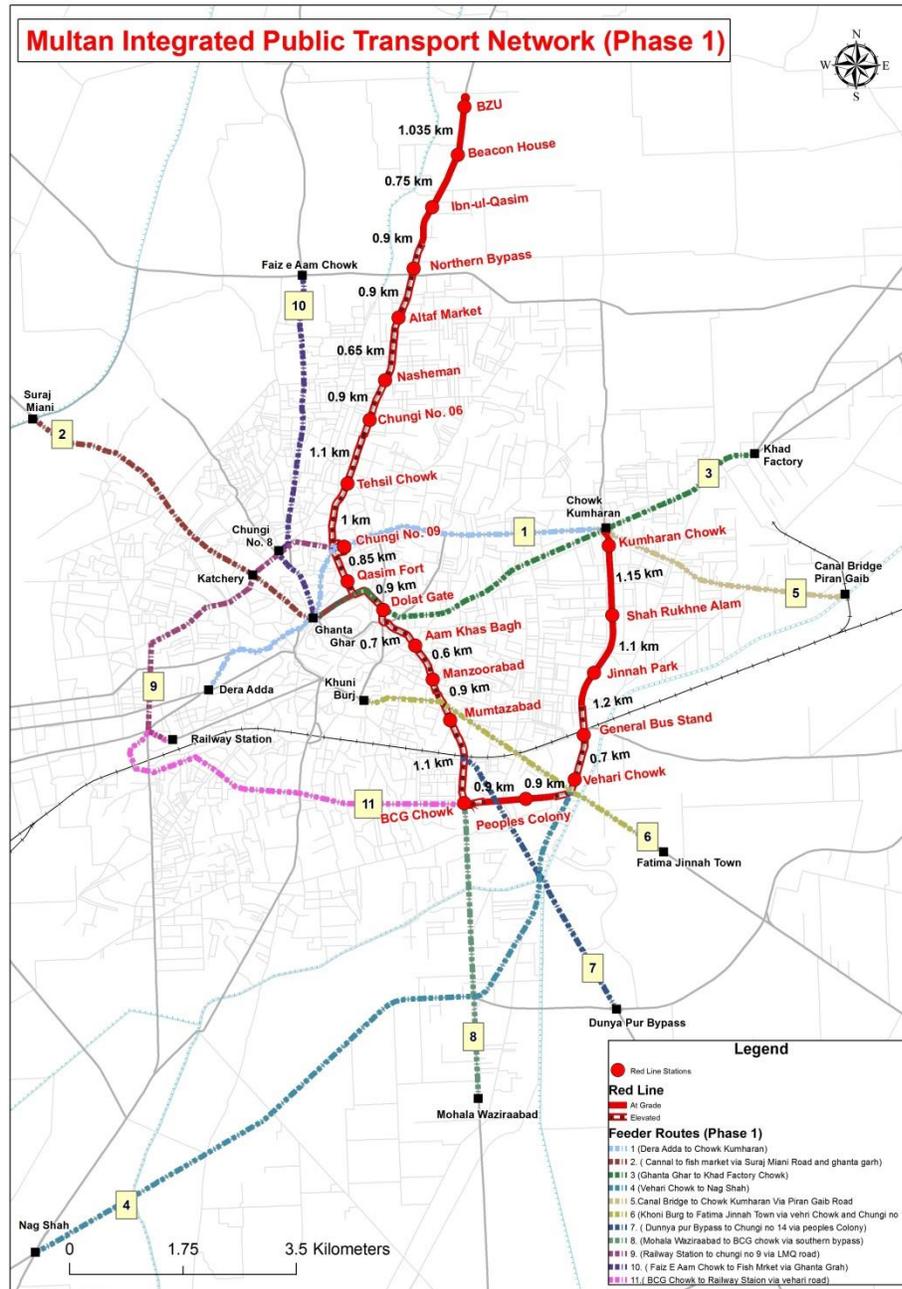


- 7.3.1 Automated Fare Collection and Bus Scheduling System (AFC-BSS) serves as an information system coupled with necessary hardware and software to authenticate entry/exit of passengers into bus stations/buses, and to monitor adherence to bus schedules. The system should provide variety of fare media including reusable RFID tokens and smart cards. Smart cards may be recharged to a stated, agreed upon max limit, for travel onto BRT stations.
- 7.3.2 The AFC-BSS system must have the capability to handle flat rate, staged/zone based and distance based fare policies, and must be scalable/expandable to any number of stations, buses, cities, and passenger volumes.
- 7.3.3 Following are the key objectives of the project
- To capture ridership and revenue data which can be used in better scheduling and service planning provide accurate data for federal reporting.
 - To create a platform based on industry standard technology which can provide a basis for extension and integration.
 - Transparent and reliable mechanism of reporting payments due to bus operators - based on agreed upon and approved payment formulas and policies.
 - Online secure dashboards, accessible by all stakeholders, via centralized system in order to facilitate timely and informed decisions.
 - To Provide better customer experience and convenience through increased reliability, efficiency, and flexibility

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 Masstransit Authority from Command and Control Centre that will be established at Chungi # 9.

7.5. Future Expansion Plans

The following are future plans for the city:

- Expansions of Metrobus corridor to completed whole network (Four lines);
- Expansion of public transport routes throughout the city to have integrated Public Transportation System.

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

8. Contract type and duration

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

9. Services Required

Contractual obligations of the successful bidder's (AFC-BSS Service Provider's roles and Responsibilities):

AFC-BSS Solution Deployment and onsite technical support:

1. Develop, Install, configure, customize, deploy, thoroughly test, maintain and administer all AFC-BSS components - including all related equipment and software necessary for the smooth running of the system., with provisions of this tender document, good industry practices, applicable laws, and technical specifications of components stated in this document.

2. Provision, Install, maintain and operate a robust, scalable, secure, and efficient data communications network connecting PMA stations and buses 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 AFC-BSS 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 AFC-BSS system components being implemented - for approval.
6. Establish formats, standards, database parameters, and protocols for communication among the different sub systems of AFC-BSS.
7. Adhere to timelines of the AFC-BSS project implementation specified in this RFP.
8. Provide monthly/weekly reports on progress of AFC-BSS implementation as per scope defined in this tender document.
9. Ensure quality, robustness, security, and functionality of all hardware, software components associated with AFC-BSS.
10. Implement a secure and protected access control system to control access to AFC-BSS software application systems and databases, limiting access to authorized personnel only. Also setup primary and secondary (disaster recovery) hosting sites and ensure regular and tested data backup.
11. Implement appropriate security measures for the information and data generated from operations of AFC-BSS, and deploy standard disaster 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 AFC-BSS as well as selected staff of PMA
13. Document a detailed equipment and AFC-BSS 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 AFC-BSS components at Bus Stations, on the Buses, Control Center, Central Datacenter.

15. Guarantee smooth operations and functioning of all AFC-BSS components during the entire contract period
16. Plan and conduct regular disaster 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. Integrate AFC-BSS system with banking software system of the Bank of Punjab, in an efficient and secure manner.
22. Ensure that only authorized personnel of PMA should have secure access to add or change key configuration parameters (related but not limited to smart-card parameters, fare rates/policies etc).
23. Provide authorized PMA staff (and other authorized Government personnel) secure, 24x7 online access to updated Management Information System reports and features -covering all critical aspects of AFC-BSS operations, alerts, faults, and audit logs.
24. The validators shall reduce / cancel the value of a card / token to cause deduction of fare, and all real-time scanned information shall be stored.
25. Obtain all necessary permits under all applicable Laws required to proceed with AFC-BSS Project implementation, and comply with applicable laws, regulations, and permits during the contract period.
26. Cooperate with all other service providers and facilitate their operations in the PMA system. In case of damages to PMA or other Service Provider property on the part of the AFC-BSS Service Provider the damages shall be recovered from the AFC-BSS Service Provider by the Purchaser.
27. Be responsible for the conduct and functioning of all staff employed on the AFC-BSS 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.

28. Participate in all meetings, committees, etc, as directed by PMA from time to time.
29. Operate ticket office terminals at all metro stations under PMA. Non-A/C lockable cabin will be provided by PMA and handover to service provider and for its maintenance and management throughout the currency of the contractor.
30. In-order to ensure there are no ticketless travelers within the system, the bidder shall also provide manpower at turnstiles.
31. Deploy suitably skilled personnel at PMA metro stations and sale points on feeder routes to efficiently manage ticket sales (using the implemented AFC-BSS solution interfaces), and to facilitate passengers at turnstiles.
32. Ticket offices (metro stations and sale points on feeder routes) must operate during operations of the PMA buses – tentatively decided as 18 hours a day.
33. Ensure prompt and efficient response time related to all service delivery aspects associated with ticket sales/refunds, turnstile entry/exit process, etc.
34. Timely raise alerts to the PMA control center staff in case of issues with equipment or system functioning.
35. Ensure scalability of the AFC-BSS Project to cater to the future requirements and needs.
36. Engage and deploy suitably skilled personnel for development, installation, operation and maintenance of the AFC-BSS project, and maintenance/replacement of all related equipment/component in a timely manner and at its own cost.
37. Take prompt and reasonable action for resolution of each complaint – including complaints received from passengers as well as from PMA related to AFC-BSS operations e.g ticket sales, turnstile facilitation etc and generate log of each complaint along with the details of the resolution.
38. Agree to and abide by the “Revenue Collection and Payment Mechanism” stated in this document.
39. Ensure integrity of cash collection and reconcile with sales/transaction reports daily to ensure there is no differences.
40. Engage a suitable and renowned third party inspection for qualitative verification of the deployed AFC-BSS solution and hardware.
41. Contractor must provide interfaces to PMA to devise fare policies and

generate/update reports on the fly.

42. For all software and databases related components comprehensive training must be provided.
43. Adequate resources from the contractor's side must be available to ensure smooth operations of AFC-BSS.
44. Purchaser reserves the right to purchase additional AFC-BSS 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 AFC-BSS solutions in an efficient & timely manner.
45. Cards/Tokens used in AFC-BSS corridor must also work with systems in other AFC-BSS corridors or feeder route systems deployed by the Client in future (Fare Integration).
46. 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).
47. The Contractor is responsible for operating the entire AFC-BSS system including all its components and peripherals, reliably and securely at all times during the course of the contract. After complete 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.
48. At no time or under any circumstances what so ever shall the Contractor ever make direct changes to the databases. It shall always be ensured that all changes in the database (if and when required approved by the Client) shall be done through the application interface(s). The database audit logs shall always remain in enabled mode.
49. Provision smart card sale and recharge facility (sale point) at PMA designated localities on feeder routes in the city, to facilitate passengers on feeder routes either by setting up their own offices/shops or through collaboration with already established offices/shops or a combination thereof.
50. Provision and maintain handheld ticket validators for spot checking such that each device remains operational for minimum period of eight (08) hours, to facilitate PMA assigned ticket inspectors.
51. Deploy suitably skilled personnel in feeder route buses for an initial period of three (03) months for passenger facilitation, guidance, securing installed validators, ticket sales, card sales etc (using the implemented AFC-BSS solution interfaces).

52. The Contractor's representative shall visit the country of bus manufacturer and fully coordinate with Bus Service Provider and manufacturer for installation of Driver Console Units/Onboard Bus Units (OBU), Validators and fare evasion system in buses. The fare evasion system will only be installed in feeder buses and must be able to detect entry and exit of passengers. It shall generate an indication in the Driver Console /Onboard Bus Unit (OBU) to inform the driver when any passenger Taps-in the smart card.

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

- 300 Driver Consoles having GPS trackers and 515 validators for (300 additional buses (215 standard and 85 mini buses) on other feeder routes in the next phases)
- 15 additional sale points on other feeder routes
- 20 additional handheld ticket validators for spot checking

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 phases 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

Any breach of defined service levels will entail penalties which shall not exceed more than 10% of the monthly payments to the Contractor. Service level parameters are outlined in Annexure-J.

11. Revenue collection and payment mechanism

1. An escrow account shall be opened by the PMA in the Bank of Punjab. **The escrow account will be jointly operated by authorized representatives of PMA, the AFC-BSS Service Provider, and Bus Operator.**
2. The contractor shall arrange printing of the cards/tokens, based on card/token design specified by PMA
3. Sale of tickets (cards/tokens) shall be the responsibility of the contractor.
4. For activation and subsequent recharging of cards (Smart cards) and tokens, the contractor shall arrange "Bulk Initialization Machines (BIM)", and place BIMs at premises specified by PMA.
5. BIMs, and/or top-up/Point of Sale (POS) machines will only initialize/top-up media if there is sufficient balance available. Contractor must first transfer sufficient balance amount into the Government Escrow Account, and the Bank of Punjab will subsequently notify e-credit to be made available to the AFC-BSS service provider for charging of BIM/POS machine.

6. Payments from the Escrow Account will be made to Bus Operator based upon agreed policies, formulas, and reconciliation reports from AFC-BSS.
7. Payments from the Escrow Account will also be made to AFC-BSS Service Provider.
8. If there is surplus balance in the Escrow Account, the amount will be retained by PMA. If there is deficit in the Escrow Account (that is, the two service providers cannot be paid) then PMA will pay the deficit amount from its own account.
9. Regular third-party audit (financial as well as technical) to be made an integral part of the project

12. PMA Responsibilities

1. Provide fare structure, user roles, and business rules to AFC-BSS service provider
2. Provide AFC-BSS service provider necessary project site so that AFC-BSS service provider can perform its obligations in a timely manner
3. Attempt to grant timely approvals and make timely payments
4. Contract signing, Contract Payments and monitoring project operations

13. Key components of the solution

13.1 Turnstiles

All PMA stations will have guarded entry and exit enforced via turnstiles. However, the choice of turnstiles proposed must be governed by factors including robustness, reliability, maintainability, cost effectiveness and conformance to international standards and safety of passengers.

Turnstiles have been proposed on every station which makes the total of approximately 126 operational turnstiles at any given time. Each station will have one platform, with 6 turnstiles 3 each for entry and exit.

In-order to ensure there are no ticketless travelers within the system, the bidder shall provide manpower at turnstiles at all times during operations.

13.2 Validators

Each turnstile needs to be equipped with validator(s) for each type of media to be used. As a policy, on feeder routes each mini bus needs to be equipped with one(01) validator and each standard bus needs to be equipped with two(2) validators for onboard ticketing through RFID Smart card. The Validator in the bus shall be used both for Tap-in and Tap-out.

13.3 Fare Media / Tickets

RFID Smart Cards (stored value) for long term planned repeated journeys is a must, coupled with passenger registration module. For short/occasional or single journeys on metrobus system only, Bidder must propose adequate solution based on re-usable RFID cards or RFID tokens.

Required number of cards/tokens necessary to efficiently serve passenger volumes must be in stock with the chosen vendor at all points of time – this is must to ensure that no shortages of

fare media occur at any given time. At no point should the tickets/tokens be short at any PMA station.

Note: Fare rates will be determined by Government of Punjab and cost of media will not be transferrable to passengers purchasing tickets for single or daily journey. However the smart cards will be refundable and issued to the general public against a security deposit which is fixed at Rs 130/- per smart card.

13.4 Automated Fare Collection and Fare Policy

Passengers will be charged distance based fare. Proposed AFC-BSS must be able to handle fare policies based on flat rate, zones/stages, as well as distance travelled. Proposed AFC-BSS must also be able to handle the full fare, concessional fare and free fare policies. Proposed AFC-BSS must cater to on-board as well as off-board ticketing modes and be able to handle transfers across on-board and off-board ticketing modes.

13.5 Top Ups/Printing Tickets/Allotting Tokens and Refunds

Ticket Office Machines are to be made available by the AFC-BSS Solutions Provider, at PMA bus stations on metrobus corridor and sale points on feeder routes, to issuing charged tokens and charge cards with the desired amount paid by the passenger. Ticket office Machines will only work if they contain balance amount that can be transferred onto the fare media. Ticket Office Machines (Top up Machines) must reliably transmit transactional data to any intermediary system and/or central database. Ticket Office must be able to refund any reported incidents of overcharging after due diligence to passenger, if it is agreed that such reimbursements are to be adopted as policy. All such functionality must be a typical feature of proposed Top up Machine and AFC-BSS. Every platform must have at least one top up machine available in fully functional condition at any point of time.

13.6 Portable Validators (as backup)

Portable validators will be used as backup medium in case of any failure and to validate entry of passengers in the buses on the feeder routes.

13.7 Ticket Vending Machines (TVMS)

Ticket Vending Machines are to be deployed at stations; the machines will accept cash (notes and coins) and dispense fare media accordingly. TVMS will also have the facility to charge smart cards against the cash submitted.

13.8 Bus Scheduling and Vehicle Location System

Concerned authority of the PMA must be able to enter bus schedule into the system using Bus scheduler, and view/edit schedules via GIS-based interface. The Bus Scheduling System must have flexibility to plan different travel time for same route within single day. The OBU must show plan scheduling time on OBU for driver adherence. AFC-BSS will generate reports that will form a basis for payments to operators - based on agreed formula (determined by scheduled trips/kilometers, distance travelled as fetched via Vehicle Location System and any other associated/integrated components proposed as part of the solution).

Every bus will have to be equipped with GPS devices and relevant components (on bus and off bus), that can gather location wise data and transmit to central servers and related software modules. Data gathered in this fashion will help monitor movement of the bus via GIS

interface, in real time against bus schedule defined in the relevant software module. Distance travelled, and number of trips made by every bus, must be reported via AFC-BSS. All such buses need to be equipped with GPS enabled trackers that integrate with the relevant software proposed for implementation as part of the AFC-BSS solution.

The Vehicle Location System shall enable operations team to monitor vehicle movement in real-time and synthesize the field data to deliver the same on the public information system devices installed on Bus Stations, Buses, customer portal etc.

The Driver Console Unit shall be used to provide vehicle tracking accurately and reliably. The back end system shall be able to produce MIS reports of vehicle schedule adherence report and kilometers travelled by each bus, by route and by fleet of each operator.

The Driver Console must be capable of collecting, transmitting and reporting in a prescribed format following data from Controller Area Network (CAN) Bus module installed by the bus operator.

- I. Acceleration and Deceleration
- II. Breaking (All kind of brakes)
- III. Gear Shifting for automatic transmission
- IV. Fuel Information
- V. Engine RPM
- VI. Bus Speed
- VII. Doors Control (Open/Close) Information
- VIII. Bus Saloon Temperature
- IX. Engine Temperature
- X. Battery On/Off Status

The Driver Console should be capable of display messages and play voice recordings accordingly to timely inform passengers of the next approaching station as well as to make any other critical announcements. The Driver Console should also be capable storing these other critical announcements of atleast one(01) hour duration and playing some prescribed voice recordings through driver OBU interface.

13.9 Passenger Information System

13.9.1 Passenger Information System for Bus

Available buses will have display unit(s) to disseminate messages etc, these units are outside the scope of this tender document. The Passenger Information System must be able to gather information from Vehicle Location system installed in the bus and display messages and play voice recordings accordingly to timely inform passengers of the next approaching station as well as to make any other critical announcements. There must be provision to display text messages and play voice messages in English/Urdu. Buses must be equipped with necessary speakers to ensure audible transmission of voice.

13.9.2 Passenger Information System for Station

Every station must have at least 2 vandal-proof signboard showing bus schedules and/or other necessary information in English/Urdu. It shall be placed on the place identified by PMA authorities. Bidder may propose the location based on the station design as provided in the

document.

- 13.9.3 All station based Passenger Information signs shall be enclosed in a manner such as to inhibit entry of dirt, dust, water and other contaminants during normal operation or cleaning. All sign displays shall consist of pixels utilizing High Intensity Light Emitting Diodes (“LED”), for superior outdoor environmental performance, of superior UV resistant Epoxy lens and superior resistance to the effects of moisture. Each pixel shall have a dedicated LED for illumination of that pixel in all lighting conditions. The sign system shall have multi-level intensity changes, which adjust automatically as a function of ambient lighting conditions. Equipment installed must be able to operate in normal temperature of Multan without any dependency on additional cooling/heating mechanism.

Passenger Information System must be able to transmit data to standard LCDs/LEDs as available in the local market.

13.10 Disbursement to Operators

Multiple operators are expected to operate buses on designated route of PMA/Non-PMA routes including both metrobus corridor and feeder routes. The formula for disbursement of revenue to operators will be shared with the qualified bidder which then must be incorporated to proposed AFC-BSS. The system should be scalable, and must be able to integrate with standardized on-board ticketing systems for buses as well.

13.11 Power Backup

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

13.12 Reports

All AFC-BSS components must be equipped with standard reports typically expected from an internationally deployed, proven Automated Fare Collection System, Vehicle Location System, Bus Scheduling and Passenger information System/product like Fare Media Utilization Report (including time and location of entry and exit of each passenger), Origin-Destination Matrix Report, Ridership Report (for user selected time duration), PDA/TVM fare media charge report, Card initialization Report, Driver Card log Report, Vehicle tracking report (including time, geo coordinates and speed of each vehicle configurable to one second time interval), Time, Event and Location based vehicle speed monitoring report, trip status reports by route, Passenger Transfer Report between routes, etc - with the provision of at least 30 additional reports that may be required based on data stored in the relevant databases. The solution must also come with a standardized report-writing tool that can be used to generate custom reports as and when required. Bus origin-destination reports and reports regarding bus arrival times, deviations (if any) from the schedule for each day, Daily Trip based Time-Space Diagram must be available in real time. Reports/summaries of incidents subject to which the penalty clauses may be invoked should also be made available. System must have alarms for speed violations, breakdown, missed trips, missed stop, unplanned stoppage, bus bunching, late start, schedule adherence and other alarms based on CAN module data from bus.

13.13 System availability and data backup

AFC-BSS solution (including station components as well as back-office systems) must be able to function on a 24x7x365 basis. Data backups 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.

13.14 Connectivity

24/7 backup connectivity to all stations must be ensured, and data transmission to central data center must also be ensured on 24/7 basis. This shall involve all necessary integration with primary fiber optic network which is outside the scope of this tender document to ensure connectivity at all points of time.

13.15 Station PCs

Branded Industrial strength Station PCs with adequate processing power to efficiently handle traffic patterns. Requisite software licensing components, if any required, must be provisioned to act as an between data center and turnstiles placed at the stations; this will help make station self-contained in terms of carrying out operations without complete dependency on the data center. However station PCs must synchronize with data center at regular intervals during every hour of operations.

13.16 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. The AFC-BSS solution must be able to handle daily passenger volumes of up to 1,000,000 in an efficient, uninterrupted manner. Bidder will be responsible for adequate upgrades in the infrastructure as and when necessitated - to ensure that the system can efficiently cater growing passenger volumes.

13.17 Manning Ticket Sales Office

PMA stations will be manned with professional sales staff; tentative hours of operation initially are 18 hours a day, seven days a week. Subject to change depending upon need and requirements as illustrated by Purchaser.

13.18 Escrow Account

All revenue earned from activation and recharging of cards/tokens will be deposited into ESCROW Account in the Bank of Punjab, and revenue collected will be disbursed to all concerned parties via agreed formula.

13.19 Call Center

PMA may setup a call center/helpline for passengers to call into for on bus routes and schedules as well as for any issues on fare. Call center shall be able to log in complaints through call-center operator or via IVR. AFC-BSS solution must be able to provide call center personnel access to bus schedules and related information.

13.20 PMA Control Center

PMA shall set-up a central control center for authorized PMA staff allocated to the AFC-BSS project in Multan.

All data collected via AFC-BSS components (including audit data, statistical, and operational

information) shall be made accessible via secure, online interface to authorized PMA staff on real-time basis, by the Contractor/Service Provider.

Buss Scheduling, bus tracking, and bus alert-management, as well as Passenger Information System shall be managed / monitored via the Control Center.

Card/Token initialization and personalization devices shall be centrally located by the Contractor/Service Provider at the PMA Control Center (or other appropriate location designated by PMA). PMA authorized personnel must be able to control all operations performed by these centrally located devices.

Contractor/Service Provider is responsible to provide adequate AFC-BSS support staff at the PMA Control Center.

14. Other high-level requirements

14.1 Automated Fare Collection Application must have following features:

- 14.1.1 Provision to specify and compute user-defined distance based, zone based, stage based and flat rate based fare.
- 14.1.2 Provision to handle the full fare, concessional fare and free fare policies.
- 14.1.3 Provision to manage refunds and top up fare media on stations.
- 14.1.4 Availability of user-definable criteria and rules for various functions including but not limited to reimbursement and auto alerts.
- 14.1.5 Inventory report of stock in hand of cards/RFID tokens (fare media) and cards in use/circulation.
- 14.1.6 Ability to produce various critical reports including but not limited to sales report, cash in hand report by station and analytical passenger turn over trends by station, origin-destination reports by bus and bus operator etc.
- 14.1.7 Online dashboard based on configurable parameters.
- 14.1.8 Report writer for generating quick on the fly reports/analysis.
- 14.1.9 Ability to generate automated alerts – e.g. SMS, email, fax.
- 14.1.10 User security roles definition and availability of interface to reassign roles.
- 14.1.11 Secure, reliable and password protected system.
- 14.1.12 Detailed audit log of critical user activities in the system.
- 14.1.13 Automated data backup facility.

14.1.14 The software must have provision of API/web services to interface with any other systems in future.

14.1.15 The software must have point of sales system to keep track of daily sales at the stations.

14.2 Vehicle Location System

14.2.1 Installation of GPS based devices to track location of the PMA buses and to send location coordinates to centralized system for view via GIS / mapping interface, and to see real-time adherence to defined bus schedules and routes.

14.2.2 Computation and tabulation of reports that will form a basis to disburse trips/distance based compensation to operators accordingly.

14.3 Passenger Information System and Scheduler

14.3.1 Provision to make automated voice announcements (in English and Urdu) inside the bus, regarding approaching station and next station

14.3.2 Broadcast schedule and any other information onto Passenger Information System display units available in bus and at stations.

14.4 Networks & Data Connectivity

14.4.1 Setting up the AFC-BSS related components on each PMA station/platform/bus, including the data network, so as to ensure timely, un-interrupted transmission of data between AFC-BSS equipment at stations and at central datacenter.

14.4.2 Primary medium for internet connectivity must be Fiber optic provisioned by purchaser which is outside the scope of this tender document; however for redundant connection any other medium may be used.

14.4.3 Reliable/redundant network availability onto the stations.

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

14.5 Station Equipment

14.5.1 Deployment (and security) of Turnstiles, validators, UPS, cabling for networks, routers/signal boosters, top up/refund machines, station PCs and/or any other component required to run AFC-BSS System efficiently, adequately, and as per industry standards as well as to ensure compliance to parameters mentioned in the Service Level Agreement. A 1x1 meter space will be provided on each platform/station where station PC, router etc can be placed.

14.6 Centralized/Back-office systems and reliable hosting

14.6.1 Deployment of all AFC-BSS Components on industrial strength, branded platforms/servers/equipment in a reliable, high-availability data center. The AFC-BSS solution must be able to pick up the load for off-board and on board ticketing and handle daily passenger volumes of up to 1,000,000 in an efficient, uninterrupted manner, and must be able to comply with service level agreement.

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

14.6.3 Purchaser will have access to all transactional data and audit logs, logged into the system for at least the past twelve months, at all times. And will be provided regular data backups by the contractor for long-term storage and archival purposes on reliable storage media.

14.7 Equipment Installation/Maintenance and Software Support

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

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

14.8 Human Resources

14.8.1 The successful bidder must employ adequate, well-trained staff to perform all duties and responsibilities stated in this tender document – including all roles/duties to be performed at the stations, buses, the central datacenter, and to support PMA authorized staff on the AFC-BSS 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 state of the art AFC-BSS for transportation sector.

15.1.5 has the required relevant qualified personnel and enough 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 ventures or Consortium are 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 bid.
- b. One partner of formulated joint venture will be designated the lead partner and would be get into legal contract with 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 or removed without the prior approval of the 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 for partial services.

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 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 must 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 system.
 - 20.5.19 Provide a programmer's guide for each of the programmable computers in the AFC-BSS. For each, the guide shall:
 - 20.5.19.1 Provide an overview of software organization.
 - 20.5.19.2 Define external interfacing data format, semantics, and protocols.
 - 20.5.19.3 Define internal modules, data interfaces, tasking, considerations for timing, priorities, and resource use.
 - 20.5.19.4 Identify and detail use of programming and database maintenance tools used to create the software.
 - 20.5.19.5 Include complete documentation of non-application components such as operating system, communications handlers, database, and report generators.
 - 20.5.19.6 Detail the procedures for building and managing software configuration.
 - 20.5.19.7 Describe the metrics embedded in AFC-BSS to evaluate its performance.
 - 20.5.19.8 Identify the error conditions detected within the software, and the messages or indications for those conditions.
 - 20.5.19.9 Identify parameters used to adjust AFC-BSS operation
 - 20.5.20 Ticketing mechanism.
 - 20.5.21 Data collection and management methodology.
 - 20.5.22 Revenue reporting and handling.
 - 20.5.23 Flexibility of system for special cards (citizen, student card).
 - 20.5.24 Detailed workflow of proposed AFC-BSS modules.

- 20.5.25 Integration between AFC-BSS modules.
- 20.5.26 Methodologies, mechanisms and tools for
 - 20.5.26.1 Process Testing
 - 20.5.26.2 Compliance Testing
 - 20.5.26.3 Interoperability Testing
 - 20.5.26.4 Acceptance Testing
 - 20.5.26.5 Load and Stress Testing

20.6 The Technical and Financial proposals shall be submitted in two different envelopes, the envelopes will be clearly marked 'Technical Proposal' and 'Financial Proposal'. 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 (if applicable).
- 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)
- 20.8.13 Tender Security (**as mentioned vide clause 22 regarding Tender Security of this document**).

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

- 20.9.1 Financial Proposal Form (Annexure-B)
- 20.9.2 Price Schedule

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 Punjab Government's facility for AFC-BSS 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.
- 21.2** If not specifically mentioned in the Tender(s), it shall be presumed that the quoted price is as per the above requirements.
- 21.3** 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).
- 21.4** The price hereby quoted by the Bidders would cover the whole scope of services for the contract period.

22. Tender Security

- 22.1** The Tenderer shall furnish the Tender Security as under:
- 22.2** **As part of technical bid envelope**, failing which will cause rejection of bid.
- 22.3** Tender security, would be submitted by the Bidder;
- 22.3.1 in the form of Demand Draft / Pay Order / Bank Guarantee, issued by a scheduled bank operating in Pakistan, in the name of the Purchaser, as per the format provided in the Tender Document[Annexure-G];
- 22.3.2 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 will 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 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.
- 28.1.2 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; 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 (01) 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 ten 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

**Services for Development, Implementation, Operations
and Long-Term Maintenance of Proven Globally
Deployed Automated Fare Collection & Bus Scheduling
System (AFC-BSS)**

between

[Purchaser]

and

[Contractor]

Dated:

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I. Agreement

This CONTRACT AGREEMENT (this “Contract”) made as of the [day] of [month], [year], between [full legal name of the Purchaser] (the “Purchaser”), on the one part,

and

[full legal name of Contractor], on the other part severally liable to the Purchaser for all of the Contractor’s obligations under this Contract and is deemed to be included in any reference to the term “Contractor.”

RECITALS

WHEREAS,

- (a) The Government through 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 equipment and consulting services as described in the contract.
- (b) The Purchaser has requested the Contractor to provide certain 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
 - b. Bidder’s Proposal
 - c. Terms and Conditions of the Contract
 - d. Special Stipulations

- e. The Technical bid / Specifications
- f. Tender Form
- g. Price Schedule
- h. Affidavit(s)
- i. Authorized Dealership / Agency Certificate
- j. Performance Security
- k. Service Level Agreement (SLA),
- l. Non-Disclosure Agreement (NDA), if required
- m. Any Standard Clause acceptable for Purchaser

4. This Contract shall prevail over all other documents. In the event of any discrepancy / inconsistency within the Contract, the above Documents shall prevail in the order listed above.

Draft Service Level Agreement is elaborated in Annexure-J.

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

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

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

Signature

Signature

Name

Name

Witnessed By:

Witnessed By:

WITNESSES

Signature _____
 CNIC # _____
 Name _____
 Designation _____
 Address _____

Signature _____
 CNIC # _____
 Name _____
 Designation _____
 Address _____

II General Conditions of Contract

33. Contract

The Purchaser shall, after receipt of the Performance Security from the successful Tenderer, send the Contract provided in the Tender Document with any modification mutually agreed between the Purchaser & successful tenderer, to the successful Tenderer. Within ten 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 AFC-BSS Project, 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, 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 Purchaser. The Application for Payment shall: be accompanied by such invoices, receipts or other documentary evidence as the Purchaser 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 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 Purchaser may withhold a Certificate of Payment on account of defect(s) / short coming(s) in the services provided. The Purchaser may make any correction or modification in a Certificate of Payment that properly be made in respect of any previous certificate.
- 41.3** The Purchaser shall pay the amount verified in the Certificate of Payment within twenty one (15) days of receipt of a Certificate of Payment. 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.
- 41.4** Payments shall be made against successful delivery of services per each Phase of the Program
- 41.5** No advance payments will be made. Monthly payments will be made on a prorated basis by the Purchaser, taking into account the number of stations and number of buses etc for which AFC-BSS has been successfully provisioned.
- 41.6** Purchaser at its discretion may withhold the fourth invoice after 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, it's 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, 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, 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% per day of the concurrent annual contract cost, for first 30-days
- ii. @2% per day of the concurrent annual contract cost for, next one week after expiry of first 30-days
- iii. @3% per day of the concurrent annual contract cost for, next one week and so on after expiry of first 37-days

on which is attributable to such part of the Services / the 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). Provided that the amount so deducted shall not exceed, in the aggregate, 50% of the total Contract Price.

47. Forfeiture of Performance Security

47.1 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, without prejudice to any other right of action / remedy it may have, forfeit Performance Security of the Contractor.

47.2 Failure to supply required items/services within the specified time period will invoke penalty as specified in this document. In addition to that, Performance Security amount will be forfeited and the company will 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 / violates any of the provisions of the Contract / 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 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 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

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 an allowance as compensation for overheads and anticipated profits to the contractor, 10% of value of the rest of the contract value.

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

- 53.3** 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.

- 53.4** 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 responsible for the payment, if any is required, of all Pakistani Income Tax, Duties any other taxes 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 Income Tax and Sales Tax laws/rules
- b) customs duties and other import taxes applicable in Pakistan
- c) information regarding port clearance facilities, loading and unloading facilities, storage facilities, transportation facilities and congestion at Pakistan seaports.
- d) 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.

- 57.1 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.
- 57.2 Any such delegation or revocation shall be in writing and shall not take effect until notified to the other parties to the Contract.
- 57.3 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.
- 57.4 Notwithstanding above Clause, 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.
- 57.5 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 shall have been sold, installed and operationalized in more than two installations initiated under two separate contracts by manufacturer 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 AFC-BSS setup delivery time is one hundred and twenty (120) calendar days from the issuance of Acceptance Letter (LOA) with complete deployment, commissioning and installation. The Contractor shall deliver the Goods at Multan, as specified by The Purchaser/The Client at the time of delivery.
- 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 at the expense of The Contractor to dispatch the missing items of the Goods/Equipment/Software/Items or suitable replacements thereof to the site of delivery by the fastest available means including air freight.
- 63.4** The Contractor will deliver all the equipment in the warehouse and intimate 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. Software Maintenance

The software release 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 AFC-BSS will stay operational within the existing scope.

66. Software Updates

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

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 the purchaser shall indemnify the contractor for any delays in making such arrangements and 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, with the corresponding frequency of 50 Hz, inclusive, and should be protected from over-voltage, over-heating and out-of-tolerance current surges. Contractor must ensure that all equipment as installed on the stations does not undergo power outage resulting from malfunctioning of UPS (UPS must provide uninterrupted power supply of 4 hours in all cases to all AFC-BSS related equipment deployed on the station). Purchaser will be responsible for the provisioning of power at all stations.

69. Safety

- 69.1 The Contractor shall be responsible for the embedding of safety features in the inherent design of the Goods/Equipment/Software/Items, for elimination of identified hazards, including but not limited to high voltage, electromagnetic radiation, sharp points and edges, etc., and reduction of associated risk to personnel and equipment.
- 69.2 The Contractor shall be responsible for the detailed survey and submission of the report in regards to the protection of the power sources, controls, and critical components of the redundant systems and subsystems by shielding or physical separation when possible.

70. Support and Maintenance

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

71. Spare Parts and Support

- 71.1 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.
- 71.2 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.
- 71.3 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/repared at contractor's cost for the time of contract including all renewals.
- 71.4 The Contractor shall also identify the following:
 - 71.4.1 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.

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

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

72. Inspection and Testing

72.1 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.

72.2 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.

72.3 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.

72.4 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.

72.5 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.

73. Blacklisting

73.1 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.

73.2 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.

74. Special Stipulations

SCHEDULE-A, SPECIAL STIPULATIONS	
For ease of Reference, certain special stipulations are as under:	
Tender Security	<p>The Contractor shall furnish the Tender Security as under:</p> <p>in the form of Demand Draft / Pay Order / Bank Guarantee, issued by a scheduled bank operating in Pakistan, in the name of the Procurer, as per the format provided in the Tender Document; for a sum of Ten (10) Million; denominated in Pak Rupees;</p> <p>Have a minimum validity period of one hundred and eighty days (180) from the last date for submission of the Tender or until furnishing of the Performance Security, whichever is later</p>
Performance Security	<p>The successful Contractor shall furnish Performance Security as under:</p> <p>within ten (10) working days of the receipt of the Acceptance Letter from the Purchaser;</p> <p>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;</p> <p>denominated in Pak Rupees;</p> <p>Have a minimum validity period of one year from the date of Award Notification or until the date of expiry of yearly support period.</p> <p>The technically and financially successful tenderer submit a sum equivalent to 10% of the one (01) 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.</p>
Start operation of Services after installation, configuration, deployment, commissioning, testing, and training	Fully functional AFC-BSS setup for 21 stations of PMA and 11 feeder routes within 120 Calendar Days from the issuance of LOA.
Liquidated damages for failure / configuration of Services by the Contractor	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, without prejudice to any other right of

	<p>action / remedy it may have, deduct from the Contract Price, as liquidated damages, a sum of money as per following schedule:</p> <ul style="list-style-type: none"> i. @0.25% per day of the concurrent annual contract cost, for first 30-days ii. @2% per day of the concurrent annual contract cost for, next one week after expiry of first 30-days iii. @3% per day of the concurrent annual contract cost for, next one week and so on after expiry of first 37-days <p>on which is attributable to such part of the Services / the 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). Provided that the amount so deducted shall not exceed, in the aggregate, 50% of the total Contract Price.</p>
<p>Legal Status to Work in Pakistan</p>	<p>The Bidder must be allowed and meet all conditions set forth by the Government to work with all concerned parties.</p>

75. Technical Evaluation Criteria

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

PASS MARKS: A technically eligible bidder, based on conditions listed in Section below, not meeting the 70% 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 70% 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

Sr No	Component	Estimated Quantity	Requirements Met (Y/N)
1	Provisioning and installation of UPS (Necessarily to provide power backup of at least 4 hours at any given time for all AFC-BSS components including but not limited to 6 turnstiles, 6 validators, station PC(s) and at minimum 2 top up/refund machines, ticket vending machine, internet routers and/or other necessary equipment material)	21	
2	Provisioning and installation of Top UP/Refund Machines and/or RFID Token Recharge Machine (any/all of them whichever is applicable). Top-Up machines should have feature that they function only when amount/balance is available.	48+12*	
3	Deployment of a reliable, proven, and globally deployed Automated Fare Collection System, Vehicle Location System and Passenger Information System and bus scheduling system and any other components part of AFC-BSS stated in this RFP (Able to handle staged/zone/distance and flat based fare policies and disburse operators on the basis of real data	1	

	collected via trackers placed in the bus)		
4	Turnstiles (6 for each station for roughly 21 stations)	126	
5	Validators (Inclusive of all types proposed)	126+100*	
6	Driver console, including GPS Trackers for Buses	35+100*	
7	Fare Media Smart Cards and Tokens (Inclusive of all types of fare media)	Based on anticipated ridership volumes given in section 7	
8	Provisioning of data connectivity to each station through secondary medium that could be any and integration with the primary medium, Fiber optic network provisioned by the purchaser	21 stations	
9	Provisioning of reliable data network at each station– including wiring, switches, routers, Station PCs, and all other components necessary to provision and operate AFC-BSS components efficiently. Please list all components.	21	
10	Provisioning of handheld/portable ticket validators	15*	
11	Bulk initialization machines. Should have feature to initialize cards/tokens only when amount/balance is available in the machine. If no balance is available, Contractor must first credit the appropriate bank account, so that the machine can initialize tokens.	2	
12	Any other equipment/hardware/software components essential for AFC-BSS operations at the central data center or bus stations. (Please provide detailed list along with justification)	Specify quantity	
13	Ticket Vending Machines (the machines must accept cash (notes and coins) and dispense reusable fare media)	21	
14	Support & Maintenance of the AFC-BSS solution including		

	<p>items 1 through 13 above – for 6 years</p> <p>(software support, maintenance of equipment, data network, and overall responsibility of solution)</p>		
15	<p>Operations at Ticket Sales Offices and at Turnstile Locations</p> <p>(Including cash handling)</p>	<p>At least 1 person for ticket sales and at least 1 person for access control at turnstiles (per shift at each station) at all times during PMA bus operating hours.</p>	
16	<p>Operations in Buses</p> <p>(Including cash handling)</p>	<p>1 person for ticket sales, card sales, passenger facilitation, guidance etc (per shift in each bus) at all times during PMA bus operating hours for initial three (03) months of operations.*</p>	
17	<p>Operations in Sale Points</p> <p>(Including cash handling)</p>	<p>1 person for card sales and recharge facility (per shift at each sale point) at all times during PMA bus operating hours.*</p>	

The mandatory requirements given above must be adhered to in order to qualify for evaluation against the criteria given. The component quantities marked as * will be used for feeder routes operations.

Technical Evaluation Criteria

References and supporting documentation required as evidence for each:

Sr No.	Criteria	Marks	Comment/Description
1	Number of implementations of successful similar projects of proven, globally-deployed automated fare collection systems, automated vehicle location systems and bus scheduling solutions (verifiable list to be provided) (Mandatory feature)	20	1 to 2 = 8 Points 3 to 5 = 16 Points 6 or Greater = 20 Points
2	Maximum passenger journeys per day that the system can handle	5	Highest score will be awarded to the bidder with highest number of passengers journeys per day [5] and every other in descending order will be given Score of Next Available Highest -2. Lowest marks will be zero. No negative marks
3	Total number of passengers served via the proposed system	5	Highest score will be awarded to the bidder with highest number of passengers served [5] and every other in descending order will be given Score of Next Available Highest -2. Lowest marks will be zero. No negative marks
4	Number of public sector projects greater than Rs. 500 million in value	5	1 to 3 = 2 Points 4 to 5 = 3 Points 6 or Greater = 5 Points
5	Team members in the AFC-BSS software team with more than 3 years of experience in the related field.		4 to 5 = 2 Points

	Please ensure to attach updated resumes with date of joining information for each team member.	5	6 to 10 = 3 Points 11 to 15 = 4 Points 16 or Greater = 5 Points
6	Team members in the equipment maintenance team with more than 3 years of experience in the related field	5	4 to 5 = 2 Points 6 to 10 = 3 Points 11 to 15 = 4 Points 16 or Greater = 5 Points
7	Financial Strength of the bidder Annual Revenue	15	Audited Accounts of last 5 years OR Copy of Income Tax Returns of last 5 years. Highest score will be awarded to the bidder with highest annual revenue [15] and every other in descending order will be given Score of Next Available Highest -3. Lowest marks will be zero. No negative marks
8	Setting up local workshops or engaging local partner for maintenance of equipment deployed – detailed plan must be shared	10	1 local workshop [5 Points] 2 or more than 2 local workshops [10 Points]
9	Mean Time Between Failure (MTBF) for turnstiles	5	Highest score will be awarded to the bidder with highest MTBF value [5] and every other in descending order will be given Score of Next Available Highest -2. Lowest marks will be zero. No negative marks
10	Demonstrated capabilities of AFC-BSS to produce reports and query data on the fly	5	

11	AFC-BSS must be able to maintain detailed user activity/transactional logs for review by system administrators and/or auditors at any point of time	10	
12	Number of successful projects with deployment of more than 200 resources onsite in multiple shifts	20	1 to 2 = 8 Points 3 to 5 = 16 Points 6 or Greater = 20 Points
13	Workforce currently working for the enterprise	10	200 to 400 = 4 Points 401 to 600 = 7 Points 601 or more = 10 Points
14	Number of projects with experience of Cash Handling in projects of similar nature	10	1 to 3 = 4 Points 4 to 5 = 7 Points 6 or Greater = 10 Points
15	Project Managers with more than 7 years of Project Management's Experience	10	1 to 3 = 4 Points 4 to 5 = 7 Points 6 or Greater = 10 Points
TOTAL		140	

76. Price Schedule / Bid Price / Form of Bid

MUST BE SUBMITTED IN SEPARATE ENVELOPE HIGHLIGHTED AS FINACIAL PROPOSAL

Price Schedule/Bid Price/Form of Bid

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

Price Table:

Sr No	Item	Price
1	<p>Monthly Service Charges for provisioning and maintaining all AFC-BSS services stated in this RFP – for 21 PMA Metrobus stations (including but not limited to setting-up, provisioning and maintaining all hardware, software, data communication, network, security components, top-up/POS machines, ticket issuance and validation, turnstile functioning, etc.)</p>	
2	<p>Monthly service charges of providing all back-office processing services associated with AFC-BSS, stated in this RFP (including but not limited to setting-up of all AFC-BSS bandwidth requirements, data communication, and hosting components, etc - associated with central datacenter setup)</p>	
3	<p>Monthly service charges for dedicating adequate human resources to manage AFC-BSS data-center components</p>	
4	<p>Monthly Service Charges for placing adequate human resources at all PMA stations, to manage AFC-BSS related components except access control at turnstiles At least 1 person for ticket sales (per shift, at each station) at all times during PMA operating hours)</p>	
5	<p>Monthly Service Charges for placing adequate human resources at all PMA stations, for access control at turnstiles At least 1 person for access control at turnstiles (per shift, at each station) at all times during PMA operating hours)</p>	
6	<p>Monthly Service charges for provisioning and maintaining AFC-BSS related services and components – for 35 articulated buses on Metrobus Corridor</p>	
7	<p>Monthly service charges for provisioning and maintaining AFC-BSS related services and components – for 100 mini-buses on feeder routes</p>	
8	<p>Monthly Service Charges for provisioning smart card sale and</p>	

	<p>recharge facility at 12 PMA designated localities on feeder routes in the city, to facilitate passengers on feeder routes</p> <p>(including but not limited to setting-up, provisioning and maintaining all hardware, software, data communication, network, security components, top-up/POS machines, card sale, card recharge etc.)</p> <p>1 person for card sales and recharge facility (per shift, in each sale point) at all times during PMA operating hours</p>	
9	<p>Monthly Service Charges for provisioning and maintaining 15 handheld ticket validators for spot checking, to facilitate PMA assigned ticket inspectors</p>	
10	<p>Monthly Service Charges for placing human resources for passenger facilitation, guidance, securing installed validator etc in 100 mini-buses on feeder routes for initial three(03) months of operations</p> <p>1 person for passenger facilitation/guidance/ticket sales/card sales etc (per shift, in each bus) at all times during PMA operating hours)</p>	
TOTAL		Y

* **Monthly service charges (Y)** must remain same throughout the contract period except for Sr. No 10 that will be applicable only for first three (03) months of operations unless the Purchaser extends the requirement in writing.

Important note:

- i. The financial bid is inclusive of all applicable taxes, as per Laws of the Government of Pakistan, but is exclusive of all Sales Tax on Services which shall be added by the Purchaser over and above the quoted amount, as applicable/required under the relevant Tax Laws, to arrive at the contract price. Accordingly, the Contract Price shall be subject to adjustments for change in rate of Sales Tax on Services as and when applicable.
- ii. Installation of equipment along with successful testing and commissioning will be the responsibility of bidder for which bidder may not propose price separately.
- iii. No advance payments will be made. Monthly payments will be made on a prorated basis by the Purchaser taking into account the number of stations and number of buses for which AFC-BSS has been successfully provisioned.
- iv. New stations and/or on-board bus modules may be added at any time during the contract period at the same average monthly service charge (per Station, per bus, as the case may be) as mentioned above in Price Table.

Date _____

Place _____

(Company Seal)

In the capacity of

Signature of authorized person
Name:

Duly authorized by

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

77. Equipment List

MUST BE SUBMITTED AS AN ANNEXURE IN SAME SEPARATE ENVELOPE HIGHLIGHTED AS TECHNICAL PROPOSAL

Sr No	Component	Estimated Quantity	Manufacturer	Model	Specifications Reference Document /Section
1	Power Backup (with at least 4 hours of backup time) to support all AFC-BSS related equipment and components as well as station network and communications devices	21			
2	Top UP/Refund Machines and/or RFID Token Recharge Machine (any/all of them whichever is applicable)	48+12*			
3	Turnstiles (6 for each station for roughly 24 stations)	126			
4	Validators (Inclusive of all types proposed)	126+100*			
5	Driver console, including GPS Trackers for Buses	35+100*			
6	Fare Media Smart Cards and Tokens (Inclusive of all types of fare media to be supplied for the period of support i.e 6 years)	Based on anticipated ridership volumes given in section 7			
7	Provisioning of data connectivity to each station through secondary medium that could be any and integration with the primary medium, Fiber optic network provisioned by the purchaser	21 stations (approximately)			
8	Provisioning of reliable data network at each station – including wiring, switches, routers, Station PCs, and all other components necessary to provision and operate AFC-BSS components efficiently. Please list all components.	21			

9	Provisioning of handheld ticket validators (for spot checking by ticket inspectors)	15*			
10	On Station Sign Boards	42			
11	Ticket Vending Machines (the machines must accept cash (notes and coins) and dispense reusable fare media)	21			
12	Bulk Initialization Machines for RFID cards/Tokens	2			
13	Data center related equipment (including servers, routers, firewalls, backup equipment, racks etc). Provide quantities and specifications	1			
14	Any other equipment/hardware components essential for AFC-BSS operations at the central data center or bus stations. (Please provide detailed list along with justification)				
Integrated Software Solution					
15	Reliable, proven, and globally deployed , Automated Fare Collection System (Able to handle staged/zone/distance and flat based fare policies and other related requirements stated in this RFP)	1			
16	Reliable, proven, and globally deployed Vehicle Location System	1			
17	Reliable, proven, and globally deployed Passenger Information System	1			
18	Any other software components required for AFC-BSS operations at the central data center or bus stations. (Please provide detailed list along with justification)				

* The component quantities marked as * will be used for feeder bus operations

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 (01) year contract value, on a yearly basis, with an undertaking to renew the Bank Guarantee before the end of each year, one month before the expiry period of the submitted bank guarantee) valid from the date of issue until all obligations have been fulfilled in accordance with the Contract; AND WHEREAS [Name of the Bank] having registered office at [Address of the Bank] (hereinafter called "the Guarantor") has agreed to give the Contractor a Guarantee;

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

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

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

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

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

Date this _____ day of 20__.

GUARANTOR

Signature _____

CNIC # _____

Name _____

Designation _____

Address _____

Annexure-I: Financial Capacity of the Bidder

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

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

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

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

Litigation and Arbitration During Last three (3) Years

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

Annexure-J: Service Level Agreement

DRAFT SERVICE LEVEL AGREEMENT (SLA)

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

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

Scope:

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

Service Monitoring:

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

An overall uptime of 99.9% is expected from all components and services associated with AFC-BSS (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 PMA in writing. PMA will have access to complaint management system to log calls and to assign categories.

- The contractor will be responsible for providing a mechanism to the client for taking and maintaining reliable backups on daily basis.
- 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 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, disaster recovery/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 disaster recovery and take all necessary actions to restore the system in a timely manner.

- Ownership of all data entered into the system stays as the property of Purchaser and shall be transferred in fully operational condition on completion of support contract.

FAULT LEVEL CATEGORIES:

Fault Level Categories as described below will be assigned by the contractor/purchaser; however purchaser may amend them or disagree based on factors as present on the ground.

Fault levels Category	Definition	Initial Response	Resolution
Critical	The system is unable to be used for normal business activity. There is no viable workaround. Downtime will lead to financial 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 financial 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 revenue 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. Purchaser 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 surveillance teams of PMA. Such an interface to report any of these issues must be provided. Surveillance teams may report via phone call to contractor’s helpline and/or logging complaint into complaint management system. Surveillance teams will log complaint but may not assign fault level category which will be assigned initially by the contractor. Purchaser may disagree/amend to the fault level assigned by the contractor based on the factors as present on the ground.

Issues Reported by Citizens:

Passengers may also report issues to the contact center as maintained by purchaser.

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. For Feeder buses, the maintenance staff of the Service Provider will attend to the problem in the AFC-BSS equipment installed in the feeder bus at the feeder route terminals (ends of feeder routes) once the feeder bus reaches there; upon completing/aborting its trip.

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.

Minimum service levels associated with various key aspects of the services, components, and operations related to the AFC-BSS project, are defined below:

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. This includes changing the fare rate, fare policy etc as well	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	Identical Statistics	System Reports must match with the video feed outlining number of passengers passing through turnstiles, if applicable	99%	PMA Record	Penalty of 2% will be deducted from the monthly charges for any slippage.
6	Bus Operators Reimbursement Report	Must be as per pre-defined status and present valid/ authentic data	100%	Monthly Reports	Any ambiguity and/or discrepancy and/or loss of data will cause 5% deduction in monthly charge.
7	Backup/ Restore Management	Contractor must take data backups as per a defined and agreed upon backup schedule.	99%	As reported by the system	If the negligence is found in the periodic audit report, contractor will be fined Rs 25,000/- per negligence.
		PMA would periodically request the service provider to restore the backup data	100%	Report	Rs 25,000/- for every restore failure

8	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 further issues from same cause.	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.
9	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.
10	Delay in AFC Data Recording on Servers	Validator data should accumulate in centralized server without delay	100%	Data Transmission Report	Rs 10,000/- for every thirty minute interval
11	UPS Failure	Any IT equipment being installed at bus stations must not undergo power outage due to UPS/Battery failure. This does not include power outage exceeding 4 hours.	100%	PMA Record Report	Rs 25,000/- on each incident
12	Vehicle Tracking	Real time feed to be supplied to control center of PMA	99.9%	Real time data feeds	0.2% of the monthly charges for less than 99.9%. 2% of the monthly charges for less than 97%. 3% of the monthly charges for less than 95%

13	PIS field Equipment	PIS malfunction i.e PIS data broadcast is inaccurate at bus stations	N/A	PIS malfunctioning at bus stops/terminals will be reported by enforcement staff/ drivers/ commuters.	Rs 1000/- for each issue reported and verified.
		PIS malfunction i.e PIS data broadcast is inaccurate in bus	N/A	PIS malfunctioning with in the bus will be reported by driver/ commuters.	Rs 1000/- for each issue reported and verified.
14	AFCS Financial Consolidation	Daily MIS of the Revenue Generation. Monthly MIS of the Revenue Settlement/ Distribution	100%	Report	2% of the monthly charge for slippage of one calendar day for monthly report.
15	Delay in Issuance of Fare Media at Ticket Office	The average time between issuance of two tokens measured over a fifteen minute period in face of queue shall be no more than 30 seconds per counter	N/A	PMA record	Rs 50,000/- on each incident
16	Queue Management	Where practical, the Contractor shall maintain the average system delay of no more than 5 minutes per passenger (measured over a fifteen minutes period) in face of queue subject to number of counters provisioned by the client	N/A	PMA record	Rs 50,000/- on each incident

17	Non Availability of Fare Media	Unavailability of fare media for issuance to passengers over a five minutes period	N/A	PMA record	Rs 20,000/- for every five minutes interval per station on each incident
18	Misbehavior of Contractor Staff	Misbehavior of contractor staff with passengers, PMA Staff or with staff of other service providers established through concrete evidence	N/A	PMA record	Rs 25,000/- on each incident
19	Unmanned Turnstile	No human resource at turnstile observed over a period of one minute	N/A	PMA record	Rs 5,000/- on each incident + Rs 5,000/- for each subsequent five minute period
20	Non Availability of Validated Access to Station	Unavailability of all entry/exit turnstiles for validating passenger entry/exit access to/from station over a five minutes period	N/A	PMA record	Rs 20,000/- for every five minutes interval per station on each incident
21	Improper Implementation of Fare Policy	Wrong fare deduction or wrong fare system or fare system non-compliant to prescribed fare policy	100%	PMA record Reports	10% of monthly charge
22	Unmanned Bus	No bus attendant observed in bus	N/A	PMA record	Rs 5,000/- on each incident + Rs 5,000/- for each subsequent hour
23	Improper performance of Bus Attendant	Failed to perform the assigned duties	N/A	PMA record	Rs 2,500/- on each incident
24	Inconsistency within Reports	Reports generated from the system are inconsistent with each other	N/A	PMA record	Rs 5,000/- on each incident + Rs 5,000/- for each subsequent hour

25	Fare Media travel time duration	Failed to adjust fare media expiry/ travel time duration as instructed by PMA	N/A	PMA record	Rs 10,000/- after the prescribed implementation time + Rs 10,000/- for each subsequent day
26	Smart Card Recharging on Feeder Routes	Failed to recharge/sell Smart Cards at designated points on feeder routes due to any reason whatsoever	N/A	PMA record	Rs 25,000/- on each incident reported and verified
27	Fare Evasion System	Validator in the bus failed/ unable to send tap-in signal to OBU	N/A	PMA record	Rs 1,500/- on each incident
28	Time Synchronization	System reports/live time not conforms with Pakistan Standard Time	N/A	PMA record	Rs 5,000/- on each incident + Rs 5000/- for each subsequent hour
29	Revenue Loss	Loss of data from Feeder bus Validator or Validator failed deduct fare from the fare media	N/A	PMA record	Rs 45,000/- on each incident
30	OBU Malfunction	OBU malfunction including but not limited to failure to show routes, trips and schedules in buses	N/A	PMA record	Rs 5,000/- on each incident
31	Ticket Validation	Ticket validator malfunction	N/A	PMA record	Rs 2,000/- on each incident + Rs 2,000/- for each subsequent hour
32	Alarm Management	Delayed or Failed to generate alarms	N/A	PMA record	Rs 2,500/- on each incident
33	Delayed Invoice Submission	Failed to submit invoice in first 10 days of the month	N/A	PMA record	Rs 30,000/- on each incident
34	Violation of scope of services	Any act of non-conformance to PMA rules, regulations, instructions,	N/A	PMA record	Rs 5,000/-*A on each incident Where A=[1-100] depending on the sensitivity of non-conformance as per decision

		scope of services if not covered in SLA			by the Purchaser
--	--	---	--	--	------------------

Calculation of Uptime:

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

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

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

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

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

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

Downtime Calculation:

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

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

Breach of SLA:

In case the Contractor does not meet the service levels mentioned in document, for three (3) 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: High-level Equipment Specifications

Notes:

1. All hardware equipment supplied as part of AFC-BSS must carry industry standard certifications like U/L, CE etc 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 [Asset Tracking] to track the devices that are installed in the network using suitable identification methods. This could be possibly done by attaching a RFID Tag to all assets in operation in AFC-BSS.

Turnstile		
Sr. #	ITEM	DESCRIPTION
1	Passage Prevention	Tripod Arms/Flap Barriers/ADA Turnstiles , must be suitable for outdoor usage
2	Passage Way	In/Out
3	Operational Temperature	-10C to + 70C
4	Passage Warning	Visible warning sign
5	Speakers	Equipped with Speakers for alarms
6	Accessories	Standard
7	Token Module	Must be supported
8	RFID Token / Collector Mechanism	Must be supported
<p>NOTE:</p> <ul style="list-style-type: none"> • All materials should meet the ASTM standards as set forth by the materials industry. • Operating mechanism should consist of precision machined, interchangeable parts made out of high quality steel materials. No parts incapable of sustaining wear and tear should be used. All relevant components hardened and surface treated to ensure long life and reliable service. Self centering mechanism should be used in order to automatically return arms to the basic position regardless of force used to pass through the turnstile. Rotation mechanism is cushioned through shock dampening. • The modular mechanism design to be mounted on a thick steel plate so as to allow rapid maintenance. • Environmentally friendlier and biologically safer through e-coated surfaces. • The outer cabinet should be constructed from thick steel with stainless steel finish. • The hub should have openings for three arms 120 degrees apart. The hub should be manufactured so as to be protected against oxidation and discolouring. 		

- Arms fabricated from stainless steel tubing with about 1” external diameter or more.
- The operating mechanism should consist of a hardened locking assembly and interchangeable precision fabricated parts using high quality steel materials.
- All important sub-assemblies made of machined high quality wear and tear resistant material.
- Self-centering, sealed, maintenance free main bearing supports shaft and ratchet assembly.
- The operating mechanism should contain of all electrical components (including power supply, transformers, reset system and access control interface).
- Stainless steel cabinet has rounded edges and corners with no sharp exposed edges in order to prevent injuries.
- Equipped with a locking mechanism to prevent tampering.
- Magnetic / Solenoid locking mechanism (Magnetic shall be preferred).
- Ultra low noise levels during turnstile operation.

Smart Cards/RFID Tokens

- The smart card to be used with the AFCS shall be ISO 14443 compliant. The Smart Card to be supplied by the operations team shall be Mifare 1K / Mifare Ultra lite/ Mifare Desfire 4K and shall be fully compliant with ISO/IEC 14443 and other relevant ISO/IEC standards.
- The SC shall have an operating frequency of 13.56 MHz
- The dimensions of the smart card shall comply with ISO 7810.
- The resistance of the smart card to mechanical stress and chemicals shall comply with ISO 10373.
- All SC used shall be suitable for personalization of one surface with photo and personal details as required by PMA.
- Each smart card /token shall have a unique external identification number that is linked to the card’s manufacturer supplied internal identification number which shall not be erasable or changeable. The external number shall be engraved or printed in a non-erasable, long lasting ink. The supplier of the cards shall provide an electronic correspondence list between the internal and the external card number where the two are not identical. The external number shall have a check digit to minimize the possibility of errors on data entry.
- Fixed data shall be encoded onto Contact less Smart Cards by the Operator prior to issuing. Each Smart Card shall be encoded with a unique identification number, date of entering the AFCS, type, encoding device reference number and other pertinent data that shall not change throughout the life of the Smart Card.
- Encoding on variable data fields shall be carried out by the Validator’s and field AFCS devices.
- The Contact-less Smart Cards / Coins shall be authenticated by all AFCS devices before the actual financial transactions are initiated in order to check originality.
- AFCS equipment shall be able to check the integrity of the data on the Smart Card / Coins during processing. Smart Card / Coins which are no longer capable of being accurately encoded shall be detected, rejected and blocked.

Validators for Turnstiles (Off Board)

- The validators shall be capable of performing a transaction with ISO14443 “Type A” cards / Single Trip Coins as a minimum.
- The validator should read cards at a distance 0mm to 30 mm, but shall not operate at a distance that introduces a risk of unintentional operation (tolerance limit + 10%).
- The validator shall read, write and verify all required data for the transactions associated with fare media to permit the application of all the business rules and the collection of all records required for the PMA’s accounting and reporting purposes.
- Transaction time shall not exceed 300ms for agreed and used types of Contactless cards.
- Validator shall be connected to the access gates, they shall control the access gates based on the validation process.
- Validator should provide suitable interface proposed turnstile barriers for operations as defined by PMA.
- Validators should have RTC in-built for clock management and should have onboard memory to manage business rules.

Validators for Ticket Inspectors

- The bidder shall provide handheld terminals capable of reading contact less smartcard/token for spot checking purposes. The handheld shall read media and display card information including last transaction details in-order to ascertain travel details from compliance perspective.
- The handheld shall be programmable to include audit functions as desired by PMA audit process. The handheld should be able to store violation data and the same should have capability to communicate to the centralized system (AFC).
- The device must be able to sell ticket/token to any evader while spot checking, any such data transmission to AFC to occur in real time.
- Validator should have capabilities to link to the central system.
- The validation & read/write cycle time for smart cards should be less than 300ms.
- The reader should read cards at a distance between 0mm to 30mm and shall not operate at a distance that introduces a risk of unintentional operation (tolerance limit + 10%).
- The Validator shall read, write and verify all required data for the transactions associated with SC to permit the application of all the PMA’s business rules and the collection of all records required for the PMA’s accounting and reporting purposes.
- Validator shall use serial ports, hi-speed LAN, WLAN, GPRS or USB communication protocols appropriately to achieve optimum performance.
- It should have suitable Wi-fi or GPRS hardware built in to it so that the communication can be established.

Vehicle Location System – Driver Console, including GPS Tracker

- Operating temperature -10 to +70 °C
- Handling and storing MP3-files for announcements, as well as manual override for Passenger Information related announcements.
- Control destination and line number signs.
- Control interior information display & announcement.
- Keep track of the vehicle's position via GPS and distance counting etc.
- Single push-button and audio Interface for two-way communication with PMA control center, by providing speaker and microphone interface
- Communication and interface with other onboard units, e.g. Passenger Information System, Smart card readers, Passenger counter etc.
- GPS time synchronization
- Clock and Date Function
- Map applications, navigation and driver guidance

Passenger Information System and Scheduler

Passenger Information System hardware shall consist of LED based display system for bus Stations and Buses. Following are the technical specifications for the display units.

The passenger information system shall comprise of following components:

- Display Screen on Bus Stations
- Display Screen on Bus
- Voice announcement system on Bus

Passenger Information System on Bus

- The Buses are pre fitted with Passenger Information System Display units and service provider shall provide interface and communication mechanism to drive the business process.
- Passenger information system on bus shall function as an independent system and shall not be directly dependent on the central system.
- They shall receive display information and voice announcement commands from the onboard GPS vehicle control module based on stored memory on the bus.
- There shall be scrolling display of destination in Urdu & English alternatively along with fixed route number.
- Simultaneously the route number and destination shall be announced so as to be audible to the passengers on the bus stop.
- The audio messages and the video display shall be clearly audible/ visible in all weathers inside the bus.

Voice Announcement System on Bus

- The Voice Passenger Information System must play clearly audible pre-recorded voice announcements informing passengers of the next bus station on route. The voice PIS shall interface with the on-bus GPS module to gather location information and making appropriate next station announcement.

Passenger Information System at Stations

- They shall display route and estimated arrival time (ETA). They may also be used to display public service information.
- PIS display system shall display the next arriving bus with its color code, transit line and time.
- All Outdoor Passenger Information Signs (PIS) shall be enclosed in a manner such as to inhibit entry of

dirt, dust, water and other contaminants during normal operation or cleaning.

- The enclosure shall be made of Aluminum 6063 so as to maintain high strength and rust resistance. All assembly screws are made of stainless steel, which makes them rust resistant as well. The Outdoor PAS should be tested up to IP 54, The IP Code (or International Protection Rating as defined in international standard IEC 60529).
- The Outdoor message shall be readable by a person with 20/20 vision, from a distance of not less than 110 feet. The Outdoor PAS shall have a viewing cone of equal readability at 65 degrees on either side of a line perpendicular to the center of the mean plane of the display. The intensity of the illumination of the display pixels shall appear, to the naked eye, to be approximately uniform throughout the full viewing cone.
- Amber or Sterling LED with diffused oval lens.
- The entire display area of all signs should be readable in direct sunlight, at night, and in all lighting conditions between those two lighting extremes, with evenly distributed illumination appearance to the un-aided eye in all conditions.
- All sign displays shall consist of pixels utilizing High Intensity Light Emitting Diodes (“LED”), for superior outdoor environmental performance, of superior UV resistant Epoxy lens and superior resistance to the effects of moisture.
- The sign system shall have multi-level intensity changes, which adjust automatically as a function of ambient lighting conditions.
- There shall be no requirement for any fan or any specialized cooling or air circulation.
- The LEDs shall be the only means of illumination of the sign system.
- The LED illumination source shall have an operating life MTBF of not less than 100,000 hours.
- The characters formed by the System shall meet the requirements of the Americans with Disabilities Act (ADA) of 1990 Reference 49 CFR Section 38.39, or similar international standard pertaining to readability by the visually impaired community.

Ticket Vending Machine		
Sr. #	ITEM	DESCRIPTION
1	Connectivity	Integrated Ethernet port (TCP/IP) with separate EDGE/GPRS/UMTS router
2	Coin System	Currency capability for different denominations
3	Bank Note Reader	Accepts up to 15 banknotes per sale.
4	Ticketing Material	RFID card based and/or RFID token (Bidder must ensure that proposed TVMS conforms to the industry standards)
5	Housing/Locking	Stainless steel housing with very high break-in resistance
6	Utility	RFID Card Reader, Token Recharge