



Republic of the Philippines
NATIONAL POLICE COMMISSION
PHILIPPINE NATIONAL POLICE
INFORMATION TECHNOLOGY MANAGEMENT SERVICE
Camp BGen Rafael T. Crame, Quezon City



TERMS OF REFERENCE

PROCUREMENT OF FIREARMS TRAINING SIMULATOR

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I. INTRODUCTION

Several incidents in the past wherein our police officers were engaged in shootouts and resulted to criticisms which put the credibility of the whole Philippine National Police (PNP) in terms of depending the nation and its people in question. These could have been avoided if only the police officers are confident in handling such situation. More lives could have been saved including victims, suspects and even our own police officers. With this kind of situation, it is deemed necessary for the PNP to have an effective firearms training for our police officers.

With this, the PNP Training Service (TS) conducts the PNP Standard Handgun Marksmanship Training that serves as the regular firearms proficiency training program of the PNP. It aims to standardize, develop, increase and sustain the level of confidence and proficiency in the use of issued short firearms of all PNP personnel. The program is anchored on the premise that high level of competency rebounds to effective application of PNP rules of engagement and rights-based policing.

In order to be more effective and efficient in proper handling of short and long firearms, it is ideal that PNP police officers should undergo constant training. On the average, according to skilled shooters, for one police officer to be proficient in using firearms, he needs at least five thousand (5,000) rounds of ammunition or equivalent to Forty-Five Thousand Pesos (Php45,000.00) using reload 9mm ammunition (Php9.00 x 5,000).

The PNP needs roughly around Nine Billion Pesos (Php 9,000,000,000.00) to achieve this endpoint. The PNP can hardly afford to spend this much as of this time to continually train its more than two hundred thousand (200,000) police personnel.

A firearms training simulator can provide another means of training platform without the need of live rounds as police officers can train and shoot as much in a realistic setting. A firearms training simulator is cost effective since police officers can shoot up to eight hundred (800) rounds per twenty (26) minutes training cycle.

As of now, PNP can only allocate fifty (50) ammunition for 9mm pistol training, or an equivalent of around Four Hundred Fifty Pesos (Php450.00) for the entire marksmanship training of Police Recruits.

The benefits of the procurement of a Firearms Training Simulator are immeasurable as far as saving lives through the extensive training that is achieved with respect to quick, decisive decision-making skills and marksmanship. Furthermore, the PNP would stay updated to the latest technology in terms of training police officers.

II. PROJECT OBJECTIVE

This project aims to provide the PNP Training Service a Firearms Training Simulator System that will be used for the training courses they offer with regards to Police Officers Marksmanship.



III. DEFINITION OF TERMS

- A. Simulator – a machine with a similar set of controls designed to provide a realistic imitation of the operation of a vehicle, aircraft, firearms or other complex system, used for training purposes
- B. Marksmanship – is the ability to shoot accurately
- C. Ammunition – a supply or quantity of bullets and shells
- D. Non-lethal weapons – are weapons, devices, and munitions that are explicitly designed and primarily employed to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel, and undesired damage to property in the target area or environment
- E. Live rounds – a real bullet fired from a gun, rather than a blank round which is not real

IV. SCOPE OF WORK

This project will be procured through “competitive bidding” under the category of “**goods**.” This method of procurement is open to participation by any interested party and which consists of the following processes: advertisement, pre-bid conference, receipt and opening of bids, evaluation of bids, post-qualification and award of contract.

Scope of Work (SoW) shall include, but not limited to the following:

1. Supply and delivery of Firearms Training Simulator to PNP Training Service (TS) located at Camp BGen Rafael T Crame, Quezon City for inspection/accounting prior to installation.
2. Installation, configuration and testing of Firearms Training Simulator at the PNP Training Service (TS).

V. SPECIFICATION OF DELIVERABLES

Below are the minimum specifications of the system to be procured:

A. GENERAL DESCRIPTION

The training Simulator must be based on a "Latest License Software" multimedia training system. The system must provide a state-of-the-art training tool pertaining to the use-of-force and tactical judgment by means of realistic interactive videos that reacts to the actions of the trainee whether the situation calls for verbal commands and/or lethal or non-lethal actions using cultural diversity and training objective of the PNP.



1. The system must include hill scenario authoring capabilities allowing capture or edit multimedia interactive scenarios locally using any video camera without having to refer to the manufacturer/vendor for any service at all.
2. The scenarios must be stored as a digital file on a 4TB (minimum) storage device.
3. The system must not only allow self-creation of scenarios at no extra cost to the PNP but must also allow that usage of any scenario on an unlimited number of systems, the exchange of scenarios between users as well as free unlimited use of all the scenarios produced by the manufacturer/vendor at no additional charge.
4. The scenario length shall not be limited and shall allow even hours of uninterrupted video.
5. The system must be fully interactive allowing unlimited of "Accurately Drawn Hit-Zones" and the associated interaction including weapon specific, Multiple Tap dependent, Context dependent manual branching presence, etc.
6. The system must incorporate advanced Hi-Fi Interactive Digital Audio allowing realistic shot sound, automatic conversion of typed text to speech, changing of suspects' voice and accents, as well as any sound effects (e.g. scream, siren, explosion, etc.)
7. The system must use issued or personal weapon of the trainee and holster without modification and untethered by using an electronically coded, eye-safe infra-red laser insert.
8. The system must be field upgradable to include multiple lanes option with individual team scoring.
9. The system must incorporate a graphical mouse and icon-based user interface so that the instructor shall not require any previous knowledge or experience with the computers.
10. The system must offer comprehensive results' analysis tools that automatically score and display the trainee's performance. The system must allow the user (PNP) at its discretion to record and score all the trainees reactions and shooting results, including but not limited to the judgment, response and accuracy of each and every bullet shot. All the training conditions and objectives including weapon, ammunition and caliber used and any other detail the user (PNP) might want recorded for later analysis, must also be recorded.
11. The system must allow the user (PNP) to assess the trainee on any aspect of his behavior, and to replay the scenario with the results immediately following the training or at any crime in the future.



12. The system must allow the printout of reports containing all the recorded data including the score, the evaluation form, any trainer assessment and the actual scenario frame with the fall of shot.
13. To ensure the unlimited supply of spare parts and low maintenance and upgrading cost, the system must be based on standard off-the-shelf with the latest licensed software. The system must further offer an optional remote diagnostics and maintenance as well as file transfer over the internet.

B. TECHNICAL SPECIFICATION

1. **COMPLETE SYSTEM**
 - a. The system when delivered must be complete and ready to train right out of the box without further technical programming for its immediate use.
 - b. The system must have readily available targets that appear life sized as against the trainees' distance.
 - c. The system must include extended range targets for precision shooting (sniper) that simulates realistic bullet curve or bullet behavior (wind speed, direction and effects) at a given distance.
 - d. The system must be modular and can be set up by one person in less than fifteen (15) minutes
 - e. The System can operate in normal room light and low light condition, and must include a simulated low-light capability on all video scenarios.
 - f. The system must be capable of remote wireless instructor interface via handheld, touchscreen tablet device (fixed system).
 - g. The system shall support accurate simulation and use of laser simulated weapons without requiring any external cables with a minimum of 4 simultaneous trainees (fixed system) and expandable to multiple screens. Each of the trainees shall have the option to have up to 2 weapons assigned to them.
 - h. The system shall also be able to support use of non-lethal weapons (e.g. pepper spray, electroshock weapons, truncheon, flash lights etc.).
 - i. The system shall provide recoil conversion kits for selected standard issue firearms of the PNP.
 - j. The system should be capable of accepting future upgrades.

2. SYSTEM COMPRISE OF THE FOLLOWING PARTS.

The system computer unit should integrate all peripheral units' functions.

a. Computer Hardware

Category	Branded and Brand New
Processor	8 cores, 16 threads base clock 3.0 GHz or higher, 12MB Cache
Motherboard	Compatible with processor
Form Type	Proprietary Design/Manufacturer's Standard
Memory (RAM)	At least 16GB 2666MHz
Storage	2TB HDD +250GB SSD
Video Controller	VRAM 4GB or higher
Sound Controller	Sound card or onboard sound controller with speaker
Monitor	22" LED
Keyboard/mouse	USB Keyboard and USB optical mouse
Optical Drive	DVD-RW or latest optical drive
Networking	Onboard Gigabit Ethernet Controller
	Wi-Fi 802.11 ac/ax
	Bluetooth 4.2 or latest technology
Standard I/O Ports	Provide eight (8) USB Ports at least four (4) USB 3.0 or higher
	VGA, DVI or HDMI
	Mic/Headphone combo or separate port
Power Supply Wattage	500 Watts or higher
Warranty (parts and service)	At least three (3) years after sales support
Brand	At least fifteen (15) years on the market

b. Computer Software

- b.1. Latest Scenario database software license (Perpetual)
- b.2. Latest Scenario database management software license (Perpetual)
- b.3. Latest Scenario capture software license (Perpetual)
- b.4. Latest Scenario editing, branch editor and graphics software license (Perpetual)
- b.5. All available manufacturer's scenarios
- b.6. Latest Licensed Operating System
- b.7. Latest Licensed Anti-Virus Software (3 years)
- b.8. Latest Licensed Office Application (perpetual)
- b.9. Must include System backup and recovery software



c. Computer Peripherals

Video Projector	Full HD 1080P 3500 lumens
Projection Screen	<ul style="list-style-type: none"> • Wall mountable and free standing via removable legs, collapsible • Expandable to multi-screen, 180 and 300 "Degree" designs or Ultrawide arrangements • Minimum 144" width and 84" height
Sound System	At least Mid-high 5.25 active speaker system, 50 Watts RMS, 220 volts, Low frequency 10" active Sub-Woofer 250 watts Surround Sound System
Printer	High-speed laser
Barrel inserted Laser transmitter	
Hit Detection Unit	

d. Accessories and Other Peripherals

d.1 External Hard Drive (storage device)

Category	Branded and Brand New
Storage	4 TB
Interface	USB version 2.0 or latest interface
Type of Device	Solid State Drive (SSD)
Form Factor	Manufacturer's Standard
Dimension	Manufacturer's Standard
Standard	SATA or latest hard disk standard
Security/Software	With back-up software and encryption (256 bit AES)
Casing	Water Resistant (IP5X) Dust Resistant (IPX3)
	Shock Proof (Military Standard 105G)
Color	Manufacturer's Standard
Accessories	USB Cable connector, CD Installer, Driver, Manual
Warranty (Parts and Service)	At least one (1) year after sales support

d.2 Uninterruptible Power Supply

Category	Branded and Brand New
General Usage	For protection against power surges of ICT
Product type	Uninterrupted Power Supply
Voltage Rating	1KVA or higher
Management	Management Software (optional)
Accessories	Manual
Warranty (parts and service)	At least one (1) year after sales support
Brand	At least five (5) years on the market

d.3 Web Camera

Category	Branded and Brand New
Effective Resolution	One (1) Megapixel or higher
Interface	USB version 2. 0 or higher
Video Resolution	1280x720@ 30 fps or better
Microphone	Integrated microphone
System Requirement	Compatible with latest licensed Operating System
Accessories	USB connector extension (optional), CD Driver/ Application / Manual Software
Warranty (parts and service)	At least one (1) year after sales support
Brand	At least five (5) years on the market

d.4 Wi-Fi Adapter

Category	Branded and Brand New
Type	PCI or USB

d.5 Wireless Instructors Tablet

d.6 Two (2) HD Camcorders with tripod (mounting device for wall installed); one (1) for video filming and capture; and one (1) to accurately record the actions and reaction of the trainee throughout the session.

d.7 Include all required cabling and mounts



3. WEAPONS AND TRAINING DEVICES

The system shall be delivered with ten (10) "Recoil Kits" to support the handguns used by the PNP at any caliber (as specified by the user). The recoil kits should not require tethering job or modification to the weapon.

- a. The laser insert must be mounted from the chamber side as to prevent the accidental insertion of a live round during laser fire mode.
- b. The laser insert must use invisible, infra-red, eye-safe laser and shall be activated electronically by the fall of the hammer.
- c. The lasers should work at 5 to 25 meters from the screen.
- d. The system must be able to detect who shot which target by means of color coding at the point of impact.
- e. The system must provide realistic accuracy from the point of aim to the point of impact. Calibration of accuracy must be within the 0.25" of point of aim.
- f. The recoil conversions kits should operate from CO₂ or other compressed gas and shall not require external cables connected to the weapon or recoil kit.
- g. Include two (2) units for each weapon with refill station.
 - Glock
 - Canik
 - Beretta
 - Taurus
 - Tisas

C. THE SCENARIOS

1. SOURCE

The scenarios shall be stored and played in a standard Digital Video format on a regular computer hard disk and/or detachable 4 TB storage device.

2. FLEXIBILITY

The user (PNP) shall have the full freedom and capabilities to:

- a. Create its own interactive multimedia scenarios.
- b. Use any available scenario from the manufacturer's library.
- c. Exchange scenarios with other users and between multiple systems.

3. TYPE

The system must enable the creation, editing and playing of multimedia scenario combining:

- a. Digital video and audio, computer generated imagery (CGI) including scanned and/or drawn.
- b. Graphics and animation at any available PC format, sound effects, and still "slide show."

4. LENGTH

No limitation of scenario length.

5. CAPTURE

The system must be capable of capturing any graphical picture in any known PC format from a standard PC scanner.

6. EDITING

The system must be offer complete authoring capabilities for multimedia scenario creation editing which are icon and graphics based under Windows including the following features:

- a. Video manipulation
- b. Threat window assignment
- c. Hit-zone and branching
- d. Sound effects
- e. Messages graphics targets
- f. Manual branching
- g. Simulate mode

D. RESULT ANALYSIS

1. The user shall have the option whether to store or not to store any session results, to effect manual pass/fail scoring only.
2. The system shall automatically present an evaluation form to the user/trainer presenting the cumulative scoring of decision, reaction time and accuracy. The evaluation form shall also contain all the cumulative summary data for the session including number of rounds fired, number of lethal/non-lethal hits, number of misses, etc.
3. The user/trainer shall be able to replay the scenario with all the pertaining data.
4. The user/trainer shall have an open text field allowing him/her to insert notes and critique that can be stored for future reference.
5. The user/trainer shall have the ability to call on a pass/fail form that contains quantified and non-quantified performance and behavior data.



E. PRINTED REPORTS

The user/trainer shall at any time be able to retrieve and print-out detailed reports on the session including:

1. Summary of all past sessions attended by a trainee including cumulative result summary, time, date, and scoring per bullet.
2. Color print outs of each and every frame on which a shot has occurred with all cumulative results summary and the result per bullet next to the frame picture, a cross-hair position of the fall of shot.

F. MAINTENANCE

1. The system must comprise standard off-the-shelf PC components as much as possible to ensure fast technical support and minimum downtime. The system must allow local maintenance by the user or PC repair shops as to reduce dependency on the manufacturer for technical support and spare parts.
2. The system can include a remote maintenance capability allowing remote software debug, remote diagnosis and remote software updates over the internet.

G. SECURITY CONTROL

1. The system must be protected against use of untrained personnel. The system must be password protected to limit the access of each type of user in order to prevent accidental deletion/manipulation of data/result and unauthorized update.
2. The system must have a video camera installed inside the "range" to continuously monitor the behavior of trainee that can be viewed during or after the training.

VI. TERMS AND CONDITIONS

Site-survey, systems design, detailed engineering, manufacture/procurement and supply of all related goods and provision of all related services including delivery, parts, labor tool, equipment system, test instruments, apparatus, all software permits/licenses, and provision of other engineering services, assembly, installation, calibration, optimization, integration of equipment and software, testing, commissioning, test run, documentation, warranty, training, complete in all aspect for implementation and completion of the project:

Procurement of Equipment for the Supply, Delivery, Design, Installation, Programming, Testing, Commissioning and Training shall be made available:

- A. The winning bidder shall be responsible in the ordering, shipping, insurance, customs' clearance, release, transportation and delivery of all equipment/system necessary for the project.

- B. The winning bidder shall be responsible for site survey, site preparation, cable routes, coverage, engineering, electrical works, civil works, rough-in works, grounding and all other installation necessary for the completion of the project in coordination with the Philippine National Police.
- C. The winning bidder shall undertake the supply and delivery, design, installation, programming, testing and commissioning of all system components.
- D. The winning bidder shall provide all installation tools, accessories, special tools, parts, etc. as required for the successful completion of the project. The winning bidder shall include all installation materials required for proper installation of the Firearms Training Simulator at the PNP Training Service and all the systems included therein.
- E. The winning bidder shall provide system setup and installation on site for one system at one location.
- F. The winning bidder shall not in any way limit its work to the listed work but to the extent of completion, commissioning and acceptance of the project.
- G. The winning bidder shall perform other related work/s and provide other material, equipment or systems not listed in the project but are necessary for the completion and commissioning of the project.
- H. These specifications are intended to cover all labor and materials for the installation of the Firearms Training Simulator at the PNP Training Service. All kinds of procurement and other incidental expenses shall be borne by the winning bidder.
- I. All items requiring for labor and/or materials not specifically mentioned herein but deemed necessary to complete the work shall be supplied by the winning bidder, at no extra cost to the PNP.
- J. The winning bidder shall provide and enforce the use of all necessary Personnel Protective Equipment (PPE) for the protection and convenience of his workers in order to have a proper and efficient execution of the work at no extra cost to the PNP.
- K. All materials to be supplied and installed shall be branded and brand new and shall confirm to at least with the minimum standard specifications as stated herein.

VII. REQUIREMENTS FOR BIDDERS

- A. The winning bidder must have an authorized service center in the Philippines capable of handling service request duly certified by the manufacturer or its local distributor.

- B. The winning bidder must submit a certification from the manufacturer or its local distributor stating that the availability of parts for the equipment shall be for a period of at least five (5) years from the date of final acceptance.
- C. The winning bidder must be an authorized reseller/partner of the manufacturer supported by a certification from the local distributor of the Original Equipment Manufacturer (OEM).
- D. The winning bidder must have at least three (3) local personnel qualified and trained to install, repair and maintain the Firearms Training Simulator Equipment and Systems supported by a training certificate from the manufacturer or local distributor.
- E. Five (5) sets of printed service manuals as well as soft copy of the service manual for the procured Firearms Training Simulator for the PNP Training Service to be submitted during acceptance consist of:
 - 1. Detailed technical manual containing functional diagrams and description;
 - 2. Installation Procedures;
 - 3. Commissioning Procedures;
 - 4. Operation Procedures;
 - 5. Video Scenario Creation Procedures; and
 - 6. Troubleshooting and Maintenance Procedures.
- F. Any other documents not specifically mentioned above but required for satisfactory implementation, operation and maintenance of the system shall be provided by the winning bidder.

VIII. TESTING AND COMMISSIONING

- A. The test and evaluation shall be in accordance with PNP Memorandum Circular 2016-079 (Guidelines in the Conduct of Test for PNP Various Equipment/Devices and other applicable Test Parameters).
- B. Commissioning and functional testing of the system shall be undertaken after all the equipment has been installed, tested and evaluated including calibration, technical adjustment and alignment as may be deemed necessary.

IX. DELIVERY AND INSPECTION

The Committee on Inspection and Acceptance shall inspect all components due for implementation to validate the products offered as against the delivered materials prior to installation.

X. TRAINING

The winning bidder shall provide training on setup, installation, service, operation, user maintenance and new video scenario creation for at least ten (10) PNP personnel at the PNP Training Service.

XI. DELIVERY AND COMPLETION PERIOD

Project delivery, installation and commissioning shall be within one hundred twenty (120) calendar days after issuance of Notice to Proceed (NTP).

XII. WARRANTY/GUARANTEE

- A. All employee's or labor claims shall be for the exclusive account of the winning bidder.
- B. The winning bidder shall guarantee that the supplies and services rendered shall conform with the good engineering practices and in accordance with the manufacturer's manual procedures.
- C. The winning bidder shall guarantee that the Firearms Training Simulator and its sub-systems shall conform and adapt to present technological advancements and must make available its technical expertise and support within the warranty period at no cost to the PNP.
- D. The winning bidder shall repair, correct, or replace any defect of any nature that may occur within the warranty period from the date of acceptance at no cost to the PNP; During the warranty period, the winning bidder shall provide the following:
 - 1. Technical Support Service – 24/7 availability of winning bidder's technical support service to PNP through any means of communication concerning malfunction or any technical support requirement needed.
 - 2. On-Site Technical Support - The winning bidder upon receipt of service/trouble call shall provide on-site technical support within twenty (24) hours upon notification. While undergoing repair, a service unit must be provided to ensure uninterrupted system operation.
 - 3. Personnel capable of troubleshooting and maintaining the system including the required tools, maintenance spares, hardware, software, materials, etc. for the rectification of any problem.
- E. At least 1 year warranty for the recoil kit.
- F. Accessories and other computer accessories must have at least one (1) year warranty and after sales support on parts and services.
- G. Computer Hardware and Software must have three (3) years warranty and after sales support on parts and services unless otherwise specified in this TOR.
- H. The warranty period shall start upon the acceptance of the whole project.
- I. The winning bidder shall configure the system in any case of system error and repair or replace any defect of any nature that may occur within the warranty period from the date of certificate of acceptance.

- J. All equipment shall be allowed to be repaired at a maximum of three (3) times within the warranty period thereafter must be replaced with brand new equipment at no cost to the PNP.
- K. Certifications by the winning bidder and the Original Equipment Manufacturer/s (OEMs) or its local distributors that all ICT equipment to be supplied is original and brand new. Certifications required from OEMs may be issued by their local office.
- L. All software licenses must be perpetual except for the anti-virus software.

XIII. APPROVED BUDGET

The Approved Budget for the Contract (ABC) allocated for the procurement of Firearms Training Simulator is Eleven Million and Two Hundred Seventy Thousand Pesos only (PHP11,270,000.00), inclusive of installation services, delivery, incidental expenses, VAT and other government taxes, chargeable against the PNP Trust Receipts Fund.

XIV. REFERENCES

ITEM	REQUIREMENT
Firearms Training Simulator	NAPOLCOM RESOLUTION NO. 2016-202 <i>Approving the Amendment to NAPOLCOM Resolution No. 97-16 by Prescribing the New Minimum Standard Specifications for Firearms Training Simulator</i>
Desktop	PHILIPPINE NATIONAL POLICE MC 2020-086 <i>Prescribing the Minimum Technical Specifications for Desktop Computer</i>
External Hard Drive	NAPOLCOM RESOLUTION NO. 2009-700 <i>Approving the Proposed Standard Specifications for External Hard Drive</i>
UPS	NAPOLCOM RESOLUTION NO. 2009-653 <i>Approving the Proposed Standard Specifications for Uninterruptible Power Supply (UPS)</i>
Web Camera	NAPOLCOM RESOLUTION NO. 2009-650 <i>Prescribing the Standard Specifications for Web Cam</i>