

Punjab Masstransit Authority			
Minutes of Meeting			
Subject:	Pre-Bid Conference On Tender For Provision, Commissioning, Installation, Calibration, Integration, Testing, And Execution of IT Systems (CCTV Surveillance, Connectivity) For Feeder Routes In Lahore.		
Date:	September 09, 2015	Time:	03:00 PM
Venue:	Committee Room, Punjab Masstransit Authority	Chair:	Mr. Muhammad Ozair Shah, General Manager Operations, PMA
Participants:	<p>List of Participants:</p> <ol style="list-style-type: none"> 1. General Manager Operations, PMA 2. Manager IT, PMA 3. IT Expert, PMA 4. Manager Operations Technical, Lahore, PMA <p>The list of prospective bidders who participated the Pre-Bid meeting is attached at Annex-A</p>		
Question		Discussion/Decision	
<ol style="list-style-type: none"> 1. M/s Huawei, LMKT, Interactive Convergence, Proline, and Techaccess Pakistan requested for extension in bid submission time and delivery time. 2. Clarification regarding Clause No. 17 (Joint Venture/Consortium) that whether an Agreement deed is required or Memorandum of Understanding (MOU) would be sufficient for bid submission. 		<ol style="list-style-type: none"> 1. After discussion with all the prospective bidders and as per their agreement it was decided that the bid submission time and delivery time will not be extended. 2. It is clarified that Memorandum of Understanding (MOU) would also be acceptable for bid submission and Sub-Clause No. 17(a) is changed as follows: <p style="text-align: center;"><i>The Tenderers may form a joint venture of maximum four Tenderers/bidders. An Agreement Deed <u>legally executed to that effect, or a Memorandum of Understanding (MOU)</u>, signed by all the partners shall be submitted with the Tender and shall remain valid throughout the currency of the Contract</i></p> 	

<p>3. Clarification regarding Certificate of Payment (COP).</p>	<p>3. The Sub-Clause 41.3 is changed as:</p> <p><i>The Purchaser shall pay the amount verified in the Certificate of Payment within fifteen (15) days of receipt of a Certificate of Payment <u>provided that the Contractor furnishes a sales tax invoice within such period.</u> 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.</i></p>
<p>4. Clarification regarding delay in project due to reason(s) not related to the vendor.</p>	<p>4. It is agreed that the purchaser will start paying 70% of the monthly service charge that will be adjusted later upon commencement of Metrobus operations. However the duration of contract period will be extended for the number of months the 70% payment is made to the contractor. Sub-Clause 41.7 is added as:</p> <p><i><u>Invoices issued for the period preceding the commencement of Metrobus Operation in Multan shall include, on pro-rata basis, 70% of total price inclusive of Sales Tax on Services, mentioned in the Price Table. The amount so paid shall be adjusted equally in the invoices issued for the first ten (10) months after commencement of the Metrobus Operations. The duration of contract period will be extended till the number of months the 70% payment is made.</u></i></p> <p><i><u>However, for these 'ten' months no change shall be effected in determination of upper cap of penalties i.e 10% of the actual Monthly Service Charge (as per quoted bid value).</u></i></p>
<p>5. Clarification regarding Right of Way (ROW) for feeder routes for installation of poles and connectivity.</p>	<p>5. ROW will be responsibility of the Service Provider, however in obtaining permits Purchaser shall facilitate successful Service Provider in obtaining necessary NOCs to perform his obligations in a timely manner.</p>

Further to this clause 46 of Liquidity damages has been rephrased as:

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

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

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

<p>6. Prospective bidders sought specifications of existing surveillance and video wall system.</p> <p>7. Clarification regarding minor amendments in specifications.</p>	<p>a. <u>the Service Provider; provides evidence to establish that he has followed all the codal formalities to enable himself to initiate works on the site and provided that 15 days have elapsed in such efforts and provided that necessary permissions are not granted by the concerned authorities to carry out such works at that site;</u></p> <p>6. The existing installed equipment specifications are attached at Annex-B.</p> <p>7. After due deliberations with prospective bidders some amendments to specification's are made on Page # 88, 89, 93, 102, 103, 104, 106, 109 and 119.</p>
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ATTENDANCE SHEET

PAGE 1/3

PRE-BID MEETING ON PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION, INTEGRATION, TESTING AND EXECUTION OF IT-SYSTEMS (CCTV SURVEILLANCE AND CONNECTIVITY) FOR FEEDER ROUTES IN LAHORE

ATTENDANCE SHEET

Place: Committee Room, PMA Office, 5th floor,
Arfa Software Technology Park, Lhr

Date: 09/09/2015

Time 3:00 PM

Sr. No.	Name of Organization	Name of JV Partner (If any)	Representative's Name & Designation	Contact No.	Email Address	Signature
1	Pro Line, Turkey		Ali Raza, Project Engineer	03155173178	ali.raza@pro-line.com.pk	
2	Proline Turkey		FURKAN CELEBI	"	furkan.celebi@pro-line.com.tr	
3	Interactive		ADWAN AYBAR	0301 8556656	adwan.aybar@iacgrp.com	
4	Interactive		M. Asif Taveen.	0333-3848154	asif.taveen@iacgrp.com	
5	WATEEN		WAQAR AU	0320-4147056	WAQAR_ALI@WATEEN.COM	
6	HUAWEI		HAIDER AZEEM	0322-8492181	haider.azeem@huawei.cn	
7	XXXXXXXXXX					
8	PTCL		Ahmad Mangoor	0300-8477196	ahmad.mangoor@ptcl.net.pk	
9	Mansha Baitars		Kamran Saad	0321-4644223	Kamran@mansha-baitars.com	
10	//		Mr. Waseem			
11	Techaccess Pakistan		MUJAHID RAFIQUE Sales Account Manager	0300-8477966	mujahid.rafiq@techaccesspak.com	
12	//		M. Nauman Trainee - Sales	0321-8514033	m.nauman@techaccesspak.com	
13	Hummer		Robin	0334 4351587	robin@huawei.com	
14	ifocom	vital	Shahzada Kamran	03 214774999	shahzada.kamran@ifocomtech.com	
15	Shahzada Kamran				info@vitalgroup.com.pk	

ATTENDANCE SHEET

PRE-BID MEETING ON PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION, INTEGRATION, TESTING AND EXECUTION OF IT-SYSTEMS (CCTV SURVEILLANCE AND CONNECTIVITY) FOR FEEDER ROUTES IN LAHORE

ATTENDANCE SHEET

Place: Committee Room, PMA Office, 5th floor,
Arfa Software Technology Park, Lhr

Date: 09/09/2015

Time: 3:00 PM

Sr. No.	Name of Organization	Name of JV Partner (If any)	Representative's Name & Designation	Contact No.	Email Address	Signature
16	Qureshi Technologies		Sajid Qureshi	03226222259	sajid@qureshitech.com	
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Identifies objects behavior in a defined zone longer than usual
 Space IVS generates an alarm when an object moves in the forbidden direction in a specified surveillance area.

1. Identifies all the objects moving in the forbidden direction and generates alarms.
2. Correctly tracks a moving object with a color similar to the background color.
3. Allows users to set the forbidden direction. If users do not set it, eSpace IVS automatically analyzes moving objects in the video to determine the forbidden direction.
4. Optimizes images before the analysis to shield the impact of environmental factors such as light and background complexity.
5. An alarm includes the following information: alarm type, alarm time, and object location.

For number reorganization system needs standard plate which just contains word and number. Need more than 500 stylebooks for system to learn. Map support need customer provide map data. Platform provide windows SDK, contains demo, I18, specification, support real-time surveillance, play back video and PTZ control etc

At least 03 (three) years or more software backup services & up gradation support / patches etc free of cost, for entire system and its components on site by the manufacture.

TOTAL AMOUNT - PKR (E)

NAME OF EQUIPMENT: CAMERA CONSOLE					
Sl	Items/Brand	Description	Qty	Unit Price (PKR) (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
06	Camera Console	<p>[REDACTED] : CAMERA CONSOLE</p> <p>Standaone/Network camera console for PTZ operations with joy stick for PTZ control functions along with standard accessories.</p> <p><u>03 (three) Years Parts and Labour warranty for all components on site</u></p>	28	[REDACTED]	[REDACTED]
TOTAL AMOUNT - PKR (F)					[REDACTED]
COST OF GOODS ON THIS CONTRACT - PKR (A+B+C+D+E+F)					[REDACTED]
OPERATION AND MAINTNANCE COST (1 YEAR)					[REDACTED]
TOTAL COST (SUPPLIES AND O&M)					[REDACTED]

Notes to the Table:-

i. The Contractor shall not charge prices for the Goods and services provided and for other obligations discharged, under the Contract, varying from the prices quoted by the Contractor in the Price Table or not agreed by the Promiser as per this Contract

All Goods and Services, Hardware vide Total Cost Table should be, compliant with the requirements, specifications, scope of work & standards stated in subjected contract.

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M. Naeem *[Signature]*

[Signature]

SPECIFICATIONS WITH TOTAL COST

NAME OF EQUIPMENT: CCTV FIXED CAMERAS (OUT DOOR)

Sr	Items/Brand	Description	Qty	Unit Price (PKR) (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
01	CCTV Fixed Camera (Out Door)	<p>[REDACTED] eSPACE, IPC 2203-YR</p> <p>Image Sensor: 1/3" CMOS/CCD sensor. Lens: 2.8-12mm auto iris (Same Brand). Image Size: 1.0 to 1.3 MP Resolution. Minimum Illumination 0.1 lux (Color) & 0.2 lux (B/W) or lower lux. Shutter Speed: 1/5s ~ 1/50,000s. video compression: H.264 (Main codec). MJPEG. Video Streaming: Simultaneous multiple streams. H.264 streaming over UDP, TCP, HTTP or HTTPS & MJPEG streaming over HTTP or HTTPS. Video Frame Rates H.264: Up to 30/20 fps at 1.0 to 1.3MP. Up to 30/20 fps at 1.0 to 1.3MP. MJPEG: Up to 30/20 fps at 1.0 to 1.3MP. advantage image settings: built in WDR, Wide Dynamic Range along with other features Auto Gain Control, Auto White Balance, Auto Electronic Shutter Backlight Compensation etc. Networking: 10/100 Ethernet, RJ-45, ONVIF support. Protocols: IPv4, TCP/IP, HTTP, DHCP, DNS etc. Analytics behavior functions support Eight motion detection areas. On-Board Storage: 32GB SD card local recording of video streams. Three levels of users: administrator, operator, and common user with password. Operating Environments: -10°C-60°C < 90% (without condensation). Humidity: 80%.</p> <p>Power: 5C12V / PoE, Mounting & Housing: IP 68 Housing Weather proof + Standard mounting accessories with brackets / clumps etc with mount kit mounting should be as per drawings. Installation, Onsite Cabling (if IP) & electrical along with installation / calibration / testing with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects per drawings (Per Camera Job)</p> <p>03 (three) Years Parts and Labour warranty for all components on site by the manufacturer.</p>	310	[REDACTED]	[REDACTED]

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TOTAL AMOUNT PKR [REDACTED]



SPECIFICATIONS WITH TOTAL COST

NAME OF EQUIPMENT: **CCTV PTZ CAMERAS (OUT DOOR) AT STATIONS**

Sr	Items/Brand	Description	Qty	Unit Price (PKR) (inc. Taxes)	Total Price (PKR) (inc. Taxes)
2	CCTV PTZ Camera outdoor) at stations.	<p>ESPACE IPC 2902-Z18</p> <p>Sensor: 1/3" Progressive Scan CMOS (CCD) sensor, Image Size 1.0 to 1.3 MP Resolution, Optical Zoom:18X , Focal Length:4.7 ~ 84.6mm optical, Focus mode: Auto / Manual, White Balance: Auto/Indoor/Outdoor (Day & Night / Day / night) capabilities, Iris Control: Auto Iris, Shutter: Electronic shutter, AGC Control: Auto / Manual, Backlight: On/Off Multicolor, 0 Lux(F1.6, AGC ON), 0Lux (IR LED ON) or lower lux, Video Codec: H.264 (Main profile), MJPEG (optional), Video Resolution: 50Hz: 1280(H) x 720(V) 60Hz: 1280(H) x 960(V), Frame Rate: 30 fps @720p/25 fps @ 960p, Network: 10/100 Ethernet (PoE), Support IPv4/IPv6, RSTP/RTSP, RTSP, TCP/UDP, HTTP, DHCP, DNS, SFTP, DDNS, ONVIF, SMTP, ONVIF 2.0, PSIA, Analytics behavior functions support Flight motion detection and Installation management, Web based configuration, Operations: Pan: 360°, speed 100°/second or higher, Tilt: 0° ~ 180° speed 0° ~ 100°/second or higher, Presets: 128 or higher, Wide Dynamic Range: On/Off, Day/Night Automatic, ICR, Operating Temperature: -5°C ~ +60°C (without temperature controller), -40°C ~ +60°C (with temperature controller), < 90% (without condensation), Humidity: 80%, Power: 24V AC, Housing IP66 Housing, Installation: Onsite Cabling (FTP) & electrical along with installation / calibration/ testing with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects per drawings (Per Camera Job)</p> <p>03 (three) Years Parts and Labour warranty for all components on site by the manufacture.</p>	108	[REDACTED]	[REDACTED]

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TOTAL AMOUNT - PKR (B) [REDACTED]

SPECIFICATIONS WITH TOTAL COST

NAME OF EQUIPMENT: CCTV PTZ CAMERA(OUTDOOR) AT INTERSECTIONS

Sl. No.	Item Brand	Description	Qty	Unit Price (PKR) (inc Tax)	Total Price (PKR) (inc Tax)
03	CCTV PTZ Camera (outdoor) at intersections	<p>ESPACE IPC 2902-Z18</p> <p>Sensor 1/3" Progressive Scan CMOS (CCD) sensor, Image Size 1.0 to 1.3 MP Resolution, Optical Zoom 18X or higher, Focal Length 4.7 ~ 84.6 mm optical, Focus mode: Auto / Manual, White Balance: Auto/Indoor/Outdoor, Day & Night: Day / night capabilities, Iris Control: Auto Iris, Shutter: Electronic shutter, AGC Control: Auto / Manual, Backlight: On/Off, Minimum Illumination: Multicolor: 0.7Lux(F1.6, AGC ON) 0Lux (IR LED ON) Video Codec: H.264 (Main codec), MJPEG (optional), Video Resolution: 50Hz: 1280(H) x 720(V) 60Hz: 1280(H) x 960(V), Frame Rate: 30 ips @ 720p/20 ips @ 960p, Network: Support IPv4/IPv6, RTSP/RTMP/RTCP, TCP/UDP, HTTP, HTTPS, DNS, SIP, SDNS, PPPoE, SMTP, ONVIF 2.0, PSIA, Analytics behavior functions support Light motion detection, Supports for external sensors and alarm, Installation management, Web based configuration, Operations: Operation Pan 360°, speed 150 /second or higher, Tilt 0° ~ 120°, speed 0° ~ 150° /second or higher, Presets 255, Presets 128 or higher, Wide Dynamic Range: On/Off, Day/Night, Automatic ICR, Operating Temperature: -5°C ~ +50°C (without temperature controller) 40°C ~ +60°C (with temperature controller) < 90% (without condensation) Humidity: 80%, Power: AC 24V Mounting: Standard mounting accessories with brackets / clamps etc (mount kit for ceiling/coiling) as per available drawings, Installation: Onsite Cabling (FTP) & electrical along with installation / calibration / testing with accessories including Piping/Ducting, electrification with earthing cable etc, Complete in all aspects per drawings (Per Camera Job), Fibre cord with Media converter: Fiber Optic path cords/ cable with Nos. fiber to Ethernet media converters (from camera to CCTV cabinet) with RJ 45 Patch Cords etc, installation Onsite Cabling (FTP/Patch Cord/fiber & electrical cabling along with installation / Calibration / Testing with accessories including Piping/Ducting electrification with earthing cable etc, complete in all aspects per drawings</p> <p>03 (three) Years Parts and Labor warranty for all components on site by the manufacture.</p>	20	[REDACTED]	[REDACTED]

TOTAL AMOUNT - PKR (C)

[REDACTED]



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ANNEX - A: Complete Specifications with Price

NAME OF EQUIPMENT: ETHERNET SWITCHES (STATION & INTERSECTION NETWORK ACTIVE EQUIPMENT)					
Sr	Items/Brand	Description	Qty	Unit Price (PKR) (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
01	Ethernet Switch (Manageable)	<p>██████████ 0-ISTP-EI Managed Gigabit Ethernet switch with 16 x 10/100BaseT(X) ports, and 2 combo 10/100/1000BaseT(X) or 1000BaseSFP slots for adding SFP-1G series Gigabit Ethernet modules, 0 to 60°C operating temperature.</p> <p>03 (three) Years Parts and Labour warranty for all components on site by the Manufacturer, and 01 (one) year for cabinet box (passive equipment).</p>	27 Nos	██████████	██████████
02	Ethernet switches (manageable Industrial grade)	<p>Option - 1: ██████████ S2700-9TP-SI Managed Gigabit Ethernet switch with 8 x 10/100BaseT(X) ports, 1 x 10/100/1000BaseT(X) port or SFP slots (combo port) for adding SFP-1G series Gigabit Ethernet modules, 0 to 60°C operating temperature.</p> <p>03 (three) Years Parts and Labour warranty for all components on site by the Manufacturer, and 01 (one) year for 06U cabinet box (passive equipment).</p>	06 Nos	██████████	██████████
03	Station Sub Switches along with box	<p>Option - 1: ██████████ S2700-9TP-SI Managed Gigabit Ethernet switch with 8 x 10/100BaseT(X) ports, 1 x 10/100/1000BaseT(X) port or SFP slots (combo port) for adding SFP-1G series Gigabit Ethernet modules, 0 to 60°C Operating temperature.</p> <p>03 (three) Years Parts and Labour warranty for all components on site by the Manufacturer, and 01 (one) year for cabinet box (passive equipment).</p>	27 Nos	██████████	██████████
TOTAL COST (A)					██████████



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ANNEX - A: Complete Specifications with Price

NAME OF EQUIPMENT: ETHERNET SWITCHES (FOR LAN)					
Sr	Items/Brand	Description	Qty	Unit Price (PKR) (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
01	Ethernet Switches (Managed)	<p>S1700-52GER-4P-AC Managed switch with 48 x 10/100/1000M Ethernet electrical ports and four GE SFP ports.</p> <p>03 (three) Years Parts and Labour warranty for all components on site by the Manufacturer, and 01 (one) year for 06U cabinet box (passive equipment)</p>	04 Nos	Rs. [REDACTED]	[REDACTED]
TOTAL COST (B)					[REDACTED]
NAME OF EQUIPMENT: STATION CABINET (with accessories)					
Sr	Items/Brand	Description	Qty	Unit Price (PKR) (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
01	Station Cabinets with Accessories (for network equipment)	<p>3M/NORDEN/TOTEN 12U station cabinet for network communication equipment.</p> <p>24 port patch panel for 10/100/1000BaseT with tagging.</p> <p>24x3 meter STP Ethernet patch cords, 1x 200 meter fiber STP patch cords, front glass, 2 full width PDUs (imported), lockable, wall mount, cable in/out points, 2 fan etc. Installation of the same as per drawings.</p> <p>01 (One) Years Parts and Labour warranty for all components on site</p>	01 Nos	Rs. [REDACTED]	[REDACTED]
TOTAL COST (C)					[REDACTED]
NAME OF EQUIPMENT: DATA CABINET (with accessories)					
Sr	Items/Brand	Description	Qty	Unit Price (PKR) (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
01	Data Cabinets with accessories (for network equipment)	<p>3M/NORDEN 14U data cabinet for network communication equipment.</p> <p>48 port patch panel for 10/100/1000BaseT with tagging.</p> <p>48x3 meter Ethernet patch cords, 2x 200 meter fiber patch cords, front glass, 1 full width PDU (imported), lockable, wall mount, cable in/out points, 2 fan etc. Installation of the same as per drawings.</p> <p>03 (three) Years Parts and Labour warranty for all components on site</p>	03 Nos	Rs. [REDACTED]	[REDACTED]
TOTAL COST (D)					[REDACTED]
TOTAL COST (PKR) (A+B+C+D)					[REDACTED]
Total Cost in Word: SEVEN MILLION THREE HUNDRED SEVENTY SEVEN AND TWO HUNDRED FIFTY SIX PAK RUPEES ONLY					[REDACTED]

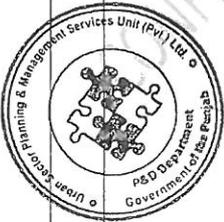
Notes to the Price Table:

- The Contractor shall not charge prices for the Goods and services provided and for other obligations discharged, under the Contract, varying from the prices quoted by the Contractor in the Price Table or not agreed by the Purchaser as per the Contract.
- All Goods and Services, Hardware vide Price Table should be compliant with the requirements, specifications, scope of work & standards stated in subjected tender document.

Handwritten signatures and official stamps of the Government of Punjab, including the seal of the Punjab Public Procurement Authority.

SPECIFICATIONS WITH TOTAL COST

NAME OF EQUIPMENT: VIDEO WALL WITH CONTROLLERS					
Sr #	Items/Brand	Description	Qty	Unit Price (PKR) (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
1	Video Wall With Controllers)	<p>55" SB-55L LED BACKLIT LCD VIDEO WALL</p> <p>Diagonal size: 55" Matrix : (8) Eight horizontal by (3) Three vertical matrix (8x3) cubes Screens: 24 screens with brackets for each wall LCD technology: DID Industrial Grade Technology for extensive usage 24/7 hr operation, Anti Image Retention circuitry Resolution: Full HD (1920x1080) Backlight: Direct LED Response Time: 8ms Refresh rate : 60Hz Luminance: 700 nits Contrast : 4000:1 Viewing angle: 178°/178° Color: 8 bit, 16.7 million MTBF : > 80,000h Active screen diagonal: 55" Bezel width: 5.3mm Ultra/Super narrow AC input voltage: 100-240 VAC 50Hz Ports : VGA/ HDMI, DVI , RS232 for chain port Control Manager: Via RS232 or other, Remote client application: on/off, wall setup, source selection, status, brightness, contrast and color adjustments Operational temperature: 0~40°C</p> <p>ICON PRO SERIES Controller for above Screen with Control Software:</p> <p>Should feature built-in integration of digital network video streams / IP Camera Streams and OR required hardware for conversion to analog streams or other data sources Should allow users to place windows of any size anywhere on the video wall, without any compromises on quality The controller shall provide independent color depth selection of video, RGB, and graphic window.</p>	02 Nos	Rs. [REDACTED]	[REDACTED]



The software must enable the control of the wall-desktop with the local keyboard and mouse of the operator-workstation via LAN. The software must provide certain alarm management tools, i.e. incoming alarm messages and business critical alarms can be detected and visualized automatically.

Operating systems: WINDOWS / UNIX / LINUX

Image Retention
Anti Image Retention Circuitry to ensure no permanent image burn-in

LCD Maintenance access etc
Front / Rear access to ensure easy maintenance & service, brackets, controllers, stands & software etc. complete in every aspect including installation, commissioning, cabling, calibration, testing etc.

Onsite Installation/ commissioning / Calibration/Testing/Training etc. of the above video walls as per drawings

3 (three) Years Parts and Labor warranty for all components on site by Manufacturer.

02
Nos

Included

Included

COST OF GOODS OF THIS CONTRACT - PKR
OPERATIONS AND MAINTENANCE COST - PKR
TOTAL COST (SUPPLY AND O&M COST) - PKR



Notes to the Total Cost Table:-

- i. The Contractor shall not charge prices for the Goods and services provided and for other obligations discharged, under the Contract, varying from the prices quoted by the Contractor in the Price Table or not agreed by the Purchaser as per this Contract
- ii. All Goods and Services, Hardware vide Total Cost Table should be compliant with the requirements, specifications, scope of work & standards stated in subjected contract.



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Addendum No1 to Tender Document

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



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

5th Floor, Arfa Software Technology Park (ASTP)

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

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URL: www.pma.punjab.gov.pk



Addendum No.1 to the Tender Document

Due to some clarifications required in the RFP document, the following addendum is hereby issued; which shall form a part and parcel of the original document titled

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

, issued and uploaded on September 01, 2015. The contents of this addendum shall supersede/replace pages 13, 29, 46, 47, 48, 56, 57, 88, 89, 93, 102, 103, 104, 106, 109 and 119 of the original RFP document, and shall be read as part of the RFP document uploaded on the following websites:

www.pma.punjab.gov.pk

www.ppra.punjab.gov.pk

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

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

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

14.6 Human Resources

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

15. Tender/Bidder Eligibility

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

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

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

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

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

15.1.3 has a registered office in the respective country of origin

15.1.4 has been registered for at least 5 years in country of origin, and has proven experience of deploying solution.

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

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

15.1.7 Verifiable proof for all the above shall be required.

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

16. Tender Cost

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

17. Joint Venture / Consortium

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

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

Contractor, under the Contract are genuine, brand new, non- refurbished, un-altered in any way, of the most recent or current model, imported through proper channel, and incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

- 39.2 The Contractor shall further warrant that the Goods/Services supplied by the Contractor, under the Contract shall have no defect, arising from design, materials, workmanship or from any act or omission of the Contractor that may develop under normal use of the supplied Goods/Services.
- 39.3 Free, on site repair / replacement of defective / damaged parts and labor. Engage and deploy suitably skilled personnel for development, installation, operation and maintenance of the IT system, and maintenance/replacement of all related equipment/components in a timely manner and at its own cost during the course of the contract.
- 39.4 The Contractor must, within the prescribed time period as per Service Level Agreement, after/in anticipation of any complaint/notice, repair or replace the defective / damaged Goods/Equipment/Software/Items or parts thereof on site, without any cost to The Purchaser.

40. Execution Schedule

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

41. Payment

- 41.1 The Contractor shall submit an Application for Payment (Invoice), in the prescribed form, to the Client. The Application for Payment shall: be accompanied by such invoices, receipts or other documentary evidence as the Client may require; state the amount claimed; and set forth in detail, in the order of the Price Schedule, particulars of the Services provided, up to the date of the Application for Payment and subsequent to the period covered by the last preceding Certificate of Payment, if any.
- 41.2 The Purchaser shall issue a Certificate of Payment, in the prescribed form, with a copy to the Contractor, verifying the amount due, within fifteen days of receipt of an Application for Payment. The Purchaser shall deduct the amount of penalties that may be levied in accordance with the SLA (Annexure-J), against the exclusive of Sales Tax amount mentioned in the Invoice and recalculate Sales Tax amount, while issuing the Certificate of Payment. The Client may withhold a Certificate of Payment on account of defect(s) / short coming(s) in the services provided. The Client may make any correction or modification in a Certificate of Payment that properly be made in respect of any previous certificate.
- 41.3 The Purchaser shall pay the amount verified in the Certificate of Payment within fifteen (15) days of receipt of a Certificate of Payment **provided that the Contractor furnishes a sales tax invoice within such period.** Payment shall not be made in advance. The Purchaser shall make payment for the Services provided, to the Contractor, as per payment schedule **through crossed cheque.**
- 41.4 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 Feeder Routes for which IT System has been successfully provisioned.
- 41.6 The Purchaser at its discretion may withhold the forth invoice after the commencement of Operations if the Contractor fails to obtain the User Acceptance Test (UAT) from the Purchaser.

41.7 *Invoices issued for the period preceding the commencement of Metrobus Operation in Multan shall include, on pro-rata basis, 70% of total price inclusive of Sales Tax on Services, mentioned in the Price Table. The amount so paid shall be adjusted equally in the invoices issued for the first ten (10) months after commencement of the Metrobus Operations. The duration of contract period will be extended till the number of months the 70% payment is made. However, for these 'ten' months no change shall be effected in determination of upper cap of penalties i.e 10% of the actual Monthly Service Charge (as per quoted bid value)*

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 **except in situations of force majeure**, under the Contract, or violates any of the provisions of the Contract or commits

breach of any of the terms and conditions of the Contract; the Purchaser may, without prejudice to any other right of action / remedy it may have, deduct from the Contract Price, as liquidated damages, a sum of money as per following schedule:

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

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

- a. the Service Provider, provides evidence to establish that he has followed all the codal formalities to enable himself to initiate works on the site and provided that 15 days have elapsed in such efforts and provided that necessary permissions are not granted by the concerned authorities to carry out such works at that site;

47. Forfeiture of Performance Security

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

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

48. Termination for Default

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

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

75. Special Stipulations

SCHEDULE-A, SPECIAL STIPULATIONS	
For ease of Reference, certain special stipulations are as under:	
Tender Security	<p>Tender security should be submitted by the Bidder.</p> <p>The Contractor shall furnish the Tender Security as under: Demand Draft / Pay Order / Bank Guarantee, issued by a scheduled bank operating in Pakistan, in the name of the Client, , as per the format provided in the Tender Document[Annexure-G] or in another format acceptable to the Purchaser; for a sum of PKR ten (10) million; denominated in Pak Rupees;</p> <p>Have a minimum validity period of one hundred and eighty days (180) from the last date for submission of the Tender or until furnishing of the Performance Security, whichever is later</p>
Performance Security	<p>The successful Contractor shall furnish Performance Security as under: within ten (10) working days of the receipt of the Acceptance Letter from the Purchaser; in the form of a Bank Guarantee, issued by a scheduled bank operating in Pakistan, as per the format provided in the Tender Document to the Purchaser; denominated in Pak Rupees; Have a minimum validity period of one year from the date of Award Notification or until the date of expiry of yearly support period. The technically and financially successful tenderer submit a sum equivalent to 10% of the yearly contract value, for a period of one year, on a yearly basis, with an undertaking to renew the Bank Guarantee before the end of each year, one month before the expiry period of the submitted bank guarantee.</p>
Start operation of Services after installation, configuration, deployment, commissioning, testing, and training	<p>Fully functional IT Systems setup for Feeder Routes and command and control center of PMA within 120 Calendar Days from the issuance of LOA.</p>
Liquidated damages for failure / configuration of Services by the Contractor	<p>If the Contractor fails / delays in performance of any of the obligations except in situations of force majeure, under the Contract, or violates any of the provisions of the Contract or commits breach of any of the terms and conditions of the Contract; the Purchaser may, without prejudice to any other right of action / remedy it may have, deduct from the Contract Price, as liquidated damages, a sum of money as per following schedule:</p>

	<ul style="list-style-type: none"> i. @0.25% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation, for first 30-days ii. @2% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation, next one week after expiry of first 30-days iii. @3% of the concurrent annual contract cost for each day of delay/non-performance/breach/violation after expiry of period mentioned at serial (ii) above i.e. from the 38th day <p>The amount so deducted as LDs shall not exceed, in the aggregate, the amount of the performance guarantee. LDs shall be attributable to such part of the Services/Works as cannot, in consequence of the failure / delay, be put to the intended use, between the scheduled delivery date(s), with any extension of time thereof granted by the Purchaser, and the actual delivery date(s). However, LDs shall not be levied if:</p> <p><u>the Service Provide, provides evidence to establish that he has followed all the codal formalities to enable himself to initiate works on the site and provided that 15 days have elapsed in such efforts and provided that necessary permissions are not granted by the concerned authorities to carry out such works at that site;</u></p>
Legal Status to Work in Pakistan	The Bidder must be allowed and meet all conditions set forth by the Government to work with all concerned parties.

2 Megapixel Outdoor IR PTZ Camera For Feeder Routes		Yes	No	Qty
Specification	Details			367
Image Sensor	1/2 2MP			
WDR	Dual Shutter upto 110 Db			
Num. of Effective Pixels	1920 x 1080 HxV			
Lens	30 X or higher Optical Zoom, 4.5 ~ 148.5mm F1.6			
Minimum Illumination	0.1 Lux, 0 lux (IR:ON)			
Shutter Time(Sec.)	1/3~1/15000 or 1/4~1/15000 Selectable			
Auto Iris	DC Drive			
S/N Ratio	More than 39 dB or above			
Video Compression	Motion JPEG, MPEG-4/H.264 High Profile			
H.264/MJPEG	30 FPS @ 1080p, 720p, SXGA, 1024x768, 800x600, D1, VGA, QVGA, QQVGA			
MPEG4	30fps @ 1080p, 720p, SXGA / 1024 x 768 / 800 x 600 / D1 / VGA / QVGA / QQVGA			
Video Streaming	Multiple Stream: Controllable Framerate and Bandwidth CBR/VBR			
Image Setting	Compression, Brightness, Contrast, Mirroring, Sharpness, AWB, AES, AGC, BLC, Day/Night Mode, WDR			
Audio Compression	G.711(u-law and a-law)/G.726/AAC			
Audio Input	Line In x 1			
Audio Output	Line Out x 1			
Security	Password Protection, IP Address Filtering, User Access Privilege			
Network Protocols	TCP/IP, UDP, DHCP, PPPoE, HTTP, HTTPS, DNS, DynDNS, NTP, FTP, SMTP, UDP, RTP, RTSP, RTCP, , UPnP, IPv4, SAMBA Client(NAS) or equivalent, IGMP, ICMP, ARP			
Intelligent Video	Video Motion Detection			
Alarm Trigger	Periodical Timer, Intelligent Video, Network Ping Loss, Network Disconnect			

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

	Mounting	Standard mounting accessories with brackets / clumps etc (mount kit for pole/ceiling).			
2	Installation	Onsite Cabling (FTP network & electrical) along with Installation / calibration/ testing with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects (Per Camera Job)			367 Nos.

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

	30 days recording capacity at 25 FPS @ 1920x1080			
	Automated device discovery.			
	Pre-event video recording.			
	Simultaneous recording to archive and real-time surveillance.			
	Synchronous playback of video footage recorded by several cameras.			
	Playback with fast- or slow-motion in forward or reverse.			
	Audio and video analytics.			
	Archive navigation through events recognized by video analytics or tagged by operators.			
	Event-driven response scenarios: recording, alarm generation, activation of relays and starting PTZ camera through user defined presets, notification by SMS, e-mail or through camera speaker output. Continuous or alarm recording (including initiated by an operator).			
	Multi-level user rights.			
	Support for widescreen displays and cameras, and touch screen displays.			
	Capability to use different streams from a camera for recording and display.			
	Capability to choose the right location and recording parameters for various cameras and for various events that initiate recording.			
	Micro-module and distributed architecture for unprecedented reliability.			
	It is preferred that the system to be capable of automatically opening Violation Report form after capture of photo. The form shall automatically record information such as location of camera, user ID, User Name, date and time, picture, and must have comment section for operator to record observation			

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

SERVER FORM (MID RANGE BLADE SERVERS)

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

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

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

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

and provides training for the efficient configuration and management of the System.

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

Server Infrastructure Rack 42U (Imported/Branded)

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

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

NOTE:

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

SAN STORAGE (700 TB)

SAN Storage Solution (High End) - 700 TB					
S#	ITEM	DESCRIPTION	Yes	No	Qty
	SAN Storage Solution		-	-	1
1	Architecture	Multi-Protocol storage, supporting simultaneous FC & iSCSI Access			
2	Cache	Minimum 48 GB cache for Storage Controllers			
3	Storage Controller	Redundant Storage Controllers with Active-Active configuration			
4	Front End Ports	8 x 8Gbps FC Ports for SAN (Required) or 4 x 10Gbps iSCSI Ports for SAN (Required)			
5	Supported Protocols	FC, iSCSI			
6	RAID	Supporting RAID 0, 1, 5, 6, 10			
7	Redundancy	End to end redundant connections with no single point of failure			
8	RAW Storage	5 x 400GB SSD Drives (Used as SSD Caching to Improve overall system Performance) 180 x 4TB 3.5 Inch 7.2k NL-SAS Disk Drives			
9	FC Cables	8 x 5m Fiber Optic Cable LC-LC			
10	Modular Design	Should have a Modular Design. Ability to Add or Replace Host connectivity Ports as Required			
11	Multi-path Software	Multi-path software providing path fail-over for all blades connecting to storage			
12	Power & Cooling	Redundant power and cooling			
13	Rack Rails	Rack mount kit with all accessories			
14	Management	Management software along with Storage			
15	Expandability	Should support a minimum of 350 Disk drives or more			
16	Drive Form Factor	Should support both 2.5" and 3.5" Disk Drives			

STORAGE (100 TB) (Direct Attached Storage)

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

S#	ITEM	DESCRIPTION	Yes	No	Qty
Storage Solution			-	-	1
1	Architecture	Multi-Protocol storage, supporting simultaneous FC & iSCSI Access			
2	Cache	Minimum 16 GB cache for Storage Controllers			
3	Storage Controller	Redundant Storage Controllers with Active-Active configuration			
4	Front End Ports	4 x 10Gbps iSCSI Ports for SAN (Required)			
5	Supported Protocols	FC, iSCSI			
6	RAID	Supporting RAID 0, 1, 5, 6, 10			
7	Redundancy	End to end redundant connections with no single point of failure			
8	RAW Storage	50 x 2TB 3.5 Inch 7.2k NL-SAS Disk Drives			
9	FC Cables	8 x 5m Fiber Optic Cable LC-LC			
10	Modular Design	Should have a Modular Design. Ability to Add or Replace Host connectivity Ports as Required			
11	Multi-path Software	Multi-path software providing path fail-over for all blades connecting to storage			
12	Power & Cooling	Redundant power and cooling			
13	Rack Rails	Rack mount kit with all accessories			
14	Management	Management software along with Storage			
15	Expandability	Should support a minimum of 150 Disk drives or more			
16	Drive Form Factor	Should support both 2.5" and 3.5" Disk Drives			
17	SAN to SAN Replication	Should Support SAN to SAN Replication (If Required in Future)			
Offered Brand (Attachments):					
Provide Name			Yes	No	
Make / Brand Name:					
Model Name:					
Sub-Model (if any):					
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):					
Direct / Authorized Distributor/Dealership certificate (Offered Brand)					
Agreed to provide the requisite quantity with in time frame:					
Agreed to provide the required warranty of the equipment:					
Agreed with other terms & conditions:					
Signed & Stamped documents:					

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

<p>14. It is critical that the system supports efficient multicast video as the streams from the encoders in the cameras are multicast streams. Both the base station and CPE's must support this. The system should provide means to ensure that all connected devices are not flooded with multicast traffic for example internet group management protocol (IGMP) snooping or multicast routing etc. The bidder should state how the equipment meets this requirement.</p>			
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Solar Solution for Feeder Routes:

	Quantity
<p>Estimated power load for PTZ camera, switch, wireless equipment and related accessories shall be as per bidders proposed solution. However, it is clarified that the purchaser requires a most efficient solution with least energy requirement. Service Provider has to propose complete solution for 24/7 solar back up by using state of the art PVC , inverters ,Dry batteries ,cabinets and related cabling and accessories .</p>	367

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

	Quantity
<p>Max bus height is 3.8 meter Service Provider has to propose GI pipe based pole with at least 6mm solid metal sheet keeping in view that camera should be installed at height that provide clear view of bus. Minimum height of poles should not be less than 40 ft. All accessories related to poles i.e. foundation , ropes have to be arranged by Service Provider to make vibration/jerk free solution while mounting the solar panel , batteries , inverter , wireless equipment , switch , cabinet and PTZ camera . Vendor has to arrange electrical earthing for all equipment as well. Design file of Pole in soft copy i.e. AutoCAD version to be submitted along with the proposal.</p>	367