PART I - SECTION C
SCOPE OF WORK

1.0 BACKGROUND. This statement of work (SOW) specifies the requirements for maintenance and logistics support of Northrop Grumman–manufactured Rapid Deployment Voice Switching Systems (RDVSs), Enhanced Terminal Voice Switches (ETVSs), and Small Tower Voice Switches (STVSs). These systems provide ground-to-ground (G/G) and air-to-ground (A/G) voice communications between pilots and air traffic control personnel at facilities in the National Air Space (NAS) to include Air Traffic Control Towers (ATCTs), Automated Flight Service Station facilities, and Terminal Radar Approach Control Facilities (TRACONs). These voice switches also provide G/G and A/G audio interconnectivity between air traffic personnel located in separate facilities.

1.1 HARDWARE DESCRIPTIONS. There are two (2) Northrop Grumman–manufactured RDVS models that require maintenance and logistics support: 3080F, and 3080H. Each model performs the same function. See Appendix I for specifications of RDVS Model 3080. The ETVS was developed to replace obsolete electromechanical switching units and provides improved voice switches for new and modernized ATCTs and TRACONs. The STVS is an integrated voice switching system installed in small ATCTs to provide access to both A/G and G/G communications resources. The FAA requires second-level support for RDVS, ETVS and STVS as described in paragraph 3.6.

2.0 SCOPE OF MAINTENANCE REQUIREMENT. This SOW includes requirements for a logistics and component repair service, the provision for on-site and depot-level RDVS spares, the provision of consumable items and materials, component exchange and repair (E&R) service, RDVS test bed system repair and maintenance, maintenance engineering services, system moves and changes and relocation tasks, system position expansion tasks, and system functional enhancement tasks

2.1 REPAIR QUALITY ASSURANCE PROGRAM. The Contractor must establish and maintain a quality assurance program in accordance with ANSI/ISO 9001, Quality Management Systems Requirements, and the terms of this contract. This program must include the repair of assemblies, modules, and components, ensuring that Line Replaceable Units (LRUs) provided to the FAA-supported sites meet the following standards:

a. Repairs have been accomplished using approved components;
b. Repairs have been accomplished with approved workmanship standards; and
c. Components are operable.

2.2 PACKAGING AND PACKING FOR DELIVERY TO FIELD SITES. The Contractor must mark all items shipped to FAA field sites, at a minimum, with the part number, part nomenclature, and quantity contained in the package. The Contractor must package assemblies and modules for shipment to field sites in reusable containers to facilitate return shipping between the FAA RDVS, ETVS, and STVS facilities and the repair facility. Packaging must conform to the requirements of ASTM D3951.

2.3 LOGISTICAL SUPPORT MANAGEMENT. The contractor must support all logistical needs of the RDVS units.

2.3.1 **National Telephone Hotline Service.** The Contractor must establish a toll-free telephone hotline service allowing the FAA to request support on a 24-hour, seven (7) day per week basis, including holidays. The Contractor must furnish the FAA Contracting Officer's Representative (COR) with the national telephone hotline number. The Contractor must notify the FAA COR in writing within two (2) working days of any changes to the management or service of the National Hotline Number. The Contractor must document all calls, including the date, time, location, problem reported, proposed solution, status of the resolution, and whether and how the problem was resolved.

2.3.2 **Response to Trouble Reports and Incidents.** The Contractor must provide a sufficient, fully trained and qualified workforce to ensure full support of the requirements described in Section 3.0, Requirements. All Contractor personnel making visits to FAA sites must report to the local FAA Technical Operations representative or, in the representative's absence, to the local FAA operational supervisor before initiating any maintenance activities.

3.0 REQUIREMENTS

3.1 **LOGISTICS AND COMPONENT REPAIR SERVICE.** The Contractor must provide all qualified labor, supervision, tools, appliances, materials, documentation, equipment, shipping, and services necessary to provide logistical re-supply of on-site consumable stocks and the exchange and repair of Line Replaceable Units (LRUs) for RDVS hardware throughout the life of the contract.[1] See Appendix II for a list of sites equipped with RDVS.

3.2 **ON-SITE RDVS SPARES.** The Contractor must furnish all personnel, tools, materials, equipment, documentation, and services necessary to replace on-site spare LRUs and consumable items and accomplish restoration of service necessary to ensure system availability for the RDVSs.

3.2.1 **Response to Orders for Assemblies and Modules.** The Contractor must ship serviceable assemblies or modules to arrive at the applicable site within one (1) business day after receiving a request from either the FAA COR or the on-site maintenance organization.

3.2.3 **Return of Failed LRUs from Supported Sites.** The FAA on-site maintenance organization will ship failed LRUs to the Contractor's repair facility upon receipt of a replacement LRU from the Contractor. The Contractor must make any and all payments for return shipping of LRUs. Failed RDVS LRUs will be shipped to arrive within five (5) business days at the Contractor's repair facility.

3.3 INVENTORY OF ROTABLE SPARES

3.3.1 **Rotable Spares Pool at Contractor's Repair Facilities**. The Contractor must maintain, at its facility, a demand-oriented rotable-spares inventory of LRUs to ensure delivery of items to FAA sites and maintain working systems throughout the life of the contract.

3.3.2 **Tasks for Replacement of Unrepairable On-site and Depot-level Spares.** As directed by task order, the Contractor must provide replacement on-site spare and Depot-level RDVS assemblies and modules for those assemblies and modules that the Contracting Officer determines are not repairable due to any damage, whether or not within the Contractor's control, as a result of field application of modifications; field mishandling; inadequate field storage; inadequate packaging of field returns; or inappropriate field application of replacement procedures. Although the allowable turnaround time for each

[1] Line Replaceable Units (LRUs) are defined as essential support items that can be readily and expeditiously removed and replaced at ATC facilities to restore RDVS systems to operationally ready conditions.

replacement task may vary, the contractor must replace unrepairable spares in a timeframe that will not impede the safe operation of the NAS.

3.3.3 **Increases in Inventory**. The contractor must meet the FAA's future demands for any increase in the quantities and types of RDVS components, as directed by task order. The increase of the inventory will be funded through said task orders. The contractor must provide depot spares.

3.3.4 **Accountability of RDVS Spares**. The Contractor must provide all labor, supervision, and records necessary to account for the utilization and control of Contractor spares in accordance with the provisions of the contract.

3.3.5 **Replacement of RDVS Components**. The Contractor must provide all labor, material, tools, equipment, documentation, and services necessary to provide replacement parts, components, and assemblies.

3.3.6 **RDVS Spare Assembly and Module Listings**. The Contractor must provide complete lists of RDVS depot spares, components, and assemblies. The Contractor must electronically transmit to the FAA COR copies of these lists, along with location applicability, or a copy of the spare list for each site. The Contractor will submit these lists within sixty (60) calendars days after contract award. These lists must, at a minimum, provide the nomenclature, type applicability, manufacturer, manufacturer's identifying part number, and quantity for each individual spare assembly or module.

3.4 **CONSUMABLE ITEMS AND MATERIALS.** The Contractor must provide an on-site supply of system consumable items (e.g., fuses, lamps, filters, and connectors) necessary to effect preventive and corrective maintenance on the supported systems throughout the life of the contract. The Contractor must provide sufficient types and quantities of consumable items to perform the replacement of all assemblies and modules.

3.4.1 **Minimum Complement of Consumables**. The consumable items supplied to each site must at a minimum consist of sufficient quantities to perform each required scheduled preventive maintenance task.

3.4.2 **Replenishment of On-Site Consumable Stocks**. The Contractor must replenish consumable supplies within five (5) working days of notification of a shortage by the FAA on-site maintenance organization.

3.4.3 **On-Site Consumable Items and Material Listings**. The Contractor must provide a list of all consumable items and materials provided to each supported facility. The Contractor must provide a copy of the applicable site consumable items and material listing to the FAA Technical Operations Manager for each supported location. The Contractor must also electronically transmit a copy of the consumable items and material listings, along with location applicability, or a copy of the site listing, for each site to the FAA COR within sixty (60) days of contract award. These lists must, at a minimum, provide nomenclature, manufacturer, manufacturer's identifying part number, unit of issue, and quantity of units provided for each consumable and material item.

3.5 RDVS TEST BED SYSTEMS.

3.5.1 [Reserved].

3.5.2 Contractor's Test Bed. The Contractor-provided 3080F and 3080H test bed must include an RDVS test system, comprised of RDVS assemblies, to test operability of LRUs in a total system environment and an Automatic Test Equipment (ATE) test system to diagnose RDVS LRU component failures.

3.5.3 Test Bed Maintenance and Repair. The Contractor must provide both hardware and software preventive and corrective maintenance services by qualified technicians as well as the application of Government-approved modifications.

3.6 MAINTENANCE ENGINEERING SERVICES (SECOND-LEVEL SUPPORT) FOR RDVS, ETVS, AND STVS. The Contractor must provide all qualified labor, supervision, tools, appliances, materials, documentation, equipment, shipping, and services necessary to provide maintenance engineering services for RDVS, ETVS, and STVS systems as directed by task order. See Appendix III tabs one and two for sites equipped with ETVS and STVS, respectively. Maintenance engineering services include logistics engineering in support of the FAA.

3.6.1 Telephone Technical Advisory Service. The Contractor must establish a technical advisory telephone service telephone available 24 hours per day, 7 days per week, including holidays. This service must provide technical experts who will assist AJW-173 personnel in resolving RDVS, ETVS, and STVS maintenance, diagnostic, and repair problems. Response from these experts must be provided by telephone within a maximum of two (2) hours after the request for the service.

3.6.2 Maintenance Support Engineering. When ordered, the Contractor must provide engineering services for the support of AJW-173. Task-ordered engineering services will be related to the resolution of inherent RDVS, ETVS, and STVS problems and may include hardware, software, and documentation requirement analysis, design, modification development, modification production, and modification testing.

3.6.2.1 Engineering Analysis. As directed by task order, the Contractor must provide in-depth engineering analysis and assessments of hardware, software, and documentation problems dealing with supportability, maintainability, reliability, performance, and operation of the supported equipment.

3.6.2.3 On-Site Technical Assistance. The Contractor must provide, when ordered, on-site technical assistance to the FAA in resolving RDVS, ETVS, and STVS problems. This capability must consist of senior technicians, engineers, and computer scientists with experience in diagnostics, operating systems, application software, and system hardware design and operation. The required personnel must be available at the location specified within 24 hours of the request for continental United States locations and 48 hours for other locations.

3.6.3 Logistics Engineering Support. When ordered, the Contractor must provide engineering analysis, documentation, and testing services in support of AJW-173. The services include maintenance of design and production data; logistics engineering; modification development, design, and testing; and application of FAA modification.

3.6.3.1 Maintenance of Design and Production Data. As a part of logistics engineering support efforts, the Contractor must update all hardware, firmware, and software design, configuration, and production data and documentation to reflect any applicable changes resulting from FAA-approved

component substitutions and modifications. Design and production data and documentation to be maintained includes but is not limited to the following:

A. Engineering drawings and associated listings detailing the fabrication of equipment,

B. Master patterns,

C. Equipment specifications,

D. Software and firmware data,

E. Automatic test equipment and test program sets including adapters and documentation,

F. Bench tests program sets including adapters and documentation,

G. Repair and production test procedures,

H. List of required depot-level test equipment and tools,

I. Special processes and tool information,

J. Parts lists for all hardware, and

K. Depot-level repair procedures and manuals

3.6.3.2 **Logistics Engineering**. Logistics engineering at a minimum, include the following steps:

A. Identify the component non-availability problem reported by the logistics repair service;

B. Provide an engineering analysis;

C. Develop and test the substitution or re-design along with associated change documentation;

D. Submit the proposed modification package, consisting of revised system instruction manual schematics and parts lists, along with a demonstration of the modification test, to the COR or designated FAA representative for implementation approval; and

E. Update the system design and production data to reflect the approved change**.**

3.6.4 **Modification Development, Design, and Testing**. The Contractor must develop**,** design, and test modifications to system hardware, software, and documentation resulting from approved change proposals. These efforts must include the development of any and all appropriate changes or additions to system documentation.

3.6.4.1 **Application of FAA Modifications**. The Contractor must apply FAA-generated hardware, firmware, and software modifications to RDVS, ETVS, and STVS equipment at the Contractor's facility as well as the Contractor's test bed equipment. The FAA will direct application of necessary Government-furnished modification kits and provide necessary data.

3.6.4.2 **Application of Modifications to LRUs**. The Contractor must apply FAA-approved modifications during the repair of failed components that have been returned to the Contractor's facility prior to placement in depot spare stocks.

3.6.4.3 **Non-Availabi1ity of Component Modifications**. When a component fails that is no longer available, the Contractor must apply FAA-approved modifications to the returned LRUs.

3.6.4.4 **Enhancement Modifications**. FAA-approved modifications resulting from system enhancement tasks must be applied by the Contractor to all repair facility stocks and to the test beds.

3.6.4.5 **Emergency Modifications**. The FAA reserves the right to approve and apply emergency modifications to the RDVS, ETVS, and STVS equipment and to Contractor-provided assemblies and modules for the protection of life and property and for emergency safety reasons. This authority is vested in AJW-173. Application of these modifications does not constitute grounds for the Contractor to reject receipt of returned LRUs or other equipment. The Contractor must maintain all FAA-approved and FAA-applied emergency modifications to RDVS, ETVS, and STVS equipment.

3.7 **SYSTEM MOVES, CHANGES, AND RELOCATION TASKS**. These services include system moves, changes, and relocation tasks; system expansion tasks; and system enhancement tasks. The Contractor must provide required personnel along with necessary tools, test equipment, and materials to move, reconfigure, and relocate equipment at RDVS, ETVS, and STVS facilities on an ad hoc basis as directed by task order.

3.7.1 **Technicians**. The technicians provided by the Contractor must be familiar with the system and facility operational and maintenance requirements, system installation and checkout, and system interface, and must direct the required personnel in the accomplishment of the required work.

3.7.2 **Configuration Update**. The Contractor must update the RDVS, ETVS, and STVS facility configuration documentation to reflect any system move, change, or relocation as part of the ordered task.

3.8 **SYSTEM POSITION EXPANSION TASKS**. The Contractor must provide all labor, tools, equipment, materials, documentation, and services to add operational positions and associated system capacity to RDVS, ETVS, and STVS facilities on an ad hoc basis as required during the life of the contract and as directed by task order issued by the FAA Contracting Officer.

3.8.1 **Technicians and Installers**. The technicians and installers provided by the Contractor must be fully familiar with the system and facility operational and maintenance requirements, system installation and checkout, and system interface.

3.8.2 **Additional System Equipment**. The assemblies, modules, and software provided must be of the latest revision.

3.8.3 **Configuration Update**. The Contractor must update the RDVS, ETVS, and STVS facility configuration documentation to reflect any expansion as part of the ordered tasks.

3.9 **SYSTEM FUNCTIONAL ENHANCEMENT TASKS**. The Contractor must provide all labor, supervision, tools, equipment, materials, documentation, and services to add functional capabilities to RDVS, ETVS, and STVS systems on an ad hoc basis as required during the life of the contract and as directed by task order issued by the FAA Contracting Officer. Functional enhancement must be applied to the specified RDVS, ETVS, and STVS system equipment.

3.9.1 **Enhancement Development Program**. The Contractor must fully outline in its task proposal all processes, including quality assurance, management, development, design, production, and testing, to ensure that existing system functionality, availability, maintainability, reliability, and supportability will not be degraded.

3.9.2 **Configuration Update**. The Contractor must update all RDVS, ETVS, and STVS facility configuration documentation to reflect any enhancement as part of an ordered task.

4.0 APPLICABLE DOCUMENTS. The following documents are part of this specification to the extent identified herein. The Contractor must comply with the applicable specifications, rules, and procedures defined in these documents. The most recent version of each document as of award applies. If an option period is exercised, the version in effect as of the date of the option period exercise applies. The Contractor must notify the Government when it becomes aware of updates to applicable non-Government documents that may affect contract performance or price and include in its notification an assessment of such impact. After receiving the notification, the Government will decide whether the new version will apply to this contract and, accordingly, whether to accept the potential impacts and will so inform the Contractor. If a document is independently binding on the contractor, the most recent version always applies.

FAA Order JO 6400.1	Maintenance of Air Traffic Control Communication Services (available upon written request via electronic mail to the CO or COR)
ISO 9001	Quality Management Systems—Requirements
ASTM D3951	Standard Practice for Commercial Packaging

5.0 Reserved

6.1 QUARTERLY STATUS REPORTS. The Contractor must prepare and submit to the COR quarterly reports detailing monthly logistics, exchanges, and repair activities. At a minimum, these reports must identify types and numbers of LRUs repaired; any demand related adjustments made to repair service stocks of LRUs; and data on returned components considered by the contractor to be beyond economical repair. The reports must also identify types and numbers of components and accessories exchanged and repaired. The first quarterly report period will begin with the first day of the new contract period. A quarterly report will be due within fifteen (15) business days after the last day of each 3-month period.

6.2 TECHNICAL ASSISTANCE REPORTS. The Contractor must electronically transmit to the COR a quarterly report of technical assistance provided. These reports must, at a minimum, detail the date and the originator of each telephone advisory service call along with summary trip reports of each on-site visit. Trip reports must provide names of Contractor personnel, time and date of travel, nature of problem, and action taken to resolve problem. The first quarterly report period will begin with the first day of the new contract period. A quarterly report will be due within fifteen (15) business days after the last day of each 3-month period.

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