Attachment 5

UAV STATEMENT OF WORK

1.0 SCOPE .....

1.1 Background .....
1.2 Purpose .....

2.0 APPLICABLE DOCUMENTS .....

2.1 CBP UAV Specifications .....
2.2 Industrial and Military Standards .....

3.0 REQUIREMENTS .....

3.1 Operational Services .....
3.1.1 UAV Air Vehicle Operator (AVO) and Mission Payload Operator (MPO) Support .....
3.1.2 UAV Air Vehicle, Flight Line and Maintenance Support .....

3.2 Technical/Engineering Support Services .....
3.2.1 On-Site Performance .....
3.2.2 Repair Services .....
3.2.3 Component Repair .....
3.2.5 Emergency Repair .....

3.3 Material .....

3.3.1 Component Procurement .....
3.3.2 Support Equipment Purchasing .....
3.3.3 Additional Material .....
3.3.4 Training .....
3.3.5 Data Development and Documentation Services .....

4.0 CONFIGURATION MANAGEMENT .....

4.1 Introduction .....
4.2 Configuration Control .....
4.3 Engineering Release .....
4.4 Nomenclature and Identification Plates .....

5.0 INVENTORY MANAGEMENT AND GOVERNMENT FURNISHED EQUIPMENT .....

6.0 PROGRAM MANAGEMENT .....

7.0 SAFETY

8.0 DELIVERABLES AND SCHEDULE .....

8.1 Equipment .....
8.2 Engineering Analysis .....
8.3 Documentation .....
8.4 Logistics Support Plan .....
8.5 Test Plan and Test Reports .....
8.6 Warranties .....
8.7 Engineering and Technical Services .....
8.8 Program Management Plan .....

8.9 Data Files, and Reports .....

9.0 TEST REQUIREMENTS .....

9.1 Test Objectives .....
9.2 Scope of Tests .....
9.3 UAV System Test Plans and Procedures .....
9.4 Responsibilities .....

9.4.1 Contractor Test Requirements .....
9.4.2 Government Test Requirements .....

9.5 Test Criteria .....

9.6 Test Data Evaluation .....

ATTACHMENTS

Attachment A – Equipment List
Attachment B – Personnel Qualifications

STATEMENT OF WORK
for
CBP UAV System

1.0 SCOPE

1.1 Background

The Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), Office of Border Patrol (OBP) has a requirement to conduct UAV operations for use in surveillance missions to confirm intrusions reported day and night by ground sensors, to survey pre-entry staging areas where groups are known to gather prior to crossing the border, to monitor post-entry "lay-up" areas and trails, and to support OBP "sign cutting" operations where agents search the area for signs of recent human activity. The UAV shall be integrated with OBP ground responders and air operations units for interdiction and apprehension operations. The UAV shall also be used to help locate lost and/or injured personnel and to assist OBP Search, Trauma, and Rescue teams in recovery operations.

(b) (7)(A), (b) (7)(E)

1.3 Purpose

At the time of award of this Indefinite Delivery Indefinite Quantity (IDIQ) contract, it is CBP's intent to order one commercial off-the-shelf UAV System as outlined in contract Section B Supplies or Services, to include Time and Materials (T&M) operational and maintenance support services. Therefore, within thirty days of contract award the Contractor shall deliver one UAV System configured and ready to fly operational CBP missions on site at (b) (7)(E)

This Statement of Work (SOW) defines the requirements necessary to provide the UAV Systems equipment and overall engineering and logistics support services for CBP UAV System. This support shall include operation and maintenance; air vehicle operators and mission payload operators, systems airframe and equipment repairs/modifications, system upgrades or engineering changes, software support services, air vehicle and mission equipment systems integration, training, material and equipment support issues resolution and technical support services; maintaining support of ground station facilities; material and equipment procurement services; and data development and documentation services.

2.0 APPLICABLE DOCUMENTS

2.3 CBP UAV Specifications

The specifications for the performance of CBP UAV System baseline configuration items are listed below. Any equipment shall provide, as a minimum, the performance specified in these documents, as applicable.

Title

CBP Unmanned Aerial Vehicle Specification, Version 1.0 dated May 26, 2005

2.4 Industrial and Military Standards

The following documents are applicable to equipment installed in the CBP UAV System. The Contractor shall comply with these standards.

Environmental Engineering Considerations and Laboratory Tests	MIL-STD-810
Interface Standard, Electromagnetic Environmental Effects	MIL-STD-464
Electromagnetic Emission and Susceptibility Requirements For the Control of Electromagnetic Interference	MIL-STD-461
System Safety Program Requirements	MIL-STD-882
Standard Interfaces of the Unmanned Control System (UCS) For NATO UAV Interoperability	NATO STANAG 4586
Standard Specification for Design and Performance of an Airborne Sense-and-Avoid System	ASTM F 2411-04
ATC Transponder and altitude reporting equipment and use	14 Code of Federal Regulation (CFR) section 91.215

COTS items shall, at a minimum, comply with the version of commercial industry standard DO-160, produced by the Radio Technical Commission for Aeronautics that was current at the time an item was initially produced. For newly developed items, the version current at the time of contract award shall apply. The requirement to comply with DO-160 requirements is waived for items qualified in accordance with a comparable MILSPEC or MILSTD.

3.0 REQUIREMENTS

Upon thirty days after contract award the Contractor shall deliver one UAV System configured and ready to fly operational CBP missions on site at (b) (7)(A), (b) (7)(E) The Contractor shall provide additional UAV System components and support as required throughout the contract period. The UAV System is comprised of:

1) **Air Vehicle** - The air vehicle is the airborne element of the CBP UAV System and carries the payloads and embedded airborne communication relay capability. The system may include multiple air vehicles.

2) **Payload** - The payloads are self-contained elements that are designed to accomplish specific missions. Payloads shall be operated depending upon specific mission needs of the CBP UAV System sortie. The system shall include electro-optical/infrared (EO/IR) sensor, laser illuminator, synthetic aperture radar (SAR) with a ground moving target indicator mode (GMTI), signals interception receiver, communication relay transceivers, and the option for a hyper-spectral (imaging spectrometer) sensor.

3) **Ground Control Station** (GCS) - The CBP UAV GCS facility contains the hardware and software for mission planning, air vehicle and payload command and control, and receipt and dissemination of imagery/data. The GCS serves as a command post for mission planning, flight coordination and scheduling, and ensuring flight safety and shall be configured as per the referenced UAV Specification.

4) **Launch and Recovery System** (LRS) - The LRS provides an automatic launch and recovery capability as well as an override capability for manual control of the takeoff and landing phases of flight. The LRS shall function without a GCS at the airfield.

5) **Link Segment** - The CBP UAV Link Segment consists of redundant control links and a data link suite. The control link suite provides command, control, and communication (C3) among system operators (pilots in the GCS and LRS), and the air vehicle. The data link suite provides data collected by the payloads to payload operators in the GCS and supervisors in the field and CBP agents in the field. The control link suite shall contain a primary and a secondary link.

6) **Sensor Control Terminals** (SCT) - The SCT provides supervisory agents in the field with direct control of all functions of the EO/IR sensor and access in real time to its video imagery and data independent of the GCS. The system shall include multiple SCTs.

7) **Remote Video Terminal** (RVT) - The RVT provides the CBP agents in the field with direct access in real time to EO/IR sensor video imagery and data independent of the GCS.

For the initial delivery a narrowband satellite communication (SATCOM) system for control beyond line of sight (BLOS) is not required, however the UAV air vehicle shall be configured to accommodate the integration of SATCOM later.

The various tasks required to provide support are described below. With the exception of the air vehicle operators, mission payload operators, and maintenance technicians, the support shall be provided on an as-needed basis and submitted in accordance with Section B. The scope of each effort shall be well defined and authorized by CBP. The Contractor shall summarize the scope of each effort, submitting a plan of action to CBP for review. The plan of action shall include, but is not limited to, a description of the effort to be undertaken plus a breakdown of personnel, man-hours, and total cost. The description of the effort to be undertaken shall include any studies required to determine course(s) of action to resolve the issue, recommendations as to which option(s) to employ, any assistance or equipment required from CBP or outside sources, any testing required to confirm successful resolution of the issue, and any anticipated follow-on

effort(s) after testing. Written approval from the Contracting Officer of Record, or duly appointed designee, shall be obtained before any work is actually performed. Once each effort is complete, the Contractor shall submit a final report that summarizes the actual tasks performed, total labor hours, by category, used to fulfill the task requirements, and the total cost incurred. The Contractor's initial plan of action and the Contractor's final report shall be construed to be the substantiating documentation required for the preparation of billing invoices submitted to CBP. The Contractor shall provide a summary report with the billing. If no billing is generated for the month, a summary of the effort expended (labor hours by category) shall be submitted to the COTR via the Monthly Status Report. The Monthly Status Report is a deliverable under the contract and shall be submitted in accordance with Data Item Description (DID) UAV001.

3.1 Operational Services

The Contractor shall provide technical support for the operation and maintenance of the UAV System. This support requires certified/licensed on-site full-time employees with specialized and unique technical and engineering skills. The Contractor shall provide upon contract award proof of initial UAV system specific training, certification, and/or licensing for the positions outlined in this SOW. This shall include compliance with follow on qualification, training, evaluation, and currency requirements as dictated by CBP, regulatory agencies, the UAV manufacturer and other Government activities.

Initial flight operations are planned for (b) (7)(A), (b) (7)(E) for at least the first three months with an anticipated relocation of UAV operations to an OBP specified site within the AOR. OBP mission requirements may require periodic deployments to other OBP AOR locations. CBP anticipates (b) (7)(A), (b) (7)(E) per year.

The Contractor shall coordinate with CBP UAV Flight Operations Service Center (FOSC) personnel and comply with, all applicable flight planning documents, certifications, licensing, training, and follow-on qualifications necessary to support safe, efficient flight operations in the U.S. National Airspace System.

The Contractor shall provide the necessary relevant, current documents at the operating site to support recurring flight operations to meet CBP mission requirements. These include, but are not limited to, the following: applicable Flight Information Publications (FLIP); manufacture's weight and balance data; operational, logistical, maintenance, and management checklists for all aspects of UAV operations; and a Flight Crew Information File (FCIF) for centralized information dissemination at the operating site.

The Contractor shall perform the necessary tasks prior to each flight to safely operate in the U.S. National Airspace System and conduct the mission per direction from the CBP UAV FOSC. This shall include, but is not limited to, filing a flight plan; receiving a comprehensive climatology briefing (with updates as required); calculating normal and emergency air vehicle operating capabilities concurrent with existing ambient conditions and mission requirements; ensuring Notices to Airman (NOTAM)s are current and in compliance with the flight plan; and reviewing published lost link procedures in relation to the mission profile.

The Contractor shall be responsible for site preparation and support aspects of the UAV System operation to include, but not limited to, the following: at both the hangar and the operating site, the contractor shall be responsible for extending the power from the entrance panel to the point of need. All required wiring shall meet standard electrical codes for type of wire, size of conductors, appropriate circuit breakers and disconnects. The Government shall provide fuel on site for the UAV system and the generators however; the Contractor shall perform all fueling/defueling operations. The Contractor shall also provide oil, any other lubricants, UAV-specific additives required for operation to include a suitable container for explosive storage as required.

3.1.1 UAV Air Vehicle Operator (AVO) and Mission Payload Operator (MPO) Support

The Contractor shall provide trained, qualified, and current AVO and MPO personnel to support all UAV flight missions. All AVO and MPO personnel shall be U.S. citizens and maintain a security clearance per the National Industrial Security Program as determined by CBP.

The Contractor shall be required to ensure that AVOs and MPOs follow the direction of local CBP personnel and their contractors operating the FOSC. AVOs and/or MPOs shall maintain frequent and reliable communication with the CBP Air and Marine Operations Center (AMOC) before, during, and at the conclusion of each flight, in addition to normal Air Traffic Control and OBP Agent coordination.

Air Vehicle Operator/Pilot

Minimum/General Experience: Five (5) or more years of experience in a relevant functional area.

Responsibility: Performs UAV technical and/or flight operations. Responsible for UAV pre and post flight system checks, and navigates the UAV to accomplish mission requirements. Must be thoroughly familiar with remote piloting systems, aerodynamic, and UAV flight performance operation parameters.

Minimum Education: Associates degree or equivalent military training and a commercial pilot's certificate with instrument rating (or Airline Transport Pilot) and meets the qualifications for exercising these privileges.

Mission Payload Operator

Minimum/General Experience: Six (6) or more years of general experience including at least three (3) years of specialized experience in the required area of expertise.

Responsibility: Performs advanced engineering and/or analysis tasks required for operation of UAV onboard sensor(s) while in flight. Performs sensor calibration and baseline instrumentation set-up. Performs data collection requirements to meet customer needs and insures data quality control. Records and interprets sensor data. Optimizes sensor performance for given tasks. Applies advanced engineering and/or analysis practices, concepts, and data collection procedures. Gathers information, analyzes problem areas, adjusts instrumentation and performs system modifications as necessary to enhance data acquisition.

Minimum Education: Associates degree or equivalent military training.

3.1.2 UAV Air Vehicle, Flight Line and Maintenance Support

The Contractor shall provide trained, qualified, and current Flight Line and Maintenance support personnel to enable the UAV System to operate for (b) (7)(A), (b) (7)(E) per year. This support includes flight line activities in direct support of UAV launch, recoveries and maintenance support of the UAV before and after flight. All activities shall be performed under the direction of the CBP UAV FOSC.

Flight line Activities: The Contractor shall support UAV flight missions using Contractor-provided flight line support personnel who are trained, qualified, and current in UAV operations. These personnel may include, but are not limited to, the following positions and responsibilities: flight line crew chiefs, tow-qualified personnel, launch and recovery element, and associated safety and quality assurance personnel.

The Contractor shall prepare the UAV for scheduled missions in accordance with the flight schedule and direction from CBP UAV FOSC in regard to payload, planned hours of flight, and planned area of operations. Preparation for flight includes all preflight, mission data loading and safety procedures. When the UAV is mission ready, the Contractor shall position the UAV to a predetermined preflight area where all final checks shall be performed. Flight line support includes UAV launch and recovery, performing all required post-flight checks and scheduled or unscheduled maintenance, and returning the UAV to its hangar.

Maintenance Support: The Contractor shall perform all required UAV maintenance to accomplish the availability requirements stated in the performance specification using Contractor personnel who are trained, qualified, and current in UAV maintenance procedures. Maintenance personnel may include, but are not limited to, the following positions and responsibilities: UAV airframe, power plant, payload equipment mechanics and technicians; GCS, ground data terminal, SCT and RVT technicians; weight and balance technicians; and associated safety and quality assurance personnel.

The Contractor shall provide maintenance support in order to meet the readiness and maintainability requirements in the referenced performance specification. The Contractor shall provide all parts and materials used in the maintenance program and document all maintenance actions using best commercial practices. The Contractor shall provide the number of maintainers required per airframe, GCS and ground support equipment and for logistics support (fueling, vehicle maintenance, supply support). The skill qualifications for the identified personnel shall be documented and provided to the Government upon contract award.

For all flight line and maintenance support personnel, the Contractor shall document and provide on request proof of initial UAV system-specific training, certification, and/or licensing, as well as compliance with follow-on qualification, training, evaluation, and currency requirements as dictated by the CBP UAV FOSC, CBP, regulatory agencies, the manufacturer, other Government activities, and/or the Contractor. All flight line and maintenance support personnel shall be U.S. citizens and maintain a security clearance per the National Industrial Security Program as determined by CBP.

Air Vehicle Maintenance Technician

Minimum/General Experience: Three (3) or more years of experience in a relevant functional area or training sufficient to enable the successful accomplishment of assigned air vehicle maintenance tasking.

Responsibility: Performs UAV maintenance and/or technical activities such as preventative and corrective maintenance to insure successful completion of air mission operations. Prepares the UAV system for flight and acts as a ground safety observer during flight operations.

Minimum Education: Equivalent training and a current Airframe and Powerplant (A&P) certificate.

3.2 Technical/Engineering Support Services

The Contractor shall provide technical/engineering support services for systems integration, integrated system enhancements and/or conducting engineering studies on CBP UAV System. The Contractor shall also provide any required technical and engineering support in performing diagnostics and troubleshooting to resolve equipment problems that may be beyond the scope of assigned UAV System Contractor maintenance personnel. Such support in assisting on-site maintenance personnel in identifying, analyzing, and resolving problems shall be provided by technical and engineering personnel knowledgeable on those specific CBP UAV System.

3.2.1 On-Site Performance

Contractor personnel may, be required to travel to the CBP UAV System AOR in order to accomplish tasks stipulated in this SOW. Personnel shall be qualified to perform relevant system engineering and be familiar with all hardware and software aspects of the CBP UAV System components. Tasks may include system troubleshooting and analysis, formulation of alternate system integration schemes to resolve system problems, and system operation and test to validate proper system operation following any system modifications. Personnel shall be subject to approval by the CBP Contracting Officer of Record or designated representative and the COTR must authorize all reimbursable travel.

3.2.2 Repair Services

The Contractor shall provide repair services, as required, for the UAV System baseline and integrated components and equipment. Requirements for repair services shall be coordinated with the local OBP Sector Chief. Prior to commencement of repair, the Contractor shall provide the OBP Sector Chief with a repair plan and estimate of cost. The repair plan shall address Contractor requirements such as local maintenance and ground support, time to repair, and access to the air vehicle and its components. Approval to proceed with the repair must be granted by CBP Contracting Officer of Record or designated representative.

3.2.3 Component Repair

The Contractor shall provide services, as required, for the repair of CBP UAV System components or structures that are unique or not readily repairable through commercial sources. Provide a full 12-month warranty on new parts and equipment, including items designed and manufactured by the Contractor, newly supplied by the Contractor, and components acquired and used by the Contractor to upgrade the UAV System. The 12-month warranty period for each system shall commence no earlier than Government acceptance.

3.2.4 Emergency Repair

The Contractor shall provide for emergency repair of CBP UAV System equipment and related airframe components. CBP may agree to position systems equipment for emergency repairs at the home base or Contractor facility, as agreed between CBP and the Contractor depending upon the information contained in the Critical Spares List. However, the Contractor shall be prepared to respond quickly (no more than 72 hours) to emergency repair requirements that may be required at remote locations within CBP UAV System operating areas.

3.3 Material

3.3.1 Component Procurement

The Contractor shall provide an agreement for purchasing unique CBP UAV System components and structures that are not available through commercial sources. In addition, components and sub-components may be procured to provide supplemental spare parts support. Purchases shall be subject to CBP approval by the Contracting Officer of Record or designated representative.

3.3.2 Support Equipment Purchasing

The Contractor shall provide a purchasing agreement for special or unique test equipment, tools, and other support equipment that has been developed for the CBP UAV System. In addition, items may be procured to provide supplemental maintenance or logistics support. Purchases shall be subject to CBP approval by the Contracting Officer of Record or designated representative.

3.3.3 Additional Material

The Contractor shall assist CBP, as directed by the COTR, in acquiring any additional material required for the support of the CBP UAV System.

3.3.4 Training

The Contractor shall provide training, as required, for the maintenance, operation or logistical support of the CBP UAV System. The training may include, but is not limited to, structured classroom presentations at CBP or Contractor facilities, simulator training at CBP or Contractor facilities, training software for use on personal computers, or on-the-job training. Training alternatives provided by outside sources may be identified if they are not available directly from the Contractor.

3.3.5 Data Development and Documentation Services

The Contractor shall develop data related to the CBP UAV System documentation packages as required to appropriately reflect any changes made to the equipment baseline. Documents may include source code listings, specifications, equipment lists, operator manuals, maintenance publications, drawing packages, and integrated support plans. The Contractor shall update existing documents and/or develop new documents as directed by the COTR. Further guidance is provided in Section 8.0 of this SOW. Once a requirement is identified for performance under this contract, appropriate DIDs shall be provided for the specific effort.

4.0 CONFIGURATION MANAGEMENT

4.1 Introduction

The Contractor shall establish, within his organization, the responsibilities and procedures for implementing the configuration management requirements stipulated below. The planning and implementation shall be subject to review and audit by CBP. The Contractor shall submit a Configuration Management Plan thirty days after contract award for review and shall address procedures for implementation and shall be subject to review by the Government. Responsibilities and procedures that have been developed for use by similar programs may be considered for use upon review and if approved applied to this contract. Configuration management shall be maintained current throughout the course of this contract and shall address both hardware and software configuration items.

4.2 Configuration Control

CBP UAV System documentation shall be monitored and updated by the Contractor to reflect any changes resulting from tasks defined in this SOW. Changes shall be incorporated as necessary into documents after they have been revised and approved by CBP. All such specifications applicable to hardware and software items shall be maintained in accordance with the Contractor's configuration management policies as approved by CBP. The Contractor shall maintain interface control throughout the course of this contract. In addition, the Contractor shall provide information delineating the status of changes from the CBP UAV System baseline, including proposed effectivity and implementation status of approved changes under this contract. The status of the CBP UAV System baseline changes shall be included in the Contractor's Monthly Status Report.

4.3 Engineering Release

The Contractor shall ensure that all engineering design releases are processed through the Contractor's configuration management authority. The configuration, control, and status of engineering release records shall be provided to the CBP Program Manager or designee upon request.

4.4 Nomenclature and Identification Plates

The Contractor shall recommend the assignment of nomenclature for newly designed configuration items resulting from this contract. Nomenclature recommendations shall be submitted to the CBP Contracting Officer of Record by letter. CBP approved nomenclatures shall be applied to the configuration item nameplate and to the specification, drawings, and other applicable data items pertaining to the item.

5.0 Inventory Management and Government Furnished Property

Government Furnished Property (GFP) shall be supplied as specified in Contract Section J, Attachment 1. Every effort shall be made by the Government to procure and provide to the Contractor all related components required as stipulated. However, any required components or items not specifically listed shall be the Contractor's responsibility to procure and provide in order to complete successful UAV system operation.

If equipment fails or is inoperative subsequent to or during UAV operations the Contractor shall notify CBP in writing of the nature of the problem. CBP shall coordinate to have the equipment repaired and/or replaced. The Contractor shall be responsible for troubleshooting the interface and / or operation to determine the cause of the failure and making any repairs necessary to the UAV system to prevent further malfunctions or failures. CBP shall be notified in writing of the procedures employed by the contractor to determine the cause of the malfunction or failure. Repair or replacement costs for GFP damaged due to Contractor error, abuse or misuse shall be the Contractor's responsibility.

The Contractor shall utilize, when applicable, the Government inventory procedures as identified in the Contract Government Property Clause of Section I.

6.0 PROGRAM MANAGEMENT

The Contractor shall exercise all technical direction and control of the integration, engineering, and support effort required in accomplishing the tasks associated with this SOW. This includes the necessary Project/Program Management and the support and technical efforts directly associated with CBP UAV System configuration control, data development, systems engineering, test, and logistical planning requirements.

7.0 SAFETY

The Contractor shall implement a system safety and environmental protection program for the UAV System and shall ensure that safety and environmental protection considerations are integral parts of the systems engineering efforts. The safety program shall address personnel and equipment concerns relative to the integration, testing, use, maintenance and life cycle support of the system. Within this program the Contractor shall properly apply these requirements to ensure the identification and understanding of all known hazards and their associated risks; and mishap risk eliminated or reduced to acceptable levels. A Preliminary Hazard Analysis (PHA) shall be conducted and Category I or II hazards with a potential greater than 10×10^{-4} shall be controlled. The contractor shall publish a list of such hazards with corrective actions required to

reduce the probability of occurrence of unsafe events that can cause either loss of life or damage equal to or more than the replacement cost of the item. A System Safety Assessment Report shall be delivered in accordance with DID UAV002 and shall include the PHA as an attachment.

8.0 DELIVERABLES AND SCHEDULE

8.1 Equipment

The Contractor shall deliver thirty days after contract award equipment outlined in Attachment (A). The equipment shall be packaged and forward shipped to the destination specified upon contract award.

8.2 Engineering Analysis

The Contractor shall provide an engineering analysis report and related documentation to support airworthiness design and potential FAA flight worthiness certification.

The data provided shall include conditions and assumptions used for engineering design and analysis for static and dynamic loads in ground and airborne environments. If obtained a certified copy of the FAA approved flight worthiness certificate shall be provided along with proposal submission. Additionally the supporting engineering analysis report shall include identification of specific standards to which the UAV System was built and shall be delivered no later than sixty days after contract award.

8.3 Documentation

As referenced in section 3.3.5 above the Contractor shall provide copies of the documents listed below. One copy of the data shall be delivered in paper and one copy in electronic format. The electronic format shall be in Adobe Acrobat. Documents shall include engineering mechanical drawings, electrical drawings, and other documentation as required. Interface documents shall define configuration thermal protection, electrical power connections, circuit protection, system interface requirements, and associated rationale. Interface documents shall define the necessary data exchanges and interfaces between the UAV System and other avionics systems. The documents are deliverables under the contract and shall be delivered no later than thirty days after contract award. Updates shall be included as part of the tasking for updated documentation described below:

Equipment Specification
Interface Control Document
System Functional Description
Built in Test Functional Description
Air Vehicle Troubleshooting Procedures
Emergency Procedures
Operation and Maintenance Manuals
Checklists
Special Tools and Test Equipment Requirements

Critical Spares List

8.4 Logistics Support Plan

The Contractor shall provide a Logistics Support Plan for the UAV System in accordance with DID UAV003 thirty days after contract award and shall include the following:

A. Supply Support – The Contractor shall provide supply support to include all spares (e.g., repairable units, assemblies, modules), repair parts (i.e., non-repairable components), consumables (e.g., liquids except UAV fuels, lubricants, disposable items), special supplies, and related inventories needed to maintain the prime mission-related equipment, computers and software, test and support equipment, transportation and handling equipment, training equipment, and facilities. The Contractor shall identify long lead items and critical spare quantities in the form of a recommended spares list for consideration by CBP, plus provisioning and procurement activities, and documentation associated with material acquisition, handling, distribution, recycling, and disposal. Specifically identify all EPA listed hazardous materials used in the primary systems or for maintenance.

B. Packaging, Handling, Storage and Transportation – The Contractor shall identify all materials, equipment, special provisions, containers (i.e., reusable and disposable), and supplies necessary to support the packaging, preservation, storage, handling, and/or transportation of the prime mission-related elements of the system, personnel, spares and repair parts, test and support equipment, technical data, software, and mobile facilities. This includes the initial and sustaining transportation requirements in support of the distribution of materials and personnel.

C. Facilities – The Contractor shall provide information related to the physical and structural dimension requirements required to support the mission operational, maintenance, support, and housing functions; capital equipment and primary utilities (e.g., heat, power, energy requirements, environmental controls and communications) to include any unique requirement that is outside of US NEC or other building code standard. Additionally the Contractor shall identify airfield runway requirements and note if a FAA airfield safety waiver is required.

D. Technical Documentation – The Contractor shall provide system installation and checkout procedures, operating and maintenance instructions, inspection and calibration procedures, overhaul instructions, facilities data, modification instructions, engineering design data (e.g., specifications, drawings, materials and parts lists, digital data), supplier data, logistics provisioning, and procurement data that are necessary in the performance of system development, production, operation, maintenance, and retirement functions. Data should cover the prime mission-oriented system and other support infrastructure as well (i.e., test and support, transportation and handling, and training equipment and facilities). Technical data includes information system capabilities and associated databases, archives, and e-file solutions.

E. System IT (Computer) Hardware and Software – The Contractor shall identify all computers, associated software, interfaces, and the networks necessary to support scheduled and unscheduled prime mission and other support activities. This may include condition-monitoring programs, diagnostic tapes, and associated requirements for the implementation of computer aided design, maintenance and logistic support capability.

F. Personnel – The Contractor shall identify personnel (i.e., organic, reimbursable, and Contractor) required for the installation, checkout, and sustaining maintenance and support of the system, its prime mission-related elements, and the other elements of support (e.g., test equipment, transportation and handling, facilities, mobile teams, operators at test facilities and calibration laboratories).

G. Training – The Contractor shall include all personnel, equipment, facilities, data/documentation, and associated resources necessary for the training of system operational and maintenance personnel to include both initial and refresher training. Training equipment may include (e.g., simulators, mockups, special devices, and computers), data, and software developed and utilized as necessary to support both the informal day-to-day training and that of a more formal nature.

H. Configuration Management – The Contractor shall provide a configuration management plan that identifies the management of the systems and associated support systems configuration as they are deployed and for their life cycle. Establish the methodology to establish configuration identification, manage engineering changes, maintain status accounting, and perform audits/assessments and reviews.

I. Maintenance and Support Planning – The Contractor shall include all planning and analysis associated with the establishment of requirements for the overall support of a system throughout its life cycle. Identify reliability parameters through supportability and maintainability analyses; identify maintenance requirements from user to original equipment manufacture (OEM) or other, from initial testing to the retirement stage. Maintenance and support planning should result in the integration of the various facets of support with each other (i.e., calibration, Intra/Inter-servicing and mobilization support), with the prime mission related elements of the system, and should lead to the definition and development of a complete life-cycle support operation.

J. Support Equipment – The Contractor shall identify all tools, condition monitoring equipment, diagnostic and checkout equipment, special test equipment, metrology and calibration equipment, maintenance fixtures and stands, and special handling equipment required to support all scheduled and unscheduled maintenance actions associated with the system. Test and support equipment requirements at each level of maintenance must be addressed as well as the overall requirements for test traceability to a secondary standard and ultimately to a primary standard of some type.

K. Cost Plan (Life Cycle Cost) – Historically logistic life-cycle costs account for 90% or more of a prime mission system price. The Contractor shall provide cost estimates for all of

the support and estimated annual operation budget amounts that shall be required to support the system.

8.5 Test Plan and Test Reports

The Contractor shall provide a test plan for performance determination for any upgraded equipment. The test plan shall include minimum parameters that are guaranteed by the Contractor in order to meet CBP performance requirements as stipulated in the referenced performance specification. The test plan shall be supplied no later than thirty days prior to the scheduled test. Test reports shall be submitted in accordance with the CBP approved test plan and shall be submitted no later than 30 days following completion of acceptance testing. The plan shall be delivered in accordance with DID UAV004.

8.6 Warranties

Provide warranties as stipulated in Section I of the contract.

8.7 Engineering and Technical Services

Provide services as stipulated in 3.2 above. The services are to be provided throughout the contract period.

8.8 Program Management Plan

The Contractor shall provide, as part of the proposal, a Program Management Plan (PMP) that defines Contractor organizational structure, their program management systems and procedures, and responsibilities and authority of senior management staff assigned to this effort. The Contractor shall also maintain data files containing all information developed for and associated with the design, development, integration, manufacturing, installation, and testing of the UAV System delivered to CBP. Management reports summarizing program status, program changes, and program issues shall be submitted monthly in accordance with DID UAV001.

8.9 Data Files, and Reports

The Contractor shall provide reports including, but not limited to, the following: scheduled flights, aborted or flown, to include takeoff and landing times (local), duration of flight in hours and tenths of hours, system status upon recovery of aircraft Code 1 - Immediately ready for flight, Code 2 - Non-mission essential equipment inoperative, Code 3 - Mission essential equipment inoperable) and description, nomenclature, part numbers of any old/new equipment changed between flights, air vehicle and mission support equipment availability and status (e.g., UAV, GCS, SCTs, RVTs); UAV sensor availability and status (e.g., any failure of the reported systems, time awaiting parts, time to repair these systems); a daily summary of maintenance and repair actions by major system; and other logistics support data as specified by the Logistics Support Plan.

Following each flight, the Contractor shall review and analyze operations and mission data; sensor and other recorded data; and debrief with the CBP UAV FOSC and OBP personnel, to

document lessons learned and to suggest program, process, and/or product improvements. The Contractor shall also support and offer input to CBP's post-flight discussion of tactics and sensors employed, mission effectiveness, suggested improvements to tactics, and any items affecting future operations. Again, if the UAV Systems are collocated, these briefings may be combined.

9.0 TEST REQUIREMENTS

9.1 Test Objectives

The purpose of the testing is to evaluate the UAV System against both specification and contractual requirements that address system operation and functionality. The UAV System shall be tested in accordance with applicable commercial procedures/practice as normally performed in preparation for, and in the execution of, a functional/operational check flight. The ground tests and functional/operational check flight shall include all test procedures required to ensure safety of flight and demonstrate that the system conforms to specifications.

9.2 Scope of Tests

The testing shall include ground acceptance tests, flight acceptance tests, performance evaluations, and inspections by both the contractor and the Government. Testing shall be performed on all UAV System deliveries to include systems integration and upgrades. The contractor shall perform sufficient testing to demonstrate proper installation and operation of all air vehicle systems to include external systems and their interfaces. Contractor functional/operational flight/systems testing shall be conducted prior to Government final acceptance at the contractor's facility or upon delivery as so designated. Contractor tests shall exercise and verify the functionality and operation of individual systems, as well as the total integrated UAV System. Contractor testing shall ensure that individual components properly interface with each other to perform the UAV mission as defined in the referenced Government specification.

9.3 UAV System Test Plans and Procedures

The Contractor shall prepare and submit for approval the UAV System test plan and procedures in accordance with DID UAV004 in Contract Section J, Attachment 3. The test plan procedures shall describe comprehensive test procedures for components, subsystems and all systems required by this SOW and associated specification. The procedures shall be delivered to CBP for review upon contract award. Component and subsystem testing procedures and subcontractor test procedures may be approved at that time. The Contractor shall not proceed with system testing until receiving CBP approval of the system test procedures.

9.4 Responsibilities

The purpose of this section is to delineate the responsibilities of the contractor and the Government during the acceptance testing of the UAV System.

9.4.1 Contractor Test Requirements

The Contractor shall perform and complete the tests in sufficient time to meet the contractual delivery date of the air vehicle to the Government. If an item or element has been previously tested and has met the requirements of this specification, additional testing is not required if substantiating data/reports so indicate. Changes to the test plan or schedule for systems integration and upgrades shall be provided to the Government at least 30 days prior to the initiation of these tests. In some instances, concurrent Government sign off of contractor factory tests shall be used in lieu of a separate Government final acceptance test. CBP reserves the right to witness all Contractor testing and shall make the sole determination when concurrent sign off is acceptable.

The Contractor shall perform testing in accordance with engineering test procedures and Maintenance Instruction Manuals (MIMS) at a place of its choosing, using personnel, facilities, equipment, and services as necessary to ensure thoroughness and completeness of the testing. The Contractor shall provide flight crew personnel to conduct flight-testing.

The Contractor shall be responsible for preparing the UAV System for ground and flight tests to be conducted at the contractor's facility or at another site specified by the government. The Contractor shall also be responsible for providing the necessary support equipment, to include special test sets, for conducting ground and flight tests.

The Contractor shall be responsible for identifying any technical testing support required from external suppliers. Technical support may include assistance with the testing and/or include troubleshooting assistance in the event of a discrepancy discovered during testing. Any required technical support from CFE suppliers shall be the responsibility of the Contractor.

Prior to the commencement of Government final acceptance tests, the contractor shall perform the types of testing listed below to ensure adherence to applicable specifications and compliance with contractual requirements.

1. Test to satisfy suitability of the UAV System for flight to include day and night operations.
2. Maintenance functional/operational flight/systems tests.
3. Communication tests including data transfer functions, both external and internal.
4. Navigation systems tests.
5. Flight management system tests.
6. Autopilot and flight control system tests.
7. EO/IR and radar functional tests.
8. Data handling and display system tests.

As part of the contractor test requirements, the contractor shall provide analyzed data on these tests to the Government for evaluation, to include completed flight/operational acceptance test checklists to document their performance of the specific tests listed above. In addition, the contractor shall provide copies of all completed test procedures applicable to this effort to CBP 15 calendar days after completion of contractor flight/operational test of each UAV System in accordance with DID UAV005.

9.4.2 Government Test Requirements

The Government shall prepare and provide to the contractor a Government Acceptance Test Plan (ATP) at initial contract signing and 30 days prior to the commencement of Government testing for follow-on purchases or systems upgrades. Government sign off of contractor factory tests may be used in lieu of a separate Government final acceptance test. CBP shall make the sole determination when concurrent sign off is acceptable.

Government final acceptance shall be performed at the contractor's facility or other location specified by the government following completion of Contractor testing. Government testing shall be concurrent with Contractor testing prior to the scheduled delivery date of the air vehicle as specified in Section F of the contract. CBP shall perform the following inspections and tests as the basis for air vehicle acceptance:

Inspection and Acceptance

1. Review contractor testing to determine contractual compliance.
2. Evaluate results of Contractor UAV System tests; identify any deficiencies and their impact, i.e., waive additional testing, etc.
3. Review contractor QA inspection documentation and sign off.
4. Conduct UAV System physical inventory.
5. Conduct inventory of documentation delivered.
6. Inspect UAV System logbooks (as applicable).

9.5 Test Criteria

Hardware and software shall be tested to the functional and performance criteria contained in the documents listed in section 2.1 of this SOW and revised as needed to incorporate the requirements of this SOW.

9.6 Test Data Evaluation

The Government shall have sole responsibility for final evaluation of all test data. The contractor shall provide clarification assistance relating to test data as requested.

ATTACHMENT A

CBP UAV System

The following deliverables are due within thirty days of contract award.

CLIN	Nomenclature Part Number	Qty	Delivery Date
0001.1	Air Vehicle	01	Within thirty days of contract award
0001.2	Electro-optical/infrared (EO/IR) sensor w/ Laser illuminator	01	Within thirty days of contract award
0001.3	Transportable Ground Control Station (GCS)	01	Within thirty days of contract award
0001.4	Sensor Control Terminal (SCT)	01	Within thirty days of contract award
0001.5	Remote Video Terminal (RVT)	02	Within thirty days of contract award
0001.6	Launch and Recovery System (as required)	01	Within thirty days of contract award
0001.7	Synthetic aperture radar (SAR) w/ Ground moving target indicator mode (GMTI)	01	Within thirty days of contract award
0001.8	Signals interception receiver	00	
0001.9	Communication relay transceivers	01	Within thirty days of contract award
0001.10	Hyper-spectral sensor (optional)	00	
0001.11	Ground Data Terminal (GDT)	00	

0005 **Data Deliverables**

Equipment Specification	1	Within thirty days of contract award.
Interface Control Document	1	
System Functional Description	1	
Built in Test Functional Description	1	
Air Vehicle Troubleshooting Procedures	1	
Emergency Procedures	1	
Operation and Maintenance Manuals	1	
Special Tools and Test Equipment Rqmts.	1	
Equipment Level Specifications	1	
Critical Spares List	1	
Logistics Support Plan	1	Within thirty days of contract award.

Shipping Address:
All Equipment: To be provided upon contract award.

Data Deliverables: COTR (to be determined at award)
1300 Pennsylvania Avenue, NW, Suite 1575
Washington, DC 20229

ATTACHMENT B

PERSONNEL QUALIFICATIONS

1. The Contractor shall be responsible for employing personnel having the following levels of education, professional, and technical experience. These qualifications are only a baseline; contractors should strive for technical excellence in personnel by demonstrating experience and qualifications beyond these qualifications.

2. The specialized experience included as part of the required qualifications shall have been obtained in the field of endeavor indicated by the applicable labor categories listed below. The experience indicated in the following labor categories must have been performed during the past five years. In cases requiring experience of more than five years, at least five years of the total experience must be within the past five year period. Key personnel are those who will be performing in Key Labor Categories listed below. The number of resumes required per key labor category are shown in brackets.

3. Personnel must have, or be able to obtain the appropriate security clearance as stated on the DD Form 254 (Section J, Attachment 5). Personnel bid for the labor categories annotated with an (*) below shall have a Secret clearance at the time of award. In addition to these categories, Secret clearances shall be required for other labor categories, depending on actual tasking throughout the duration of the contract. Proof of U.S. citizenship is required to be permitted access to government facilities.

Note: All required experience for all labor categories may have been obtained concurrently. All degrees shall be obtained from an accredited college or university.

DEFINITIONS

As used in the minimum personnel qualification descriptions for this contract, the terms indicated shall be defined or their meaning qualified as follows:

academic year - a full or complete year of study at a junior college, college, university, or other academic institution toward which at least 30 semester hours or 45 quarter hours of undergraduate study, or 18 semester hours or 27 quarter hours of postgraduate study, were completed.

accredited educational institution - a post-secondary educational institution (junior college, college, university, technical trade, or professional school) which was approved by an accrediting agency listed as nationally recognized by the U.S. Department of Education.

accredited program - an educational program or course of study offered by a post-secondary educational institution which was approved by an accrediting agency listed as nationally recognized by the U.S. Department of Education.

degree - an academic title conferred by an educational institution upon completion of a unified course of study; if not otherwise qualified, the term shall mean a degree at the bachelor's, master's, or doctoral levels only.

engineering or engineering discipline - when used in relation to educational or work experience requirements, "engineering" shall mean any of the following specific subjects, disciplines, or areas of work experience only: aerospace, ceramic, chemical, civil, computer, electrical, electronics, industrial, materials, mechanical, nuclear, or safety engineering, and engineering science.

experience and years of experience –

a) When used in relation to requirements for past participation in professional work or employment activities, "experience" shall mean full-time (on the basis of a standard forty hour workweek) participation, at least one-half of which time was spent performing qualifying functions as practitioner or employee.

b) When used in relation to requirements for a particular term or period of participation, "years of experience" shall mean full, productive years of participation. Productive years are work years of fifty-two weeks reduced by reasonable amounts of time for holiday, annual, and sick leave. If participation was part-time, or if less than one-half of the standard work week was spent performing qualifying functions, the actual time spent performing qualifying functions may be cumulated to arrive at full years (or years and months) of experience. For example, only the actual number of full days (or full-day equivalents) of duty or drills completed during a year of military reserve participation, or in other qualifying part-time employment or practice may be cumulated toward years of experience. Qualifying part-time experience performed in addition to other full-time qualifying employment during the same period of time may be cumulated on a full-time equivalent basis and added to the full-time experience to satisfy a total experience requirement.

c) When both an educational/training qualification and an experience qualification are indicated as minimum requirements, only the experience attained after attainment of the related educational qualification will be considered as qualifying experience. Stated otherwise, only post-degree or post-training activities shall be considered as satisfying total "experience" requirements.

postgraduate degree - a master's, Ph.D., or other professional degree for which completion of an undergraduate curriculum for receipt of a bachelor's degree was a prerequisite.

related field - Field of study with a similar curriculum of study but referenced by a different name.

KEY LABOR CATEGORIES

*Program Manager	(1)
*Senior Engineer	(1)
*Air Vehicle Operator/Pilot	(2)
*Mission Payload Operator	(2)

NON-KEY LABOR CATEGORIES

Engineer
Air Vehicle Maintenance Technician
Senior Logistics Analyst

QUALIFICATIONS

Program Manager
(Key) This labor category shall serve as the overall lead or director on the contract and as the liaison between the contractor and the Government. Minimum qualifications are:

Minimum/General Experience: Ten (10) or more years of experience in aviation and systems engineering or program management and supervision of multiple projects in aviation and systems engineering or the design of or field service of aviation communication-electronic systems.

Minimum Education: Bachelor's degree from an accredited school in the areas of Engineering, Systems Management, Science or Business Administration.

Senior Engineer
(Key) This labor category shall serve as a project manager or team leader for the support of tasking involving system concept formulation, system and subsystem design analysis, interface design analysis, field service analysis and evaluation of communication-electronic systems. Minimum qualifications are:

Minimum/General Experience: Five (5) years of practical aviation and engineering experience in electronic systems engineering/analyses or integrated communication-electronic systems.

Minimum Education: Bachelor's degree in Engineering or Physics from an accredited school.

Engineer
Responsibility: Provide engineering direction and guidance for system design, installation, integration and testing.

Minimum/General Experience: Three (3) years of general aviation and engineering experience in systems engineering/analyses or integrated communications-electronics systems.

Minimum Education: Bachelor of Science degree in Engineering or related engineering discipline.

Air Vehicle Operator/Pilot
Responsibility: Performs Unmanned Air Vehicle (UAV) technical and/or flight operations. Responsible for UAV pre and post flight system checks, and navigates the UAV to accomplish mission requirements. Must be thoroughly familiar with remote piloting systems, aerodynamic, and UAV flight performance operation parameters.

Minimum/General Experience: Five (5) or more years of experience in a relevant functional area.

Minimum Education: Associates degree or equivalent, or directly applicable military training

Mission Payload Operator
Responsibility: Performs advanced engineering and/or analysis tasks required for operation of Unmanned Air Vehicle (UAV) onboard sensor(s) while in flight. Performs sensor calibration and baseline instrumentation set-up. Performs data collection to meet customer needs and insures data quality control. Records and interprets sensor data. Optimizes sensor performance for given tasks. Applies advanced engineering and/or analysis practices, concepts, and data collection procedures. Gathers information, analyzes problem areas, adjust instrumentation and performs system modifications as necessary to enhancements data acquisition.

Minimum/General Experience: Six (6) or more years of general experience including at least three (3) years of specialized experience in the required area of expertise.

Minimum Education: Associates degree or equivalent, or directly applicable military training

Air Vehicle Maintenance Technician
Responsibility: Performs UAV maintenance and/or technical activities such as preventative and corrective maintenance to insure successful completion of air mission operations. Prepares the UAV systems for flight and acts as a ground safety observer during flight operations.

Minimum/General Experience: Three (3) or more years of experience in a relevant functional area or training sufficient to enable the successful accomplishment of assigned air vehicle maintenance tasking.

Minimum Education: Associate's degree or equivalent directly applicable military training.

Senior Logistics Analyst
Responsibility: Provide logistic technology that ensures effective support of integration, installation, and test and evaluation. Minimum qualifications are:

Minimum/General Experience: Four years of experience in the field of aircraft integrated logistics support.

Minimum Education: Associate's degree in a technical discipline from an accredited school or a High school diploma plus six (6) years of experience in the field of integrated logistics support.