STATEMENT OF WORK

COTS Hardware

**Warning:**

The Statement of Work (SOW) paragraphs, Contract Data Requirements List (CDRL) items, and Data Item Descriptions (DIDs) identified for your type of acquisition are recommendations only. You are expected to modify or add SOW paragraphs, CDRLs, or DIDs to address the specific requirements of your program.

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# 1 Background

## 1.1 Overview

[*Insert overview of the procurement*]

## 1.2 Associate Contractors

The Contractor should be aware of and coordinate with the on-going FAA contracts/activities listed below. The contractor may have to interface with these of the contractors since they will be performing related efforts at the time of award of this contract.

**Contractor/Organization** **Type of Supplies or Services Being Provided**

Corporation ABC Service/supplies provided

Corporation XYZ Service/supplies provided

Wiget Company Service/supplies provided

Etc.

## 1.3 Acronyms and Abbreviations

AMS Acquisition Management System

ASCII American National Standard Code for Information Interchange

ARTCC Air Route Traffic Control Center

ATC Air Traffic Control

ATCSCC Air Traffic Control System Command Center

ATCT Airport Traffic Control Tower

ATM Air Traffic Management

CDRL Contract Data Requirements List

COTS Commercial Off-The-Shelf

CPU Central Processing Unit

CWBS Contract Work Breakdown Structure

DACA Days after Contract Award

EMI Electromagnetic Interference

ETMS Enhanced Traffic Management System

FAA Federal Aviation Administration

FAT Factory Acceptance Test

ICMLS Interim Contractor Maintenance and Logistics Support

IPT Integrated Product Team

ISP Integrated Support Plan

ISR In-Service Review

LAN Local Area Network

LRU Line Replaceable Unit

NAILS NAS Integrated Logistics Support

NAS National Airspace System

NIMS NAS Infrastructure Management System

NISC NAS Implementation Services Contract

R&D Research and Development

RMA Reliability, Maintainability, and Availability

SIIP Site Installation and Integration Plan

SOW Statement of Work

TRACON Terminal Radar Approach Control

WAN Wide Area Network

WJHTC William J. Hughes Technical Center

# 2 Applicable Documents

The following specifications, handbooks, orders, standards, and drawings form a part of this SOW and are applicable to the extent specified herein. The latest version of these documents as of the contract date must apply. Copies of the referenced documents may be obtained as follows:

* Copies of FAA specifications and interface documents may be obtained from the Federal Aviation Administration, Headquarters Public Inquiry Center APA-230, 800 Independence Avenue SW, Washington, DC 20591, 202-267-3484. Requests should fully identify material desired and cite the solicitation or contract number.
* Requests for copies of documents not covered in the preceding paragraph should be addressed to the Contracting officer. Requests should fully identify material desired and cite the solicitation or contract number.
* Military Standards and Specifications can be ordered from the Department of Defense Single Stock Point (DODSSP), Building 4/Section D, 700 Robbins Avenue, Philadelphia, PA 19111-5098. Information is available at their website: <http://www.dodssp.daps.mil>.
* Copies of ANSI/ASQC-Q-9001-1994 and ISO 9000-3 can be obtained from the following source: American Society for Quality Control 611 East Wisconsin Avenue P.O. Box 3005; Milwaukee, Wisconsin 53201-3005. Phones: (414) 272-8575 or (800) 248-1946. The Fax is: (414) 272-1734.
* Copies of the Acquisition Management System Test and Evaluation Process Guidelines are available in the FAA Acquisition System Toolset (FAST). The on-line internet address of FAST is: <http://fast.faa.gov>.

## 2.1 FAA Documents

**Document Subject**

FAA D 2404B Technical Instruction Book Manuscript: Electronic,

 Electrical, and Equipment, Requirements For

 Preparation of Manuscript and Production of Books

FAA ORDER 1600.54B FAA Automated Information Systems Security Handbook

FAA ORDER 6000.15B General Maintenance Handbook for Airway Facilities (8/96)

FAA-STD-020B Transition Protection, Grounding, Bonding, And

 Shielding (5/11/92)

FAA-STD-025D Preparation of Interface Documents (10/95)

FAA-STD-028B Contract Training Programs (5/1/93)

FAA-HDBK-004 National Airspace System Internet Protocol Suite (1997)

FAA Guidance FAA Green Procurement Plan (10/11)

## 2.2 Other Documents

**Document Subject**

ASTM-D-3951-95 Standard Practice for Commercial Packaging

NFPA-70 National Electric Code (NEC)

EO13423 Executive Order 13423: Strengthening Federal Environmental, Energy, and Transportation Management (1/07)

EO13514 Executive Order 13514: Federal Leadership in Environmental, Energy, and Economic Performance (10/09)

# 3 Requirements

## 3.1 Program Management

### 3.1.1 Program Administration

The Contractor must implement and document a Management Program. The contractor must submit a Management Plan (MP), documenting its management program, for Government approval. The Contractor must revise this plan as necessary. The Contractor must implement this plan upon approval. The MP must identify the Contractor's management, organization, authority, responsibility, controls, and the extent to which these apply to the [*insert system name*]. The MP must detail the Contractor's methodology to ensure that the program management requirements set forth in this SOW are met. At a minimum, the Contractor must perform the following tasks in managing the [*insert system name*] Contract:

* Produce the schedules of work that reflect and track the delivery of products as specified by this SOW
* Use methods and metrics for assessing the schedule, technical performance of the work, and risks of this program
* Use procedures for relating risks and costs to schedule and technical performance to assess the impact of risks and costs on successful completion of the [*insert system name*] work efforts
* Designate a Program Manager (PM) who is responsible for integrating and maintaining the total Contractor effort as described in this SOW. The PM must be prepared at all times, given reasonable notice, to present and discuss with the FAA the status of contract activities

An integral factor in the success of the [*insert system name*] Contract is the Contractor's plans for interaction with the Government and their support contractors. The MP must include the Contractor's plan for ensuring that all interaction is managed and conducted to provide maximum benefit toward successful completion of the [*insert system name*] Contract. The Contractor must also conduct ongoing risk management activities during the period of the contract. The risk management activities must be an integral part of the Contractor's management process, as described in the MP.

 CDRL A001 Management Plan

### 3.1.2 Contract Work Breakdown Structure

The contractor must prepare the Contract Work Breakdown Structure (CWBS) based on the preliminary Work Breakdown Structure (WBS), Attachment [*insert attachment number*], using MIL-HDBK-881 for guidance. The contractor must maintain and update the CWBS to a minimum level 3 unless otherwise specified in the preliminary WBS, Attachment [*insert attachment number*]. The CWBS should be developed by the contractor (a) to reflect the manner in which the work will be accomplished on the contract and, (b) to facilitate management, data collection, and reporting.

 CDRL A002 Contract Work Breakdown Structure

### 3.1.3 Project Schedule

The Contractor must develop and maintain a project schedule of events planned for accomplishing the work effort identified in the SOW, the approved CWBS, and this contract (to include subcontractor milestones). The Contractor must monitor and report project performance using an automated scheduling tool. The schedule must provide time phasing for all activities described in this statement of work (SOW), relationships between the various activities, and milestone review points. A revised project schedule must be delivered quarterly thereafter, or as required based on the volume of changes.

 CDRL A003 Project Schedule

### 3.1.4 Financial Reporting

The Contractor and sub-contractor(s) must establish and maintain a financial control system that plans and controls cost and schedule. The system must also assess and report project cost and schedule status to the FAA.

The Contractor must prepare and submit cost performance reports on a monthly basis with each invoice that provide:

* Summary information by CLIN, task order, sub-total, and total
* Supporting detailed information that identifies quantities, CLIN, task order, unit prices, which separately identify the monthly lease price and the monthly maintenance price for each piece of equipment, and total amounts
* A financial status report that identifies by task order and CLIN, funding or hours remaining, as of the reporting date

 CDRL A004 Financial Technical Report

### 3.1.5 Project Status Monitoring

The Contractor must continuously monitor price, schedule, and technical performance on this contract. The Contractor must provide a timely assessment of project progress at monthly project reviews. The monthly project reviews will be held at [*insert location*], unless otherwise directed by the FAA. The key contractor and sub-contractor personnel must attend the monthly project reviews.

The project reviews must:

* Include a review of the technical, schedule, and cost aspects of contractor's performance, and program accomplishments (e.g., milestones met), problems, forecasts, and subcontractor activities
* Provide a summary of procurement activity, including what is on order, pending, and projected lead times and/or arrival times
* Address project status as related to projected and actual milestones and accomplishments
* Present price summaries (total price for period and total price to date) by CLIN for all invoices submitted since the last review
* Address schedule delays, problems, or other discrepancies in planned, actual and forecasted project progress and address the cause, effect and proposed correction
* Provide status of action items

The Contractor must provide Project Status Reports on a monthly basis. The Project Status Reports must include the corrective actions being pursued if there is a deviation from the planned schedule, budgeted cost, or performance requirements.

The Contractor must conduct technical interchange meetings with the FAA or its designated representatives to resolve specific technical issues. Technical interchange meetings must be conducted at the Contractor's facility or a site designated by the FAA. The Contractor must provide administrative support for the project reviews and TIMs, including preparation of agendas and minutes for each project review and technical interchange meetings in accordance with Section 3.1.7.

 CDRL A005 Project Status Report

### 3.1.6 Quality Assurance

The Contractor must provide and maintain a documented quality system as a means of assuring compliance with the hardware and software requirements of the contract. The quality system should be established and maintained in accordance with ANSI/ASQC Q9002-1994, and must be documented in the Quality System Plan.

 CDRL A006 Quality Assurance Plan

### 3.1.7 Meetings, Conferences, and Reviews

The Contractor must conduct meetings, conferences, and reviews (hereinafter referred to as reviews) with the FAA to discuss program progress, identify potential problems, and resolve identified problems.

The Contractor must prepare and submit agenda for all reviews to the Government for approval. The Contractor must formerly notify the Government of its readiness to conduct a review if the review is a mandatory requirement of this contract (i.e., design review). Delivery of all CDRL Items required prior to the mandatory review is a prerequisite to notification of readiness. If prerequisites to holding the review have not been fulfilled, the FAA will have the option of postponement without prejudice to other task requirements.

Upon receiving approval of the review agenda, the Contractor must promulgate the agenda, date, and location of the review to all attendees. The Contractor must make key Contractor personnel available to respond to FAA questions. For each event at which a presentation will be given, the Contractor must prepare and submit the presentation materials. The Contractor must record, prepare, and submit the review minutes and action items for each review. The Contractor must track action items identified at each event. For each action item, the Contractor must assign an agreed upon suspense date, and provide status at agreed upon intervals until the action item is closed. The Contractor must respond to all action items in writing with a written closure statement or plan for closure.

 CDRL B001 Conference Agenda

 CDRL B002 Presentation Materials

 CDRL B003 Conference Minutes

 CDRL B004 Conference Action Items

### 3.1.8 Configuration Control

The Contractor must establish and maintain a product configuration database, using Visio Professional Version 5.0 (or later) software and interface with MS Access, which contains a library of all configurations that have been installed, are scheduled to be installed, and are currently being installed. This database must include, but not be limited to LRU identification model numbers, serial numbers, warranty information, license agreements, lease agreements, software version number, vendor information (e.g., technical and sales representative name, address, phone number), and documentation for each configuration item by site.

The Contractor must provide reports from the database and deliver them to the FAA weekly during system deployment and monthly thereafter. At the completion of system deployment, the Contractor must provide an electronic report to the FAA that includes a total inventory of installed products.

The Visio Property Reporting Wizard may assist in creating site asset lists. It is recommended that the Visio Network Equipment Add-On be used, which contains exact icons for thousands of computer and network products.

 CDRL A007 Technical Report

### 3.1.9 Reliability, Maintainability, and Availability (RMA)

The Contractor must conduct reliability, maintainability, and availability (RMA) activities in accordance with the RMA Program Plan, provided as Government Furnished Information, which will provide the identification of known reliability, maintainability, fault detection, and recovery problems to be solved, an assessment of the impact of these problems on meeting availability requirements, and the proposed solutions or proposed plan to solve these problems. This discussion should also include, but is not limited to, rapid on-line identification and problem resolution over a wide area TCP/IP network consisting of multiple sub networks, firewall boundaries, and non-Government organizations. The Contractor must provide vendor-supplied RMA information. The Contractor must submit RMA Program Plan revisions to the FAA as required.

### 3.1.10 Human Factors Engineering

* Planning and execution - An adequately staffed Human Factors Engineering (HFE) effort must be dedicated to and be an integral part of the system's analysis, design, and test process. An HFE Program must be planned and implemented in accordance with MIL-HDBK-46855, as applicable to the system's COTS or NDI program objectives, human-in-the-loop performance requirements, characteristics and constraints.
* Objective - The objective of the HFE effort must be to assure that the system design is consistent with the capabilities and limitations of the user to operate and maintain it in its operational environment, consistent with performance requirements and logistics capabilities.
* Scope - To attain the above objective, the scope of the HFE analytic, design, and test activities must include compensation for the effects of workload and maintenance in extremes of natural environment as defined by system requirements and site specific contingencies. The impact of equipment, software, and procedures on personnel availability, skill levels, and proficiency, transfer of training, and operations and maintenance under stress must be assessed.
* Human Factors Engineering Program Emphasis Areas - Within the context of the above considerations, the human factors engineering program must include as a minimum, the following emphasis areas:
* Studies and Analyses - Human Factors Engineering studies, analyses and dynamic simulation of the system must be performed as applicable to the objectives of the contract in the areas outlined by MIL-HDBK-46855 (as tailored) in general and the following system functions and issues in particular:
1. Task Sequences. Capability of COTS or NDI hard-ware/ software/ personnel/ procedures to perform in accordance with system human-in-the-loop performance requirements
2. Maintainer Interface. Suitability of maintainer hardware/ software/ procedures to facilitate meeting system human-in-the-loop performance requirements including accomplishing maintenance involving fault isolation, manipulation, access, removal, replacement, and repair; manual operations involving pulling, pushing, lifting, or carrying; and compatibility of tools with tasks, handwear, and environment
3. Critical Tasks. Analysis of critical tasks using the COTS or NDI system must include consideration of primary task performance and communications as well as secondary tasks that must be accomplished but may be deferred
* Computer Human Interface (CHI) and Software - For systems that have a reliance on software for the human interface, the Human Engineering Program Plan must specify the process by which the CHI will be evaluated to determine if critical tasks can be satisfactorily performed when using the system. CHI must include the workstation, computer hardware, and software aspects of the system. The impact of (and on) legacy systems, other software in the workstation, and transfer of training from predecessor systems must be addressed
* Test and Evaluation - Human factors engineering requirements must be integrated into system test and evaluation to demonstrate the capability of the human-system interface to attain required system performance characteristics. Testing and evaluation must specifically include: reaction times, ability to perform visual search tasks, tracking and monitoring tasks, data insertion, adequacy of operating and maintenance procedures, and other tasks that the requirements documents and human engineering analyses have determined are critical. Testing must thoroughly assess human performance and human engineering design of each personnel position. HFE tests may be integrated into other system tests. However, dedicated HFE tests must be performed when validation of critical task accomplishments is necessary. Examples of such tasks are those where reaction time and accuracy requirements are primary determinants of mission accomplishment.
* Program Planning. An HFE program planning scheduled by the contractor must be undertaken no later than 30 days after contract (DAC). The purposes of this program planning meeting are to:
	1. Insure mutual understanding of the proposed HFE Program Plan to be submitted
	2. Insure consistency of HFE program planning with the objectives of the contract and applicable provisions of MIL-HDBK-46855
	3. Discuss any human engineering guidelines or software style guides from which the contractor has significantly deviated during the development of the COTS or NDI system that may have an impact on system performance
	4. Review general approach, assumptions, guidelines, schedules, and level of effort
	5. Discuss problems and/or needs for access to technical information for requirements clarification or requirements compliance

 CDRL A018 Human Engineering Program Plan

 CDRL A019 Human Engineering Design Approach Doc-Operator

 CDRL A020 Human Engineering Design Approach Doc-Maintainer

 CDRL A021 Critical Task Analysis Report

 CDRL A022 Human Engineering Simulation Concept

## 3.2 Procurement of Hardware and Software

The Contractor must procure the commercial off-the-shelf (COTS) products specified in Section 3.2.1. In order to comply with Executive Orders 13423 and 13514, and the FAA Green Procurement Plan (GPP), the Contractor must provide EPEAT-registered (<http://www.epeat.net>), and Energy Star certified (<http://www.energystar.gov>) or other energy-efficient products listed on the Department of Energy Federal Energy Management Program (FEMP) Product Energy Efficiency Recommendations product list. The Contractor must obtain and convey appropriate warranties and data rights on the acquired COTS products to be delivered to the FAA. Data rights must permit the FAA to make unlimited copies of all documentation. The Contractor must provide an initial set of technical information, manuals, instruction books, and training support materials available from the COTS product vendors for each product. The Contractor must ensure such documents are free of encumbrances that would prohibit their reproduction or use by the FAA for training and site operational purposes. Upon receiving direction on which documents will be provided to the sites, the Contractor must obtain and deliver the documents in accordance with Section 3.2.2. The Contractor must identify and report all license, copyright, and proprietary restrictions that affect the FAA's ability to maintain the COTS products. The Contractor must ensure Section 1.3.2, Date-Related Requirements, are included in all agreements and subcontracts with vendors and subcontractors.

### 3.2.1 Hardware

The Contractor must lease workstations and non-workstation equipment specified in the following sections. All equipment delivered must be new. The quantities are listed in Section J.

[*List equipment*]

#### 3.2.1.1 Workstation/server

The Contractor must provide Workstations and servers that meet the following minimum specifications:

* Specification #1
* Specification #2
* Etc.

#### 3.2.1.2 Non-Workstation Equipment

The Contractor must provide the following peripheral equipment in the quantities for each site specified in Section J:

##### 3.2.1.2.1 Inkjet Printer

The Contractor must provide an inkjet printer, XYZ, or equivalent, with the following characteristics:

* Characteristic #1
* Characteristic #2
* Etc.

##### 3.2.1.2.2 Remaining Equipment per Section J

Continue listing the remaining equipment per Section J in a similar fashion.

##### 3.2.1.2.3 Other Materials

The Contractor must provide the following items as defined in the hardware/software list provided in the Site Installation and Integration Plans. (A009)

* Additional material #1
* Additional material #2
* Etc.

### 3.2.2 Documentation

The Contractor must provide the following documentation in the quantities for each site specified in Section J:

* XYZ Reference Manual, 4 Volumes, XYZ# B000-00000
* Installing and Administering NFS Services, XYZ# B000-10000
* Shells: Users Guide, XYZ# B000-00006
* Continue list with desired documentation

## 3.3 Pre-Installation Activities

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### 3.3.1 Site Surveys

The Contractor must conduct an installation site survey and submit a site survey report for each site. The Contractor must coordinate all site surveys with the Technical Officer. The Contractor must be responsible for the correctness of information gathered during the site survey. The site survey report must:

* Include an analysis which identifies facility requirements related to power, space, communications access, equipment location, user access, cabling requirements to establish local area networks, wide area networks (WAN) and site layout
* Address any anticipated RFI or EMI problems and provide mitigation strategies as part of the site surveys
* Cite all new telecommunications requirements and address any human factors issues noted Identify the organization/person responsible for receipt of the shipment and the location for storage of the equipment, if equipment is to be shipped and stored in advance of installation
* Describe the site preparation requirements and site-specific deficiencies

The Contractor must allow 30 days for FAA review of the site survey report, 10 days for site survey report corrections, and 120 days lead-time from delivery of the final site survey before installation can begin.

 CDRL A008 Site Survey Report

### 3.3.2 Site Installation and Integration Planning

Based on the results of the site survey, the Contractor must prepare a preliminary and final Site Installation and Integration Plan (SIIP). Two SIIPs must be prepared one for the ATCSCC and one for all field sites. The field site SIIP must contain information common to all sites with site-unique information identified for each site. The preliminary SIIPs must be submitted 90 days prior to a scheduled site installation, and the final SIIPs must be submitted 45 days prior to a scheduled site installation. The SIIP must:

* Clearly outline equipment footprints and orientation, cabling to be provided by the Contractor, FAA required site preparations, all cable paths and types (data, LAN, WAN), location and plane, paths of AC power to Uninterruptible Power Supplies (UPS) and associated circuit breakers
* Detail all steps to be conducted during the de-installation and installation
* Identify both the Contractor and Government Furnished hardware/software to be installed
* Provide site installation plans which include sufficient information to prepare the existing facility for installation, de-install existing cable and equipment, and remove existing equipment
* Include installation drawings
* Clearly outline any cable or equipment that needs to be removed as a result of this installation.

 CDRL A009 Site Installation and Integration Plan

### 3.3.3 Factory Acceptance Test Planning

The Contractor must prepare a Factory Acceptance Test (FAT) plan and a FAT procedure to validate the hardware acquired under this contract. The FAT plan and procedure must address all testing issues, including how vendor hardware and software upgrades will be integrated and tested. The FAT plan and procedure must be submitted 30 DACA.

 CDRL A010 Factory Acceptance Test Plan

 CDRL A011 Factory Acceptance Test Procedure

### 3.3.4 Site Acceptance Test Planning

The Contractor must prepare a Site Acceptance Test (SAT) plan and a SAT procedure to verify and certify that all COTS hardware and all software installed and integrated at operational sites perform to vendor and FAA requirements. One SAT plan and procedure will be used for all field sites and one for the ATCSCC. The Contractor must submit these documents 30 days prior to conducting the SATs.

 CDRL A012 Site Acceptance Test Plan

 CDRL A013 Site Acceptance Test Procedure

### 3.3.5 Pre-Installation Preparation

The Contractor must manage the procurement actions and interfaces with the vendor(s) and must further ensure that procured hardware and software is made available on schedule, is operating to vendor specifications at delivery, and is of the same model of hardware and release of software for each type of equipment. The contractor must check all COTS products to ensure the equipment is fully functional according to vendor specifications prior to shipping to the operational sites. This includes, but is not limited to, the following actions:

* The Contractor must provide the necessary facilities and services to check the COTS products
* The Contractor must conduct FATs to validate the workstation configuration acquired under this contract
* The FAT must be conducted in accordance with the FAT plan and procedure (see Section 3.3.5). Test results must be reported at Project Status Reviews
* The Contractor must pre-load all software identified by the FAA. The Contractor must coordinate the preparation of each workstation with the FAA Technical officer to ensure the proper version of the application software is loaded before equipment is shipped to the site
* The Contractor must pre-configure all communications equipment, to include router parameters and NAS addressing assignments
* The Contractor must configure the workstations to reflect the installed configuration at the operational sites and validate the workstation configuration and operation
* The Contractor must transport all components, equipment, and spares by the most economical means possible, considering dependability, safety, urgency of need, and traceability. All materials must be shipped FOB destination, inside delivery. All shipments must be made in accordance with ASTM-D3951-95
* Equipment and software must be shipped to arrive on-site not earlier than one week before installation or as specified by the FAA. Packing must be in accordance with standard commercial packing as specified in ASTM-D3951-95
* The delivery must include tools and test equipment, fastening components, support equipment, special tools, and all documentation necessary to accomplish the installation and integration

## 3.4 Installation, Integration and Acceptance Testing

The Contractor must coordinate system implementation with the FAA Technical Officer. For each site, the FAA will provide space, lighting, heating, ventilating, air conditioning and power to the extent necessary for the [*insert system name*] installation. The Contractor must install, integrate and test all delivered hardware and software in accordance with the SIIP and the following sections.

### 3.4.1 Installation and Integration

The Contractor must install all equipment in accordance with manufacturer specifications and recommendations, and the provisions of FAA-STD-020b (as applicable). Contractor installations must include physical placement of equipment, mechanical connections, equipment grounding and bonding, installation of power cables and connectors, and installation of all signal, communication, LAN and interface cabling. The Contractor must remove all packaging and wrapping material immediately after unpacking the equipment. The Contractor must configure all communications components, in hardware and software, as needed to meet FAA requirements. If dismantling of existing facilities or equipment or other measures are necessary to complete the installation, full restoration to pre-installation conditions must be the responsibility of the Contractor. Workstations, cable and non-workstation equipment items being replaced must be de-installed and removed.

The Contractor must integrate all system components, ensuring proper operation when connected to existing system components, and demonstrating system readiness to perform real-time flow management tasks. Installation and testing of the equipment must not disrupt or interfere with, nor cause any disruption or interference with the FAA ATC operations in any way.

### 3.4.2 Site Acceptance Testing

The Contractor must complete all integration testing prior to scheduling or conducting operational site acceptance testing activities in accordance with Section 3.5.1. The Contractor must conduct Site Acceptance Testing of the all installed equipment in accordance with the Government approved SAT plan and SAT procedure.

## 3.5 Post-Installation Activities

### 3.5.1 Site Acceptance Test Report

The Contractor must report the status of SAT testing at Project Status Reviews.

### 3.5.2 Software and Documentation

The Contractor must deliver the documents defined in Section 3.2.2.

### 3.5.3 Decommissioning of Equipment

The Contractor must remove outdated [*insert system name*] equipment from the site, identify and divert those materials that can be recycled or reused through an R2 certified facility, and dispose of the remaining equipment or materials using FAA disposal procedures.

### 3.5.4 Training Support

#### 3.5.4.1 Training Program

The Contractor must provide familiarization training and associated materials in accordance with the requirements specified herein. The Contractor must conduct familiarization training of FAA personnel in system administration and hardware fault isolation of hardware procured and installed under this contract. Familiarization training must normally be conducted at field sites.

The Contractor must develop/modify and perform familiarization training in accordance with best commercial practices. Course materials for each type of familiarization training must be documented in a Familiarization Training Plan and submitted for approval 90 DACA.

 CDRL A014 Familiarization Training Plan

#### 3.5.4.2 Systems Administrator Familiarization Training

The Contractor must familiarize selected FAA personnel in administering the system. The familiarization training will be provided on-site, and must be coordinated with workstation delivery and installation at each site. The familiarization training must enable FAA personnel to achieve, at a minimum, the following objectives:

* Create and maintain system account database
* Create and maintain user accounts
* Protect the system software
* Modify the access control lists
* Create servers and start-up scripts
* Perform workstation start-up and power-down either in the stand-alone or in the local area network mode of operation
* Understand and describe the network structure including IP addressing, naming conventions, Domain Name Service, etc.
* Use the display manager editing features and shell commands
* Create and maintain print queues
* Reroute print queue items
* Change print queues (reroute print jobs)
* Configure and maintain printer-to-network interface software
* Configure and maintain routers
* Backup user's software
* Load system software
* Use vendor-supplied diagnostic tools
* Enable low power state (e.g. stand by) on equipped hardware devices

#### 3.5.4.3 Hardware Fault Isolation Familiarization Training

The Contractor must familiarize selected FAA personnel in administering the system. The familiarization training will be provided on-site, and must be coordinated with workstation delivery and installation at each site. The Contractor must familiarize selected FAA personnel in the use of the vendor-supplied diagnostic tools. The Contractor must provide familiarization training in the use of diagnostic tools, visual inspection, and status messages to troubleshoot the system to the LRU. Familiarization training must be coordinated with system delivery and installation at each site.

The Hardware Fault Isolation Familiarization training must enable selected FAA personnel to identity hardware failures that occur in IPT product equipment. The Contractor's familiarization training must enable selected FAA personnel to achieve, at a minimum, the following objectives:

* Locate and identify all assemblies and subassemblies
* Perform system power-up, power-down, start-up, start-over, recovery, and change of operational modes
* Interpret system output error messages and enter appropriate commands for diagnostics
* Determine status of system components, peripherals, and system interfaces using diagnostic software, status messages, and visual inspection of all indicator lights
* Troubleshoot the system to the LRU: analyze and identify problems by interpreting functional and diagnostic test and error messages to determine the faulty system subset
* Address procedures to recover the network, e.g., communications, servers, routers, switches, to include steps necessary to switch from primary to backups, and vice versa

## 3.6 Integrated Logistics Support

### 3.6.1 Administration

Support (NAILS) program using FAA Order 1800.58A for guidance. The Contractor must develop, submit and implement an Integrated Support Plan (ISP) and maintain the ISP to reflect program changes that affect IPT logistic support. The ISP must:

* Describe the Contractor's plans and methodology for maintaining and supporting the IPT products, using FAA Order 1800.58A for guidance
* Describe the detailed maintenance and supply support functions to be provided including procedures, support structures, and scheduling criteria
* Describe the Contractor's relationship to and management of any and all vendors and subcontractors associated with this effort
* Address each logistics support element including the Contractor's approach for satisfying the training requirements in Section 3.5.4
* Assign responsibilities and designate logistics schedule milestones
* Provide a clear description of FAA and Contractor roles, including interface and transition activities

The Contractor must update the ISP to reflect program changes, reviews and other actions affecting the integrated logistics program. The Contractor must utilize the ISP to manage the integrated logistics program. The Contractor must conduct and administratively support NAILS Management Team (NAILSMT) meetings as required.

 CDRL A015 Integrated Support Plan

### 3.6.2 Supply Support

#### 3.6.2.1 Provisioning

The Contractor must participate in FAA-sponsored provisioning technical interchange meetings. A provisioning conference may be required to determine depot-sparing levels.

### 3.6.3 Support Equipment

[*Add any requirements for support equipment*]

### 3.6.4 Packaging, Handling, Storage, and Transportation (PHS&T)

During the Interim Contractor Maintenance and Logistics Support (ICMLS) period, ASTM-D-3951, Standard Practices for Commercial Packaging, must apply.

### 3.6.5 Interim Contractor Maintenance and Logistics Support

The Contractor must provide Interim Contractor Maintenance and Logistics Support (ICMLS) for the components provided to the operational sites. The Contractor must maintain all COTS products; the FAA will maintain all applications software.

#### 3.6.5.1 Operational Hardware Maintenance Services

The Contractor must provide maintenance services and supply support for all workstation and related hardware installed at each operational site. The Contractor must replace failed hardware with replacements whose functionality is the same or better than that of the failed unit, and whose form, fit, and function are transparent to the [*insert system name*] system architecture.

The Contractor must provide 24-hour per day, 7-day per week, and 4-hour response time maintenance service for the following hardware components:

* CPU, monitor, and keyboard, and
* Third party cards installed in the CPU
* [Add any required components]

The Contractor must restore the system operational status in 24 hours or less following receipt of service call from FAA personnel. The Contractor must maintain sufficient spares and assets and trained maintenance technicians to meet this 24-hour restoration requirement.

The Contractor must maintain close coordination with FAA on-site representatives to minimize interference with operations. The Contractor must obtain concurrence prior to taking any maintenance action. The Contractor must notify the FAA site representative at the completion of maintenance activities and provide an assessment of equipment status.

The Contractor must provide complete depot-level supply support for the workstations and peripheral equipment. Depot level maintenance must consist of disposal, reordering, repairing or pursuing vendor warranty on failed LRUs which were removed from the site.

The Contractor must maintain spares to support [*insert system name*] systems. An exchange and repair process will be used where site technicians will return failed parts to the Contractor for repair. Upon receipt of a call from the site, the Contractor must send a replacement item to the site. The following parts will be exchanged and replaced:

* Router
* Network Switch/Hub
* Printer
* Firewall
* UPS
* Trackball
* Power Filter
* [Add any other required components]

The Contractor must identify and perform preventive maintenance required or recommended by the manufacturer. This maintenance must be scheduled and coordinated with site personnel and performed on a non-interference basis.

#### 3.6.5.2 Replacements of Consumable Items

The Contractor must supply printer cartridges to the [*insert system name*] sites. [*Add any other consumable items*]

#### 3.6.5.3 ICMLS Monthly Activity Report

The Contractor must submit an ICMLS monthly activity report that addresses all ICMLS activities during the month. The monthly reporting period covers the calendar month (i.e. first through the last day of each month). The report must be submitted no later than the 15th of each month following the close of the reporting period. The first report must cover the period from the first day of the ICMLS phase to the end of the first full month of the ICMLS phase and must be submitted by the 15th day of the following month.

The report content must include the following:

* All maintenance activity, both scheduled and unscheduled, involving the system hardware and software, and its components for each [*insert system name*] operational site. Maintenance activities include system modifications/upgrades, on-equipment inspections, periodic/preventive maintenance, fault isolation, and repair, removal, and replacement of failed LRUs or components, adjustments, and verification of system operation.
* A system level summary of maintenance activity. This summary must also include:
	1. A statistical analysis of reliability and availability parameters and the logistics time and the time to repair for reported system discrepancies, and
1. Results of analysis of trends and proposed corrective actions.

* Documentation of component discrepancies, errors and failures. For failures, the report must include the following information:
1. Site
2. Date, time and place of failure notification
3. Description of malfunction
4. Part number of failed LRU/software component
5. Date and time of arrival
6. List of repair parts required
7. FAA person verifying repair
8. Date and time of departure
9. Total hours of system operation during reporting period

1. Total hours of system downtime during reporting period

The Contractor must ensure that significant aspects of the ICMLS Monthly Activity Report are reported at monthly project reviews (see Section 3.1.5).

 CDRL A016 ICMLS Monthly Activity Report

#### 3.6.5.4 Software Maintenance

The Contractor must provide a toll-free telephone contact for sites to report software problems and/or to obtain assistance for all COTS software acquired and installed under this contract. The Contractor must provide vendor license agreements, and software and documentation updates. The Contractor must assess the impact of changes on the installed system, and recommend a course of action to accept and implement or defer the new product.

#### 3.6.5.5 Maintenance Log

Not applicable.

#### 3.6.5.6 Contractor Contact Procedure

The Contractor must create a process for reporting problems and processing corrective actions. The Contractor must maintain a toll-free telephone contact for sites to report equipment problems and/or to obtain assistance through telephone support to resolve problems that can be resolved remotely. This contact must compliment the overall [*insert system name*] support help desk. This toll free number must be accessible and responsive 24-hours per day 365 days per year.

#### 3.6.5.7 Support Facilities

The Contractor must provide all support facilities required for storage and repair/overhaul of workstations and peripheral equipment.

#### 3.6.5.8 Corrective Action Plan

In the event that reliability, maintainability, and availability figures demonstrate that the [*insert system name*] system is not meeting the RMA requirements, the Contractor must provide a system RMA corrective action plan describing the system's problem(s), the cause of the problem(s), and the recommended corrective action(s) required to meet the RMA requirements.

 CDRL A017 RMA Corrective Action Plan

### 3.6.6 LRU Identification and Marking

The Contractor must use commercial marking practices for the purposes of product identification configuration management, and inventory management to control and identify ATM product LRUs. The Contractor must be responsible for marking all ATM product LRU components, including LRU spares. All LRU components and LRU spares must be marked with bar code symbols that are consistent with commercial product identification. LRU markings must be sufficient to clearly and visually identify the LRU and the contents of an LRU package.

# 4 Engineering Support

The Contractor must provide engineering support services to the FAA for various tasks as described below. If required, Engineering Services will be ordered through individual task orders.

## 4.1 Engineering Support

If ordered, the Contractor must provide general engineering and logistics support services for the period of performance of this contract. The contractor must provide the necessary computer hardware/software expertise and system engineering support to assist the FAA in maintaining the operational integrity of the IPT products. This support must include, but not be limited to the following:

1. [*Describe tasks required*]
* If ordered, the Contractor must provide hardware support for any FAA-directed change in hardware requirements. The support must include but not be limited to requirements and performance analysis, hardware/software changes, compatibility, engineering management, test and evaluation, documentation updates, implementation, and training. Support may also include the decommissioning, removal, and disposal of equipment
* If ordered, the Contractor must provide logistics and engineering support for the movement of IPT equipment as required
* If ordered, the Contractor must provide maintenance for equipment located at Volpe National Transportation Systems Center, WJH Technical Center, FAA Academy, and other FAA sites not acquired under this contract
* If ordered, the Contractor must provide engineering support to meet emerging requirements, e.g., NIMS, NAS security
* If ordered, the Contractor must support the creation and/or maintenance of facility drawings, including but not limited to the following:
1. Facility Engineering Drawings must be prepared in accordance with FAA-STD-002.
2. The Contractor must redline site drawings for installation and integration. This must include relocation of equipment.
3. The Contractor must generate site-specific drawings for those new or additional sites receiving [*insert system name*] equipment. A detailed schedule must be developed to enable sites to prepare for installation, checkout, commissioning, and integration into the NAS.
* If ordered, the Contractor must develop, deploy, and support advanced [*insert system name*] functionality.