

HEADQUARTERS
AVIATION (HIRAYA) REGIMENT (P), PHILIPPINE ARMY
Fort Ramon Magsaysay, 3130 Nueva Ecija


AVNRX

10 May 2022

Annual Procurement Plan
Proposed Tier 2 Projects

L/I Nr	CODE (PAP)	Procurement Program/Project	End-User	Mode of Procurement	Schedule for Each Procurement Entity				Source of Funds	Estimated Budget (PhP)			Remarks
					Ads/Post of ID/BEI	Sub/Open of Bids	Award of Contract	Contract Signing		Total	MOOE	CO	(Brief Description of Program/Project)
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	5-06-04-060-03	Mobile Air Traffic Control Tower	AvnR (P), PA	Public Bidding	Jun-22	Jun-22	Jul-22	Jul-22	GAA CY 2022	26,272,894.00		26,272,894.00	Procurement Requirement for FY 2022
3	5-06-04-060-03	Aircraft Refueler Truck			Jun-22	Jun-22	Jul-22	Jul-22	GAA CY 2022	15,286,535.00		15,286,535.00	Procurement Requirement for FY 2022
4	5-06-04-050-09	Firetruck with Foam Tank			Jun-22	Jun-22	Jul-22	Jul-22	GAA CY 2022	20,570,000.00		20,570,000.00	Procurement Requirement for FY 2022
5	5-06-04-060-03	Ground Power Unit (GPU)			Jun-22	Jun-22	Jul-22	Jul-22	GAA CY 2022	9,643,202.76		9,643,202.76	Procurement Requirement for FY 2022
6	5-06-04-060-03	Helicopter Flight Training Device Level 7 (Flight Simulator)			Jun-22	Jun-22	Jul-22	Jul-22	GAA CY 2022	200,000,000.00		200,000,000.00	Procurement Requirement for FY 2022
TOTAL >>>>>>>												271,772,631.76	

Prepared By:


ANDRE B. SANTOS
Colonel (MNSA) PA
Commanding Officer

Recommended for Approval:


ROGELIO D. LUNDAY
Brigadier General PA
Chairperson, PABAC

Approved By:


ROMEO S. BAWNER JR.
Lieutenant General PA
Commanding General, PA

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Project Procurement Management Plan (PPMP) Proposed Tier 2 Projects

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INTEGRATED LOGISTIC SUPPORT (ILS) REQUIREMENT									
1. Integration service									
<ul style="list-style-type: none"> The supplier shall provide the delivery of the said item to Aviation Regiment, Philippine Army at Fort Magsaysay, Nueva Ecija. 									
<ul style="list-style-type: none"> The Supplier shall provide all the necessary documents from the manufacturer (Certificate, manuals, logbooks) 									
2. Training Program									
<ul style="list-style-type: none"> It must cover the operator, maintenance, and mission support training requirements. 									
<ul style="list-style-type: none"> Supplier shall address all training and training support elements to operators and maintenance personnel for the safety procedures concerning use of the GPU in and around the intended aircraft at the intended aircraft servicing location. 									
<ul style="list-style-type: none"> Training should be at least in English. 									
<ul style="list-style-type: none"> Supplier shall pay the cost of training and its incidentals such as airfares, board and lodging, local transportation, subsistence allowance of trainees for all training programs connected with the Ground Power Unit acquisition. 									
<ul style="list-style-type: none"> Trainings must be completed within thirty (30) days. It will at least include: 									
a. Operators Training									
<ul style="list-style-type: none"> All operators shall undergo theoretical and actual training on the safety operation of the GPU 									
b. Maintenance/ Specialist Personnel Training									
<ul style="list-style-type: none"> Maintenance personnel shall undergo maintenance training of the GPU 									
3. Maintenance Equipment									
<ul style="list-style-type: none"> The ME must be provided for servicing, handling and maintenance of the Ground Power Unit in both Organizational and Field Levels. These are: 									
a. Field Maintenance Tools									
b. Special Tools									
4. Technical Manuals									
Original copy and electronic copy of the following technical manuals:									
- Operators and Service Manual									
- Maintenance Instruction Manual									
- Illustrated Parts Catalog									
- Consumable Material List									
- Illustrated Tools and Equipment Manual									
- Tools and Equipment									
- Scheduled maintenance requirements									
- Other Technical System Equipment Manuals									
5. Spare Parts Program									
<ul style="list-style-type: none"> The Supplier shall provide spares sufficient for two (2) years of operation with an annual utilization rate of one hundred (100) operating hours. Fast-moving items and consumables shall be delivered together with the GOODS 									
<ul style="list-style-type: none"> The supplier shall provide the complete list of TCI, RCA, fast-moving items and consumables during the Opening of Bids (Price List to be included in the financial documents) 									
6. Product Support Information									
<ul style="list-style-type: none"> As part of the product support information, publications and technical bulletins shall also be provided as long as the Philippine Army is operating the Ground Power Unit. It shall include among others: 									
- Information Bulletins									
- Service Bulletins									
- Modification Bulletins									
7. Interim Contract Support									
<ul style="list-style-type: none"> The Supplier shall be required to have an Interim Contract Support (ICS) to ensure the proper operation, maintenance, and trouble-shooting upon acceptance of the delivery of the Ground Power Unit (GPU) 									

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AVIATION (HIRAYA) REGIMENT (P), PHILIPPINE ARMY
Fort Ramon Magsaysay, 3130 Nueva Ecija

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10 May 2022

Summary of Program Implementation (SPI)
Proposed Tier 2 Projects

Projects Calendared and Processed for the Month Broken Down by Mode of Procurement - Program Implementation (In Number of Transaction)

Indicators	Jan	Feb	Mar	1st Qtr	Apr	May	June	2nd Qtr	Jul	Aug	Sep	3rd Qtr	Oct	Nov	Dec	4th Qtr	Total
Projects Calendared and Processed for the Month Broken Down by Mode of Procurement																	
Public Bidding						5		5									5
Total:						5		5									5

Projects Calendared and Processed for the Month Broken Down by Mode of Procurement - Program Implementation (In Amount)

Mode of Procurement	Jan	Feb	Mar	1st Qtr	Apr	May	June	2nd Qtr	Jul	Aug	Sep	3rd Qtr	Oct	Nov	Dec	4th Qtr	Total
Public Bidding							271,772,631.76	271,772,631.76									271,772,631.76
Total:							271,772,631.76	271,772,631.76									271,772,631.76

Prepared By:

ARIES MASSEM T DELA CUADRA
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Approved By:

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Commanding Officer

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AVIATION (HIRAYA) REGIMENT (P), PHILIPPINE ARMY
Fort Ramon Magsaysay, 3130 Nueva Ecija


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10 May 2022

**Program of Expenditures (POE)
Proposed Tier 2 Projects**

CODE (PAP)	General Description	Qty / Size		Estimated Budget (Php)		End User
		Qty	Unit	Unit Price	Total Price	
	Public Bidding					
5-06-04-060-03	Mobile Air Traffic Control Tower	1	lot	26,272,894.00	26,272,894.00	AvnR (P), PA
5-06-04-060-03	Aircraft Refueler Truck	1	lot	15,286,535.00	15,286,535.00	
5-06-04-050-09	Firetruck with Foam Tank	1	lot	20,570,000.00	20,570,000.00	
5-06-04-060-03	Ground Power Unit (GPU)	1	lot	9,643,202.76	9,643,202.76	
5-06-04-060-03	Helicopter Flight Training Device Level 7 (Flight Simulator)	1	lot	200,000,000.00	200,000,000.00	
	Total Amount >>>>>>>				271,772,631.76	

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AVIATION (HIRAYA) REGIMENT (P), PHILIPPINE ARMY
Fort Ramon Magsaysay, 3130 Nueva Ecija

AVNRX

10 May 2022

Program of Expenditure
Proposed Tier 2 Projects

General Description	Part Number	End-User	Qty / Size			Total
			4			
1	2	3	Qty	Unit	U/P	5
Mobile Air Traffic Control Tower		AvnR (P), PA	1	lot	26,272,894.00	26,272,894.00
BASELINE REQUIREMENT						
1. Mobile Cabin						
<ul style="list-style-type: none">The size of the Cabin shall approximately be as follow: Minimum Length excluding Balcony: 3700mm x Width: 2360mm x Height: 2020mm. The length of the cabin including the balcony shall not be more than 6042 mm. Total gross weight of the cabin including all equipment shall not be more than 3800kg.						
<ul style="list-style-type: none">Minimum standing height within the ATC cabin of 1.9 m, floor to ceiling.						
<ul style="list-style-type: none">With an unobstructed field of view of 360 degrees in azimuth with the exception of the six support columns. The column dimensions shall be minimized (maximum dimensions of 7.62 cm x 7.62 cm) or better.						
<ul style="list-style-type: none">The overall unobstructed glass dimension on the vertical from the sill level to the ceiling edge shall be minimum of 91.5 cm (36 in.) or better sloping outward from the vertical.						
2. Interior floor						
<ul style="list-style-type: none">Covered with an anti-static, high friction, resilient, non-flammable, and textured material.						
3. Wall						
<ul style="list-style-type: none">Enclosures shall be a minimum of 1m or better high and shall be of sandwich construction with interior and exterior aluminum layers enclosing polyurethane foam providing a rigid thermal insulated structure resistant to moisture.						

•The walls shall be made of polyurethane sandwich panels covered by steel metal 0.5mm sheets or Aluminum metal 3.2 mm sheets. The thickness of the wall panels shall be at least 40mm to maximum 84 mm.						
4. Roof						
• The roof shall be of sandwich construction with interior and exterior aluminium skins enclosing polyurethane foam to provide a rigid structure and thermal insulation resistant to moisture.						
5. Glass						
• The 25mm (1-inch) double-glazed glass panel shall be composed of a 6mm (1/4-inch) clear interior glass pane and a 6mm (1/4-inch) Solargray outdoor glass pane separated by 13mm (1/2-inch) hermetically sealed air space.						
6. Air Conditioner						
• A dual Heat Pump Air Conditioning System, minimum 6.8 kW (24,000 BTU) cooling capacity per unit shall be used.						
•The Main Power Supply shall be 415±15/240±10V, 50 Hz 3-phase						
7. Ladder						
• The material shall be square aluminum profile, aluminum tubes and the steps shall be provided from anti-sliding aluminum sheet. Ladder shall have on lower part two wheels or on skis (no wheel) and on the upper part fixed by hooks and chains.						
8. Configuration						
• The tower shall include Console with three (3) controller positions, each comprising:						
➤ Flight Strips Tray (2 x 10 Flight Strips)						
➤ Flight Strips						
➤ Task Lamp						
➤ Controller Chair						
9. Vehicle Configuration						
• 2022 model year						
• Wheeled type						
• Diesel Engine						
• Set back axle						
• L/H primary steering						
• Euro IV Emission						
• Engine should at least 320 HP at optimum RPM						
10. Electronic Parameters						
• At least 80 km/hr road speed limit						
• Cruise control speed same as road speed limit						
• EDC Engine regulation						
• PTO mode engine						
11. Engine Equipment						
• DR 12 v 160 amp 28-SI quadramount pad alternator with remote battery volt sense or better option.						

• Battery box with aluminum cover.						
• Air compressor 1 cylinder 360 ccm with internal safety valve or better.						
• Electronic engine integral shutdown protection system: Standard exhaust system, Standard radiator and 12v HD starter with integrated magnetic switch.						
12. Transmission Equipment						
• Aluminum clutch housing, PTO available ,PTO mounting, bottom of main transmission, Transfer case oil cooler and Synthetic transmission lube.						
13. Front Axle						
• Single front axle with HR carrier , Stabilizer for front axle , Power steering with auxiliary gear and Synthetic 75W-90 front axle lube.						
14. Front Suspension						
• Taper leaf or Parabolic or better front suspension						
• Front shock absorbers.						
15. Rear Axle						
• Manufacturer standard Rear axle						
• Synthetic 75W-90 front axle lube.						
• Differential lock or better						
16. Rear Suspension						
• flat leaf/Parabolic spring rear suspension with helper and radius rod.						
17. Brake System						
• Air brake package/electronic brake system						
• BS without traction control						
• Steel air brake reservoirs, Air dryer, heated						
18. Wheelbase and Frame						
• Within 175-245 inch wheelbase						
• steel frame						
• Within 98-108 inch rear frame overhang or suitable						
• Calculated overall frame length						
19. Chassis Equipment						
• Three piece 14 inch painted steel bumper with collapsible ends						
• Front tow hooks						
• Hostler 3500 lb capacity rear cross member						
• Mudflaps						
20. Fuel Tanks						
• 80 gallon/302 to 380 liter rectangular aluminum fuel tank.						
21. Wheels						
• Suitable size, quality and standard recommended by Manufacturer taking consideration Philippine Road standard while travelling to cemented and rough road.						
22. Cab Exterior						
• 2 ½ inch fender extensions.						

• Integral headlights, Integral LED stop/tail/backup lights , Standard front turn signals, Dual west coast mirrors , Dual level cab entry steps on both sides , Centre locking system, Tinted door glass , Window cleaning set.						
23. Cab Interior						
• Opal grey interior/Door interior paneling washable ,Main HVAC controls with circulation switch ,Standard heater plumbing ,Heavy duty air						
24. Trailer Mounted Generating Set						
• Diesel Generator ,Minimum rating of 13.5 KVA, 400/220V, 50 Hz 3-phase (Standby Power), Automatic voltage regulation, Digital Control panel ,Automatic Transfer Switch (ATS), Starting time: within 15 seconds, Degree of protection: IP54 , Power cable: up to 33 meters from the ATC Mobile Tower. Fuel Autonomy: 24 hours minimum.						
• Single Axle trailer.						
25. UPS System						
• Shall be a single module of on-line technology, provide connection control circuits, disconnection control circuits, system instrumentation, system status indicators, system alarms and system diagnostic.						
• Shall have a minimum 6kVA rating, 240 Vac, 50 Hz input/output.						
•Maintenance-free and leak-free battery with at least 1 hr autonomy.						
26. Voice Communication and Control System/Controller Working Position(CWP)						
• One (1) VCCS/CWP central equipment shall have the following minimum specifications:						
➤ It shall employ client-server architecture, with open platform software and commercial off-the-shelf hardware.						
➤ A single failure in VCCS/CWP shall not result in the loss of large system parts. The digital audio processors shall be fully redundant and in parallel processing mode.						
➤ It shall include hot swappable radio and telephone interfaces Integrated with VCCS/CWP or Telephone Interface can be separately provided with IP-PABX with minimum 3G/4G GSM Port, 3 VoIP Ports, 3 FXS Ports, etc.						
• Three (3) VCCS/CWP positions, each position shall have the following minimum specifications:						
➤ Minimum 10.1" Color Touch Screen Display						
➤ Indications: Squelch (incoming call), PTT, radio selection(M/S) and alarms						
➤ Controls: Radio selection (M/S), Squelch override						
➤ Resolution, Contrast: 800X600 pixels, 500:1						
➤ Reliability: MTBF at least 200,000 hours						
➤ Connectors: for microphone, headset, foot switch and recording						
➤ Power Supply: 230V AC						
➤ Loudspeaker						
➤ Dual Jack-Box (operator and instructor)/Microphone Interface Facility						
➤ Headset w/in-line PTT o Handset w/PTT						

➤ Footswitch w/connector						
27. Voice Recording						
• Once (1) 24-Channel Digital Recorder System shall comprising;						
➤ Analogue interfaces						
➤ Blu-Ray Drive						
➤ USB Port						
➤ Replay Portable PC						
➤ Ten (10) Blue Ray Disks						
➤ Two (2) Portable Hard disks						
28. HF System						
• One (1) HF Radio System shall include:						
➤ TX Frequency range: 2.0 to 30 MHz						
➤ RX Frequency range: 250 KHz to 30 MHz						
➤ Power Output: 125 Watts (PEP)						
➤ Receiver Sensitivity: -121 dBm (0.2uV) for 10 dB SINAD.						
➤ Shock and Vibration standard: MIL-STD 810G						
• HF Antenna shall include:						
➤ Power Capacity: 150W PEP						
➤ VSWR: 2:1 maximum						
➤ Shock and Vibration Standard: MILSTD 810G						
➤ Integrated Antenna Coupler						
29. VHF System						
• VHF Radio System:						
➤ Three (3) Operational Frequencies in Main/Standby Configuration						
➤ Six (6) VHF-AM Transceivers shall be provided with the following characteristics:						
➤ Frequency Range: 118-136 MHz • Power Output: 50W						
➤ Adjacent channel power: > 70dBc						
➤ Receiver Sensitivity: 10dB SINAD(CCITT)						
➤ Channel Spacing: 8.33/25 KHz						
➤ Recording Output: VoIP ED137B Interface o Channel unto 99						
➤ Manufacturer Certified to ISO 9001, ISO 14001, OHSAS, etc.						
➤ Certified with EC Declaration of conformity, Type approval certificate, Declaration of conformity, etc.						
➤ Power Supply: 230V AC/50Hz and 24V DC						
➤ Duty cycle: 100% continuous operation						
➤ Three (3) Single VHF Cavity Filters						
➤ Three (3) sets of Antenna Change Over Unit, Surge Protectors are to be included or provide dual port VHF antenna as mentioned below						
➤ Radio shall have VoIP ED137B interface for Recording purpose						
➤ Three (3) Single/dual Port (VHF) Antennas;						
➤ Frequency range: 118-136 MHz						
• Number of Elements:						
➤ VSWR: (typical 1.5:1)						
➤ Polarization: Vertical						
➤ Pattern: Omni-directional						
➤ Minimum Power Capacity: 150W						

➤ Single Obstruction LED Light						
➤ Lightning Rod						
30. Handheld Transceiver						
• One (1) VHF-AM Handheld Transceiver shall include:						
➤ Internal Battery						
➤ Battery Charger						
➤ Extra Battery						
➤ Heavy Duty Leather Case						
➤ Operating Frequency: 118.000 to 136.975 MHz						
➤ Number of memory channel: 200						
➤ Channel Spacing: 8.33/25 KHz						
➤ Power Output: 5W (PEP), 1.5W (CW)						
➤ Reception Sensitivity: better than 0.8 uV for 6dB S/N						
31. Master Clock						
• One (1) GPS Timing System which shall include:						
➤ GPS Antenna/Receiver w/surge protection.						
➤ NTP Master Clock.						
➤ Three (3) Secondary Clocks (controller) which shall include:						
➤ Red digits						
➤ Format: HH:MM:SS						
Character Height: 20 mm Height minimum						
32. MET Sensors						
• All Sensors and MET Display shall be of WMO and ICAO Standard.						
• Sensors(Relative Humidity and Temperature Sensor, Wind Speed and Direction Sensor, Pressure Sensor)						
• One (1) Ultrasonic Wind Direction/Speed Sensor shall have the following minimum specifications:						
➤ Wind Direction Sensor:						
➤ Range: 0- 360degrees						
➤ Resolution: 0.01°						
➤ Accuracy: ±2 degrees						
33. MET Display						
• 5.7" TFT LCD display with touchscreen, designed for viewing real-time wind, pressure, and temperature weather information in accordance with ICAO and WMO standards and recommendations.						
• Wind Speed and Direction: 2 Minute Average, 10 Minute Average, 10 Minute Maximum, and 10 Minute Minimum.						
• Temperature and Humidity-Air Temperature, Dew Point, Relative Humid, Pressure-Air Pressure, QNH, QFE, etc.						
34. Signal Light Gun						
• Completely portable and cordless						
• Press button colour selectors ensure the correct color is activated RED/WHITE/GREEN						
• LED light cluster to provide in excess of 50,000 hours of use, with minimal power consumption						
• Lithium battery including charger						

• 8 hours continuous use on one charge						
• Power Consumption not more than 100W						
• Range greater than 4km						
• Light Intensity: More than 12000 cd(White), 10000 cd(Red), 12000 cd(Green)						
• Power Supply 230V AC						
• Lamp: Dichroic reflector Lamp						
35. Binoculars						
• Diameter: 50 mm						
• Magnification: 4 x						
• Day/Night application						
• Battery standard						
• Accessories included: carrying case						
36. Fire Extinguisher						
• ABC Multi-Purpose Stored Pressure Dry Chemical						
37. Rotating Beacon						
• To be mounted on the roof of the ATC Mobile Tower						
• Visibility: up to 48 Km (30 miles)						
• RPM: 12						
• Lamps: Two sealed beam 500W PAR 56 • Beam Width: 5° wide x 32° high						
• Power supply: 240 Vac, 50 Hz						
38. Crash Alarm						
• Siren shall be mounted on the roof of the ATC Mobile Tower						
• Power Supply 240V AC						
• Sound Level: minimum ≥112 dB						
• IP43 IP Rating						
• Operating Temperature -30°C to 40°C						
• Crash alarm local switch shall be mounted in the console						
39. Accessories						
• One (1) lot sunshades, Solar Grey						
• One (1) lot window covers for protection during transport						
• One (1) First Aid Kit						
• One (1) Smoke detector						
• One (1) Ladder (affixed to tower cabin for roof access)						
• One (1) Additional Ladder for maintenance purposes						
40. Tools						
• One (1) Tool Kit to maintain the CNS/ATM Electronic equipment shall be provided.						
41. Test Equipment						
• One (1) Portable PC; Last generation (Core i5, 8GB RAM, 512 GB SSD).						
• One (1) Adapter Kit; for HF/VHF Electronic equipment.						
• One (1) Attenuator Kit; for HF/VHF Electronic equipment.						
• One (1) RF Cable Kit; for HF/VHF Electronic equipment.						

INTEGRATED LOGISTIC SUPPORT (ILS) REQUIREMENT						
1. Integration service						
• The supplier shall deliver as one fully integrated mobile control tower mounted on a 4x4 or 6x6 or suitable size (for their propose Mobile ATC Tower) prime mover (Vehicle) with trailer-mounted genset for inspection by TIAC.						
• The supplier shall conduct Factory Acceptance Testing (FAT) in the presence of TIAC representatives.						
2. Training Program						
• It must cover the operator, maintenance, and mission support training requirements.						
• Supplier shall address all training and training support elements to operators and maintenance personnel involved on the operation of the Mobile Air Traffic Control Tower.						
• Training should be at least in English and shall combine theoretical and practical techniques.						
• Trainings must be completed within thirty (30) days. It will at least include:						
➤ Technical Operations and Maintenance Training for Air Traffic Safety Electronics Personnel (at least 2 participants).						
➤ Technical Operations and Maintenance Training for Mechanical Personnel (at least 2 participants).						
➤ On-site Operation and Maintenance Training (at least 4 participants).						
3. Ground Support Equipment (GSE)						
• The GSE must be provided for servicing, handling and maintenance of the Mobile Air Traffic Control Tower in both Organizational and Field Levels. These are:						
a. Field Maintenance Tools						
b. Special Tools						
c. Test Diagnostic Equipment						
4. Technical Manuals						
Original copy and electronic copy of the following technical manuals:						
➤ Operators manual						
➤ Wiring diagram manual						
➤ Maintenance Instruction Manual						
➤ Illustrated Parts Catalog						
➤ Consumable Material List						
➤ Illustrated Tools and Equipment Manual						
➤ Ground Service Equipment (GSE) Technical publication						
➤ General Information and Servicing Manual						
➤ Equipment Inventory List						
➤ Other Technical Orders and ATC Equipment System Manuals						
5. Spare Parts Program						

<ul style="list-style-type: none"> • The Supplier shall provide spares sufficient for two (2) years of operation with an annual utilization rate of one hundred (100) operating hours. Fast-moving items and consumables shall be delivered together with the GOODS. 						
<ul style="list-style-type: none"> • The supplier shall provide the complete list of TCI, RCA, fast-moving items and consumables during the Opening of Bids (Price List to be included in the financial documents). 						
6. Product Support Information						
<ul style="list-style-type: none"> • As part of the product support information, publications and technical bulletins shall also be provided as long as the Philippine Army is operating the Mobile ATC Tower. It shall include among others; 						
➢ Information Bulletins						
➢ Service Bulletins						
➢ Modification Bulletins						
7. Interim Contract Support						
<ul style="list-style-type: none"> • The Supplier shall be required to have an Interim Contract Support (ICS) to ensure the proper operation, maintenance, and trouble-shooting upon acceptance of the delivery of the Mobile ATC Tower. 						
<ul style="list-style-type: none"> • One (1) technical representative from the proponent to cater the in-country services for the Philippine Army is required upon acceptance of the project and will end one (1) year after its final acceptance. Same tech rep will work as a Maintenance and On the Job Training (OJT) Consultant of our maintenance crew. The in-country technical representative will work five (5) days (Monday – Friday) a week for at least four (4) hours a day and make himself available on weekends (Saturday and Sunday) and holidays whenever his services deemed necessary. 						
8. Warranty Program						
<ul style="list-style-type: none"> • The supplier shall cover Two (2) years warranty period for the Mobile ATC Tower System, which will commence upon acceptance of the Mobile ATC Tower System. 						
<ul style="list-style-type: none"> • The technical representative shall correct any discrepancy due to material failure/factor expeditiously, which should not exceed sixty (60) days upon receipt of notice. If sixty (60) days turnaround time is not possible, the supplier is under obligation to replace the affected component with a new one or provide a temporary replacement in order not to hamper the operational requirements of the AFP. 						
10. Life Cycle Management Information						
<ul style="list-style-type: none"> • Information/ references/ software regarding Mean Time Between Failures (MTBF), lead time, shelf life, total life, repairable cycle assets, as well as information for repair and overhaul of components to include repair turnaround time and cost shall be provided. Likewise, the proponent shall also identify all the authorized repair facilities, local and abroad, where the items would be repaired or overhauled. 						
11. Support Equipment and Structures						

<ul style="list-style-type: none"> • Supplier shall provide information regarding the support equipment and structures required for the maintenance and operation of the Mobile ATC Tower System. Support equipment may include test equipment for the Mobile ATC Tower System and field equipment. On the other hand, support structures shall include, among others, system test facilities. 						
12. Spares and Components Storage Procedures						
<ul style="list-style-type: none"> • Supplier shall provide storage procedures of sensitive spares and components. 						
Aircraft Refueler Truck		AvnR (P), PA	1	lot	15,286,535.00	15,286,535.00
BASELINE REQUIREMENT						
1. Aircraft Refueler Truck						
<ul style="list-style-type: none"> • Diesel engine. 						
<ul style="list-style-type: none"> • turbo charged engine straight six or V8 engine type. 						
<ul style="list-style-type: none"> • Automatic Transmission or manual transmission. 						
<ul style="list-style-type: none"> • Euro-IV compliant. 						
<ul style="list-style-type: none"> • FAA compliant. 						
<ul style="list-style-type: none"> • Left hand drive vehicle. 						
<ul style="list-style-type: none"> • Minimum 5,000 liters (1,320 gallons) capacity. 						
<ul style="list-style-type: none"> • Aluminum or Stainless-Steel fuel tank. 						
<ul style="list-style-type: none"> • Dispensing system 50 GPM (185LPM) dispensing system w/ one reel for overwing fueling. 						
<ul style="list-style-type: none"> • Overwing nozzle w/ 100-mesh strainer, grounding cable, swivel inlet and dust cap. 						
<ul style="list-style-type: none"> • Filter separator canister style w/ air elimination, pressure relief and spring-loaded drain. 						
<ul style="list-style-type: none"> • Temperature kit TCS meter w/ electronic register head and temperature compensation kit. 						
<ul style="list-style-type: none"> • Loading system bottom load system w/ dual high level shut-off. 						
<ul style="list-style-type: none"> • Switches and gauges Pump pressure gauge, differential pressure gauge w/ test valve, interlock system, pressure control system master disconnect switch, emergency shut-off system, static ground reel. 						
<ul style="list-style-type: none"> • JIG secondary high level shut-off interlock status lights, and 4-liter visual sampler per JIG. 						
INTEGRATED LOGISTIC SUPPORT (ILS) REQUIREMENT						
1. Integration service						
<ul style="list-style-type: none"> • The supplier shall deliver the equipment to the unit and performed the initial safety check and test evaluation. 						
<ul style="list-style-type: none"> • The supplier shall provide the FAA approved Certificate upon the transfer of equipment. 						
2. Training Program						
<ul style="list-style-type: none"> • It must cover the operator, maintenance, and mission support training requirements. 						

<ul style="list-style-type: none"> Supplier shall address all training and training support elements to operators and maintenance personnel involved on the operation of the Aircraft refueler truck. 						
<ul style="list-style-type: none"> Training should be at least in English. 						
<ul style="list-style-type: none"> Supplier shall perform the training at Aviation Regiment's Headquarters. 						
a. Operators Training						
<ul style="list-style-type: none"> All operators shall undergo the provided free training of the supplier and also undergo CAAP approved training or the equivalent of Petron fuel handling training for fuel truck. 						
b. Maintenance/ Specialist Personnel Training						
<ul style="list-style-type: none"> Maintenance NCO shall undergo maintenance training provided by the supplier 						
3. Ground Support Equipment (GSE)						
<ul style="list-style-type: none"> The GSE must be provided for servicing, handling and maintenance of the Aircraft refueller truck. These are: 						
a. Field Maintenance Tools						
b. Special Tools						
c. Test Diagnostic Equipment						
4. Technical Manuals						
Original copy and electronic copy of the following technical manuals:						
- Operators manual						
- Wiring diagram manual						
5. Spare Parts Program						
<ul style="list-style-type: none"> The Supplier shall provide spares sufficient for two (2) years of operation. 						
6. Product Support Information						
<ul style="list-style-type: none"> As part of the product support information, publications and technical bulletins shall also be provided as long as the Philippine Army is operating the Aircraft Refueller Truck. It shall include among others; 						
- Information Bulletins						
- Service Bulletins						
- Modification Bulletins						
7. Interim Contract Support						
<ul style="list-style-type: none"> The Supplier shall be required to have an Interim Contract Support (ICS) to ensure the proper operation, maintenance, and trouble-shooting upon acceptance of the delivery of the Aircraft refueller truck. 						
8. Warranty Program						
<ul style="list-style-type: none"> The supplier shall cover Two (2) years warranty period for the Aircraft refueller truck, which will commence upon acceptance of the fuel truck. 						

<ul style="list-style-type: none"> The technical representative shall correct any discrepancy due to material failure/factor expeditiously, which should not exceed sixty (60) days upon receipt of notice. If sixty (60) days turnaround time is not possible, the supplier is under obligation to replace the affected component with a new one or provide a temporary replacement in order not to hamper the operational requirements of the AFP. 						
9. After Sales Support						
<ul style="list-style-type: none"> After sales services shall include supply of spares for the Aircraft refueller truck and components, interim contract support, technical support, and warranties. Technical support shall include query and answering (to include open/free access to online information) and assistance on defect investigation while the Philippine Army is operating the Aircraft refueller truck. 						
10. Life Cycle Management Information						
<ul style="list-style-type: none"> Information/ references regarding Mean Time Between Failures (MTBF), lead time, shelf life, total life, repairable cycle assets, as well as information for repair and overhaul of components to include repair turnaround time and cost shall be provided. Likewise, the proponent shall also identify all the authorized repair facilities, local and abroad, where the items would be repaired or overhauled. 						
Firetruck with Foam Tank		AvnR (P), PA	1	lot	20,570,000.00	20,570,000.00
BASELINE REQUIREMENT						
1. Engine						
<ul style="list-style-type: none"> Type (Diesel Fed, Turbo Charged In-line six (6) cylinders at least, Direct Injection) 						
<ul style="list-style-type: none"> Cooling System: Water Cooled 						
<ul style="list-style-type: none"> Power Output: at least 240 horsepower 						
<ul style="list-style-type: none"> Euro-IV compliant or Euro V compliant 						
<ul style="list-style-type: none"> Equipped with EGR (Exhaust Gas Recirculation) system. 						
2. Chassis						
<ul style="list-style-type: none"> The chassis is 4x2, consisting of two (2) channels fastened together by cross members and provided with supports prepared to mount all vehicle components. Turbo charged diesel engine, manual transmission with power take off (PTO) which allows the pump drive to engage. 						
<ul style="list-style-type: none"> Dimensions: 						
<ul style="list-style-type: none"> Length: not to exceed 7,800mm 						
<ul style="list-style-type: none"> Width: as per manufacturer's standard 						
<ul style="list-style-type: none"> Height: as per manufacturer's standard 						
<ul style="list-style-type: none"> Gross Vehicular Weight Rating (GVWR): as per manufacturer's standard 						
<ul style="list-style-type: none"> Under Chassis: 						
<ul style="list-style-type: none"> Steering: 						
<ul style="list-style-type: none"> Handle position: Left Hand Drive 						

• Type: Re-circulating ball with integral power assisted by oil						
• Steering Column: Tilt and telescopic						
• Transmission and Clutch						
• Manual						
• Speed: Six (6) forward and one (1) reverse						
• Clutch Type: as per manufacturer's standard						
• Brake System (Shall be equipped with Anti-lock Brake System (ABS)						
• Service Brake: as per manufacturer's standard						
• Parking Brake: as per manufacturer's standard						
• Auxiliary Brake: as per manufacturer's standard						
• Wheel Configuration: 4x2						
• Axles and Suspension						
• Front Axles: as per manufacturer's standard						
• Front Suspension: as per manufacturer's standard						
• Rear Axles: as per manufacturer's standard						
• Rear Suspension: as per manufacturer's standard						
• Wheels and Tires: The wheels and tires shall be able to withstand the load during the service of the vehicle and not exceeding its axle loading						
• Front: as per manufacturer's standard						
• Rear: as per manufacturer's standard						
• Disc Wheel: as per manufacturer's standard						
• Spare: Spare wheel equal to front						
• No. of Wheel Stud: as per manufacturer's standard.						
• Front: Single						
• Rear: Double						
• Tire Accessories						
• Flaps and Tubes (for all tire sets)						
• Mud Guards (for all wheel)						
• Frame: The chassis frame is provided with the adequate cross member without the engine supports and is designed to support the gross weight and load of the fuel, the body, the power supply and all other equipment under the specified operating conditions.						
• The bumper shall be mounted to the front of the frame structure.						
• Type: "H" type and ladder frame with channel sectional side rail and cross members						
• Size: as per manufacturer's standard						
• Front and Rear bumper as per manufacturer's standard						
• Front and Rear towing eyes and hook						
• Rust proofing/ Undercoating provided						
3. Cabin						

<ul style="list-style-type: none"> Double cab – Two (2) persons in front and four (4) persons in rear cabin. The manufacturer has an option to separate the cabin into independent fully enclosed drivers compartment and crew compartment each to be served by a service door on both sides. A separate crew compartment prohibiting direct voice communication shall require a two-way voice intercom system. 						
<ul style="list-style-type: none"> Adequately insulated against noise, vibration, and tropical temperature range. 						
<ul style="list-style-type: none"> The cabin shall have a total of four (4) service doors, composed of two (2) on each sides serving each row. 						
<ul style="list-style-type: none"> The doors of the cabin shall have four (4) doors with wide opening angle. Each door shall have a window operated by electric or manual means. 						
<ul style="list-style-type: none"> Cab suspension and Tilt system: as per manufacturer's standard. In case of independent cabin the driver's compartment shall only be provided. 						
<ul style="list-style-type: none"> All steel welded construction with safety zone design. 						
<ul style="list-style-type: none"> Heavy duty rubber matting. 						
<ul style="list-style-type: none"> AM/FM Radio with external antenna. 						
<ul style="list-style-type: none"> UHF Digital Mobile Radio, 380 – 400 MHz frequency. 						
<ul style="list-style-type: none"> Three (3) units UHF portable radio, 380 – 400 MHz frequency 						
4. Fuel Tank						
<ul style="list-style-type: none"> Capacity: ≥ 200 Liters 						
<ul style="list-style-type: none"> Material: Made of pressing steel. 						
<ul style="list-style-type: none"> Cap: Equipped with key lock and impress with the words Diesel fuel. 						
5. Power Supply System						
<ul style="list-style-type: none"> The battery is fitted in the position to be assessed easily. All electric circuit has separate fuses and they are grouped into the common box on the dash panel. 						
<ul style="list-style-type: none"> Alternator: as per manufacturers standard 						
<ul style="list-style-type: none"> Battery: 2 x 12V 100AH (minimum) 						
6. Driving Console						
<ul style="list-style-type: none"> The main console, styled to reflect the clean modern lines of the interior, positioned centrally and forward of the driver and will contain necessary information and facilities relating to automotive. 						
<ul style="list-style-type: none"> The gear shift, pump drive and hand brake controls should be located within a console adjacent to the driver. The dashboard shall be equipped with all necessary gauges, pilot lamps and switch. 						
<ul style="list-style-type: none"> Switches/Control 						
<ul style="list-style-type: none"> As per applicable manufacturer's standard. 						
<ul style="list-style-type: none"> Equipment compartment as per manufacturer's standard. 						
<ul style="list-style-type: none"> Warning light 						
<ul style="list-style-type: none"> Strobe light 						
<ul style="list-style-type: none"> PTO Engage 						
<ul style="list-style-type: none"> Gauges as per manufacturer's standard. 						

• Monitor Meters as per manufacturer's standard.						
• Lights, Indicator and Alarm.						
• As per manufacturer's standard.						
• Reverse Audible Alarm (external)						
• Open roller shutter indicator light						
7. General Built-Up Body Features						
• The apparatus body frame structure shall be made of stainless 304 square tube with 0.120 inch minimum wall thickness constructed of into a superstructure by means of bolts and nuts or welding or combination of both.						
• The apparatus body design shall be rugged with suitable ventilation and good visibility to front, sides and rear.						
• Panel of the superstructure is made of dull finished gauge 18 stainless SS304 sheets or gauge 18 aluminum connected to the superstructure frame by means of metal glue or riveting or welding or bolts and nuts or combinations thereof.						
• All horizontal surface, steps and top deck, etc. shall be covered with chequered aluminum plates that are slip resistant. The roof/top deck of the superstructure and tank shall be provided with non-skid aluminum plate having thickness not less than 4.0mm.						
• Access ladder and/or steps shall be mounted on the rear side of the body.						
• The pump compartment shall be at the rear portion of the body.						
• The lockers on the left Hand Side and Right Hand Side of the body shall have roller shutters and/or doors. Suitable lockers having adequate volume or space shall be fitted for keeping the equipment and accessories.						
• The roller shutter shall be constructed from aluminum extruded slats which have a flexible seal between each slat for proper sealing of the door. The roller shutter shall be equipped with a lift bar style latch mechanism which will latch at the bottom of the door mounting extrusion. The roller shutter assembly shall be furnished with a spring loaded, counter balance assembly to assist in door actuation.						
• All lockers shall be properly illuminated.						
• All lockers shall be provided with 1/16 inch diameter drain holes located at the bottom of each locker.						
8. Metal Finishing, Painting, Identification and Markings						
• Preparation: Prior to painting, all weldment of the body, pump compartment and piping shall be inspected and cleaned, to ensure removal of any surface imperfections and to ensure superior paint adhesions to the metal. All compartment un-welded seams exposed to high moisture environments and all seams between adjoining pieces that are not continuously welded shall be sealed using permanent pliable caulking prior to paint finish to inhibit corrosion. The weldment shall be primed with epoxy primer.						

<ul style="list-style-type: none"> • Painting: All painting shall be conducted in an atmosphere controlled spray booths. The vehicle body, cab exterior, body compartment and all exposed ferrous metal surfaces shall be painted on polyurethane painting system using standard "YELLOWISH-GREEN" color polyurethane paint. A clear coat paint finish shall be provided for greater protection on the quality of exterior paint finish. 						
<ul style="list-style-type: none"> • The rear portion of the vehicle shall have a Chevron pattern (standard Emergency Red and White reflectorized sticker slopping downward at 45o angle) 						
<ul style="list-style-type: none"> • All bright fittings shall be hard plated with chromium and surfaces shall be "Dull Finished". 						
<ul style="list-style-type: none"> • Logos and markings shall be made of prismatic tape engineer grade reflectorized sticker; and 						
<ul style="list-style-type: none"> • Marking's design and location shall be subject to AvnR, PA standard. 						
9. Water Tank						
<ul style="list-style-type: none"> • The water tank shall be fully protected with the superstructure of the vehicle. It should be cradled, cushioned and spring-mounted. 						
<ul style="list-style-type: none"> • Capacity: 1000 gallons capacity with provision for expansion and moving water. 						
<ul style="list-style-type: none"> • Material: Stainless steel 304 						
<ul style="list-style-type: none"> • Thickness: ≥5mm (tank shell and partition plate) 						
<ul style="list-style-type: none"> • Mounting: Torsion free design on strong rubber 						
<ul style="list-style-type: none"> • Manhole: 450mm diameter (for top filling, maintenance and inspection) 						
<ul style="list-style-type: none"> • Drain Outlet: Drain outlet shall be located behind the rear axle. 						
<ul style="list-style-type: none"> • Piping: Overflow 3 inch, water supply 2.5 inch, water refilling 2.5 inch, water suction 5 inch, water drain 2 inch. 						
<ul style="list-style-type: none"> • Baffle plate: Provided with baffle having ≥4mm thickness. 						
<ul style="list-style-type: none"> • Detachable water tank equipped with a method for lifting or removing the tank from the chassis. 						
<ul style="list-style-type: none"> • Tank level gauge: Glass tube type or Electronic Type 						
10. Foam Tank						
<ul style="list-style-type: none"> • The foam tank shall be fully protected within the superstructure of the vehicle. 						
<ul style="list-style-type: none"> • Capacity: 200 Liters 						
<ul style="list-style-type: none"> • Material: Glass Reinforced Fiber (GRF) or Polypropylene Plastic (PP) 						
<ul style="list-style-type: none"> • Thickness: 6mm for GRF or 12.5mm for PP 						
<ul style="list-style-type: none"> • Manhole: 200mm diameter (for top filling maintenance and inspection) 						
<ul style="list-style-type: none"> • Piping: as per manufacturer's standard 						
<ul style="list-style-type: none"> • Tank level gauge: Glass tube type or Electronic type 						
11. Water Monitor						
<ul style="list-style-type: none"> • The wheel operation type monitor is permanently mounted on the top deck of the rear body. 						

<ul style="list-style-type: none"> • The vertical and horizontal travel is controlled by hand wheel and worm gear drive. Inside located gear box protects gear from dust and other dirty materials. 						
<ul style="list-style-type: none"> • Material: Cast Iron 						
<ul style="list-style-type: none"> • Movement: Vertical -40o up to +80o, Rotation 360o 						
<ul style="list-style-type: none"> • Connection: 						
<ul style="list-style-type: none"> • Inlet: 2.5 inch diameter 						
<ul style="list-style-type: none"> • Outlet: 2.5 inch diameter 						
12. Nozzle						
<ul style="list-style-type: none"> • Lightweight 						
<ul style="list-style-type: none"> • Flow rate: 1900 L/min or 500 gals per min. 						
<ul style="list-style-type: none"> • Material: Aluminum 						
<ul style="list-style-type: none"> • Surface: Black hard anodizing 						
<ul style="list-style-type: none"> • Connection: 2.5 inch (female thread) 						
<ul style="list-style-type: none"> • Minimum Shooting range: 60m horizontal, 24m vertical. 						
13. Fire Pump						
<ul style="list-style-type: none"> • The pump shall be mounted on a common frame located at the rear portion of the body. 						
<ul style="list-style-type: none"> • The pump shall be powered by the vehicle's engine via a full torque clutch independent Power Take Off (PTO) and balanced propeller shaft, for operation while it is stationary. 						
<ul style="list-style-type: none"> • Pump engagement control shall be located inside the cab provided with appropriate warning lights and label. 						
<ul style="list-style-type: none"> • ISO Certified Manufacturer of Fire Pump 						
<ul style="list-style-type: none"> • Type: Centrifugal, two (2) stage 						
<ul style="list-style-type: none"> • Maximum discharge: Low pressure 3000L/min@10 bar High pressure 250L/min@40 bar 						
<ul style="list-style-type: none"> • Material: 						
<ul style="list-style-type: none"> • Pump body: Corrosion resistant anodized aluminum or bronze or stainless steel. 						
<ul style="list-style-type: none"> • High-pressure impeller: bronze or stainless steel. 						
<ul style="list-style-type: none"> • Low-pressure impeller: aluminum or bronze or stainless steel 						
<ul style="list-style-type: none"> • Impeller shaft: Stainless steel 						
<ul style="list-style-type: none"> • Shaft seal: Maintenance free mechanical seal. 						
<ul style="list-style-type: none"> • Drive: 						
<ul style="list-style-type: none"> • Full clutch independent Power Take-off (PTO) 						
<ul style="list-style-type: none"> • Sandwich type (between the chassis, engine and the transmission). 						
<ul style="list-style-type: none"> • Pneumatic driving mode by means of the electric solenoid valve. 						
<ul style="list-style-type: none"> • Design Features: 						
<ul style="list-style-type: none"> • Meets EN 1028 or NEPA or JIS Standards, Certificate of compliance to be issued by an ISO 17025 certified Third Party testing facility. 						
<ul style="list-style-type: none"> • Designed to pump both high and low pressure simultaneously. 						
<ul style="list-style-type: none"> • Lightweight, corrosion resistant construction. 						
<ul style="list-style-type: none"> • Automatic piston primer. 						
<ul style="list-style-type: none"> • Easily accessible high pressure strainer. 						

• Built-in high pressure relief valve.						
• Automatic thermal relief valve.						
• Warranty: Five (5) years warranty.						
14. Foam Proportioner						
• The round pump foam proportioner consist of an educator, foam proportioning valve and foam control (On/Off) valve.						
• When activated, a portion of the pump discharge flow is directed to the educator. This flow causes a pressure drop on the educator which draws foam concentrate through the proportioning valve.						
• The foam mixes with water flowing through the educator and the foam solution flows through the pump and delivered to the discharge outlets.						
• Proportional Type: Round the pump proportioning system.						
• Foam Mixing Ratio: Preset positions for 1%, 3% and 6% foam proportioning.						
15. Pipe Works						
• All pipe works and valves shall be manufactured from stainless steel grade 304.						
• All pipes shall be designed to enable valves and components to be removed without having to detach other components and/or pipe work.						
• All valves within the system are of the quarter turn type.						
16. Hose Reel						
• The one (1) unit hose reel should be mounted inside the body at the rear portion of the vehicle.						
• Type: Electric rewind and manual override.						
• Hose: Non-collapsible rubber multi-lined ply.						
• Hose bore/length: 25mm/30 meters						
• Pressure rating: 40 bar						
• Nozzle: Easy turn of fog and straight stream.						
17. Pneumatic Service Panel						
• A service panel shall be located in the pump compartment, suitably marked and labeled including filters, air driers, lubricators and valves.						
• Valves shall be activated by a pneumatic solenoid type switch. In case of failure, valves shall be manually operated. All pneumatic piping should be nylon type and color coded.						
18. Control Devices						
• Control Panel Cab: In addition to the standard motor vehicle switches, gauges and monitors, the following shall be provided:						
• Warning Light Switch						
• Fire Pump PTO and Lamp						
• Water Tank Main Valve Switch and Lamp						
• Working Light Switch						
• Siren Control Switch and Microphone						
• Control Panel-Fire Pump Compartment:						
• Tachometer / Hour meter						
• Indicator Lamp (high pressure)						

• Indicator Lamp (low pressure)						
• Indicator Lamp (main valve)						
• Indicator Lamp (PTO)						
• Compound Gauge						
• Normal Pressure Gauge						
• Tank Level Display (water)						
• Tank Level Display (foam)						
• Cooling Valve						
• Main Valve Switch						
• RPM Up Switch						
• RPM Down Switch						
• Deck Light Switch						
• Compartment Light Switch						
• Pressure Direction (high/low lever)						
• Control Valves:						
• Water Tank Main Valve – 5 inch pneumatic type						
• Water Filler Valve with Screen Mesh Strainer – 2.5 inch, ball type						
• Water Discharge Valve – 2.5 inch, non-return type						
• Water Supplier Valve with Screen Mesh Strainer – 2.5 inch, ball type						
• Suction Inlet Valve with Screen Mesh Strainer-4 inch, disc type						
• Hose Connection Valve- 2.5 inch, ball type						
• Water Tank Drain Valve- 2.5 inch, ball type						
• Pump Low Pressure Drain Valve – ¼ inch, ball type						
• Pump High Pressure drain Valve – ¼ inch ball type						
• Monitor Discharge Valve- 2.5 inch, ball type						
• Foam Tank Valve- 1 inch, ball type						
• Foam Main Valve- 1 inch, ball type						
• Foam Control Valve						
• Foam Proportioning Valve						
• Foam Eductor						
• Foam Eductor Drain Valve- ¼ inch, ball type						
19. Electric Lights and Warning Devices						
• Main Flashing LED Lights- 1 unit						
• Body (side and rear) Flashing LED Lights- 6 units						
• External Working Lights – 2 Units						
• Locker LED Lights- Each locker						
• Electric Motor Siren- 1 unit						
• Public Address System-1 unit.						
20. Mirrors and Optical Reflectors						
• Side Mirror- 1 pair						
• Driver's Compartment Rear View Mirror- 1 set						
• Front Bumper Mirror- 1 set						
• Side Optical Reflectors -1 pair						
• Rear Optical Reflectors-1 pair						

• Rear Optical Reflectors-1 pair						
21. Fire Fighting Equipment						
• Hose 2.5 inch x 50 feet (double jacket)- 6 rolls						
• Hose 1.5 inch x 50 feet (double jacket)- 10 rolls						
• Suction Hose- 4 inch x 2.5M -4 units						
• Suction Hose (First and second strainer)- 1 unit						
• Wye connection 2 ½" to 1 1/2"- 2 pcs						
• 1 ½" Hose Wrench -1 unit						
• 2 ½" Hose Wrench -1 unit						
• Pistol Type Nozzle (1 ½ inch) – 2 units						
• Pistol Type Nozzle (2 ½ inch) – 1 unit						
• Extension Ladder- 1 unit						
• Axe -1unit Flathead axe and 1 unit pick axe						
• Pick Pole -1 unit						
• Traffic Cone- 6 pcs						
• Bolt Cutter- 1 unit						
• Hammer – 1 unit						
• Wheel Block- 2 units						
INTEGRATED LOGISTIC SUPPORT (ILS) REQUIREMENT						
1. Tools (1 Set)						
• Oil Jack – 20T capacity						
• Spare Tire Handle						
• Plier Set						
• Wrench Monkey						
• Open Wrench						
• Tool Bag						
• One (1) set Combination Wrenches						
• Ratchets and accessories						
• Screw Driver sets						
• Auto LED work lights and flashlights						
• Wheel Nut Wrench and Handle						
2. Warranty						
• All equipment / apparatus / devices made as component of the fire truck shall have a warranty of at least three (3) years or 200,000 kms mileage whichever comes first, issued by the source- manufacturer.						
• Three (3) years LTO Registration (RED PLATE)						
• Unit/s shall be registered under the name of: Aviation Regiment, Philippine Army (AvnR, PA)						
• Three (3) years TPL Insurance						
• Three (3) years GSIS						
• Comprehensive Insurance with AOG						
• All other requirements stated in the BFP Technical Specifications Number: BFP-TC-2017-01 as of August 29, 2018 that is not included in the Section VII: Technical Specifications shall form part of the same						

Ground Power Unit (GPU)		AvnR (P), PA	1	lot	9,643,202.76	9,643,202.76
BASELINE REQUIREMENT						
1. Engine						
• Doosan 34, Diesel Fed						
• Turbo Charge, four (4) cylinder, four-stroke engine						
• Direct injection						
• 12 volt electrical system						
• 121 HP, 90.3kW at 2000 rpm						
• Water cooled						
2. Capacity						
• 35 gallon fuel tank						
• 3.4 gallon tank with filtering lubricating oil						
• 1.41 gallon coolant tank						
3. Physical						
• Length: 113 ½ in (288cm)						
• Width: 79 1/8 in (201 cm)						
• Height: 74 7/16 in (189 cm)						
• Weight: 4000 lbs (1814 Kg)						
• 30 ft (9.1m) long (AC and DC) output cable						
• Tronair blue, powder coated and corrosion resistant						
• Trailer mounted with fifth wheel steering frame						
• Front wheel scrub brake						
4. Alternator						
• Mecc Alte: Synchronous Generator						
• 28.5 DCV maximum power outlet						
• Speed 2000 rpm						
• 40 °C ambient Temperature						
• 150 °C Temperature Rise						
• Class H, IP21 insulation						
• Pre-lubricated single sealed bearing						
5. Power Requirement						
• 28.5 DCV maximum power outlet						
• 12V-14V Input Voltage						
6. Interface Types						
• Murphy MPC20 & PV380 Digital Controller/Displays						
7. Functional Interfaces and Features						

<ul style="list-style-type: none"> With at least but not limited to the following options: MPC-20 is an all-purpose industrial controller that stands up to the harshest environments. This powerful controller is targeted for engine-driven pumps and irrigation, with the versatility to work in most engine-driven applications. The MPC-20 is configurable by the user to meet the most versatile applications. The ease of initial setup of the I/O does not leave the user feeling paralyzed when an input is needed for a specific function. This allows for quicker uptime and less headache while on the manufacturing floor or in the field 						
<ul style="list-style-type: none"> Software Suite of display configuration tools. The software interface enables users to modify the display to their own specific needs. 						
INTEGRATED LOGISTIC SUPPORT (ILS) REQUIREMENT						
1. Integration service						
<ul style="list-style-type: none"> The supplier shall provide the delivery of the said item to Aviation Regiment, Philippine Army at Fort Magsaysay, Nueva Ecija. 						
<ul style="list-style-type: none"> The Supplier shall provide all the necessary documents from the manufacturer (Certificate, manuals, logbooks) 						
2. Training Program						
<ul style="list-style-type: none"> It must cover the operator, maintenance, and mission support training requirements. 						
<ul style="list-style-type: none"> Supplier shall address all training and training support elements to operators and maintenance personnel for the safety procedures concerning use of the GPU in and around the intended aircraft at the intended aircraft servicing location. 						
<ul style="list-style-type: none"> Training should be at least in English. 						
<ul style="list-style-type: none"> Supplier shall pay the cost of training and its incidentals such as airfares, board and lodging, local transportation, subsistence allowance of trainees for all training programs connected with the Ground Power Unit acquisition. 						
<ul style="list-style-type: none"> Trainings must be completed within thirty (30) days. It will at least include: 						
a. Operators Training						
<ul style="list-style-type: none"> All operators shall undergo theoretical and actual training on the safety operation of the GPU. 						
b. Maintenance/ Specialist Personnel Training						
<ul style="list-style-type: none"> Maintenance personnel shall undergo maintenance training of the GPU 						
3. Maintenance Equipment						
<ul style="list-style-type: none"> The ME must be provided for servicing, handling and maintenance of the Ground Power Unit in both Organizational and Field Levels. These are: 						
a. Field Maintenance Tools						
b. Special Tools						
4. Technical Manuals						
Original copy and electronic copy of the following technical manuals:						

- Operators and Service Manual						
- Maintenance Instruction Manual						
- Illustrated Parts Catalog						
- Consumable Material List						
- Illustrated Tools and Equipment Manual						
- Tools and Equipment						
- Scheduled maintenance requirements						
- Other Technical System Equipment Manuals						
5. Spare Parts Program						
• The Supplier shall provide spares sufficient for two (2) years of operation with an annual utilization rate of one hundred (100) operating hours. Fast-moving items and consumables shall be delivered together with the GOODS						
• The supplier shall provide the complete list of TCI, RCA, fast-moving items and consumables during the Opening of Bids (Price List to be included in the financial documents).						
6. Product Support Information						
• As part of the product support information, publications and technical bulletins shall also be provided as long as the Philippine Army is operating the Ground Power Unit. It shall include among others;						
- Information Bulletins						
- Service Bulletins						
- Modification Bulletins						
7. Interim Contract Support						
• The Supplier shall be required to have an Interim Contract Support (ICS) to ensure the proper operation, maintenance, and trouble-shooting upon acceptance of the delivery of the Ground Power Unit (GPU)						
• One (1) technical representative from the proponent to cater the in-country services for the Philippine Army is required upon acceptance of the project and will end one (1) year after its final acceptance. Same tech rep will work as a Maintenance and On the Job Training (OJT) Consultant of our maintenance crew. The in-country technical representative will work five (5) days (Monday – Friday) a week for at least four (4) hours a day and make himself available on weekends (Saturday and Sunday) and holidays whenever his services deemed necessary.						
8. Warranty Program						
• The supplier shall cover One (1) years warranty period for the Ground Power Unit which will commence upon acceptance of the unit.						
• The technical representative shall correct any discrepancy due to material failure/factor expeditiously, which should not exceed sixty (60) days upon receipt of notice. If sixty (60) days turnaround time is not possible, the supplier is under obligation to replace the affected component with a new one or provide a temporary replacement in order not to hamper the operational requirements of the AFP.						

9. After Sales Support						
<ul style="list-style-type: none"> After sales services shall include supply of spares for the Ground Power Unit and components, interim contract support, technical support, and warranties. Technical support shall include query and answering (to include open/free access to online information) and assistance on defect investigation while the Philippine Army is operating the Ground Power unit (GPU) 						
10. Life Cycle Management Information						
<ul style="list-style-type: none"> Information/ references/ software regarding Mean Time Between Failures (MTBF), lead time, shelf life, total life, repairable cycle assets, as well as information for repair and overhaul of components to include repair turnaround time and cost shall be provided. Likewise, the proponent shall also identify all the authorized repair facilities, local and abroad, where the items would be repaired or overhauled. 						
11. Support Equipment and Structures						
<ul style="list-style-type: none"> Supplier shall provide information regarding the support equipment required for the maintenance and operation of the Ground Power Unit (GPU). 						
12. Spares and Components Storage Procedures						
<ul style="list-style-type: none"> Supplier shall provide storage procedures of spares and components. 						
Helicopter Flight Training Device Level 7 (Flight Simulator)		AvnR (P), PA	1	lot	200,000,000.00	200,000,000.00
BASELINE REQUIREMENT						
1. Mechanical/Technical						
<ul style="list-style-type: none"> Display system uses projection on a spherical screen with a nominal 9-foot radius made of fiberglass 						
<ul style="list-style-type: none"> The Visual field of view is at 200° horizontal by 68° vertical. 						
<ul style="list-style-type: none"> 22 x 20 ft in dimension 						
a. Static load						
<ul style="list-style-type: none"> Trainer in cueing system = 5000 LBS acting over six 10" x 12" pads 						
<ul style="list-style-type: none"> Electronic, IG and I/O cabinet = 2000(500 LBS each) 						
<ul style="list-style-type: none"> Cueing system cabinet = 800 LBS 						
<ul style="list-style-type: none"> Visual system = 3500 LBS 						
<ul style="list-style-type: none"> Instructor cab + steps (cueing system air tanks are under IOS floor) = 2500 LBS 						
b. Dynamic load						
<ul style="list-style-type: none"> Maximum 300 LBS acting on any one 10" x 12" area at 25 – 35 Hz at any given time. 						
2. Flight Deck and Instructor Cab						
<ul style="list-style-type: none"> The flight deck configuration and layout is based on the aircraft. 						
<ul style="list-style-type: none"> The hardware simulation of the aircraft cockpit includes all portions of the cockpit from the nose to a cross section of the cockpit at the extreme aft setting of the flight crew seats. 						

• The authenticity of cockpit components, furnishings, controls, and indicators replicates the appearance of the aircraft components in accordance with the qualification standard.						
• The cockpit assembly is mounted on a steel base frame .						
• The cockpit shell may be constructed from fiberglass or from a real aircraft fuselage and is attached to the cockpit base frame assembly that supports the flooring, controls, seats, panels, consoles, and other cockpit contents.						
• Electronic instrumentation is simulated by using either commercial flat panel displays driven by graphics computers or actual aircraft displays. These displays incorporate realistic bezels with appropriate knobs and buttons.						
• Mechanical indicators are simulated using either:						
a. computer graphic representation of the indicators, behind bezel cutouts						
b. mechanical servomechanisms controlled by computer						
c. in some cases, real aircraft instruments						
• Flight controls are installed in the cockpit and connected to the Control Loading system.						
• Cockpit and door window openings are the same shape and size as in the aircraft ensuring a correct visual image. Transparencies are installed.						
• Access to the cockpit is from crew access doors and steps, otherwise, through the Instructor Cab.						
• Crew seats are representative of the aircraft to the extent that they are adjustable in the same manner as the aircraft and allow the pilots to correctly set their seating position as in the aircraft. Seat belts and shoulder harnesses are provided.						
• A low-profile Instructor Operating Station (IOS) Cab is included, from which the instructor controls the simulated flight.						
• The IOS Cab is mounted behind the cockpit on a base frame						
• Low walls provide a semi-private workspace for the instructor and an eventual observer.						
• An IOS Desk is included, which provides a workspace for the instructor and the user interface with the IOS software.						
• Seats are provided for instructor and observer.						
3. Flight and Powertrain Simulation						
• The flight performance allows exploration of the flight envelope including hover, approach-tohover, and autorotation conditions.						
• The aerodynamics simulates a classic six degree-of-freedom model accounting for typical forces, moments, and velocities.						
• The reference model is tuned to perform like the specific aircraft by manipulating appropriate multi-dimensional coefficients and forces.						

• Forces from the main rotor system are derived by a blade element rotor model.						
• The rotorcraft model incorporates six degree-of-freedom sub-models for the main and tail rotors, aerodynamic surfaces, ground contacts (skids or struts with tires), and engines.						
• The model allows for the flight performance of the simulator to encompass the entire flight envelope, including ground reactions, translational lift, autorotation conditions, retreating blade stall, settling with power, and tail rotor failures.						
• Forces and Moments representing aerodynamic surfaces (fuselage, tail surfaces, and other surfaces as necessary) are based off of forces in the wind and body axes.						
• Ground effects during takeoff, hover, and landing procedures are modeled and affect lift coefficients and airflow conditions of the main rotor.						
• The instructor can control the simulated aircraft load through the IOS.						
• Center of Gravity (CG) changes automatically according to the changes in payload weight and fuel load during simulated flight.						
• The atmospheric model derives from parameters of the International Standard Atmosphere tables. Realistic values for static air temperature, true air temperature, density altitude, pressure altitude, density ratio, and air density derive from the aircraft's Mean Sea Level (MSL) altitude, instructor-entered temperature deviation from standard, and the local barometric pressure corrected to sea level.						
• The instructor can control wind values to produce uniform changes (both speed and direction), wind gusts, wind shear (microburst), and turbulence.						
• Engine, transmission, and rotor simulation are representative of the aircraft in accordance with the qualification standard and data package.						
• Engine starting is simulated during flight and ground operations.						
• Engine transients are realistic and correct in trend and magnitude.						
• The engine control levers utilize simulated hardware. Look, feel, and range of operation are in accordance with the qualification standard and data package.						
• The IOS includes controls to allow the selection of various failures which are part of the engine model. Failures include the following (turbine engine example):						
<i>a.</i> Hot starts						
<i>b.</i> Ignition failure						

c. Chip Detection						
d. Torque failures						
e. Temperature Gauge Variation						
f. Fuel failures						
g. Instrument failures						
h. Oil pressure variation i. Immediate or gradual loss of power						
<ul style="list-style-type: none"> • Engine/rotor thrust computations are a function of appropriate variables (RPM, torque, atmosphere, collective setting, and autorotation) and representative of the aircraft in its normal flight envelope. 						
<ul style="list-style-type: none"> • Engine and gear box oil pressures and temperatures are simulated. 						
4. Systems Simulation						
<ul style="list-style-type: none"> • Aircraft systems are simulated to allow the execution of training requirements. 						
<ul style="list-style-type: none"> • Cockpit environmental systems are simulated and have an appropriate effect on cockpit indicators and on the rate of ambient air flow into the cockpit. 						
<ul style="list-style-type: none"> • Actual heating or cooling of the cockpit is not provided. 						
<ul style="list-style-type: none"> • The Stability Augmentation Systems (SAS), Autopilot, and Flight Director are included as per configuration, and are a fully functional representation of the aircraft systems. 						
<ul style="list-style-type: none"> • Aircraft radio and intercom communications systems simulations allow the realistic incorporation of communication procedures into training sessions. 						
<ul style="list-style-type: none"> • Instructor and observer can hear transmissions made by the crew, as well as navigation station identifiers. 						
<ul style="list-style-type: none"> • Installed cockpit controls and indicators associated with the aircraft's electrical system are operational. 						
<ul style="list-style-type: none"> • All circuit breakers found in the aircraft cockpit are represented in the FTD. 						
<ul style="list-style-type: none"> • Those circuit breakers which are associated with normal, abnormal, and emergency procedures are pullable by the pilot and "poppable" by the Instructor, with appropriate effects on the affected subsystems. 						
<ul style="list-style-type: none"> • The voltage and current of the engine-powered starter/generators are based on engine Revolution per Minute (RPM) and applied load. 						
<ul style="list-style-type: none"> • The state of battery charge level and voltage relies upon charge or discharge currents. 						
<ul style="list-style-type: none"> • All major electrical loads are modeled. The automatic representation of minor electrical loads may be omitted. The electrical loads from simulated components are based on the data package. The instructor can adjust the overall electrical load in order to simulate an overload. 						

• The fire detection and protection systems simulation allows the appropriate checklist test procedures, the annunciation of simulated engine fires, and the activation of fire protection systems.						
• IOS controls include a “fire” setting for the engine and, a “reset” control to refill fire extinguishers.						
• Primary flight controls appear and operate as in the aircraft.						
• Secondary flight controls (rotor brake) are functional.						
• Fuel system simulation includes tanks, indicators, valves, pumps, and cockpit controls.						
• Features of fuel system simulation include the following: a. Instructor control of total fuel quantity						
b. Control of valves and pumps in the system						
c. Depletion rate dependent on fuel paths including cross-feed						
d. Fuel weight and center of gravity computed and applied to aerodynamics						
• Cockpit controls and indicators associated with the aircraft hydraulic system are functional.						
• Under control of the Instructor, ice may build up on airframe and rotors resulting in performance degradation, and Pitot tubes resulting in erroneous airspeed indications.						
• Cockpit instruments are driven to display conditions as calculated by the simulation software.						
• Visual and aural annunciators are simulated.						
• Warning systems found in the aircraft cockpit section are simulated						
• The landing gear system is simulated as appropriate for the aircraft type.						
• The brake system of aircraft equipped with wheel-type landing gear is simulated to allow realistic ground handling procedures.						
• Lighting controls functions as in the aircraft and the method of illuminating indicators and panels is representative of the aircraft.						
• Emergency lighting in the cockpit is simulated as in the aircraft.						
• Exterior lighting controls, such as landing lights and strobes, provide proper indications.						
• The Pitot-static system is modeled using static and dynamic pressures derived from the equations of motion and IOS atmospheric settings.						
• The magnetic variation at the aircraft's current location is derived from a polynomial model applicable to the whole world.						
• Mechanical directional gyros drift with time, unless periodically realigned by the pilot.						
• Simulated Very High Frequency (VHF) receivers and indicators are provided to allow reception of localizer and glideslope stations. Operation of test and other modes are simulated.						
• Weather radar may be provided as an option.						

• A radio altimeter is included, as per configuration, and provides indications of height above ground level.						
• As an option, a Traffic Advisory System (TAS) or Traffic and Collision Alerting System (TCAS) may be provided.						
• Distance Measuring Equipment (DME) is provided						
• A Transponder is provided						
• Simulated Very High Frequency (VHF) receivers and indicators are provided to allow reception of Omni directional Range (VOR) beacons.						
• Automatic Direction Finder (ADF) receiver is provided						
• A Global Positioning System (GPS) is provided as per agreed aircraft configuration						
• As an option, a Flight Management System (FMS) may be provided, per aircraft configuration.						
• Maintenance computer operations are not simulated unless needed for specific pilot training requirements.						
• Relevant systems and power train malfunctions are simulated to enable abnormal and emergency procedures of the aircraft.						
5. Navigation Simulation						
• The Navigation Simulation consists of software which monitors cockpit navigation controls and drives cockpit instruments and avionics.						
• The navigation database is initially loaded with Jeppesen® data for the entire world						
6. Simplicity IOS Software						
• Simplicity™ is a Frasca developed COTS software suite provided at the Instructor Operator Station (IOS).						
• It provides the operator with control over the simulation and access to various training management and maintenance tools.						
• It includes large buttons for easy interaction via touchscreen, with functionality similar to that of smartphones.						
• Simplicity has dark background colors to avoid excess light spill into the cockpit, with primary colors conveying specific meanings.						
• A scenario is an ordered list of actions in the widget bar which can be executed sequentially by the system.						
• Aircraft page allows injecting malfunctions for Avionics, Powertrain, and Aircraft Systems. It also allows actual "popping" the fully functional (not 2D or 3D mockups) Circuit Breakers that are installed, with appropriate response of the corresponding aircraft system.						
• The Loading (Weight & Balance) page controls individual fuel and payload weights, or direct control of aircraft CG and gross weight through a fully interactive display						

<ul style="list-style-type: none"> • The Conditions page provides specific control over all atmospheric conditions relative to the selected airport. Those include visibility, winds, precipitation, icing, clouds, temperature and pressure, surface conditions (season, runway contamination, sea state), and time of day. 						
<ul style="list-style-type: none"> • The Storm page allows positioning a storm selected from eight typical patterns anywhere on the map, with appropriate effects in the visual system and on weather radar if installed. 						
<ul style="list-style-type: none"> • The Traffic page allows the operator to place air and ground traffic in the vicinity of the aircraft. A crash will occur if the traffic collides with the training aircraft (ownship). 						
<ul style="list-style-type: none"> • ATIS module is provided that simulates ATIS transmitters which can be tuned by the pilot. Messages can be generated automatically based on current environmental conditions, edited by the operator, or recorded with a microphone on some systems. 						
<ul style="list-style-type: none"> • ATC Chatter module is provided. 						
<ul style="list-style-type: none"> • Map page is provided that provides detailed graphical data concerning the current flight. 						
<ul style="list-style-type: none"> • Custom Reposition page is provided that provides a mechanism for positioning the aircraft to a location not associated with a station. 						
<ul style="list-style-type: none"> • Approach page is provided that provides a two-in-one view of an Instrument Landing System (ILS) approach, including a glideslope view and a localizer view. 						
<ul style="list-style-type: none"> • Monitor page is included that allows the operator to view one or more simulated parameters from an extensive list. 						
<ul style="list-style-type: none"> • Record/Replay page is also included that allows the operator to record flight data, save it to a file, or replay the recording in the training device with corresponding indications in the cockpit, visual, and on the IOS. The recording can also replay on an optional Frasca Debrief Station (FDS). Flights up to 180 minutes in duration can be saved. 						
<ul style="list-style-type: none"> • System pages are used to perform various tasks such as controlling environmental and audio volume, displays, any special tools, units, exceedances (collisions, landing gear loads, gloads, rotation rates), engine and simulator time tracking, and overall simulator readiness status, depending on installed hardware and software modules. 						
<ul style="list-style-type: none"> • Freeze Page is included to freeze the whole simulator, or some components like attitude, altitude, airspeed, fuel consumption, or battery drain. 						
<ul style="list-style-type: none"> • SimAssist™ is provide which is a patent-pending adaptive software utility which helps pilots to reduce time to proficiency for pilots learning new tasks in FSTDs. 						
<ul style="list-style-type: none"> • SimAssist™ somewhat simulates the hand of the instructor on the copilot flight controls, nudging them in the right direction and at the correct time, as done in real aircraft with dual controls. 						

<ul style="list-style-type: none"> • Remote IOS may be provided to facilitate instruction from the cockpit and other tasks requiring remote access to IOS functions. 						
7. Control Loading						
<ul style="list-style-type: none"> • Electric Control Loading (ECL) system is a Frasca COTS design which provides realistic levels of resistance and inertia to the pilot controls during all phases of aircraft operation. 						
<ul style="list-style-type: none"> • Each primary pilot control connects through a precision mechanical linkage to a separate electrical actuator. 						
<ul style="list-style-type: none"> • A 20,000 count per revolution position encoder is integrally mounted to the aft end of the motor shaft. 						
<ul style="list-style-type: none"> • A highly integrated digital servo drive and an Actuator Control Module are used to control the BLDC motor. Each Actuator Control Module has bidirectional Ethernet communication with a Control Loading computer, itself linked to the Host Computer. 						
<ul style="list-style-type: none"> • Software for the control loading system runs at a 3000 Hz iteration rate under the Windows operating system and follows object oriented programming techniques. 						
<ul style="list-style-type: none"> • Control Loading system accounts for the significant forces that act on the aircraft controls and include but are not limited to the following: 						
a. Inertia						
b. Trim effects						
c. Static friction						
d. Control stops						
e. Rate Damping						
f. Breakout force						
g. Backlash (or deadband)						
h. Hydraulics failure						
i. Autopilot/SAS actuators						
<ul style="list-style-type: none"> • The Control Loading system automatically boots up and performs self-test and auto calibration when commanded after power is applied to the system. 						
<ul style="list-style-type: none"> • The Control Loading system is designed to ensure safe operation and minimize the potential for user harm. 						
8. Sound Simulation						
<ul style="list-style-type: none"> • Simulation of significant aural cues is provided. 						
<ul style="list-style-type: none"> • Speaker placement in the cockpit is such that the location of the sound is similar to that in the aircraft. 						
<ul style="list-style-type: none"> • Communication equipment is simulated to allow two-way communications between the pilots and instructor. 						
<ul style="list-style-type: none"> • Audio panels and cockpit controls for communications equipment are fully functional. 						
<ul style="list-style-type: none"> • Jacks for the instructor microphone and headphones are provided. A headphone jack is provided for the observer. 						
<ul style="list-style-type: none"> • Sound Simulation System provides the following engine and environmental sound simulations that are applicable to aircraft make and model: 						

a. Engine Spool-up						
b. Main Rotor Noise						
c. Fuel Pumps						
d. Hydraulic pumps						
e. Tire or skid screech						
f. Slip stream (varies in intensity with airspeed)						
g. Gear extension and retraction						
h. Environmental sounds						
i. Navigation tones						
j. Malfunction effects						
k. Aural warning tones						
l. Crash						
<ul style="list-style-type: none"> During the design phase actual sounds are recorded, digitally analyzed and sampled. 						
<ul style="list-style-type: none"> A multi-channel amplifier boosts the audio sounds generated in the sound simulation system and drives speakers placed in the cockpit. The instructor can control the overall sound volume from the IOS. 						
<ul style="list-style-type: none"> Sound simulation also generates and presents to the audio distribution system aural indications, warnings, and annunciations. 						
<ul style="list-style-type: none"> Communications systems permit simulation of normal radio communication between the pilot and copilot in the cockpit and the instructor who may simulate either Air Traffic Control communications or other aircraft communications. 						
<ul style="list-style-type: none"> Instructor's microphone can be set to "hot" at all, times. 						
<ul style="list-style-type: none"> The observer receives all audio transmissions from the pilot, copilot, and instructor. Configuration files set who the observer will be able to speak to. 						
<ul style="list-style-type: none"> Communications systems are compatible with helicopter headsets and microphones. 						
9. Visual System						
<ul style="list-style-type: none"> Display system uses projection on a spherical screen with a nominal 9-foot radius made of fiberglass internally structured to provide rigidity. The display is internally coated with a seamless matte off-white finish. 						
<ul style="list-style-type: none"> The display utilizes up to 8 low-maintenance laser-phosphor projectors to display the image with an average surface resolution less than 2 arc-minutes with a brightness more than 3 ft-L Projectors have a 1920 x 1080 or greater pixel resolution. 						
<ul style="list-style-type: none"> The projectors are mounted on adjustable plates affixed on a steel framework above the structure. 						
<ul style="list-style-type: none"> The diameter of the screen sphere is large enough to create less than 8° of geometric error between visual system design eye point and either pilot or copilot eye point. 						

<ul style="list-style-type: none"> • Image Generator (IG) is provided which consists of proprietary software to generate the scenery and is based on TruVision Global™ technology 						
<ul style="list-style-type: none"> • Scene is generated at runtime from available data sources including vector data, elevation data, hydrography data, 3D models, and geo-referenced satellite imagery. 						
<ul style="list-style-type: none"> • Representative terrain is generated in real-time anywhere in the world based on 1-km resolution geo-specific data. 						
<ul style="list-style-type: none"> • At low altitudes, the terrain renders with micro textures for improved low altitude cues, especially useful for hovering rotorcraft. 						
<ul style="list-style-type: none"> • Coastlines are included in the default set of source data with worldwide accuracy of 100-meter resolution. 						
<ul style="list-style-type: none"> • The ocean supports a 3D sea state, with 6 sea state levels, and water reflections from the sun are supported. 						
<ul style="list-style-type: none"> • The IG software supports 256 levels of transparency for atmospheric effects, with an adjustable visibility range of 175 km. 						
<ul style="list-style-type: none"> • Ground fog is supported with the ability to adjust visibility distance, fog height, and coverage amount. 						
<ul style="list-style-type: none"> • Two cloud layers can be enabled simultaneously with selectable base and tops. 						
<ul style="list-style-type: none"> • Cloud coverages of Overcast, Broken, Scattered and Few are supported. 						
<ul style="list-style-type: none"> • Lightning bolts with associated flash are supported for the overcast cloud type. 						
<ul style="list-style-type: none"> • Falling rain and snow of variable intensity are also supported, including the effects of wind and speed of the aircraft. 						
<ul style="list-style-type: none"> • Rotorcraft white out and brown out conditions are supported. 						
<ul style="list-style-type: none"> • The visual effect of the rotor wash when flying low over water and appropriately encoded terrain (such as snow or dirt) is displayed. 						
<ul style="list-style-type: none"> • Variable time of day and discrete day, dusk, night conditions are simulated, for a given date set by the instructor. 						
<ul style="list-style-type: none"> • The IG software supports season-correct representations for the sun, moon position, moon phase, and stars. Illumination of the scene by the moon varies depending on moon phase. 						
<ul style="list-style-type: none"> • A winterized mode can be selected that switches in snow covered terrain and airport surface textures which are automatically generated from the normal appearance texture. 						
<ul style="list-style-type: none"> • IG support for mission functions such as line-of-sight, height-above-terrain, height-of-terrain, and collision is supported. 						
<ul style="list-style-type: none"> • Collision detection with buildings, trees, and power lines is supported. 						
<ul style="list-style-type: none"> • IG provides worldwide coverage that includes terrain, geotypical imagery, and airfields. 						
<ul style="list-style-type: none"> • It has a default scenery that contains: 						
<ul style="list-style-type: none"> a. Worldwide Terrain Elevation based off of 1 km resolution. 						

b. Worldwide geotypical imagery based on land classification data of at least 300 meter resolution						
c. Worldwide coastlines based on 100 m resolution data. d. Runways and taxiways for every airfield in the Jeppesen database (over 10,000 airfields).						
e. Airfields are generated with representative runway surface types, runway markings, runway lighting, approach lighting systems, and PAPI / VASI systems.						
• For maritime scenes, ships include the ability to pitch, roll and heave with the sea state set by the instructor						
• The IG software allows the instructor to add static objects such as oil rigs to the scene						
• A high-detail helicopter Missions Database is furnished.						
• Imagery has a resolution of approximately 1 m and elevation has a 1 km standard resolution for the entire state.						
10. NVG Options						
• The Flight Training Device cockpit (lights and displays) and IOS Cab may be filtered and modified to permit the use of real night vision goggles (NVGs).						
11. FLIR Options						
• As an option, a gimballed Forward-Looking Infrared (FLIR) system may be simulated for display on a dedicated monitor, together with a hand controller.						
12. Vibration (option 1)						
• The qualification standard mandates a system to provide characteristic helicopter vibrations to the pilots.						
• In the vibration system, the steel frame supporting the cockpit is loosely connected to the floor via elastomeric pads.						
• The design of the system provides vibrations up to 2000 RPM or 33.3 Hz.						
• The Vibration System can simulate:						
a. Main rotor vibration						
b. Effective Translational Lift (ETL) shudder						
c. Vortex ring vibrations						
d. Ground contact						
e. Ground skidding						
f. Vertical ground reaction force						
g. Abnormal vibrations						
13. Motion Cueing Systems (option 2)						
• The Motion Cueing System (MCS) provides limited motion in 6 Degrees of Freedom to create both cueing and vibration						
• The system capitalizes on the fact that human body motion sensors (inner-ear, muscle & joints, and skin contact pressures) register motions within milliseconds compared with the corresponding visual cues.						


<ul style="list-style-type: none"> • The cockpit frame is connected to the floor through 3 pneumatic and 6 electric control actuators. 						
<ul style="list-style-type: none"> • The three pneumatic actuators are pressurized so as to bear most of the static weight of cockpit base, cockpit interior, and pilots. 						
<ul style="list-style-type: none"> • The six electric actuators are arranged as a Stewart Platform to provide 6 Degrees of Freedom like a Motion Base, but with smaller stroke amplitude (sixinch) and much higher frequency response. 						
<ul style="list-style-type: none"> • A Motion Cueing System PC computes what amplitudes and frequencies to command the actuators with, as a function of equations of motion (accelerations and velocities) and any special effect vibrations provided by the Host PC. 						
<ul style="list-style-type: none"> • Controllable in amplitude and phase up to 60 Hz (compared to 10 Hz for a Motion Base) and can reproduce frequencies above 200 Hz, albeit with very low amplitude. 						
<ul style="list-style-type: none"> • The system provides cueing response times that are better than for a Helicopter Level D Full Flight Simulator (FFS) equipped with a vibration system atop the motion base, and a similar vibration performance. 						
<ul style="list-style-type: none"> • Thanks to its compact size, the Motion Cueing System has significantly fewer facility requirements than for a FFS, as well as a lower cost. 						
14. Computer and Interface System						
<ul style="list-style-type: none"> • The simulation runs on Computer and Interface System computers linked together through data communications interfaces. 						
<ul style="list-style-type: none"> • A modular IO system based on CAN-Bus provides the interface between the various cockpit components and the Host computer. 						
<ul style="list-style-type: none"> • A Remote Diagnostics utility is provided. 						
<ul style="list-style-type: none"> • Buyer is responsible for internet connection 						
<ul style="list-style-type: none"> • The computer systems have the following features: 						
a. Standard computer architecture						
b. Intel® Core™ based processor						
c. 4.0 Gigabytes RAM minimum						
d. 250 Gigabyte hard drive minimum						
e. CD/DVD Burner						
f. 10/100/1000Mb Ethernet adapter						
g. Windows operating system						
<ul style="list-style-type: none"> • The computer systems and software are designed to ensure that software runs reliably and sufficient spare capacity exists to allow minor software features to be added without requiring a computer system upgrade. 						
<ul style="list-style-type: none"> • The Host receives input data from the I/O system, the host computes the model states on the basis of this data, and then sends the results of the computations to the appropriate sub-system 						

<ul style="list-style-type: none"> The I/O (Input / Output) Subsystem utilizes a family of devices (modules) with a common interface to provide a modular approach for expandability, smaller wiring harnesses, and ease of maintenance. 						
<ul style="list-style-type: none"> It has a CAN Bus I/O subsystem which consists of the following types of devices. 						
<ul style="list-style-type: none"> a. The Input Module is typically used to read switch positions. Inputs have pull-up resistors to +5 Volts. Pairs of channels can be configured to read 2-wire encoders 						
<ul style="list-style-type: none"> b. 3-Wire Encoder/Input Module is primarily used to read and determine directional movement of a rotary switch which has its pins wired in groups of 3. 						
<ul style="list-style-type: none"> c. The Output Module is typically used for lighting annunciators. 						
<ul style="list-style-type: none"> d. The Analog to Digital Converter (ADC) Module is typically used to read potentiometers for lighting dimming or for control positions. 						
<ul style="list-style-type: none"> e. The Digital to Analog Converter (DAC) Module typically used to drive Direct Current resolver based instruments or servo instruments. 						
<ul style="list-style-type: none"> f. The Combo Module is used for many functions; typically, they are used for lighting annunciators, and reading switch positions. 						
<ul style="list-style-type: none"> g. The CAN Matrix Module primary purpose is to trip circuit breakers and to read the state of breakers. 						
<ul style="list-style-type: none"> h. The Lighting Module is typically used to provide panel lighting, which commonly has a high current requirement. 						
<ul style="list-style-type: none"> i. The SPI/I2C Module provides SPI (System Packet Interface) and I2C (Inter-Integrated Circuit) interfaces to support various simulated instruments or control heads. 						
15. Maintenance Software						
<ul style="list-style-type: none"> Computer Generated Instruments (CGI) Software Calibration is provided 						
<ul style="list-style-type: none"> CAN Bus Packet Sniffer is provided to allow the user to monitor lower level traffic on the CAN Bus interface. 						
<ul style="list-style-type: none"> CAN Module Software Upgrade Utility; the CAN Flash programmer utility is provided to allow in-system upgrades to CAN module software if necessary. 						
<ul style="list-style-type: none"> Software includes error trapping for certain conditions and events. 						
<ul style="list-style-type: none"> Standard window maintenance utilities are provided to allow the user to troubleshoot standard windows hardware and software. 						
<ul style="list-style-type: none"> All computers have TeraByte Image for Windows Drive Image Backup and Restore Software installed to provide the ability to backup each system computer in the event of a failure. 						
<ul style="list-style-type: none"> The Control loading and motion systems includes real time safety checking software. 						
16. Electrical Requirements						
<ul style="list-style-type: none"> Trainer and Cueing 480V, 3-phase, 48A 						
<ul style="list-style-type: none"> Image Generators and Projectors 220 V, 1-phase 40 A 						

17. Environmental Requirements						
• The equipment must be operated in a dust-free environment:						
• Temperature: 60 - 75 °F (15 - 24 °C)						
• Relative Humidity: 30 - 70 %, non-condensing.						
18. Room Requirements						
• Recommended ceiling height 15' 6"						
• Minimum Door and Hallways 120" width x 96" height						
INTEGRATED LOGISTIC SUPPORT (ILS) REQUIREMENT						
1. Integration service						
• The supplier will provide the installation of the Helicopter Flight Training Device FAA Level 7 to the end user.						
2. Training Program						
• Supplier will shoulder the training and training support elements to operators and maintenance personnel involved on the operation of the Helicopter Flight Training Device FAA Level 7.						
• English language will be used.						
3. Product Support Concept						
• Seller will support the Buyer in its support responsibilities by providing training and technical assistance via electronic means.						
• These electronic means can include telephone, fax, and email support, as well as, remote diagnostic assistance via modem/internet connections to the equipment.						
4. Spare Parts Program						
• In order to ensure the highest availability, the equipment must be supported with adequate spare parts onsite, based on MTBF values when available.						
• In addition, onsite spares are required because certain components may have long lead-times or limited availability.						
• Seller may also recommend spares be purchased for certain components where anticipated obsolescence may limit future availability.						
• A recommended spares list will be provided and finalized during the manufacture period and be provided to the Buyer with adequate time to ensure concurrent delivery.						
5. Special Tools						
• Only common tools typically used to maintain aircraft and aircraft avionics are required to maintain the equipment.						
6. Technical Publications						
• Seller provides the following documents for the equipment:						
a. Operator Manual providing all instructions for operating the equipment and includes start/stop instructions.						
b. Maintenance Manual providing the experienced maintenance staff with the information needed to identify and repair equipment faults and to perform periodic maintenance. The Maintenance Manual includes system operation and components, preventive maintenance, calibration procedures, and use of diagnostics for troubleshooting.						

c. System Interconnects (electrical diagrams).						
d. Approval Test Procedure e. Qualification Test Guide (optional, per qualification standard)						
7. Product Support Information						
• Within the warranty period, Seller incorporates any revisions to the equipment into the affected publications and forward, them to the customer.						
• Seller supplies technical data, manuals, and parts-lists for vendor equipment and assemblies in original form.						
8. Warranty Program						
• The supplier shall cover One (1) year warranty period for the Helicopter Flight Training Device FAA Level 7.						

Prepared By:


ARIES MASSEM T DELA CUADRA
 MAJ (SC) PA
 AC of S for Logistics, G4

Approved By:

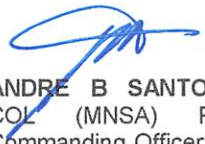

ANDRE B SANTOS
 COL (MNSA) PA
 Commanding Officer

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HEADQUARTERS
AVIATION (HIRAYA) REGIMENT (P), PHILIPPINE ARMY
Fort Ramon Magsaysay, Palayan City, Nueva Ecija



**Annual Procurement Plan (APP),
Project Procurement Management Plan (PPMP),
Summary of Program Implementation (SPI)
and
Program of Expenditure (POE)
of
AvnR (P), PA Proposed Tier 2 Projects**