

Terms of Reference for Procurement of ICT Equipment FY 2022

Item	Specification	Statement of Compliance
		<p>Bidders must state here either “Comply” or “Not Comply” against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of “Comply” or “Not Comply” must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of the manufacturer’s un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data, etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder’s statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification, or the execution of the contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause 3.1(a)(ii) and/or GCC Clause 2.1(a)(ii).</p>

1. General Requirement for all ICT Equipment and WLAN Upgrade	Statement of Compliance
<ul style="list-style-type: none"> The Bidder must be an authorized reseller/ dealer of the brand being offered. A current Authorization or reseller certificate from the Manufacturer or Vendor is required as part of the technical component of the bid proposal. 	
<ul style="list-style-type: none"> The Bidder must not exceed the ninety days (90) days delivery lead-time upon receipt of the Notice to Proceed. 	
<ul style="list-style-type: none"> Must attach a brochure of the brand being offered. 	

ICT EQUIPMENT			
ITEM	QTY	UNIT COST	TOTAL
LOT 1: Co-Location Server and Storage			
Colocation Server and Storage	1 Lot	4,260,000.00	4,260,000.00
TOTAL			4,260,000.00
LOT 2 - WLAN for 8 Divisions			
Supply, Delivery, and Implementation of Wireless LAN (Wi-Fi 6)	1 lot	1,200,000.00	1,200,000.00
TOTAL			1,200,000.00
GRAND TOTAL			₱ 5,460,000.00

ICT EQUIPMENT - LOT 1: CO-LOCATION SERVER AND STORAGE		
Item	Specifications	Statement of Compliance
COLOCATION SERVER AND STORAGE		
CHASSIS		
QTY	1	
Form Factor	Blade with 10U chassis that can accommodate up to 14x half-width horizontal nodes. Supports mixing 2P ,4P and 8P nodes on the same chassis	

Midplane	Must have passive midplane	
Management Module	Blade Chassis should have 2x redundant management module	
Network Switch	Blade Chassis should have 2x network switch that includes 14 internal 10 GbE ports enabled (one to each compute node) and 10 external 10 GbE ports enabled with options to upgrade (per Switch). With 10x initially activated ports with 10x 10Gb base-T SFP+ Transceivers and 10x 1GbE Transceivers. Standard with Flexible Port Mapping capability.	
SAN Switch	Blade Chassis should have 2x SAN switch that includes 28 internal full duplex 16/8Gb FC ports (per Switch). 24 external ports for 16 Gb or 8 Gb SFP+ transceivers supporting 4 Gb, 8 Gb, and 16 Gb port speeds (per Switch). With 12x initially activated external ports per switch with 12x 16Gb and 12x 8Gb FC Transceivers.	
Fans and Cooling	Blade Chassis should have 10x redundant Fans. Should be capable of Zoned Adaptive Cooling with fans can be independently slowed or sped up.	
Power Supply	Blade Chassis should have 6x redundant 2500W PSU	
Power Consumption	Must be 12,900 watts maximum	
Power Cable	Blade Chassis should have 6x 2.5m, 16A/100-240V, C19 to IEC 320-C20 Rack Power Cable	
Warranty	3 Years Parts, Labour, On Site, 4Hr Response Time, 24x7	
Implementation Services	Installation and configuration must be included	
BLADE NODE		
QTY	3	
Form Factor	Half-width	
Processor	2x Xeon Silver 4114 10C 85W 2.2GHz Processor	

Memory	8x 16GB DDR4 2666 MHz. up to 24 DIMMs can be installed	
Storage	2x 2.5" 300GB 10K SAS 12Gb Hot Swap 512n HDD	
Connectivity	4-port 10Gb Virtual Fabric Adapter and 16Gb 2-Port Fibre Channel Adapter	
Features	With predictive failure analysis which covers processors, memory, and drives, plus the fans and power supplies.	
Warranty	3 Years Parts, Labour, On Site, 4Hr Response Time, 24x7	
Implementation Services	Installation and configuration must be included	
SAN		
QTY	1	
Form Factor	2U Rackmount SAN	
Controller memory	16 GB per system (8 GB per controller module)	
Controller	Dual Redundant Converged Network Controller	
RAID Levels	RAID 1, 5, 6, and 10	
Storage	3x 400GB SSD and 15x 1.2TB HDD	
Ports	4x SFP/SFP+ host ports with two built-in dual-port CNCs (each port on the same CNC must have the same connectivity type; different CNCs might have different connectivity types) and 1x 1GbE ports for management per Controller.	
Transceivers	8x 16GB FC SFP+ Transceivers	
Features	SSD Tiering	
Performance	Dual controller configuration Up to 250000 random disk read IOPS Up to 7 GBps sequential disk read throughput Up to 6 GBps sequential disk write throughput	
Cooling	Redundant cooling with two fans built into power and cooling modules (PCMs).	

Power supply	Two redundant hot-swap 580 W AC power supplies built into PCMs.	
Management interfaces	1 GbE port (UTP, RJ-45) and serial port (Mini-USB) on the controller modules. Web-based interface (WBI); Telnet, SSH, or Direct Connect USB CLI; SNMP and email notifications.	
Cables	2x 4.3m, 10A/100-250V, C13 to IEC 320-C14 Rack Power Cable and 8x 5m LC-LC OM3 MMF Cable	
Warranty	3Yr 24x7 4Hr Response + Drive Retention	
Implementation Services	Installation and configuration must be included	
Misc		
FC HBA	1x Dual port 8Gb FC HBA for x3550 M5 (5463)	
NIC	1x Dual port 10GbBase-T NIC for x3550 M5 (5463)	
Implementation Services	Installation and configuration must be included	
SCOPE OF WORK		
Blade Chassis		
	Unboxing and initial setup	
	Racking	
	Assembly of Power Supply and Cooling Fans	
	Initial Configuration of Chassis Management Module (CMM)	
	Initial Configuration of Flex Network Switch	
	Initial Configuration of Flex SAN Switch with SAN Zoning	
	Installation of Server Nodes	
	Knowledge Transfer	
Server Nodes		
	Configuraiton of Server Nodes	
	RAID Configuration	
	OS Installation (Windows Only)	
	Knowledge Transfer	
Storage		
	Unboxing and initial setup	

	Racking	
	Create Storage Pool	
	Create Host	
	Mount volumes to Host	
	Testing	
	Knowledge Transfer	
Existing M5	x3550	
	Removal of 2x Single port FC HBA	
	Installation of 1x Dual port FC HBA	
	Installation of 1x Dual port 10GbBase-T NIC	
Warranty	At least three years on parts and labor.	
Support Service Requirement	The bidder must provide the following:	
	* Unlimited corrective maintenance/ repair services within the warranty period	
	* Eight (8) hours by five (5) days (Monday to Friday, 8:00 AM - 5:00 PM) technical support and must meet the following response and resolution time:	
	> Within one (1) hour for phone or email support	
	> Next business day on-site support	
	> For onsite support, the winning bidder must attend to and repair the defective unit within two (2) business days	
	> In case of outside repair within the 1-year warranty period, the winning bidder shall provide a service unit to the OSG within three (3) days upon pull out of the unit. The repaired hardware or replacement for the pulled-out hardware/unit must be delivered within fifteen (15) calendar days from the issuance of the service unit.	
	The bidder must provide full documentation for the Activity Plan on the installation of patches and upgrades and Root Cause Analysis of incidents encountered.	

	The bidder must provide onsite support for the installation and deployment of software patches and version upgrades.	
	The bidder must provide a procedure for support and problem escalation.	
	* Submission of Activity/Service Report within 5 calendar days after rendering service	
	The bidder must conduct system health checks every quarter with the following scope: <ul style="list-style-type: none"> • System/Application patches, fixes, security patches, and alerts • System/Application profile • Resource utilization • Log analysis Formal reports on the output of conducted health checks within 5 days	
Other Warranty and After Sales Requirements	* Immediate replacement of the equipment and/or its parts.	
	* The winning Bidder shall replace a factory defective unit with a new unit within 30 days upon delivery of the item.	
	The bidder must provide a certificate for the above services as part of the technical requirements.	
Certification	The bidder must be an authorized reseller of the brand being offered. Must provide Authorization certificate from the Manufacturer or Vendor.	
TERMS OF PAYMENT		
	Supplier agrees to be paid based on a progressive billing scheme as follows:	
	<ul style="list-style-type: none"> • Within thirty (30) days from completion of the delivery and issuance of the Inspection and Acceptance Report by the OSG, and 	

	<p>submission of all other required documents - 95% of the contract price. One (1) year from the issuance of the Inspection and Acceptance Report by the OSG - 5% of the contract price.</p>	
DELIVERY		
	Ninety (90) days upon receipt of NTP	
ICT EQUIPMENT - LOT 2: WLAN FOR 8 DIVISIONS		
Supply, Delivery, and Implementation of Wireless LAN (Wi-Fi 6)		
10 Units Access Point		
Features	<ul style="list-style-type: none"> • Must belong to the latest Top 4 of the Leaders Group of Gartner’s Magic Quadrant for Enterprise Wired and WLAN Infrastructure Report for 2021 (must provide certificate) 	
	<ul style="list-style-type: none"> • Must be compatible with existing OSG WLAN Infrastructure. 	
	<ul style="list-style-type: none"> • Must be 1.49 Gbps maximum real-world speed (HE80/HE20) 	
	<ul style="list-style-type: none"> • Must be WPA3 and Enhanced Open security 	
	<ul style="list-style-type: none"> • Must have built-in technology that resolves sticky client issues for Wi-Fi 6 and Wi-Fi 5 devices 	
	<ul style="list-style-type: none"> • Must have OFDMA for enhanced multi-user efficiency 	
	<ul style="list-style-type: none"> • Must be IoT-ready Bluetooth 5 and Zigbee support 	
	<ul style="list-style-type: none"> • Must be designed to optimize user experience by maximizing Wi-Fi efficiency and dramatically reducing airtime contention between clients. 	
	<ul style="list-style-type: none"> • Must support Orthogonal frequency-division multiple access (OFDMA) 	
	<ul style="list-style-type: none"> • Must support cellular optimization 	

	<ul style="list-style-type: none"> • Must support up to 2 spatial streams (2SS) and 80MHz channel bandwidth (HE80) 	
	<ul style="list-style-type: none"> • Must support handling multiple Wi-Fi 6 capable clients on each channel simultaneously, regardless of device or traffic type. 	
	<ul style="list-style-type: none"> • Must support Channel utilization optimization by handling each transaction via smaller sub-carriers or resource units (RUs) 	
	<ul style="list-style-type: none"> • Must support controller-less mode and can provide SLA-grade performance by allocating radio resources, such as time, frequency, and spatial streams, to specific traffic types 	
	<ul style="list-style-type: none"> • Must support Layer 7 deep packet inspection (DPI) to identify user roles and applications, the APs will dynamically allocate the bandwidth needed 	
	<ul style="list-style-type: none"> • Must support the elimination of sticky client issues by placing Wi-Fi 6 capable devices on the best available AP 	
	<ul style="list-style-type: none"> • Must support Wi-Fi 6 aware client optimization by steering mobile devices to the best AP based on available bandwidth, types of applications being used, and traffic type -even as users roam. 	
	<ul style="list-style-type: none"> • Must support Advanced Cellular Coexistence (ACC) uses built-in filtering to automatically minimize the impact of interference from cellular networks, distributed antenna systems (DAS), and commercial small cell or femtocell equipment. 	
	<ul style="list-style-type: none"> • Must support continuous monitoring and reporting hardware energy consumption. can also be configured to enable or disable capabilities based on available PoE power 	

	<ul style="list-style-type: none"> • Must support integrated Bluetooth 5 and 802.15.4 radio (for Zigbee support) to simplify deploying and managing IoT-based location services 	
	<ul style="list-style-type: none"> • Must support Target Wake Time (TWT) by establishing a schedule for when clients need to communicate with an AP 	
	<ul style="list-style-type: none"> • Must support for stronger encryption and authentication is provided via the latest version of WPA for enterprise-protected networks. 	
	<ul style="list-style-type: none"> • Must support WPA2-MPSK MPSK enables simpler passkey management for WPA2 devices 	
	<ul style="list-style-type: none"> • Must support VPN Tunnels can be used to establish a secure SSL/IPsec VPN tunnel to a VPN concentrator 	
	<ul style="list-style-type: none"> • Must support Trusted Platform Module (TPM) for secure storage of credentials and keys, and boot code 	
	<ul style="list-style-type: none"> • Must support flexible management platform either standalone, controller-less, controller-based, cloud-based, and on-premises NMS using unified OS 	
	<ul style="list-style-type: none"> • Must support zero-touch provisioning 	
	<ul style="list-style-type: none"> • Must support Transmit beamforming (TxBF) Increased signal reliability and range 	
	<ul style="list-style-type: none"> • Must support Passpoint Wi-Fi (Release 2) (Hotspot 2.0) 	
	<ul style="list-style-type: none"> • Must support Seamless cellular-to-Wi-Fi carryover for guests 	
	<ul style="list-style-type: none"> • Must support Dynamic Frequency Selection (DFS) Optimized use of available RF spectrum 	
	<ul style="list-style-type: none"> • Must support Maximum Ratio Combining (MRC) Improved receiver performance 	
	<ul style="list-style-type: none"> • Must support Cyclic Delay/Shift Diversity (CDD/CSD) Greater downlink RF performance 	

	<ul style="list-style-type: none"> • Must support Space-Time Block Coding 	
Technical Specifications	<ul style="list-style-type: none"> • Must be Indoor, dual radio, 5GHz, and 2.4GHz 802.11ax 2x2 MIMO 	
	<ul style="list-style-type: none"> • Must have Two spatial stream Single User (SU) MIMO for up to 1.2Gbps wireless data rate with 2SS HE80 802.11ax client devices 	
	<ul style="list-style-type: none"> • Must be Up to 256 associated client devices per radio 	
	<ul style="list-style-type: none"> • Must be 16 BSSIDs per radio 	
	<ul style="list-style-type: none"> • Must support the following frequency bands: 	
	(Country-specific restrictions apply)	
	2.400 to 2.4835GHz / 5.150 to 5.250GHz /5.250 to 5.350GHz /5.470 to 5.725GHz /5.725 to 5.850GHz	
	<ul style="list-style-type: none"> • Available channels 	
	Dependent on the configured regulatory domain	
	<ul style="list-style-type: none"> • Must Support the following radio technologies 	
	802.11b: Direct-sequence spread-spectrum (DSSS)	
	802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)	
	802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 8 resource units	
	<ul style="list-style-type: none"> • Must support the following modulation types: 	
	802.11b: BPSK, QPSK, CCK	
	802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM (proprietary extension)	
	802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM (proprietary extension)	
	802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM	
	<ul style="list-style-type: none"> • Must be 802.11n high throughput (HT) 	

	support: HT20/40	
	<ul style="list-style-type: none"> • Must be 802.11ac very high throughput (VHT) support: VHT20/40/80 	
	<ul style="list-style-type: none"> • Must be 802.11ax high efficiency (HE) 	
	supports: HE20/40/80	
	<ul style="list-style-type: none"> • Must support the following data rates (Mbps): 	
	802.11b: 1, 2, 5.5, 11	
	802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54	
	802.11n: 6.5 to 300 (MCS0 to MCS15, HT20 to HT40), 400 with 256-QAM	
	802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2, VHT20 to VHT80), 1,083 with 1024-QAM	
	802.11ax (2.4GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40)	
	802.11ax (5GHz): 3.6 to 1,201 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE80)	
	<ul style="list-style-type: none"> • Must be 802.11n/ac/ax packet aggregation: 	
	A-MPDU, A-MSDU	
	<ul style="list-style-type: none"> • Transmit power: 	
	Must be Configurable in increments of 0.5 dBm	
	<ul style="list-style-type: none"> • Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements): 	
	2.4 GHz band: +21 dBm (18dBm per chain)	
	5 GHz band: +21 dBm (18 dBm per chain)	
	Note: conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain.	
	<ul style="list-style-type: none"> • Must include AP-POE-ATSR 1P SR 802.3at 30W Midspan 	
Accessories	<ul style="list-style-type: none"> • Must include mount bracket (same brand) and power cord 	

Warranty	<ul style="list-style-type: none"> With at least a Lifetime warranty on parts and include one (1) Year next business day support 	
WLAN Controller with High Availability		
Features	Must support new Wi-Fi 6 (802.11ax), WPA3, and Enhanced Open - and existing standards	
	Must have Dynamic Segmentation that enforces wired and wireless access policies to simplify and secure the network	
	Must have Application awareness for 3,000+ applications without additional hardware	
	Must have Built-in AI-powered wireless/RF optimization	
	Must have Unifies policy enforcement for WLAN, LAN, and WAN traffic	
Quality of Service (QoS)	Must have Application visibility with Deep Packet Inspection (DPI) technology which evaluates and optimizes performance and Quality of Service policies for over 3,000 applications - even for encrypted or hidden traffic.	
	Must classify websites by content category and rate them by reputation. It can also block, apply QoS, bandwidth limit, mirror, and log web content.	
	Must have visualized and troubleshoot networks based on call quality metrics such as MOS, latency, jitter, and packet loss. Supported applications include Teams, Skype for Business, Wi-Fi Calling, Facetime, SIP, Jabber, Spark, and more.	
	Must have Resiliency and High Availability	
Resiliency and High Availability	Can be clustered together in a network managed by a centralized controller	
	Must support redundant power supplies	
Performance	Maximum campus or remote AP licenses: 256	
	Maximum concurrent users/devices: 8192	
	Maximum VLANs: 2048	
	Active firewall sessions: 1M	

	Concurrent GRE tunnels: 8192	
	Concurrent IPsec sessions: 4096	
	Concurrent SSL sessions:4096	
	Firewall throughput (Gbps): 12	
	Wired Bridged Throughput (Gbps): 12	
	Encrypted throughput 3DES (Gbps): 5	
	Encrypted throughput AES-CBC-256 (Gbps): 5	
	Encrypted throughput AES-CCM (Gbps): 5	
	Encrypted throughput AES-GCM-256 (Gbps): 5	
Connectivity	Form factor/footprint: 1xRU	
	10/100/1000BASE-T: 4xCombo	
	1000BASE-X: 4xCombo	
	10G Ports (10G or 1G supported): 2xSFP+ USB 2.0: 2	
	Management/status LEDs: Yes	
	LINK/ACT and status LEDs: Yes	
	LCD panel and navigation buttons: Yes	
	Console port: Mini USB, RJ-45	
Security	Enhanced wireless security Support for WPA3 brings stronger encryption and authentication methods, while Enhanced Open brings automatic security to open networks. New WPA2-MPSK feature enables simpler passkey management for WPA2 devices – should the Wi-Fi password on one device need to be changed, no additional key changes are needed for other devices on the network.	
	Dynamic Segmentation to simplify and better secure wired and wireless network access can enforce per-user and device roles across wired and wireless networks by integrating with a Policy Manager. This ensures consistent policy regardless of user role and device type and eliminates the need to configure unnecessary SSIDs, ACLs,	

	VLANs, and subnets at every node in the network	
	Wired and wireless user and application traffic can be tunneled to a stateful firewall through GRE tunnels for inspection.	
	For advanced malware or antivirus protection, the device must be able to assume the role of an on-premises agent of centrally hosted firewalls such as those provided by Palo Alto Networks and Check Point Software	
Others	<ul style="list-style-type: none"> • Must include Power cords 	
	<ul style="list-style-type: none"> • Must include 10G SFP+ LC SR 300m MMF XCVR per controller 	
	<ul style="list-style-type: none"> • Must include uplink to existing core switch to support wireless traffic 	
	<ul style="list-style-type: none"> • 1-year renewal Hardware Replacement and Software support of the existing OSG APs 	
	<ul style="list-style-type: none"> • 1-year renewal Software support of the existing Network policy manager 	
Warranty	<ul style="list-style-type: none"> • With at least 1 year on parts and includes 1 Year next business day exchange for Controller 	
	<ul style="list-style-type: none"> • At least 3 years on parts for Transceivers 	
Licenses	<ul style="list-style-type: none"> • Must include Controller Per Ap Capacity Licenses and must include 1Y Foundation Care 	
	<ul style="list-style-type: none"> • Must include Controller Per AP Policy Enforcement Firewall and must include 1Y Foundation Care Next Business Day Exchange 	
Installation	Installation and Mounting of Access Points within 60 days from the initial inspection of delivered wireless equipment.	
Implementation	Configuration and Deployment within 60 days from the initial inspection of delivered wireless equipment.	

	Includes:	
	<ul style="list-style-type: none"> • Project Kickoff, Requirements Gathering and Analysis, Planning and Design, Deployment, Testing, Documentation, and Knowledge Transfer 	
Certification	The bidder must be an authorized reseller of the brand being offered (must provide a Manufacturer or Reseller Certificate).	
Support Service Requirement	The bidder must provide the following:	
	<ul style="list-style-type: none"> * Unlimited corrective maintenance/ repair services within the warranty period * Eight (8) hours by five (5) days (Monday to Friday, 8:00 AM - 5:00 PM) technical support and must meet the following response and resolution time: <ul style="list-style-type: none"> > Within one (1) hour for phone or email support > Within two (2) hours of response time for onsite support > Root cause analysis for all support cases filed. * Submission of Service Report within 5 calendar days after rendering service 	
	The bidder must provide full documentation for Activity Plan on the installation of patches and upgrades and Root Cause Analysis for incidents encountered.	
	The bidder must provide onsite support for the installation and deployment of software patches and version upgrades.	
	The bidder must provide access to the Vendor portal for download of the latest product contents, patches, updates/upgrades including extensive online self-help resources and knowledge base. Advisory to patches and fixes shall also be provided	

	The bidder must provide a procedure for support and problem escalation.	
	The bidder must conduct system health checks every quarter with the following scope: <ul style="list-style-type: none"> • System/Application patches, fixes, security patches, and alerts • System/Application profile • Resource utilization • Log analysis • Formal reports on the output of conducted health checks within 5 days 	
Other Warranty and After-Sales Requirements	* Immediate replacement of the equipment and/or its parts.	
	* The winning Bidder shall replace a factory defective unit with a new unit within 30 days upon delivery of the item.	
	The bidder must provide a certificate for the above services as part of the technical requirements.	
TERMS OF PAYMENT		
	Supplier agrees to be paid based on a progressive billing scheme as follows:	
	<ul style="list-style-type: none"> • Within thirty (30) days from completion of the delivery and issuance of the Inspection and Acceptance Report by the OSG and submission of all other required documents - 95% of the contract price. • One (1) year from the issuance of the Inspection and Acceptance Report by the OSG - 5% of the contract price. 	
DELIVERY		
	Ninety (90) days upon receipt of NTP	

TECHNICAL WORKING GROUP:

**SSS MARICAR G. TOLENTINO-
MENDOZA**
TWG - Member

Hearing in Court
SSII OMAR T. GABRIELES
TWG - Member

Hearing in Court
SSII JOSEPH RYAN C. ABALOS
TWG - Member

SSII PANTAS M. DE LEON
TWG - Member

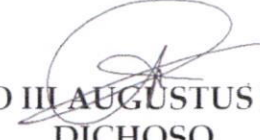
ASII MARIVI A. TUMAMBING
TWG - Member

CAO JESSICA L. CASTRO
TWG - Member


SAO JOY Y. CHUA
TWG - Member


**ITO III JAYWIE NEIL MALICK S.
MALICDEM**
TWG - Member


ITO II CEDRIC S. DELA CRUZ
TWG - Member


**COMPRO III AUGUSTUS MARK B.
DICHOSO**
TWG - Member


DIR IV EDUARDO ALEJANDRO O. SANTOS
TWG - Chairperson