PEO-STRI-13-W001
W900KK-X-XX-XXXX
04 MAR 2013

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STATEMENT OF WORK (SOW)

FOR

JOINT URBAN TEST CAPABILITY (JUTC)
LIVE URBAN AREA (LUA)
INCREMENT 1

04 MAR 2013

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W900KK-X-XX-XXXX
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Statement of Work (SOW)
For
Joint Urban Test Capability (JUTC)
Live Urban Area (LUA)
Increment 1

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1. SCOPE.

This Statement of Work (SOW) defines the effort required for designing, developing, integrating, testing, managing, documenting, delivering, and installing the Joint Urban Test Capability (JUTC) Live Urban Area (LUA). The JUTC LUA will be located at White Sands Missile Range, New Mexico.

1.1 Background.

The U.S. Army Program Executive Office Simulation, Training and Instrumentation (PEO STRI) has a requirement for a realistic, reconfigurable, instrumented urban test environment that can replicate aggregate urban effects to support developmental and operational testing. Currently, the Department of Defense (DOD) does not possess this capability. Existing DOD urban facilities are available for small-unit training, but are not adequate for Test and Evaluation (T&E) in a joint environment across Decisive Action (formerly Full Spectrum Operations). These existing facilities add realism to training exercises, providing urban-like maneuver constraints, but are inadequate for T&E. They lack test instrumentation and the holistic effects of clutter, electromagnetic masking, electro-optic noise, day-to-day non-combatant activities, and infrastructure of realistic urban environments. Furthermore, these urban facilities do not satisfy the need for testing performance capabilities, networks, intelligence systems, sensors, and other advanced technologies interacting with the real urban environment.

2. APPLICABLE DOCUMENTS.

The following documents of issue shown in this section form a part of this SOW to the extent specified herein. In the event of a conflict between documents referenced herein (Section 2.) and the contents of this SOW (Section 3.), the contents of the SOW shall be the governing requirement.

2.1 DOD Standards.

MIL-STD-130N	Identification Marking of U.S. Military Property
MIL-STD-31000	Technical Data Packages
MIL-STD-46855A	Human Engineering Requirements for Military Systems, Equipment, and Facilities

2.2 Availability of DOD Standards.

Copies are available on the WWW at URL: http://quicksearch.dla.mil/.

2.3 DOD Directives (DODDs).

DODD 8570.01	Information Assurance Training, Certification, and Workforce Management

2.4 Availability of DODDs.

Copies are available on the WWW at URL: http://www.dtic.mil/whs/directives/corres/dir.html.

2.5 Other Government Documents, Drawings, and Publications.

AR 25-1	Army Knowledge Management and Information Technology

Copies are available on the WWW at URL:
http://www.apd.army.mil/AdminPubs/BrowseRegulations.asp.

PRF-PT-00591	System Performance Specification (SPS) for Joint Urban Test Capability (JUTC), Live Urban Area, Increment 1
SOP 70-1D	Acquisition Program Management and Documentation

2.6 Availability of Other Government Documents and Publications.

Copies of the above documents are available at PEO STRI, ATTN: PM ITTS IMO, 12350 Research Parkway, Orlando, FL 32826-3276.

3. REQUIREMENTS.

3.1 Program Management.

The Contractor shall provide the overall management and administrative effort necessary to ensure that the requirements of this contract are accomplished. The Contractor shall plan, implement, and maintain a Life Cycle Cost (LCC) management process to minimize the system cost and use LCC to conduct trade-studies, evaluate design and support alternatives, and select the resource support requirements. The Contractor shall define and monitor metrics to evaluate the performance of each critical technical and management process, and conformance of the evolving products with contract requirements and objectives, including cost requirements and objectives.

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3.1.1 Integrated Master Plan (IMP).

The Contractor shall implement, manage, update, and maintain the contract IMP. The Contractor shall develop the system in accordance with the IMP. The IMP shall be used throughout the contract as a management tool to assess progress and determine success in achieving project requirements. The Contractor shall report on work in progress in accordance with the IMP at each program review, at selected technical reviews, and at Government discretion. The IMP shall depict the Contract Work Breakdown Structure (CWBS). The Contractor will develop the CWBS in coordination with the Government.

(DI-MGMT-81861) Integrated Program Management Report (IPMR)

3.1.2 Integrated Master Schedule (IMS).

The Contractor shall develop, implement, manage, update, and maintain the contract IMS. All contract schedule information delivered or presented at program reviews shall originate from the IMS, shall be traceable to the IMP, and shall contain all critical events and exit criteria, accomplishments, predecessors and successors events, and their dependencies. The IMS shall address total program activities, including activities performed by major subcontractors. The Contractor shall develop the logic resource loaded network that accurately portrays the sequence and relationship of activities defining the total development and production program. These network activities shall be keyed to the CWBS. The network shall be implemented on a computer-based program management control system that utilizes critical path method network analysis, accepts parametric data input, and can be utilized to determine a probabilistic estimate of the program schedules and cost for reporting project progress. The network activities time and cost data shall be updated to reflect accomplished activities and any changes in activity time and cost estimates. The Contractor shall conduct critical path analysis of the tasks and identify problem areas and corrective actions required to eliminate or reduce schedule impacts.

(DI-MGMT-81650) Integrated Master Schedule (IMS)
(DI-MGMT-81334D)Contract Work Breakdown Structure

3.1.3 Financial Management.

The Contractor shall plan, budget, schedule, and control the resources allocated to meet the requirements of the contract. The Contractor shall document and track the status of all appropriated funds associated with the contract to include payments, cancellations and invoices against each contract line item and sub-line item. The Contractor shall extend the Government-provided JUTC Work Breakdown Structure to lower levels in the Contractor's CWBS. It defines the lower-level components of what will be procured and includes all the product elements (e.g., hardware, software, data, or services), which are defined by the Contractor and are the Contractor's responsibility.

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The extended CWBS shall serve as the framework for contract planning, budgeting, and reporting of cost and schedule status. The Contractor shall identify major elements of subcontracted work in the extended CWBS. The Contractor may propose changes to the CWBS to enhance its effectiveness in satisfying program objectives. The Contractor shall continually update an integrated database during contract performance with pertinent records and data that underlie and support the cost and schedule data reported.

(DI-MGMT-81651) Contract Invoicing and Payment Report

3.1.4 Configuration Management (CM).

The Contractor shall use an automated internal CM process to monitor, update, and control all configuration documentation, physical media, and physical parts representing or comprising the system configuration items. The Contractor shall plan and implement an automated CM function to perform configuration control, configuration identification, audits, and status accounting in a systems engineering environment. The Contractor shall develop, maintain, and update CM procedures and processes for control of all hardware and software baselines. The process shall allow simultaneous access to the common product data model coupled with the ability to coordinate and update immediate changes to the Product Definition Data (PDD). The CM process must handle all levels of product and process integration to build and support the product and manage the sequence of significant events. The Government will maintain control of the Functional Baseline (FBL) defined by the System Performance Specification and Interface Control Documents.

3.1.4.1 CM Planning and Management.

The Contractor shall establish processes and tools to initiate and maintain consistency between system requirements, system configuration information, and all relevant information about the system. The CM process shall include changes made to the Information Assurance (IA) configuration and associated documentation. The Contractor shall:

a. Plan implementation of the CM functions for the context and environment in which they are to be performed and managed;
b. Determine the specific CM value-adding functions and levels of emphasis;
c. Document how your organization will implement CM functions to provide the consistency between the system's attributes, system definition information, and the system's configuration information throughout the development, test, and fielding of the project;
d. Identify resources required to implement the CM functions and ensure they are applied throughout the systems life cycle; and
e. Flow down responsibility for CM performance to subcontractors, as required.

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(DI-CMAN-80858B) Contractor's Configuration Management Plan

3.1.4.2 Configuration Identification.

The Contractor shall identify unique identifiers for selected system attributes, system information, and components to use as the basis for CM. The Contractor shall:

a. Define the functional, performance, interface and physical attributes of the system and components;
b. Determine the systems composition using its product definition information;
c. Assign unique identifiers to configuration items so that they can be distinguished from other items, one configuration of the system can be distinguished from another, the source of a component can be determined, and the correct system definition information can be retrieved;
d. Assign unique unit identifiers to individual components of the system;
e. Update component identifiers when a system is modified reflecting the new configuration without altering the system identifier and model identifier;
f. Uniquely identify information so that it can be correctly associated with the applicable configuration of the system;
g. Apply information identification rules to maintain representation and version relationships;
h. Maintain relationships between information, information requirements, and the related system configuration to ensure accurate information retrieval;
i. Establish complete, valid, and suitable agreed-to descriptions of the attributes of the system and components at a point in time, and provide a known configuration to which changes can be addressed; and
j. Identify interfaces and establish mutually agreed-to control of common attributes for system or component boundaries that interface to the system or within the system.

3.1.4.3 Configuration Change Management.

The Contractor shall establish a systematic and measurable configuration change management process for managing product configuration changes and variances. Once the system requirements are approved by an authorized management activity, the Contractor shall provide changes to the baseline requirements only after the proposed change is approved using the change process. The Contractor shall:

a. Document and uniquely identify each change;
b. Classify requested changes to aid in determining the levels of review and approval;
c. Clearly and completely document request for change;
d. Consider the technical, support, schedule, and cost impacts of a requested change;

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e. Determine potential effects of a change and coordinate impacts with the impacted areas of responsibility;
f. Determine the effectivity for each change and identify which units of the system are to be changed, the point of production break-in, and which units will be included in a retrofit;
g. Verify implementation of a change to ensure consistency between the system, its documentation, and its support elements; and
h. Document variances when authorized by the appropriate level of authority.

3.1.4.4 Configuration Status Accounting.

The Contractor shall provide access to accurate, timely information about the system and its documentation through an integrated database. The Contractor shall correlate, store, maintain, and provide readily available views and information of system configuration information, including pending, current, and historical data. The Contractor shall:

a. Systematically record, safeguard, validate, and disseminate system information;
b. Establish methods, processes, and procedures to provide controlled access to system information; and
c. Capture configuration information as it evolves.

3.1.4.5 Configuration Verification and Audit.

The Contractor shall verify and audit the system configuration information Functional Configuration Audit (FCA) to ensure that requirement attributes are met and accurately documented. The Contractor shall:

a. Verify the system attributes through a systematic comparison with the associated results of system tests, analyses, inspections, demonstrations or simulation models; and
b. Maintain surveillance over the CM process to ensure it is being followed and remains compliant with requirements.

3.1.4.5.1 Government Sample Audit to verify Product Baseline.

After completion of acceptance testing and any required design modifications, but prior to formal acceptance, the final product baseline shall be verified by the Government Physical Configuration Audit. This verification shall be accomplished by reviewing a representative number of drawings, associated technical manuals, logistics management information, and manufacturing instructions. The review shall determine their accuracy in accordance with the final product configuration design.

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3.1.4.6 System Engineering Interface.

The process shall allow simultaneous access to the common product data model coupled with the ability to coordinate and update immediate changes to the PDD. The CM system must handle all levels of product and process integration to build and support the product and manage the sequence of significant events. The information architecture must permit capture of change information and notify effected team members.

3.1.4.7 Engineering Change Proposals (ECPs) and Contract Change Proposals.

The Contractor shall document and the Integrated Product Team (IPT) shall review all changes to established baselines and all changes to the requirements (other than the FBL), including changes to the SOW, Contract Data Requirements List, the contract schedule, and the general provisions of the contract.

(DI-CMAN-80639C) Engineering Change Proposal (ECP)

3.1.4.8 Engineering and Contract Change Proposal Review.

In coordination with the Government, the Contractor shall hold a requirements review on all proposed changes prior to the submittal of the engineering or contract change proposal in order to clarify requirements, format, and content. Depending on the criticality of the proposed changes, this review may take the form of a teleconference, a video-teleconference, a formal meeting at PEO STRI, or a formal meeting at the Contractor's facility. All appropriate parties shall be in attendance in order to conduct a thorough, effective review. Minutes shall be documented as a historical record to avoid any miscommunication.

(DI-ADMN-81505) Report, Record of Meeting/Minutes

3.1.4.9 Deviations and Waivers.

The Contractor shall document the rationale and the potential impact of any deviation or waiver. The Contractor shall obtain approval before deviating from any Government-controlled baseline.

(DI-CMAN-80640C) Request for Deviation (RFD)
(DI-SESS-81732) Request for Waiver (RFW)

3.1.5 Risk Management.

The Contractor shall prepare, implement, and maintain a risk management process that includes identification, analysis, mitigation planning, mitigation plan implementation, tracking, and resolution. The Contractor shall develop and implement risk management, which will use security safeguards to include IA. These safeguards shall include, but are not limited to, local policy and guidance, identification of threats, problems and requirements, and adequate planning

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for required resources. The Contractor's risk management process shall measure future uncertainties in achieving program goals within defined cost, schedule, and performance constraints.

(DI-MISC-80711A) Scientific and Technical Reports

3.1.6 Management Reviews.

3.1.6.1 Start of Work Meeting.

A start of work meeting shall be held within fifteen days after contract award. The start of work meeting shall be limited to the Contractor's key team members identified in the proposal, with emphasis on top-level management of the program. The main purpose of the meeting is to reach agreement on the metrics that will be used as management indicators during the program and the partnering approach to implementation.

3.1.6.2 Post Award Conference.

A post award conference shall be held at the Contractor's facility at a mutually agreed-to date after the start of work meeting. The conference shall introduce the key IPT participants, identify points of contact, and discuss both parties' understanding of the scope of work and other contract issues.

3.1.6.3 Program Management Reviews.

The Contractor shall conduct formal program management reviews on an average of one every four months in accordance with the IMP. The location of the reviews shall be mutually agreed upon. The program management review shall provide a program overview and a detailed discussion of pre-selected topics. Status and information at the review shall reflect currency since the previous review.

3.1.6.4 DOD IA Certification and Accreditation Process (DIACAP) Implementation Plan (DIP) Review.

The Contractor shall assist PEO STRI or its designee with the DIP Review.

3.1.6.5 Technical Interchange Meetings (TIMs).

The Contractor shall conduct and participate in TIMs, which will be held at both Contractor and Government facilities. The specific locations, dates, and duration of the meetings shall be as specified in the IMS. The meetings shall be co-chaired by a Government and Contractor representative. The Contractor shall be prepared to explain the reasoning, assumption, and methodologies in arriving at particular conclusions, recommendations, or alternatives in the accomplishment of the tasks required by the contract. The Contractor shall prepare drawings and

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other data, as required, to aid in the presentations. The Contractor shall have all the required personnel and resources present. The Contractor shall make available facilities for Government-only meetings. These Government meeting facilities shall include direct internet access for Government personnel laptops. The Contractor shall ensure cell phone access throughout the Contractor's facility. The Contractor shall prepare the meeting agendas and document the meeting results. Except where noted herein, meetings shall be considered fulfilled when all of the following items are completed:

a. A formal review meeting is conducted;
b. All action items requiring Contractor response are documented and posted; and
c. TIM minutes are submitted.

(DI-ADMN-81505) Report, Record of Meeting/Minutes

3.1.7 Visitor Support.

The Contractor shall host very important person visits and arrange for and provide demonstrations of system performance, program progress, and other system characteristics when notified by the procurement contracting officer.

3.2 Systems Engineering.

The Contractor shall implement a systems engineering process that will transform all system requirements into a set of lower-level performance requirements that define the system. The process shall accomplish planning, identifying and allocating functional requirements, identifying participation in trade-studies, providing input to documentation, and include design reviews. The systems engineering effort shall integrate all elements of a multi-functional engineering effort to meet system requirements. The Contractor shall ensure the timely integration of engineering specialties, such as reliability, maintainability, security engineering, logistics engineering, human factors engineering, safety, value engineering, standardization, and transportability into design and development. The Contractor shall develop and complete all planned IMS tasks for each milestone. As part of the systems engineering effort, the Contractor shall update and maintain the Systems Engineering Management Plan (SEMP) as a living document. The Contractor shall use the SEMP to identify and assure control of the overall technical management process. The Contractor shall coordinate the contents of the Government Systems Engineering Plan (SEP) with the Contractor's SEMP.

(DI-SESS-81785) Systems Engineering Management Plan (SEMP)

3.2.1 System Design.

The Contractor shall use PRF-PT-00591 as the basis for development of all lower-level specifications. The Contractor shall perform trade-off studies and then finalize the system

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design. The design concept shall incorporate an open systems approach, which shall be based on an engineering and business strategy to choose specifications and standards adopted by industry standards bodies or de facto standards set by the market place for selected system interfaces, products, practices, and tools. Selected designs and specifications shall be based on performance, cost, IA, industry acceptance, long term availability and supportability, and upgrade potential.

3.2.1.1 System Definition Stage.

The Contractor shall establish the definition of the system with a focus on system products required to satisfy PRF-PT-00591. The Contractor shall complete the system, subsystems, interface requirements, and verification definition. The Contractor shall establish a system baseline and complete technical reviews. The documentation generated during system definition shall be used to guide subsystem development. A systems definition review shall be completed at the completion of the system definition stage for the purpose of determining whether the system definition is sufficiently mature to progress to subsystem definition. The system definition shall be reviewed to ensure that:

a. The design is sufficiently mature to meet PRF-PT-00591;
b. System-level risks are adequately addressed to justify continued development;
c. Trade-study data is adequate to substantiate that system requirements are achievable; Interface requirements between human and products or subsystems are identified, including performance, workloads, design constraints, and usability;
d. Required IA products are addressed; and
e. Decisions made in arriving at the system definition configuration are well supported by analysis, test, and other technical data.

(DI-IPSC-81430A) Operational Concept Description (OCD)
(DI-IPSC-81431A) System/Subsystem Specification (SSS)
(DI-IPSC-81434A) Interface Requirements Specification (IRS)

3.2.1.2 Preliminary Design Stage.

The Contractor shall initiate subsystem design and create subsystem-level definition and design-to baselines to guide component development. The Contractor shall ensure that the design considerations include systems functional requirements, systems non-functional requirements (e.g., performance, design goals, and Modular Open Systems Approach), and Human System Interfaces. The Contractor shall ensure that functional design considerations integrate IA functional requirements and that these requirements are included throughout the development process. The Contractor shall decompose identified subsystem functions into lower-level functions and allocate functional and performance requirements to component-level functional and physical architectures. Each preliminary subsystem requirements, verification definition,

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and preliminary design-to baseline shall be evolved into a subsystem requirements, verification definition, and design-to baseline. Preliminary component requirements, verification definition, and build-to baselines shall be defined for the components and the subsystem being developed. The final subsystem definition shall include identification of recommended components and interfaces; resolution of subsystem-level risks; assessment of component risks; and design for quality factors, to include producibility, verifiability, usability, IA, supportability, trainability, and disposability for each subsystem. Subsystem reviews shall be completed for each subsystem at the completion of its preliminary design stage. The results of the evaluation shall be documented. The purpose of each review is to assure that:

a. The subsystem definition is sufficiently mature to meet PRF-PT-00591;
b. Component allocations and preliminary component specifications are reasonable and provide a sound subsystem concept;
c. Subsystem risks are assessed and mitigated to a level appropriate to continue development;
d. Trade-study data is adequate to substantiate that subsystem requirements are achievable;
e. Human system interfaces are identified and described in the subsystem design and are traceable to design requirements;
f. Decisions made in arriving at the subsystem configuration definition are well supported by analyses and technical data; and
g. Security engineering processes are integrated into the design-to achieve an integrated secure solution.

3.2.1.3 Detailed Design Stage.

The Contractor shall complete subsystem design down to the lowest component-level, and create a component requirements verification definition and build-to product baseline for each component. The final component definition shall include identification of recommended parts and interfaces; resolution of component-level risks; and that for each component, down to the lowest sub-component, the design for quality factors will include producibility, verifiability, usability, IA, supportability, trainability, and disposability. Component reviews shall be completed for each component at the completion of the detailed design stage. The Contractor shall integrate security engineering processes into the design-to achieve an integrated secure solution. The results of the evaluation shall be documented. The purpose of this review shall be to ensure that:

a. Component specifications are reasonable and provide a sound component concept;
b. Component and related life cycle process risks are assessed and mitigated to a level appropriate to support the fabrication, assembly, integration, and test phases;
c. Trade-study data is adequate to substantiate that detailed component requirements are achievable;

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d. Human system interfaces are identified and described in the detailed design and are traceable to design requirements;
e. The detailed software design is described in terms of the satisfaction of functional and non-functional systems requirements;
f. Decisions made in arriving at the detailed component definition configuration are well supported by analyses and technical data; and
g. Security engineering processes are integrated into the design-to achieve an integrated secure solution.

3.2.1.4 Fabrication, Assembly, Integration, and Test Stage.

The Contractor shall resolve product deficiencies when specifications for the system, product, subsystem, assembly, or component are not met, as determined by inspection, analysis, demonstration, or test. The Contractor shall verify that the products designed satisfy specifications. The Contractor shall integrate security engineering processes into the design-to achieve an integrated secure solution. FCAs shall be completed to verify that products have achieved requirements; that they satisfy the characteristics specified in specifications, interface specifications, and other baseline documentation; and that test plans and procedures were complied with. The results of the audit shall be documented.

3.2.2 Hardware Engineering.

The Contractor shall integrate and assemble the system hardware that satisfies the performance and requirements stated in the developed specifications. The Contractor shall conduct market surveillance and market investigations in order to maximize the use of commercial and Non-Developmental Items (NDI). The Contractor shall apply the systems engineering process during each level of system development (e.g., system, subsystem, and component) to add value to the products defined in the prior application of the process. Through each of the following design stages, information generated shall be documented in an integrated database.

3.2.3 Software Engineering.

The Contractor shall develop the system software and firmware in accordance with recognized industry standards and internal documented process. The design shall incorporate features that promote ease of operation, IA, ease of software maintenance, ease of future updates and modifications, and also any smart designs that can justify a reduction in the amount of documentation. Computer programs and computer data systems shall be fully integrated in accordance with the system specification. The Contractor shall conduct market surveillance and market investigations in order to maximize the procurement of commercial and non-developmental software. The Contractor shall employ well-defined security policy models; structured, disciplined, and rigorous hardware and software development techniques; and sound system/security engineering principles.

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3.2.3.1 Software Design and Implementation.

The Contractor shall design software, develop executable code, perform unit testing, and integrate software components, with each other and with hardware components, to meet system requirements. Software design includes not only design-to requirements, but selection of existing software products, including open source software, to meet system requirements, and iterating the requirements to allow use of existing products when indicated by cost as an independent variable or schedule as an independent variable trades. Products that perform IA functions are considered IA or IA-enabled Information Technology (IT) products and shall be selected from the DOD Unified Capabilities Approved Product List and configured in accordance with DOD-approved security configuration guidelines. These include databases that must comply with the Defense Information Systems Agency database Security Technical Implementation Guide (STIG).

(DI-IPSC-81428A) Software Installation Plan (SIP)
(Details the plan for installing software at user sites, including preparations, user training, and conversion from existing systems.)

(DI-IPSC-81441A) Software Product Specification (SPS)
(Contains or references the executable software, source files, and software support information, including "as built" design information and compilation, build, and modification procedures for a Software Configuration Item (SCI).)

(DI-IPSC-81442A) Software Version Description (SVD)
(Identifies and describes a software version consisting of one or more SCIs and shall be used to release, track, and control software versions.)

(DI-IPSC-81443A) Software User Manual (SUM)
(Describes to a hands-on software user how to install and use an SCI, a group of related SCIs, or a software system or subsystem. It may also cover a particular aspect of software operation, such as instructions for a particular position or task.)

3.2.4 IA.

The Contractor shall meet all IA requirements. The Contractor shall obtain STIGs http://iase.disa.mil/stigs/index.html and implement each STIG into the design; as applicable. As part of the system design and component selection process, IA shall be considered as a requirement for all systems used to enter, process, store, display, or transmit information. IA shall be achieved through the acquisition and appropriate implementation of evaluated or validated Government Off-The-Shelf or Commercial-Off-The-Shelf (COTS) IA and IA-enabled IT products. All COTS IA products and IA-enabled products shall be certified compliant with National Security Telecommunications and Information Systems Security Policy Number 11 by labs accredited under the National Information Assurance Partnership (NIAP) Common Criteria

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Evaluation and Validation Scheme or National Institute of Standards and Technology Federal Information Processing Standards Cryptographic Module Validation Program.

3.2.4.1 IA Artifacts.

The Contractor shall comply with the IA process in accordance with DOD 8510.01 (DIACAP). The Contractor shall assist PEO STRI or its designee in the documentation of the following DIACAP artifacts, as required:

a. DIACAP Implementation Plan (DIP);
b. Information Security Plan (ISP);
c. System Implementation Plan (SIP);
d. Plan of Action and Milestones (POA&M);
e. Configuration Management Plan (CMP);
f. Memorandum of Understanding or Memorandum of Agreement (MOU/MOA);
g. Tenant Security Plan (TSP);
h. Continuity of Operation Plan (COOP);and
i. Artifacts associated with the implementation of IA controls.

The Contractor shall cooperate in the production of all components of the DIACAP package necessary to deliver and operate a fully accredited system. The Contractor shall ensure that the security requirements and procedures are met in accordance with all required DOD and Army regulation per the Mission Assurance Category and Confidentiality levels agreed upon for the system.

(DI-MISC-80711A) Scientific and Technical Reports

3.2.4.2 Certificate of Networthiness (CoN).

The Contractor shall ensure compliance with the policies and procedures for obtaining a CoN in accordance with the AR 25-1, paragraph 6-2n and PEO STRI Standard Operating Procedure (SOP) 70-1D for any system or software application that touches the Army Network directly or indirectly or has the capability to connect.

An application CoN shall be obtained for all software programs that perform a specific function directly for a user and can be executed without access to system control, monitoring, or administrative privileges. A system CoN shall be obtained for any systems having an operating system that collects, stores, transmits, displays, or processes unclassified or classified information.

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3.2.5 Specialty Engineering.

3.2.5.1 Security Engineering.

The Contractor shall ensure that system security engineering processes are integrated, aligned to, and adequately documented in the SEMP, and are executed with sufficient rigor to ensure required IA Controls are implemented, which culminates in the lowest level of residual risk to system operation.

3.2.5.2 Reliability Engineering.

The Contractor shall develop, implement, and manage a system reliability process that satisfies all reliability objectives and can be completely integrated within the systems engineering process. The reliability process shall support economical achievement of overall project objectives and ensure sustained product integrity, personal safety, and logistics support information is derived from early reliability engineering analyses such that reliability engineering can be applied to influence the design effort. The process shall:

a. Improve operational readiness and mission success of the system;
b. Reduce system demand for maintenance manpower and logistics support;
c. Provide essential management information; and
d. Hold down the reliability program's own impact on overall project cost and schedule.

Specific reliability design and verification criteria shall be established. Quantitative reliability requirements for the system, all major subsystems, and equipment shall be included in Section 3 of the system and item specifications. All reliability data and information used for logistics support analysis and engineering activities shall be based upon, and traceable to, the outputs of the reliability process. Reliability status shall be included as part of each project review. The Contractor shall conduct trade-off studies to ensure quantitative issues, such as stress-levels, selection of parts, parts simplicity, and redundancy, are properly considered in the design trade-off. The Contractor shall verify that reliability requirements are attained through analyses and test.

3.2.5.3 Maintainability Engineering.

The Contractor shall develop, implement, and maintain a system maintainability process that satisfies all maintainability and related objectives and can be completely integrated within the systems engineering process. The maintainability process shall form the basis of concurrent and subsequent life cycle planning. The maintainability effort shall measure complexity, accessibility, and testability to enhance servicing, preventive maintenance, corrective maintenance, and diagnostic capabilities. Specific design and verification criteria shall be established through performance specifications of qualitative and quantitative factors to be

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expressed as measures of maintainability achievement for system, segment, subsystem, and equipment-levels.

3.2.5.4 Testability Engineering.

The Contractor shall develop, implement, and maintain a system testability process satisfying all testability requirements that is traceable throughout the design process, is integrated with other systems engineering requirements, and is disseminated to design personnel and subcontractors. The Contractor shall establish controls for ensuring that each subcontractor's testability practices are consistent with overall system requirements. The Contractor shall define the means for demonstrating and validating that the diagnostic capability meets specified requirements using maintainability demonstrations, test program verification, and other demonstration methods. The Contractor shall ensure that as T&E of the system progresses, problems presented by new failure modes, test voids, ambiguities; and test tolerance difficulties are recognized and defined, solutions are traceable to diagnostic hardware and software, and technical publication procedures are updated. The Contractor shall define an approach for the analysis of acceptance T&E results to determine how built-in-test hardware and software, automatic test equipment hardware and software, and maintenance documentation performed as a means for satisfying production testing and meeting testability requirements. The Contractor shall establish a testability program that accomplishes the following:

a. Establishment of sufficient, achievable, and affordable diagnostic concept and state-of-the-art testability built-in and off-line test performance requirements;
b. Integration of testability into equipment and systems during the design process in coordination with the maintainability design process;
c. Evaluation of the extent to which the design meets testability requirements; and
d. Inclusion of testability in the project review process.

3.2.5.5 Safety Engineering.

The Contractor shall develop and implement tasks and activities to identify, evaluate, and eliminate or control hazards throughout the system's life cycle. The Contractor shall ensure the safety of the system's design, operation, transportation, maintenance, support, and disposal. The Contractor shall conduct safety analyses, hazard identification and classification, and the hazard's tracking integral to the system design effort. A hazard risk index, including hazard severity and hazard probability-levels, shall be developed for all hazards.

3.2.5.5.1 Safety Assessment.

The Contractor shall conduct safety analyses and identify and classify hazards as an integral part of the system design effort. The Contractor shall develop a hazard risk index, including hazard severity and hazard probability-levels, for all hazards. The Contractor shall document information about each hazard in an integrated database. The Contractor shall ensure that safety

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of the design is achieved and that all system specific safety requirements are met. This shall include verifying any changes due to redesign. Once complete, the Contractor shall verify the safe design of the system and determine the safety risk assumed prior to test or operation.

(DI-SAFT-80102B) Safety Assessment Report (SAR)

3.2.5.5.2 Hazards Tracking and Risk Resolution.

The Contractor shall implement a method to track hazards to ensure that all hazards are assessed, that proper project managers and IPT personnel are notified, and that each hazard is tracked until final resolution. Safety features and controls incorporated into the design-to eliminate hazards or reduce their associated risks to levels acceptable to the Government shall include an evaluation of the system during performance and the safety impacts due to inadvertent functioning or functional failure. Subsystems that the system will interface with shall be evaluated to ensure hazards and risks are avoided. The Contractor shall obtain IPT approval of the final hazard resolution.

(DI-SAFT-80101B) System Safety Hazard Analysis Report (SSHA)

3.2.5.5.3 System Safety Working Group (SSWG).

The Contractor shall establish and support a SSWG as a special IPT. This IPT shall ensure procured hardware and software is acceptably free from hazards that could injure personnel or cause unnecessary damage or loss.

3.2.5.5.4 Health Hazard Assessment.

The Contractor shall identify potential health hazards and recommend engineering controls, equipment, and protective procedures to reduce the associated risk to an acceptable level. The Contractor shall assess system, facility, and personnel protective equipment design requirements to allow safe operation and maintenance. When feasible engineering designs are not available to reduce hazards to acceptable levels, the Contractor shall develop alternative protective measures. The Contractor shall address the hazardous materials listed in the Environmental Protection Agency's toxics release inventory (available at http://www.epa.gov/tri/trichemicals/index.htm) and the list of Class I and Class II stratospheric ozone depleting substances, as listed 29 CFR 1910.1200.

(DI-SAFT-80106B) Health Hazard Assessment Report (HHAR)

3.2.5.6 Quality Engineering.

The Contractor shall establish measurement points that will provide maximum visibility into new and prior processes to assure contractual requirements are being met. The Contractor shall select

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the proper methods to analyze these processes to continuously improve the system. Metrics shall be developed to assist management visibility into an adequate process control system. The Contractor shall establish and maintain a computerized discrepancy tracking system with the ability to produce complete permanent records of all discrepancy or database listings. The Contractor shall establish a suspense system to ensure timeliness of analysis and corrective action for discrepancies and risk reduction items.

3.2.5.6.1 Test Discrepancies.

The Contractor shall document all test discrepancies for Contractor-conducted tests and track the failure analysis and corrective action for each test discrepancy until correction and regression test are successfully completed. The Contractor shall establish a suspense system to ensure timeliness of analysis and corrective action of each test discrepancy. The Contractor shall establish a process to receive test discrepancies from any IPT member and accomplish data entry. Upon correction of the test discrepancies, the Contractor shall test the system to ensure the correction of the test discrepancies did not interfere with or alter the functionality of the system. Upon closeout of a discrepancy, the Contractor's process shall notify the Government-designated test director that an integrated database is updated.

(DI-SESS-81315B) Failure Analysis and Corrective Action Report (FACAR)
(DI-MISC-81622) Test Problem Report (TPR)

3.2.5.6.2 Discrepancy Processing.

The Contractor shall document a detailed description defining the changes made to the equipment, hardware, and software to correct each discrepancy. Each discrepancy correction that modifies or changes any baseline shall be documented and entered in the CM system. Discrepancies shall be re-verified to meet PRF-PT-00591.

3.2.5.6.3 Test Discrepancy Priorities.

The Contractor shall assign level of effort to test discrepancies based on the priority codes assigned by the test team, in accordance with the ground rules established by the IPT. The following priorities in Table 3.2.5.6.3-1 shall be assigned with the Government reserving the right to make the final determination of the priority of any test discrepancy:

Table 3.2.5.6.3-1 Test Discrepancy Priorities

Priority	Description	Schedule Impact
1	Safety item or system failure	Testing halted
2	Subsystem failure	Some testing impossible
3	Training impact that may affect testing	Fix prior to next assessment milestone
4	Training impact that has no testing	Fix prior to DD Form 250

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	impact	
5	IA Vulnerabilities Category ((CAT) I & II) CAT III vulnerabilities must have mitigations approved by the Designated Approval Authority	Fix prior to becoming operational and Prior to DD Form 250
6	Minor training impact	Fix TBD

3.2.5.7 Human Factors Engineering.

The Contractor shall plan and implement a human factors engineering program to ensure the satisfaction of system objectives and the personnel safety of the operator and maintainer. The Contractor shall perform analyses of the system, as outlined by the various tasks and activities in Section 5 of MIL-STD-46855A. The Contractor shall ensure management control of the human engineering effort and specifically ensure that:

a. System requirements are achieved by consideration of the capabilities and limitations of the human component;
b. Through proper design of equipment, software and associated user interfaces, and environment, the personnel-equipment-software combination meets system performance goals;
c. Design features will not constitute an undue hazard to personnel;
d. Trade-off points between automated versus manual operation are chosen for peak system effectiveness within appropriate cost limits;
e. The application of human engineering principles to system design is technically adequate;
f. The equipment is designed to facilitate required maintenance;
g. Procedures for operating and maintaining equipment are efficient, reliable, and safe;
h. Potential error-inducing equipment design features are minimized; and
i. The layout of the facility and the arrangement of equipment afford efficient communication and use.

The Contractor shall schedule and conduct a Human Factors Engineering Analysis Review. The Contractor shall identify and minimize project risk associated with critical human factors that have a significant impact on readiness, LCC, schedule, performance, or safety. The Contractor shall ensure manpower, personnel, training, and logistics support information is derived from early human engineering analyses such that human factors engineering can be applied to influence the design effort. The Contractor shall verify through T&E that trained personnel can safely and effectively operate, maintain, and control the system in its intended operational environment.

(DI-HFAC-80745B) Human Engineering System Analysis Report

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3.2.5.8 Contaminate and Corrosion Control.

The Contractor shall incorporate the latest state-of-the-art corrosion control technology, as determined by logistics support analyses, into the system design process, into the manufacturing process, in all levels of maintenance, in supply, and in the storage processes. The objective is to minimize corrosion by using design and manufacturing practices that address selection of materials; coatings and surface treatments; production processes; process specifications; system geometry; material limitations; environmental extremes; storage and ready conditions; preservation and packaging requirements; and repairs, overhaul, and spare parts requirements. Design concepts shall reflect realistic environments and resource availability, as determined by logistics support analyses.

3.2.5.9 Standardization.

The Contractor shall influence the system design-to achieve maximum subsystem, component, and repair parts commonality. The Contractor shall minimize equipment and parts proliferation through a standardization effort. The standardization effort shall include coordination with PEO STRI Life Cycle Contractor Support (LCCS) contractors to maximize use of parts already in the inventory, or to determine that the existing logistics support resources will benefit from the items chosen for the system.

3.2.5.10 Manpower and Personnel Integration (MANPRINT).

The Contractor shall conduct a program integrating the activities of the seven domains of MANPRINT to influence design decisions beginning at project conception and continuing through the development and fielding phases. The Contractor shall track domain issues as an integral part of scheduled project reviews. The Contractor shall arrange for MANPRINT assessments to be conducted prior to milestone decision reviews to ensure requirements are properly applied and impacts of any issues identified. The seven MANPRINT domains are 1) Manpower, 2) Personnel, 3) Training, 4) Human Factors, 5) System Safety, 6) Health Hazards, and 7) Survivability. The project shall be coordinated with the training, test, and supportability engineering activities to achieve an integrated effort without duplication. The Contractor shall conduct MANPRINT reviews as an integral part of scheduled project and design reviews.

3.2.5.11 Human System Integration (HSI).

The Contractor shall establish a plan for HSI for any program that requires personnel, as operators, maintainers or supporters, to ensure a total system approach that accommodates the cognitive, physical, and sensory skills of the specified user population.

Systems utilizing personnel will implement a human centered design process outlined in a HSI Plan (HSIP). The HSIP will describe how HSI will be applied to system development consistent with project specifications, requirements, and user characteristics. The HSIP will describe the relative project elements and how the HSI effort will be managed, tested, and verified.

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3.2.6 Design Reviews.

The Contractor shall conduct reviews, to include design reviews (e.g., system, subsystem, component, life cycle processes, test readiness, and production approval) and audits (e.g., functional and physical configuration), for the purpose of assessing technical progress. The Contractor shall document the results of the review and any resulting action items. Normally, a design review shall be conducted at the completion of each application of the systems engineering phase. Each review shall accomplish the following:

a. Assess the system requirements and allocations to ensure that requirements are unambiguous, consistent, complete, feasible, verifiable, and traceable to top-level system requirements;
b. Assess the design maturity based on technical development goals, IMS events and accomplishments, and empirical analyses and test data supporting progress to date;
c. Present the risks associated with a continued development effort;
d. Assess the life cycle processes and infrastructure necessary for product sustainment throughout the system life cycle;
e. Identify resources required for continued development; and
f. Determine whether to proceed with the next application of the systems engineering process, to discontinue development, or to take corrective actions before proceeding with the development effort.

Component, subsystem, and system design reviews shall be conducted for each level of development. Depending on the complexity of the system, lower-level reviews may be needed. Trade-off analysis and verification results should be available during design reviews in order to substantiate design decisions. Reviews may result in the need to iterate through the systems engineering process to resolve identified deficiencies before progressing further into the development activity. Component, subsystem, and system functional configuration and design configuration audits shall be performed to ensure that supporting documentation was satisfactorily completed, that qualification tests for each specification requirement was completed, and all products comply with final drawings.

At design reviews, the Contractor shall present the systems security design, initial security risk assessment, security test approach, security training approach, and any other relevant security information.

(DI-SESS-81757A) Design Review Information Package (DRIP)

3.2.6.1 Systems Requirements Review (SRR).

The SRR is a multi-disciplined product and process assessment that ensures the system under review can proceed into the Preliminary Design Phase. It further ensures all requirements

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derived from PRF-PT-00591 are defined/testable and consistent with cost, schedule, risk, technology readiness, and other system constraints. This review assesses the system performance requirements, as captured in the System Performance Specification, and ensures that the system performance requirements are consistent with the system solution and available technologies. Of critical importance to this review is the understanding of project technical risk inherent in the System Performance Specification. Acceptable level of risk is key to a successful review. See Appendix A for Entry and Exit Criteria, and SRR Products.

3.2.7 PDD.

During the systems engineering and design, and in accordance with MIL-STD-31000, the Contractor shall develop, produce, and maintain PDD that accurately depicts the final product. The PDD is the technical description of items adequate for supporting an acquisition strategy, production, engineering, IA, and logistics support. The PDD shall disclose complete design, IA, logistics, manufacturing requirements, and the means of measuring compliance with the requirements. Piece part information (e.g., drawings, computer-aided design files, and meta data) and associated lists shall provide necessary design, engineering, IA, manufacturing, and quality assurance requirements information to enable the procurement or manufacture of an interchangeable item. Piece part information shall duplicate the physical, IA, and performance characteristics of the original product without additional design engineering effort or recourse to the original design activity. The Contractor shall produce and maintain documentation for all electrical assemblies and subassemblies in such a manner that ensures their functional integration without recourse to special test equipment or installation of the assemblies or subassemblies into a higher assembly. Utilizing the established logistics repair procedures, the Contractor shall identify the higher-level components and assemblies to be repetitively procured as spare components and assemblies or may be procured independently. For each higher-level component or assembly, the Contractor shall determine and document the functional requirements for the item, the environment in which it must operate, interface and interchangeability characteristics, and criteria for verifying logistics support criteria. The Contractor shall conduct engineering analyses to establish quantitative and qualitative supportability design guidelines. The Contractor shall conduct trade-off studies, evaluate design and support alternatives, and establish system supportability preliminary design configurations consistent with system readiness and availability and LCC goals. As required, the Contractor shall coordinate with existing LCCS using associate contractor agreements, develop initial fielding plans for the system and verify that the maintenance actions and support structure are aligned with the maintenance concept.

(DI-EGDS-80918) Technical Data Package Index
(DI-SESS-81003D) Commercial Drawings/Models and Associated Lists
(DI-SESS-81000D) Product Drawings/Models and Associated Lists
(DI-IPSC-81431A) System/Subsystem Specification (SSS)
(DI-SDMP-81493A) Program-Unique Specification Documents

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3.3 Logistics.

The Contractor shall conduct engineering analyses to establish quantitative and qualitative supportability design guidelines. The Contractor shall conduct trade-studies, evaluate design and support alternatives, and establish system supportability preliminary design configurations consistent with system readiness and availability and LCC goals. As required, the Contractor shall coordinate with existing LCCS using associate contractor agreements, develop initial fielding plans for the system and verify that the maintenance actions and support structure are aligned with the maintenance concept.

3.3.1 Logistics Support Analysis.

The Contractor shall identify support resources and infrastructure necessary for T&E activities. The Contractor shall analyze existing LCCS support structures and develop and define an optimized support infrastructure for production and deployment. The recommended support resources shall be sufficient to allow another contractor with comparable skills to assume operation, maintenance, and support of the system and sustain the system availability requirement. The Contractor shall only use the form, fit, function, and interface requirements in the performance specifications for provisioning, training, and maintenance planning.

1.1.1 Supportability Analysis and Logistics Management Information.

The Contractor shall conduct repair-level analyses; develop diagnostic, preventative maintenance and repair procedures; conduct facilities analyses; refine hardware and software maintenance and support concepts; and identify support resource requirements, including required spares and support equipment. The Contractor shall develop a listing of which items should be repaired and which should be discarded and the level of maintenance at which the repair should be performed with the associated cost. The Contractor shall document the following in a database:

a. All input data and their corresponding value and source of the data;
b. Operational scenarios modeled, assumptions made, constraints assumed, and non-economic factors imposed;
c. Maintenance alternatives considered;
d. Analytical method and models used to perform the economic evaluations; and
e. Discussion of the sensitivity evaluation performed and results obtained.

(DI-SESS-81758) Logistics Product Data
(DI-SESS-81759) Logistics Product Data Summaries

3.3.2 Technical Publications.

The Contractor shall describe each operations and maintenance task in detail and in logical, systematic steps for the work to be accomplished. The operations and maintenance instructions shall accurately provide the technician with all the information needed to keep the equipment

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operational. It shall provide system and subsystem-oriented instructions for installation, operations, maintenance, and testing. All tools, test equipment, and consumable items required to accomplish any maintenance or installation shall be identified just prior to and as part of the task. All publications shall reflect the configuration of fielded hardware, as documented in the product baseline. The Contractor shall prepare Operator's Manuals that provide instructions suitable for use by the intended audience of the system. The Operator's Manual shall also include operator maintenance tasks such as preventive maintenance checks and services, inspection, lubrication, adjustment, and operator-level repair and replacement tasks, as needed. The Contractor shall identify and document maintenance tasks for both levels of the maintenance concept. The Contractor shall identify all required spare parts, consumables, tools, and test/support equipment associated with each task and identify the level of maintenance at which each task shall be performed.

(MIL-STD-40051-2B) Preparation of Digital Technical Information for Page-Based Technical Manuals (TMs)
((See Annex to Exhibit C) Requirement matrix for Page-Based Operator and Maintenance Manuals)
DI-TMSS-80527C Commercial Off-The-Shelf (COTS) Manuals and Associated Supplemental Data

3.3.3 Item Unique Identification (IUID).

The Contractor shall coordinate among the IPT members to determine items requiring unique identification, including embedded subassemblies, components and parts, and identify the IUID to be used for each item. The Contractor shall provide unique item identification, or a DOD recognized unique identification equivalent for all identified items delivered. IUID marking design for each item shall be both machine-readable and human-readable in accordance with MIL-STD-130N, paragraph 5.2.

(DI-MGMT-81803) Item Unique Identification (IUID) Marking Plan
(DI-MGMT-81804) Item Unique Identification (IUID) Marking Activity and Verification Report

3.3.4 Test Measurement and Diagnostic Equipment.

The Contractor shall develop alternative test procedures utilizing commercially available test equipment if special inspection equipment is developed and used for production.

3.3.4.1 LUA Operations and Maintenance Training.

The Contractor shall plan, develop, conduct, and document the completion of the initial operator and maintainer course for the initial cadre of operations and maintenance personnel prior to Government acceptance. The course shall provide comprehensive training for operators and

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maintainers in the concepts, skills, and aptitude to efficiently operate the system. The course shall consist of instructions in troubleshooting and maintenance, diagnostics to fault isolation, calibration, adjustments, remove and replace procedures, use of built-in-test, and repair that is beyond operator-level maintenance. After completion of the course, all personnel shall be capable of operating, maintaining, and troubleshooting the LUA.

3.3.4.1.1 New Equipment Training and Support.

The Contractor shall define, develop, and conduct training for users/operators to understand the functional and operational capabilities. The Contractor shall provide training and training system documents required to support setup, installation, configuration, and operation of system software and hardware, system tools, techniques, methodologies, and for sustaining. The Contractor shall develop a complete and exportable training support package that integrates training products, materials, and other pertinent information necessary to train the system. The Contractor shall design and develop this training support package using instructional systems design processes. For commercial and NDI courses, existing materials shall be utilized.

(DI-ILSS-80872) Training Materials
(DI-SESS-81523B) Training Conduct Support Document

3.3.4.1.2 Language.

The Contractor shall provide all instruction, training materials and system documentation in the English language.

3.3.4.1.3 Class Size.

For each student to receive the greatest benefit from the training, the maximum class size shall be sixteen trainees.

3.3.4.1.4 Location of Training.

The Contractor shall conduct the training courses on location at the Government site where the system is to be installed or at another mutually agreed-to location.

3.3.4.1.5 Training Facility and Equipment.

The Contractor shall provide all required classroom equipment and training equipment for courses conducted at the Government's facility. Training shall include classroom and practical exercise and shall total no more than eight hours per day.

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3.4 Integrated Testing.

The Contractor shall plan, coordinate, establish and implement a comprehensive T&E program to include all configurations of the system. The Contractor shall integrate any IA testing, to include a Vulnerability/Susceptibility Assessment, if applicable, into routine test objectives and test plans flowing from the T&E Master Plan. System T&E (ST&E) refers to the T&E activities that use the development and production hardware together with the software to validate that the system meets the operational and technical performance requirements, as stated in the system specifications. ST&E includes all efforts associated with the design and production of models, specimens, fixtures, and instrumentation in support of the T&E program. The system test shall include a process to prepare the executable software, including any batch files, data files, or other software files needed to install and operate the software on a newly formatted (blank media) target computer. The Contractor shall develop step-by-step testing operations to be performed on items undergoing developmental testing. The Contractor shall identify items to be tested, the test equipment and support required, the test conditions to be imposed, the parameters to be measured, and the pass and fail criteria against which the test results will be measured. The test planning and test procedures shall be structured to integrate all developmental, operational, and modeling and simulation activities to concentrate generating data needed to ensure a systems capability decision to meet the objectives identified in the system specification is made with a minimum amount of uncertainty. The concept of continuous evaluation and simulation shall be used to integrate and reduce overall testing requirements. Statistical process control shall be used to help reduce the need for in-process inspections and end-product testing.

(DI-NDTI-80566A) Test Plan
(DI-NDTI-80603A) Test Procedure

3.4.1 Test Readiness Review (TRR).

Readiness to convene a TRR is predicated on the project/IPT's determination that preliminary testing, functional testing, and pre-qualification testing results form a satisfactory basis for proceeding with a TRR and initiation of formal system-level testing. The TRR shall assess test objectives, test methods and procedures, scope of tests, and determine if required test resources are properly identified and coordinated to support planned tests. The TRR shall also verify the traceability of planned tests to project requirements. The Contractor shall address the following key issues at the systems engineering TRR prior to the start of formal testing (e.g., developmental test, IA compliance test, operational test, logistics demonstration, product qualification test, or site acceptance) to ensure the system and all test resources are ready to begin testing:

a. Test procedures comply with plans and descriptions, are adequate to accomplish test requirements, and satisfy requirements for verification;
b. Pre-test predictions and informal tests indicate testing will confirm performance;

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c. New or modified test equipment and facilities and procedure manuals required to accomplish planned T&E are available and satisfy the test requirements; and
d. Data acquisition and reduction provisions are in place.

The following documentation shall be reviewed during the TRR:

a. Evidence that the test management system, as required under the contract, is ready to accept the qualification tests and their results;
b. Evidence that the requirements in the development specification are traced to qualification tests or tests on which the qualification tests rely;
c. A list of outstanding problem reports, both external and internal cross-referenced to the contracted deliverable end items or development hardware and software products;
d. Test requirements;
e. Requirements changes pending;
f. Design changes since the last design review;
g. Test constraints based on previous testing or test hardware limitations;
h. Test configuration (e.g., test article and instrumentation and support equipment);
i. Detailed test procedures;
j. Plans for collection, reduction, and analysis of the test data;
k. Calibration plan and status; and
l. Problem areas and their resolution.

3.4.2 Developmental Test.

The Contractor shall conduct an engineering development test to provide data on performance, safety, achievement of critical technical parameters, refinement and ruggedization of hardware configurations, and determination of technical risk. The test shall provide data to verify that the design solution meets the system technical requirements and the system is prepared for successful operational T&E. The Contractor shall ensure that systems and test equipment are operational and properly calibrated and tuned prior to start of test. The Contractor shall analyze the results of each test and shall record the test and analysis results.

(DI-NDTI-80809B) Test/Inspection Report

3.4.3 IA Compliance.

The Contractor shall test, verify, and document that the security architecture of the system is in compliance with the security requirements, as identified in the system specification. The Contractor shall use DOD-approved assessment tools to assess the system prior to the Government's performance of the Certification Test and Evaluation (CT&E) or the ST&E. The pre-assessment shall be completed no less than thirty days prior to the Government-conducted CT&E/ST&E.

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3.4.4 Operational Test Support.

The Contractor shall support operational test and ensure that any unique facilities, equipment, and instrumentation required will be available at the test sites and that sufficient test articles, including support items, are available. Technical support shall include troubleshooting, repair, and replacement of failed systems and subsystems, line replaceable units or components, and preventive maintenance. The Contractor shall analyze all failures that occur during all operational tests.

3.4.5 Logistics Demonstration.

Before the system's hardware and software are operationally tested, the Contractor shall demonstrate that the supportability aspects of the system are complete. The demonstration shall be conducted in a realistic operational scenario using expected facilities, tools, personnel, and other support infrastructure. The demonstration shall include non-destructive disassembly and re-assembly of the equipment. The demonstration shall be designed to evaluate the achievement of maintainability goals, which are the adequacy and sustainability of tools, test equipment, selected test project sets, built-in-test equipment, associated support items of equipment, technical publications, maintenance instructions, troubleshooting procedures, and personnel skill requirements. The demonstration shall be designed to provide data to evaluate the selection and allocation of spares and repair parts, tools, test equipment, and tasks to appropriate maintenance-levels.

3.4.6 Technical Feasibility Test.

The Contractor shall conduct a Technical Feasibility Test, as defined in PRF-PT-00591, to ensure the specified performance requirements can be met. Testing shall be conducted using portions of the acceptance test procedures. The Contractor shall document the result of the test.

(DI-NDTI-80603A) Test Procedure
(DI-NDTI-80809B) Test/Inspection Report

3.4.7 Site Acceptance Test.

The Contractor shall verify that installed configuration items operate to the specified performance requirements. Testing shall be conducted using portions of the acceptance test procedures. The Contractor shall document the result of the test.

(DI-NDTI-80603A) Test Procedure
(DI-NDTI-80809B) Test/Inspection Report

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3.5 Site Activation.

The Contractor shall provide planning, analyses, and trade-off studies in order to meet facility requirements, to include civil, architectural, structural, mechanical, and electrical facility subsystems. The Contractor shall participate in site surveys, site preparation, trainer facility design reviews, and device installation. Prior to finalizing the product baseline, the Contractor shall coordinate with the installation site and discuss the proposed equipment layout, weight distribution data, and power distribution. If the IPT decides that changes are required, the Contractor shall include required changes in the final product baseline documentation.

3.5.1 Site Survey.

The Contractor shall conduct a survey at the installation site at least three months prior to the commencement of the system installation. The purpose of the survey is to discuss and confirm arrangements for the installation and to provide information on any modifications required at the installation site. During the survey, the Contractor shall:

a. Review the status of the location where the system will be installed;
b. Confirm the required positions of equipment, assemblies, cableways, access ways, and any other unique feature, and measure to ensure clearance during the installation;
c. Review and confirm the existing and proposed location of power distribution boxes, switches, and other unique location features;
d. Determine the availability of required services; and
e. Review and confirm arrangements for hours of work, access to work areas, supporting workshop facilities, and on-site personnel participation.

3.5.2 Installation Program.

Prior to the arrival of the system at each site, the Contractor shall perform all preparatory installation work, including advising and assisting on-site personnel in any modifications they may be performing.

3.5.3 Installation Tools and Test Equipment.

The Contractor's installation team shall be equipped with all the standard tools required for the system installation. Any standard tools required and provided will be returned upon completion of the installation program. All special tools and test equipment shall remain at each site.

3.5.4 Installation Spares.

The Contractor's installation team shall be equipped with an installation spares package of common items. The Contractor shall replace all site spares used during the installation. The installation spares packages will be returned upon completion of the installation program.

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3.6 System Technical Support.

The Contractor shall provide support for undefined mission support requirements that include training, logistics functions, hardware engineering functions, support services, spare parts, travel overtime, maintenance, supply, replacement of non-fair wear and tear parts, contractor activity and facility relocations, transportation of equipment, development, productions, and modifications kits, as authorized by individual contract work directives. The Contractor shall document the description of each task, the man-hours spent, cost of materials and services, and the results of each service(s).

(DI-MGMT-80227) Contractor's Progress, Status and Management Report

3.7 Government Furnished Property (GFP).

The Contractor shall be responsible for the accountability, maintenance, custody, control, and storage of all GFP, including Government Furnished Equipment (GFE) and Information.

(DI-MGMT-80269) Status of Government Furnished Equipment (GFE) Report

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APPENDIX A – Design Review Entry and Exit Criteria and Data Products.

A.1 SRR Entry Criteria

a. A preliminary agenda is coordinated nominally fifteen days prior to the SRR;
b. SRR technical products listed below for both hardware and software system elements are made available to the cognizant SRR participants prior to the review:
   (1) System Performance Specification;
   (2) Updated risk assessment;
   (3) Coordinate Government SEP and Contractor SEMP;
   (4) Updated cost and schedule data;
   (5) Updated logistics documentation; and
   (6) Updated HSI related documentation.

A.2 SRR Completion/Exit Criteria

a. The SRR is considered complete when all draft Request for Actions are signed off, and an acceptable level of project risk is ascertained;
b. Exit Criteria shall address:
   (1) Can the system requirements, as disclosed, satisfy PRF-PT-00591?
   (2) Are the system requirements sufficiently detailed and understood to enable system functional definition and functional decomposition?
   (3) Can the requirements be met given the technology maturation achieved?
   (4) Is there an approved System Performance Specification?
   (5) Are adequate processes and metrics in place for the project to succeed?
   (6) Have HSI and sustainment requirements been reviewed and included in the overall system design?
   (7) Are the risks known and manageable for development?
   (8) Is the project schedule executable (technical/cost risks)?
   (9) Is the project properly staffed?
   (10) Is the project executable within the existing budget?
   (11) Are all system elements sufficiently matured to enable low risk entry into Preliminary Design Phase?
   (12) Are the critical sustainment technologies sufficiently matured to implement the support strategy and achieve the needed materiel availability?
   (13) Have hazards been reviewed and mitigating courses of action been allocated within the overall system design?
   (14) Have the IA requirements been documented?

A.3 SRR Products

a. Completion of the SRR should provide the following:

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(1) An approved System Performance Specification with sufficiently conservative requirements to provide for design trade space for the Preliminary Design Phase;
(2) A preliminary allocation of system requirements to hardware, human, and software subsystems;
(3) A preliminary identification of all software components (tactical, support, deliverable, non-deliverable, etc.);
(4) A comprehensive risk assessment for preliminary design;
(5) An approved Preliminary Design Phase SEMP that addresses cost and critical path drivers; and
(6) An approved Life Cycle Management Plan defining the product support plan and sustainment concepts with the corresponding metrics.

b. Email each attendee the following documents:
(1) List of attendees, to include name, functional area represented, phone number, and email address;
(2) Completed RFA forms;
(3) Meeting minutes; and
(4) Recommendation to project management as to the technical readiness of the program to enter the next phase of development.

c. Updated risk assessment, including risks and mitigation options.

(DI-ADMN-81505) Report, Record of Meeting/Minutes

A.4 TRR Entry Criteria

a. Configuration of system under test is defined and agreed-to. All interfaces are placed under CM or are defined in accordance with an agreed-to plan;
b. All applicable functional, unit-level, subsystem, system, and qualification testing was conducted successfully;
c. All TRR-specific materials, such as Government-approved test plans, cases, and procedures, are made available to all participants prior to conducting the review;
d. All known system discrepancies are identified and resolved in accordance with an agreed-to plan;
e. All previous design review exit criteria and key issues are satisfied in accordance with an agreed-to plan;
f. All required test resources (e.g., people, facilities, test articles, test instrumentation) are identified and are available to support required tests;
g. Roles and responsibilities of all test participants are defined and agreed upon; and
h. Interim Authority to Test approved.

A.5 TRR Exit Criteria

a. Adequate test plans are completed and approved for the system under test;

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b. Adequate identification and coordination of required test resources is complete;
c. Previous component, subsystem, and system test results, if any, form a satisfactory basis for proceeding into planned tests;
d. Risk-level is identified and accepted by project management leadership, as required.

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APPENDIX B – Acronyms and Abbreviations

ACRONYM	DEFINITION
ADMN	Administrative Data (in reference to DI-ADMN)
AR	Army Regulation
ATTN	Attention
CAT	Category
CM	Configuration Management
CMAN	Configuration Management (in reference to DI-CMAN)
CMP	Configuration Management Plan
CoN	Certificate of Networthiness
COOP	Continuity of Operation Plan
COTS	Commercial-Off-The-Shelf
CT&E	Certification Test and Evaluation
CWBS	Contract Work Breakdown Structure
DD	Department of Defense (forms)
DIACAP	DOD Information Assurance Certification and Accreditation Process
DIP	DIACAP Implementation Plan
DOD	Department of Defense
DODD	Department of Defense Directive
DRIP	Design Review Information Package
ECP	Engineering Change Proposals
EGDS	Engineering Data Systems (in reference to DI-EGDS)
FACAR	Failure Analysis and Corrective Action Report
FBL	Functional Baseline
FCA	Functional Configuration Audit
GFE	Government Furnished Equipment
GFP	Government Furnished Property
HFAC	Human Factors (in reference to DI-HFAC)
HHAR	Health Hazard Assessment Report
HSI	Human System Interfaces
HSIP	Human System Integration Plan
IA	Information Assurance
ILSS	Integrated Logistics Support Standards (in reference to DI-ILSS)
IMO	Instrumentation Management Office
IMP	Integrated Master Plan
IMS	Integrated Master Schedule
IPMR	Integrated Program Management Report
IPSC	Information Processing Standards for Computers (in reference to IPSC)
IPT	Integrated Product Team

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IRS	Interface Requirements Specification
ISP	Information Security Plan
IT	Information Technology
IUID	Item Unique Identification
JUTC	Joint Urban Test Capability
LCC	Life Cycle Cost
LCCS	Life Cycle Contractor Support
LUA	Live Urban Area
MANPRINT	Manpower and Personnel Integration
MGMT	Management (in reference to DI-MGMT)
MIL-STD	Military Standard
MISC	Miscellaneous (in reference to DI-MISC)
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NDI	Non-Developmental Item
NDTI	Nondestructive Testing and Inspection (in reference to DI-NDTI)
OCD	Operational Concept Description
PDD	Product Definition Data
PEO STRI	Program Executive Office for Simulation, Training and Instrumentation
PM ITTS	Project Manager for Instrumentation, Targets and Threat Simulators
POA&M	Plan of Action and Milestones
PRF	Performance Specification (in reference to (PRF-PT))
QCIC	Quality Control/Assurance and Inspection (in reference to DI-QCIC)
RFD	Request for Deviation
RFW	Request for Waiver
SAFT	Safety (in reference to DI-SAFT)
SAR	Safety Assessment Report
SCI	Software Configuration Item
SDMP	Standardization and Data Management Programs (in reference to DI-SDMP)
SEMP	Systems Engineering Management Plan
SEP	Systems Engineering Plan
SESS	Systems Engineering Standards and Specifications (in reference to DI-SESS)
SIP	Software Installation Plan
SOW	Statement of Work
SPS	Software Product Specification
SRR	Systems Requirements Review
SSHA	System Safety Hazard Analysis Report
SSS	System/Subsystem Specification
SSWG	System Safety Working Group
ST&E	System Test and Evaluation

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STIG	Security Technical Implementation Guide
SUM	Software User Manual
SVD	Software Version Description
T&E	Test and Evaluation
TBD	To Be Determined
TIM	Technical Interchange Meeting
TM	Technical Manual
TMSS	Technical Manual Specifications and Standards (in reference to DI-TMSS)
TPR	Test Problem Report
TRR	Test Readiness Review
TSP	Tenant Security Plan
U.S.	United States
URL	Internet Shortcut (file name extension)
WWW	World Wide Web

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