FUNCTIONAL REQUIREMENTS DOCUMENT

for the

TRAINING SYSTEMS ACQUISITION II (TSA II) CONTRACT

TRAINING SYSTEMS PRODUCT GROUP CONTRACT F33657-01-D-2070

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1.0 SCOPE

This document establishes the requirements for the USAF Training System Acquisition Two (TSA II) Contract. The requirements defined herein establish the scope of tasks, products and services that may be exercised via specific contract orders. It is intended that detailed requirements will be appropriately documented in Requirements Documents, Specifications and Statements of Work (SOW) as part of each specific Order.

2.0 RESERVED

3.0 REQUIREMENTS

This section addresses the general requirements for the Training Systems Acquisition Contract. Performance requirements for specific training programs shall be defined in specifications, requirements documents and statements of work included in individual orders.

3.1 Products and Services

The contractor shall provide the following products and services as required by individual orders.

3.1.1 Training Systems

Training systems shall encompass all aspects of the training curriculum including, but not limited to, training materials, training devices, operational equipment, instructors, support systems, operations and maintenance, and support personnel.

3.1.1.1 Aircrew Training Systems (ATS)An ATS specified in an individual order shall encompass all aspects of training each member of the weapon system crew in the performance of the mission. The ATS shall be based upon a Training Systems Requirements Analysis (TSRA) and shall include all of the components necessary for training initial and advanced skills as defined in individual orders.

3.1.1.2 Maintenance Training Systems (MTS)

An MTS specified in an individual order shall encompass all aspects of training maintenance personnel the tasks necessary to maintain the specified weapon system, on the flight line, in the maintenance shops and in the depot, and on demand at any location and time required. The MTS shall be based upon a Training Systems Requirements Analysis (TSRA) and shall include all of the components necessary for training basic skills, advanced skills, and qualification as defined in individual orders.

3.1.1.3 Operations-Specific Training Systems (OTS)

The OTS specified in an individual order shall encompass all aspects of training Government personnel to perform specific operations not explicitly defined elsewhere in this document. The OTS shall be based upon a Training Systems Requirements Analysis (TSRA) or a specific training task list and shall include all of the components necessary for training initial and advanced skills as defined in individual orders.

3.1.1.4 Constructive Simulations
Constructive simulations shall model the functional performance of subsystems, weapons, weapon systems, and other devices as required by individual orders.

3.1.1.5 Embedded Training
Training functions shall be integrated into operational mission, mission support, and maintenance support equipment as required by individual orders.

3.1.2 Training Devices
Training devices shall support mission rehearsal, distributed mission training, interoperable network operation, task certification, and the training of tasks as defined by the TSRA, when procured as part of a training system (see paragraph 3.1.1 above), or shall support the requirements defined in individual orders when procured separately. Training devices shall include, but not be limited to, the following items:

3.1.2.1 Aircrew Training Devices
Aircrew Training Devices shall include the hardware, software, firmware and support systems necessary to support weapon system crew training and mission rehearsal, as required by individual orders. Aircrew Training Devices shall include, but not be limited to, Levels A through D Flight Simulators and Levels 4 through 7 Flight Training Devices as defined in Attachment 1 to Air Force Pamphlet 36-2211(or applicable part of AFI 36-2251). As required by individual orders, Aircrew Training Devices shall also support the specific training needs of aircrew members not responsible for control of the aircraft, such as navigators, weapons officers, loadmasters, etc.

3.1.2.2 System Training Devices
System Training Devices shall include the hardware, software, firmware and support systems to support the training of non-aircrew personnel
in the operation of ground based systems, such as air traffic control systems, radar/sensor systems, C^4I systems, battle management, etc.

3.1.2.3 Mission Rehearsal Devices
Mission Rehearsal Devices shall, through the integration of simulations and real-world mission plans and intelligence data, support mission rehearsal.

3.1.2.4 Maintenance Training Devices
Maintenance Training Devices shall include the hardware, software, firmware and support systems necessary to support the training and certification of maintenance personnel, as required by individual orders. When necessary, maintenance training devices shall include flight line support equipment and prime mission equipment to support the requirements of individual orders.

3.1.3 Subsystems
Training device subsystems shall support the requirements defined in individual orders. Subsystems shall be integrated into the training device and training device support systems. For

Distributed Mission Training, subsystems shall support publishing and subscription demands of Simulation Object Models and Federation Object Models as required in individual orders.

3.1.3.1 Host Computational System
A computer system shall be provided to host the device specific simulation, maintenance and database software. Spare and growth requirements shall be specified in the specific order.

3.1.3.2 Visual Systems
Visual systems shall provide the representation of the simulated environment to the aircrew for training and mission rehearsal. Such systems shall provide image generation and display of out the window scenes for day, dusk and night as required to support the required training. When required by a specific order, the image generator shall support other functions such as collision, height above terrain, line of sight determination, etc. Display systems shall support the use of simulation of Night Vision Goggles or other such view enhancing devices as required in individual orders. Where required in individual orders, visual systems shall be integrated with helmet mounted displays, head up displays, and sensor fusion devices. Visual subsystems shall provide scenes which correlate with other image generation and display systems (radar, sensors, weapons, etc.), simulated aircraft position and attitude, and with simulated entities external to the ownship simulation, as defined in the specific order. Visual systems shall consist of, but not be limited to, displays including domes, calligraphic systems, collimated systems, cathode ray tubes, projection systems, and visors; image generation systems; and visual databases.

3.1.3.3 Motion/Force Cueing Systems
Motion and force cueing systems shall support the representation of simulated vehicle dynamics to the aircrew as defined in individual orders, or as determined by specific media analyses identified herein.

3.1.3.4 Instructional Support Systems
Instructional support systems shall support the integration of simulation devices into specific curricula or training venues. Instructional systems shall automate specific instructional functions, such as, but not limited to, setting initial conditions, student scoring, student monitoring, mission control, malfunction selection and insertion, replenishment of expendables (oxygen, fuel, chaff, flares, ammunition, etc.) and training scenario set-up as well as control of automated forces and targets and record/replay, as required by individual orders.

3.1.3.4.1 Instructor Operator Stations (IOS)
The IOS shall be the central control point for operating the training device, interacting with the student during a training scenario, and controlling the simulation and simulated events. The IOS configuration shall be defined by individual orders, and may include stations on-board or adjacent to the student stations, remote or portable stations, distributed stations, etc.

3.1.3.4.2 Training Related Subsystems
Training devices shall include training related subsystems such as instructor-to-instructor communications, instructor-to-student communications, graphical representation of the environment, flight paths, etc. in accordance with individual orders.

3.1.3.4.3 Training Management System (TMS)
Training Management Systems shall support management and tracking of student records, and scheduling of training resources.

3.1.3.5 Aircraft Simulations
Aircraft simulations shall represent the aircraft to the fidelity required in individual orders. These simulations shall include simulated malfunctions as required by the specific order. Such simulations shall include, but not be limited to, the subsystems, and simulations addressed in the following paragraphs.

3.1.3.5.1 Aircraft Subsystems
Aircraft subsystems shall be simulated to the level of fidelity defined in the specific order. Such systems shall be integrated into a higher level ownship simulation, and the specific status of such simulations shall affect the overall simulation in the same manner as in the actual weapon system. Aircraft subsystem simulations shall include, but not be limited to fuel systems, electrical generation and control systems, hydraulic systems, propulsion systems, environmental control systems and flight control systems.

3.1.3.5.2 Aerodynamics
Simulation of aircraft aerodynamics shall be based upon aircraft performance and configuration. The aerodynamics simulation shall provide the correct response to inputs provided by flight control and propulsion simulations, weather simulations, aerial refueling aerodynamic effects, etc.

3.1.3.5.3 Mission Systems
Systems which support the missions defined in individual orders, or by the nature of the represented platform, shall be simulated.

3.1.3.5.3.1 Weapons
Simulated weapons shall represent the weapons defined in the specific order. Weapon simulations shall include simulated interfaces (weapons control, sensors, weight, center of gravity, drag, electrical subsystems, etc.) to the aircraft simulation, in all modes and states (pre- and post- delivery), and shall interact with the simulated environment. Weapon configurations shall be set through the instructional support system.

3.1.3.5.3.2 Simulated Loads
Simulated loads, such as cargo or fuel, shall interact with the aircraft simulation to the degree necessary to support the requirements of the specific order. Such loads shall be configured through the instructional support system. Control of loads shall be accomplished through simulated systems as is accomplished in the actual aircraft. Once deployed, simulated loads shall interact with the simulated environment as defined in individual orders.

3.1.3.5.3.3 Command, Control, Communications, Computers and Intelligence (C^4I)
Simulated C^4I systems (such as airborne warning and control, reconnaissance, intelligence gathering) shall provide interfaces to platform simulations, as well as the simulated environment, as defined in individual orders.

3.1.3.5.4 Avionics
Weapon system electronics shall be simulated to the extent necessary to control the simulated on-board systems, and to provide the aircrew with the display of, and the ability to interact with, the simulated environment in order to meet the requirements of individual orders.

3.1.3.5.4.1 Electronic Warfare
Electronic warfare equipment shall interact with the simulated electronic emissions, both from the simulated ownship and from the electronic combat environment, when required in individual orders. Electronic countermeasures, in the form of multi-ship tactics, expendables (chaff/flares) and jamming/spoofing shall be simulated when required by the specific order.

3.1.3.5.4.2 Mission Computers/Operational Flight Programs
The training device shall support the simulation, stimulation or emulation of mission computers and the Operational Flight Programs (OFPs) to the extent necessary to support the requirements of individual orders.

3.1.3.5.4.3 Communications/Navigation
The simulation of comm/nav equipment shall support simulated navigation of the ownship through the interaction of simulated navigation equipment with simulated navigational aids (i.e. VOR/ILS beacons, TACAN transponders, GPS satellites, etc.). Simulated communications equipment shall support datalinks/messaging systems (including off-board sources) and aircrew voice communications with other aircraft, control towers, etc. in order to support the training or rehearsal requirements of individual orders.

3.1.3.5.4.4 Aircraft Monitoring and Status
Aircraft simulations shall incorporate the warnings, cautions, and failure notifications as defined in individual orders. Such simulations shall be integrated with simulated aircraft subsystems and shall reflect the status of those simulated systems.

3.1.3.5.5 Sensor Simulations
Sensor simulations shall model specific external objects in the various environment databases for presentation to the crew. Sensors shall be controlled by the crew as dictated by the aircraft design. Sensor simulations shall be degraded by environmental and tactical effects as defined in individual orders.

3.1.3.5.5.1 Radar
Simulated radar systems shall support all modes as defined in individual orders. The radar simulation shall interact with the radar database and the simulated environments to provide a realistic presentation of the simulated environment to the crew. Radar simulations shall be correlated with visual and other sensor databases as required in the specific task. The radar simulation shall encompass the specific radar equipment including antenna(s), processors, OFPs and displays, natural environment (weather conditions), radar target(s), terrain and effects, as required in individual orders.

3.1.3.5.5.2 Imaging Infrared (IIR)
Simulated imaging infrared systems shall support all modes as defined in individual orders. The IIR presentation shall be correlated with the visual scene, radar, and other sensor databases, and shall respond to operator control inputs as required in the specific task order. The simulated IIR system shall react to environmental conditions, diurnal effects, and scene content as required by individual orders.

3.1.3.5.5.3 Laser Designation and Range-finding
Simulated laser designation and range-finding systems shall support all modes as defined in individual orders.

3.1.3.5.5.4 Television Systems
Simulated television systems shall support all modes as defined in individual orders. The TV presentation shall be correlated with the visual scene and other sensors, and respond to operator control input as specified by the task order. The simulated TV system shall react to environmental conditions and scene content as required by individual orders.

3.1.3.6 Simulated Environment
The simulated environment shall include all databases and models external to the ownship simulation. Simulated environments shall interact with simulated ownship systems, and with other simulated environments, as required in individual orders.

3.1.3.6.1 Visual/Sensor Databases
Visual/Sensor databases shall depict real world terrain and features for the geographic areas and tolerances defined in individual orders. Databases shall support correlated visual, radar and sensor image generation as required in individual orders. Visual models shall represent simulated entities as required by individual orders.

3.1.3.6.2 Radio Environment Databases
The simulated radio environment shall support the simulation of navigational aids, radio broadcasts and radio transmissions, as required in individual orders.

3.1.3.6.3 Electronic Combat Environment
The electronic combat environment shall simulate all entities (friend, foe and unknown) external to the ownship simulation, as required by individual orders. This shall include, but not be limited to: simulated sound, light, and radio-frequency emissions including countermeasures, from aircraft, vehicles, missiles, artillery, etc.

3.1.3.6.4 Weather
Weather and weather conditions/effects shall be simulated as required by individual orders. Weather simulations shall realistically affect simulated handling characteristics, visual simulation, sensor effectiveness, and sound/light/radio wave propagation.

3.1.3.7 Maintenance Training Support Equipment
Support equipment used for maintenance training shall be simulated or stimulated to provide the necessary responses for the maintenance training task, as required by individual orders. Support equipment interfaces to the aircraft simulation shall replicate those of actual support equipment/aircraft interfaces as required by the task order.

3.1.3.8 Trainer Diagnostics
Training devices shall include an automated means for diagnosing equipment problems and localizing failures in accordance with the requirements of individual orders.

3.1.3.9 Trainer Activity Monitoring
Training devices shall include an automated means of recording usage time and storing/downloading such usage data as required in the specific order.

3.1.3.10 Mission Debrief Station
A Mission Debrief Station shall be provided as a stand-alone device separate from the associated Training Device. This station will allow for concurrent student debrief and student training on the relevant Training Device.

3.1.3.11 Safety Related Subsystems
Training devices shall include safety related subsystems such as fire detection, fire suppression, fluid presence monitors, safety keys, etc. in accordance with individual orders.

3.1.4 Training Systems Support
Training systems support products and services shall facilitate lifecycle support of training systems or devices as required by individual orders. Daily operation of the training system support infrastructure shall be provided in accordance with individual orders. The logistics operation shall include, but not be limited to, scheduling of maintenance activities, spares ordering, inventory tracking, customer and vendor liaison, and operation of the Training System Support Center, Database Generation System, Training Management System, multimedia studios and maintenance depots.

3.1.4.1 Contractor Logistics Support(CLS)
Contractor Logistics Support shall be provided on a full time basis or on call as required by the individual task order.

3.1.4.2 Training System Support Center (TSSC)
Training System Support Centers shall encompass all of the tools and documentation necessary to maintain trainer hardware, software and courseware for the life cycle of the specific training system or device. The TSSC shall include inventory tools and Management Information Systems necessary to maintain the Logistics Support Package (LSP), and to track/status the configuration of training system components and software.

3.1.4.2.1 Sustaining Engineering
Sustaining engineering shall provide engineering services for designing and developing of temporary and permanent system modifications, upgrades and enhancements; investigation and

correction of design and materiel deficiencies, reverse engineering; mishap investigations; studies and analyses, cost estimates; and other sustaining engineering activities as directed in the task orders.

3.1.4.2.1.1 Modifications Accomplished by TSSC
Modifications shall include design, development, fabrication and installation of modifications, upgrades, and enhancements for training systems hardware and software as specified in the task orders, including the update of all applicable drawings, specifications, and other documentation, maintaining configuration control, and providing training/documentation for the installation, operation, and use of modified systems.

3.1.4.2.1.2 Test Bed Operation, Modification, and Maintenance
Test bed operation, modification and maintenance shall provide for the operation, maintenance, and modification of test beds and other engineering tools and laboratory equipment as directed in the task orders.

3.1.4.2.1.3 Facility Engineering
Facility engineering shall support training equipment installations and classroom modifications as defined in the specific order. Modifications shall include, but not be limited to, fire protection systems, security systems, computer cabling, and interconnections, motion system platforms, room and entryway enlargements, electrical power distribution, and HVAC installation and upgrades.

3.1.4.2.1.4 Studies and Analyses
The TSSC shall support design concept and prototype development as defined in 3.3, production of Rough Order Of Magnitude (ROMs) for various system options and assisting in accident/incident investigations and as directed in the task orders.

3.1.4.2.2 Database Generation
Database Generation Systems shall support the generation, modification, maintenance, storage, and conversion of visual/sensor databases for use in aircrew training devices.

3.1.4.2.3 Configuration Management
The configuration of the training device software, firmware, hardware, and the technical data package (i.e., product baseline) shall be managed as required in the specific task order. Technical data package shall include, but not be limited to, software documentation, hardware specifications, technical publications, test procedures, engineering drawings and other related documentation.

3.1.4.2.3.1 Documentation and Baseline Maintenance
Trainer support documentation shall be upgraded or maintained to the current maintenance practices and equipment configuration. Changes shall be verified/validated per the requirements of individual orders.

3.1.4.2.3.2 Stock, Store and Issue Center
Stock, Store, and Issue Centers are usually located at the TSSC, and are used to maintain training device logistics support package technical data (technical manuals, drawings, software manuals, acceptance test procedures, and commercial item manuals), engineering reference data, and source and object software with media as required in a specific order. Weapon system technical orders shall also be maintained as required in the specific order. The contractor shall keep data updated and will reproduce and distribute this data as required in the specific order.

3.1.4.3 Operations and Maintenance Services
Maintenance services shall provide for preventative and corrective maintenance and repair of training systems, spares, and associated equipment; and provide storage, packing, shipping, and disposal as directed under the task order

3.1.4.3.1 Training System Operations
Operation of training device or assistance in training operations shall be provided as required in the specific order. These include, but are not limited to, device power-up and shut down, daily readiness checks, assisting/building missions and training scenarios, assisting students and instructors in operating devices during training, and supporting user-directed activities such as investigations, test and demonstrations, tours, etc. Facility security, cleaning, and maintenance or other operations-related services shall also be provided per requirements of the specific order.

3.1.4.3.2 Training Device Maintenance
Trainer maintenance and repair shall support the availability requirements of individual orders. Maintenance concepts may include, but are not limited to, on-site, on-call, or telephone assistance-type services. The provision of personnel, equipment, and spares to accomplish preventative and corrective maintenance actions will be provided as required in the specific order.

3.1.4.3.3 Support Equipment Maintenance
Support equipment maintenance shall be provided as required by individual orders. Such maintenance will typically fall outside the purview of overall system support requirements and most likely be one-time events.

3.1.4.3.4 Product Support
Product support for commercial components of the training system or components shall be provided as required by individual orders. Product support shall include, but not be limited to, software upgrades and subscription services, maintenance agreements, etc.

3.1.4.3.5 Training Device Relocation
Training devices shall be disassembled, packed, shipped, installed and tested in accordance with individual orders.

3.1.4.3.6 Training Device Disposal/Disposition
Training devices, spares, and associated equipment shall be prepared for disposal (i.e. removal of classified, sensitive, recyclable or precious materials, etc.) and dispositioned as directed under the task order.

3.1.4.4 Logistics Support Package (LSP)
The Logistics Support Package shall consist of the spares, support equipment and technical documentation necessary to operate and maintain the training system, subsystem, device or component through its lifecycle.

3.1.4.4.1 Spares
Spares inventories must be maintained, through repair or replacement, at the levels specified in the task orders. Spare parts necessary to maintain specific availability requirements of the training device shall be provided as determined by supportability analyses and by individual orders. Spares packages shall be maintained in accordance with individual orders. Maintenance depots shall provide central repair services for training device components and computer programs.

3.1.4.4.2 Trainer Support Equipment
Support equipment used for trainer maintenance shall be provided as determined by supportability analyses, and as required by individual orders.

3.1.4.4.3 Technical Data
Documentation necessary to support trainer operation, maintenance and upgrades shall be provided as determined by supportability analyses and by individual orders.

3.1.4.5 Instructional Services
The ISD process, as defined in individual orders, shall provide a systematic process for developing curriculum and courseware, and providing instructional programs to ensure personnel are taught the knowledge, skills, and attitudes essential for successful job performance.

3.1.4.5.1 Instruction
Course instruction shall be provided in accordance with individual orders. Instructor services shall be provided in government or contractor facilities, and shall include, but not be limited to, classroom lecture/discussion, simulator instruction and operation, flight instruction and flight line demonstrations.

3.1.4.5.2 Training Management
Training management services shall provide support, as required by individual orders, for the training infrastructure such as registrar functions, records management, resource scheduling, learning center or library staffs, etc.

3.1.4.5.3 Curriculum Development
Curricula shall be developed for the training of weapon systems operators and maintainers in accordance with individual orders. Development shall be based upon the Instructional System Development (ISD) principals

3.1.4.5.4 Courseware
Courseware shall include the materials required to support the training program defined in individual orders. Such materials shall include, but not be limited to, technical data, textual material such as Instructor Guides and Student Workbooks, Multimedia such as videotapes, CD-

ROM and Computer Based Training (CBT) programs. Course materials shall be updated to reflect revised teaching methods, changes in operational and maintenance procedures and policies.

3.1.4.5.5 Multimedia Studio
Multimedia studios shall support the recording, editing, production, reproduction and maintenance of training materials, such as CD-ROMs, video-discs, videotapes, photographs, etc.

3.1.4.5.6 Classroom Equipment
Classrooms shall, as required by individual orders, include all equipment and furnishings needed to support the training program. Classroom equipment shall include, but not be limited to: chairs, desks, chalkboards, projection systems, computers, and reference materials.

3.1.4.5.7 Training Materials
Training materials shall include all documentation and equipment required by individual orders for use in the training program.

3.1.4.5.8 Training Aids
Training aids shall be supplied with the course materials or classroom equipment as required by individual orders.

3.2 Design Concept and Prototype Development
Engineering design concepts and prototype development shall be provided as required in individual orders.

3.2.1 Front End Evaluations
Evaluations of mission requirements to determine design concepts early in the system acquisition cycle shall be provided. Such evaluations shall provide input for the decision making process relative to requirements definition, training delivery approaches and conceptual designs.

3.2.2 Technology/Product Evaluations
Evaluations of specific training technologies and products shall be performed in accordance with individual orders.

3.2.3 Technology Assessments and Forecasts
Evaluation and determination of technologies that have, or may have, an impact on the evolution of the training industry and training system applications shall be provided in accordance with individual orders.

3.2.4 Training System Requirements Analyses (TSRA)
Training System Requirements Analyses shall support the systematic determination of the necessary training and training system requirements for a specific weapon system. The TSRA shall be performed and documented in accordance with individual orders.

3.2.5 Training Effectiveness Evaluations
Training effectiveness evaluations shall provide assessments, as required by individual orders, of the degree of transfer of skills and knowledge from the training program to the weapon system.

3.2.6 Integrated Risk Assessments
Integrated risk assessments shall evaluate all of the aspects of a program or project defined in order to define the technical, cost, schedule and performance risks involved. The assessment shall provide potential risk mitigation and management plans.

3.2.7 Aircraft Data Evaluations
Evaluations of aircraft design and performance data shall be accomplished in accordance with individual orders.

3.2.8 Supportability Analyses
Analyses of the lifecycle support requirements for training systems or training devices, to include assessments for adequate support equipment, spares quantities, and technical documentation of maintenance/operational procedures, shall be accomplished in accordance with individual orders.

3.2.9 Cost and Schedule Estimates
Cost and schedule estimates for training system acquisitions, along with alternative approaches, shall be accomplished in accordance with individual orders.

3.2.11 Device/Subsystem Evaluation
The evaluation of training devices and subsystems shall be accomplished in accordance with individual orders. These evaluations may use senior Government operators as evaluators and include data collection, modification of equipment and reporting of results.

3.3 Program Management/Systems Engineering
Support of program management and engineering functions in the acquisition and development of training systems shall be accomplished in accordance with individual orders. Such tasks shall include, but not be limited to, evaluation of system designs, documentation reviews, participation in design and management reviews, cost/schedule status tracking, configuration and data management activities, etc.

3.3.1 Documentation
Trainer product baselines shall be documented for purposes of maintenance and re-procurement. Delivery requirements for documentation to the Government shall be defined in individual orders.

3.3.2 Facilities Planning and Engineering
Facility plans and drawings shall be generated/evaluated as required by the specific order. Review of facility plans and attendance of facility planning meetings, design reviews, and walk-throughs shall be accomplished as necessary.

3.3.3 Information Technology Services
Information Technology Services shall be provided as required by individual orders. The subject matter for this task shall include, but not be limited to, all issues related to training and training systems. This includes information on equipment, technology, human factors, and physiological subjects within the training and human factors area.

3.3.4 Standardization
The generation and maintenance of Government and/or Industry guidelines shall be accomplished in accordance with individual orders. Such standards may govern the development and deployment of training systems. Such guidelines shall take the form of specifications, standards, handbooks, etc. Interaction and coordination with other Government and industry agencies may be required.

3.3.5 System Integration
Integration of system components shall be accomplished in accordance with individual orders.

3.3.6 Security
See Attachment 1 to this FRD for security requirements. This attachment is the actual Annex to the TSPG Program Protection Plan, thus the title Annex J.

3.3.7 Government Furnished Property
Property, equipment, and information shall be tracked and stored in a secure location in accordance with the Government Property Clause of the contract.

3.3.8 Systems Engineering
Systems engineering programs shall be implemented to insure the integration of program requirements into the products required by individual orders. Systems engineering disciplines shall include, but not be limited to, reliability/maintainability engineering, test engineering, producibility engineering, supportability, safety engineering, hazardous materials management, etc.

3.3.9 Cost, Schedule, and Performance Control
The contractor shall maintain a financial management program that allows effective tracking of each projects' schedule and cost. The scheduling management system shall provide for all specific work compatible with contract milestones and meaningful in terms of the technical and support requirements of the contract. Scheduling should interface with other planning and control systems to the extent necessary for measurement and evaluation of contract status.

3.4 Upgrades & Modifications
Upgrades and modifications shall be defined in individual orders, and shall encompass hardware, software, courseware, documentation and support tools.

3.4.1 Concurrency Upgrades
Training systems and components shall be upgraded to reflect the evolution of weapon system designs, employment, tactics, intelligence data, and maintenance procedures.

3.4.2 Maintenance Modifications
Training systems and components shall be upgraded to enhance reliability, maintainability, and availability.

3.4.3 Technology Insertion
Training system components shall be subject to upgrades due to parts obsolescence or technological advances.

3.4.4 Training Enhancements
Training systems and components shall be upgraded in order to enhance training utility. Such enhancements may include, but not be limited to, IOS upgrades, transfer of lessons to CBT or multimedia presentations, etc.

3.4.5 Commonality
Upgrade of training system components that are common across multiple training programs shall be accomplished as required by individual orders. Such upgrades may include, but not be limited to, common lessons (such as mission planning systems, crew resource management), hardware components, avionics simulations, reusable software, databases, real-time executives, support software, etc.

3.5 Interoperability
Interoperability between dissimilar simulation devices shall be supported through the use of common databases, the application of standard interfaces, conformance with specified simulation object models and federation object models, support of subscription and publishing demands of federation entities, and the definition of common or shared attributes that sufficiently characterize the inter-operating simulations. Simulator interoperability shall be defined in individual orders.

3.5.1 Network Operations
Network operations shall include the establishment, support, and maintenance of interfaces, object models, and publishing requirements among inter-operating simulations, as required by individual orders.

3.5.2 High Level Architecture (HLA)
The application of Department of Defense (DoD) High Level Architecture to simulator interoperability shall be accomplished in accordance with individual orders. Simulations shall incorporate specified Run Time Infrastructure (RTI).

3.5.2.1 Federation Object Models (FOM)
Federation Object Models shall be defined and documented as required by individual orders. Each FOM shall fully describe the interactions of participating federates (simulations) and characterize the attributes that each simulation must make visible to the federation.

3.5.2.2 Simulation Object Models (SOM)
Simulation object models shall be documented using the Defense Modeling and Simulation Organization (DMSO) Object Model Template (OMT).

3.5.3 Modeling and Simulation
Models and simulations suited to simulator interoperability shall be developed in accordance with individual orders. Such models shall prescribe to object oriented design practices and shall be fully compatible with the DoD High Level Architecture and shall incorporate the specified Run Time Infrastructure (RTI).

3.6 Qualification and Test

Qualification and test programs shall be established to support the requirements of individual orders.

3.6.1 Test Planning

Test planning activities shall be accomplished in support of individual orders. Test planning shall include, but not be limited to, the development of System Test Plans, Test and Evaluation Master Plans, test procedures and instructions, test discrepancy tracking, organization of and participation in test planning working groups, etc.

3.6.2 Trainer Qualification and Test

Test activities shall be accomplished for the verification of training requirements, for the establishment of hardware/software baselines and to validate repairs and modifications. Such test activities shall include, but not be limited to, Functional Qualification Tests, Contractor Verification Tests, Acceptance Tests, Mission Tests, Initial Operational Test & Evaluations, and Follow-on Test & Evaluations, when required in individual orders.

3.6.3 Simulator Certification (SIMCERT)

Certification that flight simulators are capable of supporting a baselined set of training tasks shall be accomplished as required by individual orders. SIMCERT tasks shall include, but not be limited to, conduct of periodic SIMCERT procedures, generation and maintenance of SIMCERT procedures, analysis of test data, etc.

3.6.4 Simulator Validation (SIMVAL)

Validation that a training device or mission rehearsal device represents the weapon system operating environment shall be accomplished on individual orders. SIMVAL tasks shall include, but not be limited to, conduct of periodic SIMVAL procedures, generation and maintenance of SIMVAL procedures, analysis of test data, etc.

3.6.5 Audits

Establishment and documentation of functional and product baselines shall be accomplished as required by individual orders.

3.6.6 Courseware Formative Evaluations

Assessments of the ability of course materials to meet training objectives, as the materials are being developed, shall be accomplished as required by individual orders. Such assessments shall include, but not be limited to, lesson reviews, small group tryouts, and course readiness reviews.

3.6.7 Courseware Summative Evaluations

Assessments of a training program at the completion of the development phase shall be accomplished as required by individual orders.

ANNEX – J

Training Systems Acquisition (TSA) Indefinite Delivery/Indefinite Quantity (IDIQ) Omnibus Contract for the continued acquisition of USAF, DoD Customer, and FMS Training Systems

Program Protection Plan Exceptions and Modifications

NOTE: Facility Security Clearance Verification: This effort will require all companies to have a minimum of a SECRET Facility Clearance issued by the Defense Security Service (DSS) to perform on this effort. Verification of the contractors Facility Clearance must be forwarded with their proposals. If the company does not have a SECRET Facility Clearance, they must be able to obtain one after contract award.

The following information will be included in the RFP and the SOW (SOO and SAMP if applicable):

Security

Acquisition Systems Protection: The contractor shall ensure security program requirements are integrated into all program areas of this contract as required by DoD Regulation 5000.2, 15 Mar 96, Part 4, paragraph 4.4.5, Program Protection Planning, and DoD Directive 5000.1, 15 Mar 96, requiring System Security procedures and practices, and DoD Directive 5200.39, Security, Intelligence, and Counterintelligence Support to Acquisition Program Protection, 10 Sep 97. The contractor shall establish, implement and maintain these requirements IAW the provisions of DoD Manual 5200.1 the Acquisition Systems Protection Program, 16 Mar 94, and the TSPG Program Protection Plan, 15 May 99.

Information Security: The contractor shall comply with all security requirements as identified in the Department of Defense Contract Security Classification Specification (DD Form 254). These requirements will be executed in accordance with DoD 5220.22-M, National Industrial Security Program Operating Manual (NISPOM), 1 Jan 95 and DoD Directive 5200.1, the DoD Information Security Program, 17 Jun 97. The contractor shall provide for the protection of classified information up to the SECRET level as identified in the current *(insert name of program)* Security Classification Guide *(insert date)* for classified information and materials received or generated as a part of the execution of this contract.

Technology Control: The protection standards and guidance described in DoD Manual 5200.1, the Acquisition Systems Protection Manual, Chapter 5, 16 Mar 94, are required to prevent foreign intelligence collection and/or the unauthorized disclosure of information governed by the International Traffic in Arms Regulation (ITAR) and/or the Export Administration Regulation (EAR) during the acquisition process. Distribution of unclassified Critical Program Information (CPI) (see DoD Manual 5200.1 the Acquisition Systems Protection Program 16 Mar 94, Chapter 3, paragraph F, and the TSPG CPI List 15 April 98) will be made in accordance with DoD Directive 2040.2, International Transfer of Technology, Goods, Services, and Munitions, 17 Jan 84. All such documents will be properly marked in accordance with DoD Directive 5230.24, Distribution Statements on Technical Documents, 18 Mar 87. Technical documents not subject to distribution are defined in DoD Directive 5230.25, Withholding Unclassified Technical Data from Public Release, 6 Nov 84.

System Security Engineering: The contractor shall develop a System Security Engineering Program as required by DoD Instruction 5000.2, Part 6, Section J. This requirement will be implemented in accordance with DoD Manual 5200.1 The Acquisition Systems Protection Program, Chapter 6, 16 Mar 94.

Product Security (PRODSEC): The contractor will ensure PRODSEC is incorporated into the appropriate areas of this contract in accordance with the Federal Acquisition Regulation (FAR) and the Air Force Material Command (AFMC) supplement to subpart 23.90.

Operations Security (OPSEC): When required by the customer, the contractor will ensure OPSEC is incorporated into the appropriate areas of this contract in accordance with DoD Directive 5205.2, the DoD Operations Security (OPSEC) Program, 7 Jul 83.

Automated Information Systems (AIS): The contractor will ensure all required AIS is implemented in accordance with DoD Directive 5200.28, Security Requirements for Automated Information Systems, 21 Mar 88. In addition, the contractor shall ensure that Automated Information Systems included in the delivered system, whether internal, external or completely separate from the system/subsystem itself, adhere to the requirements in Air Force Policy Directive 33-2, Information Protection, Air Force Instruction (AFI) 33-202, Computer Security, 1 Feb 99 and AFSSI 5027, Network Security, 27 Feb 98. The contractor shall support the Air Force Designated Approval Authority (DAA) with the Certification and Accreditation (C&A) process for the *(insert name of program).* The required system is intended to operate at Certification Level *(insert appropriate number)* (CL-X). The contractor shall complete the C&A Phase I: Pre-Certification Tasks (1 through 7) and Task 8 of Phase II of the Air Force System Security Instruction (AFSSI) 5024, The Certification and Accreditation Process, 1 Sept 97. The C&A package shall be available for review from the Data Accession List.

For Distributed Mission Training (DMT) Programs: The *(insert name of program)* shall be capable of operating at security classification levels from UNCLASSIFIED up to and including TOP SECRET (TS). The *(insert name of program)* elements shall be designed for future accreditation for TS/SCI in the DMT environment. The *(insert name of program)* contractor shall obtain and provide the necessary cryptographic capability to connect *(insert name of program)* to DMT Networks.