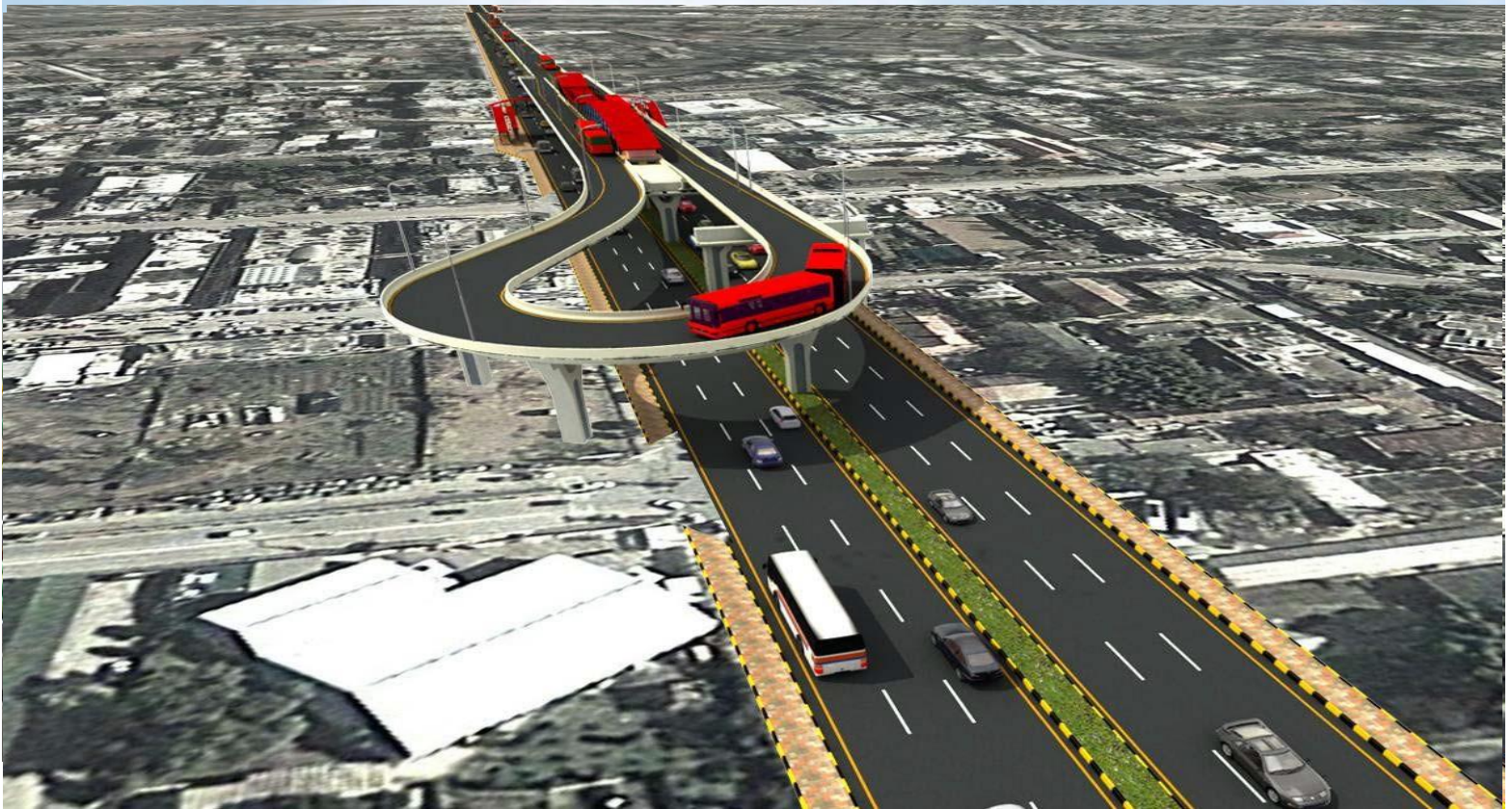


Addendum No.1 to Tender Document

**PROVISION, COMMISSIONING, INSTALLATION, CALIBRATION,
INTEGRATION, TESTING, EXECUTION, OPERATION &
MAINTENANCE OF IT SYSTEMS FOR PAKISTAN METROBUS
SYSTEM (PMBS) IN RAWALPINDI-ISLAMABAD**



**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 3588 0136 Fax: +92 42 9923 2541
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, EXECUTION, OPERATION & MAINTENANCE OF IT SYSTEMS FOR PAKISTAN METROBUS SYSTEM (PMBS) IN RAWALPINDI-ISLAMABAD"

issued and uploaded on June 14, 2022. The contents of this addendum shall supersede/replace pages 6, 9, 58, 65, 91, 92, 94, 95, 98, 99, 108, 113, 116 and 129 of the original RFP document, and shall be read as part of the RFP document uploaded on the following website:

www.pma.punjab.gov.pk

Important Dates

- 1. Last date of Bid Submission: July 18, 2022 (1400 Hours) – Punjab Masstransit Authority, 5th floor, Arfa Software Technology Park (ASTP), Main Ferozpur Road, Lahore.**
- 2. Clarification meeting: June 17, 2022 (1100 Hours) – PMA Building, 5th Floor, Haider Road, Saddar, Rawalpindi.**

2. Bidding Details (Instruction to Bidders)

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

The bids along with the Tender Security, Tender Forms, Affidavits, etc., must reach the office of the Punjab Masstransit Authority located at 5th floor, Arfa Software Technology Park, 346-B, Ferozpur Road, Lahore, Pakistan, on or before **1400 hour on July 18, 2022**. The Technical bids will be publicly opened in the Committee Room of the Punjab Masstransit Authority, 5th Floor, Arfa Software Technology Park, 346-B, Main Ferozpur Road, Lahore, at **1430 hour on July 18, 2022**.

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

Queries of the Bidders (if any) for seeking clarifications regarding the specifications of the services must be received in writing to the PMA by **1030 hours on June 17, 2022**. All queries shall be responded to within due time.

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

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

Email: info.pmbms@pma.punjab.gov.pk,
mian.mudassar@pma.punjab.gov.pk
Punjab Masstransit Authority (PMA)
5th Floor, Arfa Software Technology Park,
346-B, Ferozpur Road, Lahore, Pakistan.

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

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

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

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

76. Technical Evaluation Criteria

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

PASS MARKS: An eligible bidder, based on conditions listed in Section below, not meeting the 60% pass mark limit will be rejected in Technical evaluation, and its Financial Proposal will be returned to it unopened. All bidders scoring greater than or equal to 65% of the marks will be accepted in technical proposal, and their respective financial bids will be opened as per rules and regulations.

The Client reserves exclusive rights to cancel/annul or reject all bids submitted at any time without giving any reason thereof.

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

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

COMPLIANCE SHEET FOR BIDS

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

Sr No	Component	Estimated Quantity	Requirements Met (Y/N)
1	CCTV Fixed Cameras for Stations (outdoor)	130	
2	CCTV Fixed Cameras for People Counting (outdoor)	27	
3	CCTV Fixed Cameras for Queue Management (outdoor)	54	
4	CCTV Fixed Cameras for Facial Detection & Capturing (outdoor)	150	
5	CCTV PTZ Cameras (outdoor)	310	
6	CCTV Dome Cameras for station's data cabin & PMA building	57	
7	CCTV Fixed (Bullet) Cameras for PMA Building	15	
8	CCTV Surveillance Solution	-	
8(a)	Video Management System (VMS)	One solution	
8(b)	Facial Recognition System with storage	One solution	
8(c)	CCTV Storage System	As per Actual	
8(d)	Rack mount servers	2	
9	Access Control System	54	
10	Time Attendance System	25	
11	Camera Console	14	
12	Ethernet Switches 24 ports (Managed)	31	
13	Ethernet Switches 16 ports (Managed)	30	
14	Data Centre Core Switches (Primary Site)	2	
15	Data Centre Firewall (Primary Site)	2	
16	Data Cabinets (with accessories)	33	
17	Video Wall with Controller	2	
18	Rack mount servers	13	

78. Equipment Cost

MUST BE SUBMITTED AS AN ANNEXURE IN SAME SEPARATE ENVELOPE HIGHLIGHTED AS FINACIAL PROPOSAL ALONGWITH PRICE SCHEDULE/BID PRICE/FORM OF BID

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

Equipment Cost		Col-A	Col-B	Col-C = Col-A*Col-B
Sr No.	Component	Estimated Quantity	Unit Price (Inc. Taxes)	Total Price (PKR) (Inc. Taxes)
1	CCTV Fixed Cameras for Stations (outdoor)	130		
2	CCTV Fixed Cameras for People Counting (outdoor)	27		
3	CCTV Fixed Cameras for Queue Management	54		
4	CCTV Fixed Cameras for Facial Detection & Capturing	150		
5	CCTV PTZ Cameras (outdoor)	310		
6	CCTV Dome Cameras for station's data cabin & PMA building	57		
7	CCTV Fixed (Bullet) Cameras for PMA Building	15		
8	CCTV Surveillance Solution	-		
8(a)	Video Management System (VMS)	One solution		
8(b)	Facial Recognition System with storage	One solution		
8(c)	CCTV Storage System	As per Actual		
8(d)	Rack mount servers	2		
9	Access Control System	54		
10	Time Attendance System	25		
11	Camera Console	14		
12	Ethernet Switches 24 ports (Managed)	31		
13	Ethernet Switches 16 ports (Managed)	30		
14	Data Centre Core Switches (Primary Site)	2		
15	Data Centre Firewall (Primary Site)	2		
16	Data Cabinets (with accessories)	33		
17	Video Wall with Controller	2		
18	Rack mount servers	13		
19	Server Infrastructure rack 42U	1		
20	SAN Storage (50 TB)	2		
21	Storage (100TB) (Direct Attached Storage)	1		
22	Uninterruptible Power Supply (UPS) 30kVA for CCC	2		
23	Public Address System for Station and Command & Control Center	25		
24	IP Telephony	80		
25	IP Telephony (IP PBX)	1		
26	Sine Wave 5000VA 230V UPS	24		
27	Desktop Computer for Surveillance (with Dual LED	14		
28	Desktop Computer for Operations (with Dual LED	14		
29	Desktop Computer for DC NOC (with LED monitor)	6		

9	Left PUP Escalator + Stair	FIX	1
10	Right PUP Escalator + Stair	FIX	1
11	Pedestrian Bridge Left	PTZ	1
12	Pedestrian Bridge Right	PTZ	1
13	Mid Escalator + Stair	FIX	1
14	Inside Data Cabin	FIX	1
15	People Counting	FIX	1
16	Queue Management	FIX	2
Total			21

To cover the MBS corridor 100 PTZ cameras are estimated while approximately 39 cameras shall be installed in PMA building. Selected vendor is responsible for all the necessary arrangements for end to end connectivity through the near station along with live feeds in Command & Control Center of PMA by 24x7 for corridor cameras.

CCTV Fixed Cameras for Stations (Outdoor):

CCTV Fixed Cameras for Stations (Outdoor)				
Features	Description	Yes	No	QTY
CMOS	4.0 Megapixel IR, 1/1.8" Progressive Scan CMOS			130 Nos
Zoom	2.8-12 mm F1.2 or 8-32 mm F1.6 to F1.8 P-Iris lens with remote focus and zoom			
Illumination	Min illumination Color: 0.003 Lux @ F1.2 and B/W: 0 Lux @ F1.2			
Onboard storage	SD card slot for onboard storage support for local recording of video stream for 72 hr. Can re-write automatically once full. In case of link down Update the record automatically when connectivity is up.			
Compression	H.265+, H.265, H.264+, H.264 and Motion JPEG compression			
Compliance	ONVIF compliant (Profile S, Profile G, Profile T), SDK and API			
IR	Integrated IR (Infrared) LEDs provide uniform illumination in the dark, even at 0 lux, up to 230 ft or above			
POE	Power over Ethernet			
environmental conditions	Water proof and dust resistant IP67 and vandal proof/resistant IK10 compliant			
External I/O	External I/O interface for connecting alarms and relays			
Security	Security Password protection, HTTPS encryption, 802.1X authentication, watermark, IP address filter, WSSE and digest authentication, Security audit/user access Log			
Operating Temperature	-40°C to 60°C (-40°F to 140°F) and humidity 95% or less with no auxiliary power required			
Day & Night	Day / night Automatic			
Network	10/100 Ethernet (RJ-45) IPv4, TCP/IP, UDP, HTTP, DHCP, ONVIF etc.			
Mounting & Housing	IP-67 Housing, Weather proof /waterproof and IK10 (imported manufacturers original housing) + Standard mounting accessories with brackets / clumps etc with mount kit.			
Video Frame Rates	30 fps or above			

Multiple Streaming	H.265 & H.264 streaming over UDP, TCP, HTTP or HTTPS & MJPEG streaming over HTTP or HTTPS			
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2	Installation	Onsite Cabling (FTP) & electrical along with Installation / calibration/Testing, integration, with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects. (Per Camera Job)			130 Nos
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model & Sub-Model (if any):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity within time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

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

CCTV Fixed Cameras for People Counting (Outdoor):

CCTV Fixed Cameras for People Counting (Outdoor)				
Features	Description	Yes	No	QTY
CMOS	4 Megapixel or higher, 1/1.7" Progressive Scan CMOS			27
AI	Heat Map and People Counting with 99% accuracy in day and night			
Illumination	Min illumination Color: 0.05 Lux@F1.8 and B/W: 0 Lux@F1.8			
Onboard storage	SD card slot for onboard storage support for local recording of video stream for 72 hr. Can re-write automatically once full. In case of link down Update the record automatically when connectivity is up.			
Compression	H.265+, H.265, H.264+, H.264 and Motion JPEG compression			
Compliance	ONVIF compliant (Profile S, Profile G, Profile T), SDK and API			
IR	Integrated IR (Infrared) LEDs provide uniform illumination in the dark, even at 0 lux, up to 45 ft or above			
POE	Power over Ethernet			

CCTV Fixed Cameras for Queue Management (Outdoor)

CCTV Fixed Cameras for Queue Management (Outdoor)				
Features	Description	Yes	No	QTY
CMOS	4 Megapixel or higher, 1/1.8" Progressive Scan CMOS			54
AI	Capable to manage multiple queues Detect queuing-up people count in each queue Detect waiting time of each person and generate alarm w.r.t configured waiting time of a person 99% accuracy in both day and night Generate daily, weekly, monthly, and yearly reports Export queue management data			
Illumination	Min illumination Color: 0.003 Lux@F1.8 and B/W: 0 Lux@F1.8			
Onboard storage	SD card slot for onboard storage support for local recording of video stream for 72 hr. Can re-write automatically once full. In case of link down Update the record automatically when connectivity is up			
Compression	H.265+, H.265, H.264+, H.264 and Motion JPEG compression			
Compliance	ONVIF compliant (Profile S, Profile G, Profile T), SDK and API			
IR	Integrated IR (Infrared) LEDs provide uniform illumination in the dark, even at 0 lux, up to (40 m) or above			
POE	Power over Ethernet			
Environmental conditions	Water proof and dust resistant IP67 and vandal proof/resistant IK10 compliant			
External I/O	External I/O interface for connecting alarms and relays			
Security	Security Password protection, HTTPS encryption, 802.1X authentication, watermark, IP address filter, WSSE and digest authentication, Security audit/user access Log			
Operating Temperature	-40°C to 60°C (-40°F to 140°F) and humidity 95% or less with no auxiliary power required			
Day & Night	Day / night Automatic			
Network	10/100 Ethernet (RJ-45) IPv4, TCP/IP, UDP, HTTP, DHCP, ONVIF etc.			
Mounting & Housing	IP-67 Housing, Weather proof /waterproof and IK10 (imported manufacturers original housing) + Standard mounting accessories with brackets / clumps etc. with mount kit.			
Video Frame Rates	30 fps or above			
Multiple Streaming	H.265 & H.264 streaming over UDP, TCP, HTTP or HTTPS & MJPEG streaming over HTTP or HTTPS			

2	Installation	Onsite Cabling (FTP) & electrical along with Installation / calibration/ Testing, integration, with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects. (Per Camera Job)			54 Nos
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model & Sub-Model (if any):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity within time frame:			
Agreed with other terms & conditions:			
Signed & Stamped documents:			

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

CCTV Fixed Cameras for Facial Detection and Capturing (Outdoor)

CCTV Fixed Cameras for Facial Detection and Capturing (Outdoor)				
Features	Description	Yes	No	QTY
CMOS	4 Megapixel or higher, 1/1.8" Progressive Scan CMOS			150
AI	Face Detection and Capture			
Illumination	Min illumination Color: 0.003 Lux@F1.8 and B/W: 0 Lux@F1.8			
Onboard storage	SD card slot for onboard storage support for local recording of video stream for 72 hr. Can re-write automatically once full. In case of link down Update the record automatically when connectivity is up			
Compression	H.265+, H.265, H.264+, H.264 and Motion JPEG compression			
Compliance	ONVIF compliant (Profile S, Profile G, Profile T), SDK and API			
IR	Integrated IR (Infrared) LEDs provide uniform illumination in the dark, even at 0 lux, up to 120 ft. or above			
POE	Power over Ethernet			
Environmental conditions	Water proof and dust resistant IP67 and vandal proof/resistant IK10 compliant			
External I/O	External I/O interface for connecting alarms and relays			
Security	Security Password protection, HTTPS encryption, 802.1X authentication, watermark, IP address filter, WSSE and digest authentication, Security audit/user access Log			
Operating Temperature	-40°C to 60°C (-40°F to 140°F) and humidity 95% or less with no auxiliary power required			
Day & Night	Day / night Automatic			

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.

CCTV Dome Cameras for station's data cabin & PMA building

CCTV Dome Cameras for station's data cabin & PMA building				
Features	Description	Yes	No	QTY
CMOS	2 Megapixel, 1/2.7" Progressive Scan CMOS			57
Illumination	Min illumination Color: 0.003 Lux@F1.6 and B/W: 0 Lux@F1.6			
Onboard storage	SD card slot for onboard storage support for local recording of video stream for 72 hr. Can re-write automatically once full. In case of link down Update the record automatically when connectivity is up			
Compression	H.265+, H.265, H.264+, H.264 and Motion JPEG compression			
Compliance	ONVIF compliant (Profile S, Profile G, Profile T), SDK and API			
IR	Integrated IR (Infrared) LEDs provide uniform illumination in the dark, even at 0 lux, up to 60 ft.			
POE	Power over Ethernet			
Environmental conditions	Water proof and dust resistant IP67 and vandal proof/resistant IK10 compliant			
External I/O	External I/O interface for connecting alarms and relays			
Security	Security Password protection, HTTPS encryption, 802.1X authentication, watermark, IP address filter, WSSE and digest authentication, Security audit/user access Log			
Operating Temperature	-40°C to 60°C (-40°F to 140°F) and humidity 95% or less with no auxiliary power required			
Day & Night	Day / night Automatic			
Network	10/100 Ethernet (RJ-45) IPv4, TCP/IP, UDP, HTTP, DHCP, ONVIF etc.			
Mounting & Housing	IP-67 Housing, Weather proof /waterproof and IK10 (imported manufacturers original housing) + Standard mounting accessories with brackets / clumps etc. with mount kit.			
Video Frame Rates	25/30 fps or above			

Multiple Streaming	H.265 & H.264 streaming over UDP, TCP, HTTP or HTTPS & MJPEG			
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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)			57 Nos.
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Offered Brand (Attachments):	Provide Name	Yes	No
Make / Brand Name:			
Model Name:			
Sub-Model (if any):			
Boucher / Technical Datasheet with Make, Model (Sub-Model (if any)):			
Direct / Authorized Distributor/Dealership certificate (Offered Brand)			
Agreed to provide the requisite quantity 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.

CCTV Fixed (Bullet) Cameras for PMA Building

CCTV Fixed (Bullet) Cameras for PMA Building				
Features	Description	Yes	No	QTY
CMOS	2 Megapixel, 1/1.8" Progressive Scan CMOS			15
Illumination	Min illumination Color: 0.003 Lux@F1.6 and B/W: 0 Lux @F1.6			
Onboard storage	SD card slot for onboard storage support for local recording of video stream for 72 hr. Can re-write automatically once full. In case of link down Update the record automatically when connectivity is up.			
Compression	H.265+, H.265, H.264+, H.264 and Motion JPEG compression			
Compliance	ONVIF compliant (Profile S, Profile G, Profile T), SDK and API			
IR	Integrated IR (Infrared) LEDs provide uniform illumination in the dark, even at 0 lux, up to 60 ft.			
POE	Power over Ethernet			

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.

CCTV Surveillance Solution: Rack mount servers

CCTV Surveillance Solution: Rack mount servers				
Features	Description	Yes	No	QTY
Form Factor	Rack Mount Server			02 Nos.
Processor	2 x 3rd Generation Intel® Xeon® Gold 6326 Scalable Processors 2.9G, 16C/32T, 11.2GT/s, 24M Cache, Turbo, HT (185W) DDR4-3200			
RAM	8X16GBRDIMM, 2933MT/s or higher, Dual Rank, BASE x8 (expandable up to 768 GB or equivalent)			
Hard Drive	2x960GBSSD SATA/SAS 6Gbps or higher 2.5in Hot-Plug 1 DWPD			
HBA	10Gb Fiber Channel Expansion Card			
Installation	Onsite Cabling (FTP) & electrical along with Installation / calibration/ Testing, integration, with accessories including Piping/Ducting, electrification with earthing cable etc. Complete in all aspects.			02 Nos.

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.

Ethernet Switches

Sr. No.	ITEM	DESCRIPTION	Yes	No	Qty
1	Ethernet Switches 24 ports (Managed)	Ports: 24-port 10/100/1000BASE-T PoE Ethernet Switch with 2 SFP and 2 SFP+ port Switching Capacity: 128 Gbits/s or above Forwarding performance: 95 Mpps or above Protocol: OSPF v1/v2, IGMP v1/v2/v3, PIM, IEEE 802.1 Q-in-Q, Bidirectional Forwarding Detection (BFD), IEEE 802.1ag (Connectivity Fault Management) VRF-Lite or equivalent Layer 2 QoS: Supported Layer 3 QoS: Supported			31 Nos
2	Ethernet Switches 16 ports (Managed)	Ports: 16-port 10/100/1000BASE-T PoE Ethernet Switch with two SFP Gigabit Ethernet uplink ports Switching Capacity: 32 Gbits/s Forwarding performance: 24 Mpps			30 Nos

Installation	Onsite Cabling electrical along with Installation / calibration/ Testing with accessories including Piping/Ducting, electrification Etc. Testing & Commissioning, integration of entire Site System			61 Nos
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Offered Brand (Attachments):	Provide Name	Yes	No
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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.

Data Centre Firewall (Primary Site)

Data Centre Firewall (Primary Site)				
Features	Description	Yes	No	Qty
Firewall performance	30 Gbps or higher			02
IPS performance	10 Gbps or higher			
AES256+SHA-1 / 3DES+SHA-1 VPN performance	15 Gbps or higher			
Maximum concurrent sessions	8 M sessions or more			
New sessions/second	300,000 or more			
Fixed I/O ports	Minimum 8 10/100/1000 BaseT			
LAN interface options	12 x GE (RJ45) 12 x 10GE (SFP+) 2 x 40 GE (QSFP+)			
High-availability support	Application Identification			
	Application Denial of Service Protection (AppDoS)			
	AppTrack or equivalent			
	AppQoS or equivalent			
	AppFW or equivalent			
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			

1	IP Phone (Executive) (Hard phone)	Hard IP Phone for executive with color screen display along with standard features to connect through LAN to call manager etc.			80 Nos.
2	IP Phone (Non-Executive) (Hard)	Hard IP Phone for non-executive with mono screen display along with standard features to connect through LAN to call manager etc.			24 Nos.
3	IP Phone (Non-Executive) (Hard)	Hard IP Phone for field operations with mono screen display along with standard features to connect through LAN to call manager etc.			06 Nos.
4	IP Telephony (IP PBX)	<p>Up to 1000 SIP phones, PRI Card supported, IP Gate way card of same manufacturer, SIP trunk connectivity with PSTN or third party IP PBX, SIP Phone Licenses of the same manufacturer (Not Third Party), 10 ports analog trunks for PSTN connectivity, Music on Hold Feature, Fully functional Operator Console, Documents Manual (CD), Local, Onsite Training of the same according to requirements, Integrated DISA & auto attendant 12 Ports simultaneous access (not 3rd party), Standalone operating system.</p> <p>Call logging software with Telephone directory for All Extension and trunk status same manufacturer with CLI, Recall and other standard function (exchange must be compatible for nonproprietary telephone sets) SIP/IP Phones of Same manufacturer. In case of hardware based IP PBX, the vendor must have PTA approved letter of quoted model and manufacturers authorization letter.</p> <p>Call logging software must also have real- time monitoring mechanism to check availability status of trunk lines and also capable to maintain audit logs of all internal and external calls.</p> <p>The service provider must also provide an IP phone expansion module with 20 physical keys or higher.</p>			01 Nos.
5		Any other Hardware/Software/Equipment essential for IP Telephony solution (Please provide detailed list along with justification)			
Installation		Onsite installation/commissioning/cabling integration (FTP cabling at 24Nos stations & Command & Control and Data Center (from ticket booth to station cabinet to Command and Control Center /testing of the above system			1 Job