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*Miami-Dade County, Florida*

*Project Title: Telecommunications and Network Management*

## **SCOPE OF SERVICES**

### **ARTICLE 1** **SCOPE OF SERVICES**

#### **1.1 General Requirements**

The Contractor shall furnish all labor, new materials, tools, supplies and other items required for the design, installation, maintenance, repair, management and operational support services for all voice and data network infrastructure (“Work”) for MDAD, its users and Tenants and the management of Shared Airport Tenant Services (“SATS”) for the County to Tenants and users at the Airport.

The scope of services include the provisioning of voice and data network services and maintaining existing and future voice and data networks infrastructure Equipment including installation, operation, repair, maintenance, monitoring and support of all MDAD network and telephone devices such as PBX’s, IPE’s, routers, switches, servers, low voltage equipment and support of circuits, including vendor resolutions and support of environmentals including UPS devices for all switches and routers at all sites. Services include daily analysis of network performance to research trending and troubleshooting from end point to end point so to enable quick resolution of system degradation. Contractor shall also provide Capacity Planning for all network links, PBX switches and trunk groups.

The Contractor shall provide an on-site Help Desk and Network Operation Center IT Service Desk dedicated to providing uninterrupted service to Airport operations, including the provisioning of 24-7 access to a remote Technical Assistance Center (TAC) to help local staff resolve troubles as needed. Contractor shall manage the existing voice and data network infrastructure, and maintain records as required by MDAD, including but not limited to, equipment and cable plant, record keeping of work order activity, installed equipment inventory, telephone number inventory, number dialing plan, key sheets, and cable management to the IDF level and jack level for existing and new structure during the term of the Agreement.

The Contractor shall manage the turn-key installation of new voice, data and network services such as user training on equipment, project scheduling, appropriate billing to MDAD and SATS Customers, billing user customers for services, and also for the specified Equipment, including when specifically requested by appropriate work order, needs assessment, system design, procurement of equipment and parts, Documentation, record keeping and installed equipment inventory, and any other functions related to the provisioning of the services.

The Contractor shall also be responsible to provide, install and maintain technical systems hardware and software associated with the management of all telecommunications ATM and Gigabit Ethernet & ATM Infrastructure. The Contractor will provide the County a quote for the cost of such equipment. In addition, the Contractor shall maintain computer hardware and software and the database associated with the cable record systems, the New Security System CMS after the existing contract expires with that system’s provider, or any other CMS system used by MDAD to manage the cable infrastructure, and any billing and help desk system the Contractor chooses to employ subject to approval by MDAD. These Software applications shall be maintained and operated at such a level that is suitable to maintain the quality of service or additional requirements outlined in the Agreement or other (excluding the

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HEAT Incident Management Software) sections of this Specification.

At the request of the County the Contractor shall be capable of performing telecommunications infrastructure installations for new buildings, remodeling or additions to existing buildings, located on the airport property, including telephone, data network, wireless systems, public address system, airport Operational Systems, Building Management Systems, Life Safety, conduit and any telecommunications inside wiring and outside plant needed to support these or any other systems necessary to make the buildings operational, when these requirements are omitted or changed from the builder's original scope of work or if new requirements are identified since the original scope of work was prepared

If, at the request of the County, the Contractor performs the work above, the County shall reimburse the Contractor for the approved cost of such work. Upon the request of the County and advice as to the Work to be performed by the Contractor, the Contractor shall manage same in accordance with the provisions stated in the Agreement.

**1.1.1 Contractor Requirements:**

The following are requirements for the selected Contractor:

- a. The Contractor shall be experienced in providing the type of telecommunications services, presently provided by the current provider, to all MDAD locations presently serviced and any other telecommunications services stated in this document or as the County may require.
- b. The Contractor shall employ, maintain and assign to the performance of the Services a sufficient number of competent and qualified professionals, familiar with the locations of the telecommunications infrastructure at MIA and the other MDAD airports, and other personnel to meet the requirements referenced in this Agreement.
- c. The Contractor shall, as the single point of contact for the County be solely responsible for the performance of all the services, equipment and facilities that the Contractor will provide during the life of the Agreement.
- d. The Contractor shall bear responsibility for ensuring that all equipment cabling and wiring that will be provided during the life of the Agreement will be in complete compliance with this specification and with applicable Federal Communications Commission ("FCC") and Florida Public Service Commission requirements as well as Federal, State and Local laws, regulations, codes, etc. and shall remain compliant throughout the term of the Agreement.
- e. The Contractor shall bear the responsibility of all costs associated with the modification of equipment rooms to accommodate the Contractor's equipment and facilities, restoration of damaged property, any expenses incurred by the County during the installation and cutover of the Contractor's services, etc. The Contractor and all its sub-contractors shall conform to all OSHA, Federal, State and County regulations, including permitting requirements, while performing any services or Work that may be performed as a result of this Specification and Agreement.
- f. The Contractor's on-site employees shall not engage in any type of activities for the marketing or provisioning of services outline in this Agreement to entities other

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than MDAD and the SATS customers of MDAD during the term of this Agreement and the employees will be dedicated totally and solely to the fulfillment of the Contractor's obligations at the Airport required by this Agreement and Specification. The Contractor shall not market services NOT covered by this Agreement/Specification to SATS customers using the staff and facilities covered by this Agreement.

- g.** Except as may be required by law, the Contractor and its employees, agent, subcontractors and suppliers will not represent, directly or indirectly that any product or service provided by the Contractor or such other parties has been approved or endorsed by the County, but Contractor is not precluded from listing County as a customer.

**1.1.2 Staffing Requirements:**

The Contractor shall provide initial staff of fifty-two (52) persons which MDAD currently believes is necessary to support the operations, management, maintenance, service, support and equipment and supplies of the telecommunication and data network infrastructure, hardware and software systems as herein described in this Agreement.

The Contractor shall provide, either through its own staff or through subcontractors, the labor competent to perform the following described work, and as needed to perform the services required by the County.

Exhibit C provides the County's requirements regarding job descriptions and qualifications. County reserves the right, from time-to-time, to review all Contractor's employee resumes to ensure these requirements are being met.

The Contractor shall provide a list, quarterly, of all personnel assigned to the Agreement that includes their title and job responsibilities. Any changes in staffing shall be approved in advance by the Department. If additional personnel are needed to perform the services, the Contractor shall submit a staffing proposal request that includes justification, duration of need, and a cost proposal to the County for its consideration and approval. All Job Classifications and Rates for additional personnel shall be as shown in the price proposal as Exhibit F, entitled "Preliminary Budget Estimate" of the Agreement. Increase in personnel shall be considered based upon surges and/or additional scope requirements. Increases in work force shall be on an as needed basis and shall be mutually agreed upon and shall not be longer than actual need requires.

It is assumed that subcontractors shall only be used, subject to prior written approval from the Department, when the existing work force is unable to perform services within established time frames and for installation of cable and conduit requiring permits from the County's Building & Zoning Department.

Prior to the beginning of each month, the Contractor shall provide MDAD with its upcoming month's work schedule. This schedule shall list employee's name, date and hours each employee is scheduled to work throughout the month. The schedule shall also list the after-hours, emergency employee(s) name and cellular phone number.

The County reserves the right to review the Contractor's operations, and if the Work requirements decrease, can correspondingly reduce the Monthly Fee upon a thirty



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**1.1.3 Abbreviations:**

The following abbreviations when used in this Specification shall be construed as follows, except when it is clear from the context that another meaning is intended:

<b><u>ABBREVIATION</u></b>	<b><u>EXPLANATION OF ABBREVIATED TERM</u></b>
AFF	Above Finished Floor
AOIS	Airport Operational Information System
ASM	Airport Systems Manager
ATM	Asynchronous Transfer Mode
AWG	American Wire Gauge
Bellcore	Bell Communications Research
BHCA	Busy Hour Call Attempts
BICSI	Building Industry Consulting Service International
CAD	Computer Aided Design
CATV	Cable Television
CCS	Centum Call Seconds
CCTV	Close Circuit Television System, including cameras, intercom, and associated conduit and cable.
CMS	Cable Management System
CRC	On-Site Call Receipt Center (Help Desk). Available twenty-four (24) hours a day and seven (7) days a week, that users can access to report troubles associated with their voice, data and network services. Access to the Call Receipt Center can be by telephone, e-mail, or any other oral or written request.
CUTE	Common Use Terminal Equipment
DGM	Design Guideline Manual
EIA	Electronics Industry Alliance
GAA	General Aviation Airports

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GPS	Global Positioning System
GUI	Graphical User Interface
HVAC	Heating, Ventilation and Air Conditioning
IACS	Integrated Airport Communications System
ICEA	Insulated Cable Engineers Association
IDF	Intermediate Distribution Frame
IMO	Information Management Outlet
IPE	Intelligent Peripheral Equipment (Nortel's term)
ISO	International Organization for Standardization
IS&T	(MDAD) Information Systems and Telecommunications
IVR	Interactive Voice Response
LAN	Local Area Network
MAC	Move, Add, Change
MIA	Miami International Airport
MDAD	Miami-Dade Aviation Department
MDF	Main Distribution Frame
MEN	MIA Enterprise Network (LAN at MIA)
MTBF	Mean Time Between Failure
MTTR	Mean Time To Repair
NEC	National Electric Code
NIST	National Institute of Standards and Technology
NMS	Network Management System
OSHA	Occupational Safety and Health Act
OTDR	Optical Time Domain Reflectometer

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PBX, PABX	Private Automatic Branch eXchange, (Telephone Switch)
PDS	Premises Distribution System
PNL	Passenger Name List
POP	Point of Presence
POS	Point of Sales
PS	Power Supply
QBE	Query By Example
REA	Rural Electrification Administration
SNMP	Simple Network Management Protocol
SATS	Shared Airport Tenant Service
SLA	Service Level Agreement
TAMS	Total Airport Management System
Tenant	Shared Tenant Service Customer
TDR	Time Domain Reflectometer
TIA	Telecommunications Industry Association
TP - PMD	Official name for CDDI ("Copper Distributed Data Interface")
UPS	Uninterruptible Power Supply
VOIP	Voice Over Internet Protocol
WAN	Wide Area Network
WS	Workstation

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#### **1.1.4 Service Requirements**

Contractor's responsibilities shall include: (as more specifically defined elsewhere in this Specification)

1. Voice Equipment Installation and Maintenance Services
2. Data Network Equipment Installation and Management Services
3. Uninterruptable Power Supply (UPS) Power Supplies Maintenance
4. Network Management System
5. **On-Site** IT Service Desk
6. Hardware / Software Configuration
7. Move, Add and Change Services
8. Circuit Engineering and Documentation
9. Preventative Maintenance Services
10. Maintenance and Trouble Resolutions
11. Project Management Services
12. Shared Airport Tenant Services
13. Training Programs
14. Configuration, Change, Asset Management
15. Procurement
16. Spare Parts Maintenance
17. SATS Marketing, Order Taking, Proposal Preparation, and Billing
18. Reports
19. Disaster Recovery & Backup
20. Attend Meetings, as Required
21. Third Party Support Agreements including CATV
22. Cable Management System (CMS) Administration

#### **1.1.5 Equipment and Facilities Covered shall include:**

This Specification covers all Equipment, Systems and Sub-Systems in place as identified in Exhibit B and Exhibit G as well as any and all additional Systems, Sub-Systems, Equipment, or switches or products added in the future, when requested by the County.

Examples of Equipment/Systems covered under the Agreement include, but are not limited to, the following components:

1. PBX switches and IPE Telephones
2. Point of Presence Facility
3. Any other voice systems, such as Call Pilot and Symposium
4. MIA Enterprise Network and Network Security System
5. Cable Management System
6. Premise Distribution System
7. Network Management System
8. All network components maintained by Contractor
9. All inside and outside plant to include both copper and fiber optic cabling
10. Point-to-Point. Internal connections originating and terminating with-in all MIA General Aviation Airport (GAA) facilities.
11. Special systems such as IVR's, IDVR, Infortel, HPOV, CiscoWorks, SysLogs, etc.
12. Network Components, Routers and Switches



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13. Future wireless system
14. Uninterrupted Power Supplies (UPS)
15. Low voltage equipment installations
16. Call accounting systems
17. Work Order/Incident Management System

## **1.2 Scope of Services**

This Section (1.2) gives a ***brief*** summary of the Scope of Service required for each of the Service Requirements. Please note Specification Section 2.2 provides ***detailed*** job requirements for each Service Requirement listed below.

### **1.2.1 Voice Equipment and Maintenance Services**

The Contractor shall take over in “as is” condition, provision, install, maintain, test, replace, analyze and repair MDAD’s Voice Equipment. The Scope of Work for the voice includes the maintenance of existing voice equipment and services currently provided at the Airports – Performance Standards and detailed Service Requirements are shown in Section 2.2.1.

### **1.2.2 Data Network Equipment and Services**

The Contractor shall take over in “as is” condition, provision, install, maintain, test, replace, analyze and repair all MEN Equipment. The Scope of Work for the data network includes the maintenance of existing data network currently provided at the Airports, and the interface with the new security network, other Airport Systems in addition to new installation requirements. Performance Standards and detailed Service Requirements are shown in Section 2.2.2.

### **1.2.3 Power Supplies**

The Contractor shall install, maintain, test, replace, analyze and repair chargers, voltage dividers (taking 110/220 220VAC converting to DC or vice versa) rectifiers, inverters, uninterruptible power supplies (“UPS”), power supplies for PBX and data systems. Performance Standards and detailed Service Requirements are shown in Section 2.2.3.

### **1.2.4 IT Service Desk/Network Management System**

The Contractor shall provide a staffed on-site Network Management System, twenty-four (24) hours a day. The MDAD IT Service Desk shall be the central location for data network and telecommunications monitoring. The overriding goal is to provide ***PROACTIVE*** 24 x 7 x 365 support for the diverse needs of the Airport. The IT Service Desk shall:

- \* Proactively maintain and troubleshoot voice and data technology systems
- \* Address network problems before they are experienced by end users, thereby reducing or eliminating the need for calls to the IT Service Desk and delays that may be experienced in processing passengers
- \* Provide fail-safe reliability through continuous network monitoring and prompt response to problems

The IT Service Desk shall be the central location of the equipment, devices and people

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needed to maintain the Network operation. "Network" is used generically to encompass a number of important telecommunications infrastructures carrying voice, data and video, including the physical cabling plant, the electronic equipment that powers this infrastructure, and a substantial number of monitored systems.

A monitored system is an automated system that utilizes an MDAD owned network and is mission-critical to the operations of the Airport and its Tenants. Monitored systems shall provide status messages over the network for monitoring by the IT Service Desk. These systems and devices shall be tracked at all times by the NMS.

The purpose of the IT Service Desk is to be the single point of contact for Incident Management Service Request Management, problem routing end-user follow-up and to proactively maintain and troubleshoot voice and data technology systems. Performance Standards and detailed Service Requirements are shown in Section 2.2.4.

In addition, the Contractor shall provide 24/7 immediate access, as needed, to a remote Technical Assistance Center ("TAC") with qualified staff to resolve any technical issues beyond the capabilities of the local staff for both emergency outages and planned equipment upgrades requiring service downtime.

**1.25 MDAD IT Service Desk** The Contractor shall operate and manage an on-site, IT Service Desk hereinafter referred to as "Service Desk" available twenty-four (24) hours a day and seven (7) days a week, that users can access to report troubles associated with their voice, data, workstations, Common Use Terminal Equipment, Flight Information Display Systems, Paging Announcement systems, CCTV, CATV, Wireless Services, Payphones, network and other types of Information related Technology systems or devices that utilizes MDAD Networks. Access to the Service Desk will be by telephone, and any other written request. Incident Ticket will be assigned and tracked through Software provided by the County.

Activities to be coordinated through the Service Desk include Incident reporting, trouble detection/reception, notification, verification, location, and repair, repair verification.

The Service Desk shall serve as the single point of contact for all technical issues regardless of the physical location of the caller. The Service Desk shall be the single point of contact for Incident ticketing, problem routing, and end user follow-up.

Performance Standards and detailed Service Requirements are shown in Section 2.2.5.

**1.2.6 Hardware / Software Configuration**

Uniformity and Standardization of Components – All components used in circuit engineering shall be of the same type and manufacture (unless otherwise approved in writing by County) as other components used for the same purpose in existing portions of the telecommunications infrastructure. These components shall be maintained in a database of standard component types and costs that is used for costing of all changes. The IS/T Director must approve, in writing, any proposed changes to this component list due to obsolescence or other reasons.

Contractor shall perform all software modifications, customization or configuration required or inferred in this Specification under the rates and payments outlined in the

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final Agreement. It is Contractor's responsibility to ensure its proposal includes whatever software programmers, or other similar job classification needed to perform the Work contemplated herein. Performance Standards and detailed Service Requirements are shown in Section 2.2.6.

**1.2.7 Move, Add and Change Services**

The Contractor shall be responsible for processing work orders, coordinate and perform Voice and Data related Move, Add and Change Services in coordination with MDAD IS&T Division. The Contractor's technicians are not authorized to perform MAC work unless these work orders have been properly approved or assigned by County. Depending on the size of the request, Contractor personnel shall be required to perform surveys in order to facilitate the requested work. The Contractor is solely responsible for scheduling all Work directly with MDAD or SATS customer under the direction of MDAD who may periodically escalate various work orders or priorities associated with different request. The Contractor shall coordinate access issues directly with the MDAD or SATS customer. The Contractor shall assign personnel with project management skills to large MAC projects and/or larger Tenants to facilitate the timely completion of the Contractor's portion of the Work.

Upon receipt of an appropriate work order, the Contractor shall provide to MDAD a proposal outlining cost to MDAD and schedules for larger installations where additional equipment or cable infrastructure is required. The Contractor shall coordinate with MDAD for the implementation of the services required.

Move, Add and Change Services shall include, but shall not be limited to:

- a. Install and program new telephone station equipment.
- b. Disconnect old service and update records accordingly.
- c. Install new station cabling and outlets for voice, data, video and wireless services.
- d. Relocate existing services in response to MDAD/Tenant work orders.
- e. Manage work order and invoicing process.
- f. Remove and/or disconnect unused cabling and outlets.
- g. Add Premise Distribution in support of Tenant, users or MDAD needs.
- h. Submit updated information for the MDAD Cable Management System or PDS database.
- i. Any and all related permits that may be required.

Performance Standards and detailed Service Requirements are shown in Section 2.2.7.

**1.2.8 Circuit Engineering and Documentation**

Contractor shall provide Standard Circuit Specifications including complete catalog of circuit offerings. Contractor shall maintain and keep catalog updated. Such catalog shall be used by Contractor, MDAD Telecommunications and distribution to Tenants and other users of MDAD facilities.

The Contractor shall provide, upon MDAD's request, studies, surveys for MDAD or MDAD designee.

The Contractor shall engineer Custom Circuits at the Department's request.

Contractor shall install, test and commission repeaters, special conditioning

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equipment and circuit terminating equipment.

Contractor shall maintain special circuit spares that may become necessary to support special circuits.

Contractor shall provide and maintain all associate circuit documentation which shall include, but not be limited to:

- Cable Management System
- Circuit Engineering Worksheets
- As-Built Drawings
- Complete set of technical, system and project documentation
- Telecommunication Topology drawings

Performance Standards and detailed Service Requirements are shown in Section 2.2.8.

**1.2.9 Preventative Maintenance Services**

The Contractor is responsible for conducting preventive maintenance service including providing/installing software upgrades, checks to maintain the Equipment and subsystems are in accordance with manufacturers' specifications and perform all Work in accordance with industry standard on all voice, data and network in an effort to prevent malfunctions.

The Contractor shall perform all the preventive maintenance as specified by the equipment manufacturers and/or as directed by MDAD. A Monthly Report shall be submitted to MDAD detailing the preventive maintenance required and/or performed in the previous Month and specifying the preventive maintenance planned for the upcoming Month.

Preventive maintenance shall include, but is not limited to:

1. Visually inspect batteries condition and voltages.
2. Check UPS voltages.
3. Routine replacement of lamps, indicators, protectors, and other components, which may fail through normal use.
4. Perform annual trunk and network traffic studies and implement corrective action if required.
5. Perform annual voice mail port utilization study and configuration.
6. Inspect cabinets and fans.
7. Periodic cleaning of filters.
8. Perform database dumps and reviews quarterly and perform corrective procedures if needed.
9. Check all connections and punch downs.
10. Back up PBX hard drive data.
11. Backup Main Data network core, edge and Routers.

Performance Standards and detailed Service Requirements are shown in Section 2.2.9.

**1.2.10 Maintenance and Incident Resolutions**

The Contractor shall resolve all Incident and outages involving Services in a timely

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manner, following the priorities established in this Specification, to minimize disruption, increase performance level, and reduce interruption of Services within the Service Levels described herein.

The Contractor shall develop a complete operation and maintenance plan for all elements of the MDAD telecommunications and data network. This Work shall include all components of inside plant, outside plant, active and passive electronic equipment, and ancillary equipment that is part of the telecommunications and Network infrastructure and any additional Equipment added as provided hereinafter.

Contractor shall provide maintenance for all Equipment, Systems and Sub-Systems in place as identified in Exhibit B as well as any and all additional Systems, Sub-Systems, Equipment, or switches or products added in the future, when requested by the County.

This service shall include maintenance for all telecommunication cabling, circuits, devices and network cabling/distribution system that runs throughout the Airport(s). This includes the Premise Distribution System ("PDS") that provides the cabling infrastructure, required for all telecommunications and data systems to effectively communicate. PDS also provides the physical connections for access to existing legacy systems, the wide area network, and the Internet. The PDS consists of single-mode and multi-mode fiber optic cabling; copper cabling (enhanced Category 5 UTP or higher as standards evolve) and possibly infrared, wireless or other distribution materials/media such as, color spectrum fiber optic switches. The PDS utilizes Information Management Outlets ("IMOs"), and consist of two (2) voice and two (2) data jacks (all RJ-45 modular jacks).

In addition, the PDS is designed to accommodate the Department's anticipated future growth requirements. The Scope of Work includes the management of the PDS and the associated Cable Management System ("CMS"). Services shall include the data entry of "as built", or other drawings or documentation information into the CMS as on-going work identifies the information.

Performance Standards and detailed Service Requirements are shown in Section 2.2.10.

### **1.2.11 Project Management Services**

The Telecommunications / Network infrastructure at MIA shall continue to expand and evolve with new development at the Airport. This evolution involves design and construction projects, some are exclusively limited to telecommunications systems, and others involve a multi-discipline effort. Both types of projects may require management of the telecommunications portion of the project by the Contractor as part of this work. For such projects, the Contractor shall also provide consulting and project management services.

Performance Standards and detailed Service Requirements are shown in Section 2.2.11.

### **1.2.12 Shared Airport Tenant Services (SATS)**

The Contractor shall market, maintain, operate and manage SATS for the County, to Tenants and users at the Airport, consistent with the requirements of the Public Service Commission of Florida ("PSC") and all other governmental entity has

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jurisdiction over SATS, if and where applicable, and all applicable laws. Shared Airport Tenant Services Scope of Work includes:

- A. The Contractor shall submit a yearly marketing and customer service plan (the "Marketing and Customer Service Plan") to the IS/T Director, for review and approval, to ensure the Airport's business partners receive the most efficient, effective and reliable telephone service possible. The Marketing and Customer Service Plan shall include, but not be limited to, the Contractor's plans to establish, market, and sell SATS as well as procedures for the handling of customer complaints and downtimes, including associated equipment requirements, and staffing plans. Procurement of any additional equipment when required to support these Shared Airport Tenant Services shall require prior written authorization from the MDAD Information Systems/Telecommunications Director. Throughout the course of the year, the Contractor's performance shall be measured against the approved plan.
- B. The Contractor shall maintain and provide labor to repair the equipment so that the Shared Tenant Service is operating in accordance with this Specification.
- C. The Contractor shall submit a proposed pricing plan for all SATS that the Contractor plans to use to ensure optimal billings of all gross revenues (the "Gross Revenues"). All tariff schedules and SATS billing rates must be approved by the Department.

Performance Standards and detailed Service Requirements are shown in Section 2.2.12.

### **1.2.13 Training Programs**

Contractor may be requested to provide on-site training related to voice mail training to MDAD employees and other training such as Dispatchworks, Paging, Emergency Notification System, and all other instructions that the telephone users may need during the term of the Agreement.

In lieu of training at a distant site, Contractor shall be requested to provide on-site technical training courses for County's technical personnel. The County shall provide the Contractor with a sixty (60) day notice to arrange for training at County's premises. When special on-site technical training course is requested, the County shall pay (IF APPLICABLE) for the instructor's airfare, lodging and meals during the training session, in accordance with the rules followed by the County to compensate its employees at the time the travel took place.

Performance Standards and detailed Service Requirements are shown in Section 2.2.13.

### **1.2.14 Configuration Change & Asset Management**

The Contractor shall adhere to sound configuration change, and asset management principles in addition to all County Standards. Detailed drawings shall be maintained that summarize various system layouts. Prior to changing equipment settings or configuration beyond the scope of routine day-to-day maintenance or troubleshooting, the Contractor shall provide written notice and/or drawings to MDAD of details surrounding the changes. The Contractor shall notify and coordinate approval of all

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scheduled outages with Tenants and/or MDAD Information Systems and Telecommunication Division.

Performance Standards and detailed Service Requirements are shown in Section 2.2.14.

**1.2.15 Procurement**

The Contractor shall procure all parts, equipment, and software necessary to perform the Work described herein. The County will compensate the Contractor in accordance with Article 8, "Payments and Cost Reimbursements" of the Agreement.

The Contractor shall maintain high use items "on-hand" in order to complete routine maintenance and MAC services within the aforementioned times. The Contractor shall recommend and control a spare parts inventory list that shall be solely used for maintenance repairs and MAC work. The Contractor shall also be responsible for "Special Order" parts. Special Order parts are those that are not routinely used or are large enough that a "just in-time" approach suffices to the procurement of these materials. All Parts shall be designated to specific service requests or projects as they arrive. Any residual, excess, or left over material shall be the property of the County.

Large item storage shall be authorized in secured designated outdoor areas. THE CONTRACTOR SHALL NOT USE MDAD COMMUNICATION ROOMS AS STORAGE AREAS.

The Contractor shall adhere to all escort and security requirements in regards to delivery personnel.

Performance Standards and detailed Service Requirements are shown in Section 2.2.15.

**1.2.16 Maintenance of Spare Parts**

The County shall provide space and staff to manage all County owned inventories. The Contractor shall recommend and procure parts on behalf of County.

It shall be the responsibility of County to keep the master list of all installed and spare equipment current throughout the duration of the Agreement. County shall be responsible for preparing a current updated copy of the master inventory list on the first day of every quarter.

County shall be responsible for the physical task of checking in the shipping, receiving, storing, and distributing of materials, parts, supplies and equipment, however, County shall be responsible to advise Contractor if spare inventory falls below ten percent (10%) of the installed device and obtain MDAD's written permission including quantity, to proceed to purchase. Invoices for such approved spares shall indicate actual purchase price with back up attachment and County's written approval to purchase. Performance Standards and detailed Service Requirements are shown in Section 2.2.16.

**1.2.17 SATS Order taking, and Billing**

The Contractor shall be responsible for the coordination implementation and billing of all MDAD approved MDAD/SATS Marketing Orders that have been assigned to Contractor by a work order/ticket number. Contractor's technicians are not authorized

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to perform work unless these work orders have been properly approved by MDAD.

Contractor personnel shall perform surveys in order to facilitate the requested work. The Contractor is solely responsible for scheduling all work directly with the MDAD or SATS customer under the direction of MDAD IS&T who may periodically escalate various work orders or priorities associated with different requests. Contractor shall perform all such Work in compliance to all MDAD requirements as to when and how the Work is to be completed.

The Contractor shall also coordinate access issues directly with MDAD or SATS customer. The Contractor shall assign personnel with project management skills to large-scale projects and/or larger Tenants to facilitate the timely completion of the Contractor's portion of the work.

Performance Standards and detailed Service Requirements are shown in Section 2.2.17.

#### **1.2.18 Not Used**

#### **1.2.19 Disaster Recovery Plan and Backup Services**

The County and the Contractor shall jointly work on a plan for disaster recovery and develop contingency plans for major outages, utilizing the Contractor's or a third party off-premise resources as required to mitigate the problem.

A "Disaster" is defined as any unplanned interruption of the County's Telecommunication / Network devices and software and is anticipated to be more than twenty-four (24) consecutive hours duration that affects the ability of the County and its Users to conduct business and that affects the ability of Contractor to meet the Performance requirements stated herein.

The Disaster Recovery and Contingency plans for major outages shall describe how the computer servers, network, routers, hubs, and switches operating in various buildings and locations can be restored to operation in case of disaster or destruction. This plan is to be able to recover by building/location (not by application) and the technique of recovery is through restoration of files in equipment. Performance Standards and detailed Service Requirements are shown in Section 2.2.19.

#### **1.2.20 Meetings**

The Contractor's management team shall attend periodic meetings as required by MDAD with Tenants and MDAD to discuss on-going status of various projects. Contractor shall provide minutes as required by MDAD and track action items. This also includes daily exposure to Tenants and MDAD users to perform field surveys and determine the Scope of Work required to provide requested services for various projects as well as routine day to day MAC service requests. The Contractor shall maintain daily contact with the Tenants when appropriate, to ensure the timely completion of service requests as more fully described in the Performance Standards and detailed Service Requirements shown in Section 2.2.20.

#### **1.2.21 Third Party Support Agreements or Third Party Technical Support Requirements**

The Contractor shall maintain maintenance and technical support agreements with



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vendors associated with telecommunications systems and provision of CATV. The Contractor shall be responsible to pay for all maintenance contracts and support contracts necessary to perform the services outlined herein (collectively, the "Obligations with Vendors"). The County will compensate the Contractor in accordance with the Payments and Cost Reimbursement Article of the Agreement. The Contractor shall be solely responsible for hands-on management of the systems. These third party agreements shall include when available from the third party and requested by MDAD:

- A. Post-warranty service agreements;
- B. advanced replacement agreements;
- C. software and hardware revision/update provisions; and
- D. technical support agreements that allow the Contractor & County to speak directly to engineer/technical support as required.

Performance Standards and detailed Service Requirements are shown in Section 2.2.21. Refer to Exhibit J for current list of Third Party Support Agreement requirements.

**1.2.22 Cable Management System (CMS) Administration**

The Cable Management System is a multi-user database system used to control all aspects of equipment, conduit, cable, terminations, physical labeling and other related data including installation status tracking as well as provisioning of new circuits. All provisioning shall be done through the CMS. Contractor shall be responsible to maintain the CMS database and input deletions, changes and new installations. Performance Standards and detailed Service Requirements are shown in Section 2.2.22.

**1.3 Policies, Procedures and Performance Standards**

**1.3.1 Policy**

The County, through MDAD Administration, sets the policies for the operation of all Airport owned devices and infrastructure. The Contractor shall abide by all County policies and procedures.

**1.3.2 Not Used**

**1.3.3 Performance Standards**

The Contractor shall provide high quality, reliable services for all Airport Users including all Airport Tenants and the traveling public. MDAD, EIA/TIA, BICSI Standards shall be utilized in the maintenance, engineering and installation of all inside wiring, outside plant and circuit engineering. The County must approve any deviation from these standards BEFORE any work is performed.

All Work performed shall be performed in accordance with the following standards, as applicable:

1. Any and all Federal, State and Local laws, building code requirements, statutes, ordinances, rules and regulations. Ignorance on the part of the Contractor or its subcontractor shall not exempt, excuse, or waive the

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- Contractor from responsibility
2. Fire Codes NFPA 72
  3. County Building Codes
  4. Manufacturer or vendor's instructions about installation and service
  5. Generally accepted engineering principles and industry standards, as provided below
  6. Installation practices guidelines as described elsewhere in this document
  7. Americans with Disabilities Act
  8. MDAD Design Guideline Manual

The Contractor shall perform County needed voice/data cabling and electrical cabling as requested by MDAD. Contractor or subcontractor shall possess one (1) of the following licenses and State registrations (if applicable), and provide proof of such to the County:

STATE:

- a) Certified Electrical Contractor, or
- b) Certified Limited Energy Contractor; or

COUNTY:

- a) Master Electrician (State registration required), or
- b) Master Low Voltage (State registration required)

Contractor or subcontractor shall be proficient in all phases of telephone and data wiring as related to cable and wiring architectures in telecommunications spaces. All Work performed by the Contractor's on-site personnel shall include at least one (1) Registered Communications Distribution Designer who shall supervise all Work performed by Contractor.

Permits and Licenses: Contractor shall be responsible for obtaining all necessary permits and licenses required for installation and operation of the Equipment. Contractor shall cooperate and comply with any inspections required by all OSHA, Federal, State, and County codes, ordinances, statutes, and laws.

Any fines levied by the above mentioned authorities because of inadequacies to comply with this requirement shall be borne solely by the Contractor.

All Work performed and systems provided by Contractor shall be designed and implemented in accordance with the requirements of the latest revision of the documents listed below:

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<b><u>REFERENCE</u></b>	<b><u>DESCRIPTION</u></b>
EIA/TIA 568	The commercial building-wiring standard. It defines a generic wiring system for a multi-product, multi-vendor environment
EIA/TIA 568B	The Commercial Building Telecommunications Cabling Standard. RJ.45 pin configuration defined in EIA Standard 568. Equivalent to AT&T 256A
EIA/TIA 569	The commercial building standard for telecommunications pathway and spaces. It defines the minimum requirements for ducts, closets and other spaces needed for data and telecommunications wiring
FCC Part 68	Federal Communication Commission document relating to connection of Premise equipment and wiring to the network
IEEE 241	Institute of Electrical and Electronic Engineers recommended practice for Electric Power Systems in commercial buildings
IEEE 802.1	IEEE Committee that defines the LAN Management and bridging standards
IEEE 802.3	Physical layer standard specifying a linear (bus) LAN using CSMA/CD access method
IEEE 802.5	Physical layer standard that specifies a ring topology LAN with a token-passing access method
IEEE 802.11	Wireless LAN Standards
ISO 9000	Manufacturing Quality Control Standard (certification)
NEMA 250	Enclosures for Electrical Equipment (1000 Volts Maximum)
NFPA 70	National Fire Protection Agency Standard for National Electrical Code
RFC 1157	Request for Comment for SNMP Standardization
RS – 232	EIA physical interface standard for use between data communications equipment and data terminal equipment

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RS – 422	EIA standard for the physical interface between data communications equipment and data terminal equipment over circuits with their own ground leads
RS – 455	EIA standard for Fiber Optics – Fiber, Cables, Traders, Connecting and Terminating
TSB 40A	Technical Systems Bulletin the provides additional transmission specifications for unshielded twisted pair connecting hardware
TSB 67	EIA/TIA standard for Transmission Performance Specifications
TSB 72	EIA/TIA standard for Centralized Optical Fiber Guidelines
UL144	Underwriter's Laboratories listing of Communications Cable as required by National Electrical Code
UL 1459	Underwriter's Laboratories Fire resistance requirements

**1.3.4 Installation Practices Guidelines** – In addition to MDAD Design Guidelines, the Contractor shall follow the following Guidelines, Regulations and Requirements:

- a. All existing Federal Communications Commission rules and regulations apply as related to demarcation points and proper installation procedures.
- b. Each telephone instrument shall have a “home-run” back to the distribution closet.
- c. All blocks, instruments and cables shall be labeled by the Contractor upon installation and fully documented as part of the CMS.
- d. Each cable installed shall be of the type designed for the application and environment in which it is to be utilized.
- e. All unterminated cable ends, either in wall boxes or surfaces shall be fitted with covers designed for that purpose.
- f. All cables/wiring, wherever possible, shall be concealed inside existing walls, ceiling finishes, or run inside wire mold.

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- g.** All connectors shall be concealed in wall boxes and should not be left laying on the floor or be obstructive.
- h.** Laying cables on suspended ceilings or using the support wires of suspended ceilings to support any cable is strictly prohibited and is a violation of the National Electrical Code (“NEC”). Using electrical conduits or other building infrastructure services such as air conditioning ducts, fire sprinkler pipes, is a violation of the NEC. All cables, wires, and equipment for voice and data services shall be installed in conduit or, if approved by County, have independent support systems from the building structure, and any deviation from these rules shall result in the Contractor having to redo the Work at its expense.
- i.** Exposed cables shall be stretched and stapled at even distances to remove wrinkles, twists, and kinks.
- j.** For any underground or overhead cable installation, no interior type cable can be used, whether temporary or permanent. Only cables designed for these kinds of installation shall be used, preferably polyethylene, rodent protected and jelly filled.
- k.** All cables connecting two (2) or more buildings together, shall be protected at each entrance, using three (3) element gas filled protection and properly bonded and grounded.
- l.** Station Location – all telephone sets shall be installed at locations pre- determined by the using agency.
- m.** All equipment and component parts purchased shall be new at the time of delivery unless otherwise approved by MDAD.
- n.** All telephone equipment shall comply with the specifications set forth in the FCC Rules and Regulations, Part 68.
- o.** All electrical work shall be performed according to the NEC and all applicable state, County, and local codes.
- p.** Where existing cables are found and available for re-use, they shall be re-used provided that they are of the proper size (no in-line splice or connectors shall be allowed), length, and meet proper installation standards.
- q.** Upon completion of every task, the Contractor shall leave the site cleared of all cables and other materials. Furthermore, the work sites shall be cleaned up daily and at the end of each installation.
- r.** All telephone station equipment utilized shall be compatible in color as far as possible with existing equipment and shall also be “plug compatible”.
- s.** All equipment removed from service and deemed reusable, shall be packaged and properly stored for future use when necessary. The Contractor shall complete the applicable inventory forms

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- showing deletion or additions of telephones, or other equipment.
- t. As required, the Contractor shall complete as-built drawings on new installations for reference when the projects are completed and submittal to MDAD.
  - u. The Contractor shall not deviate from proper installation standards at the request of the SATS customer or user, nor shall it accept and perform Work beyond the initial requests from the SATS customer or user, in accordance with the approved work order. Changes to work orders shall only be approved by MDAD Telecommunications. If the Contractor performs work beyond the initial request without the approval by MDAD, it does so at its own risk and shall not be paid for the Work performed.
  - v. Cable conduit and cable trays required to install new cabling shall be installed and utilized unless specifically waived in writing by County. Certain applications will arise where the Contractor shall install new raceways, conduit and cables. All new Work shall require prior approval from MDAD.
  - w. Contractor shall perform and maintain original cable test data including OTDR test reports and graphs.
  - x. Contractor shall prepare equipment rooms with cable trays, termination blocks, racks, cabinets, ground, firestopping, and core drilling as necessary.
  - y. The Contractor shall support and provide technical consultation for MDAD during Construction projects at County owned facilities

### **1.3.5 Examination of Work Sites, and Specifications**

Where applicable and appropriate, the Contractor shall:

1. Examine all specifications, drawings, directions and conditions relating to the work.
2. Visit the job site.
3. Investigate any difficulties encountered in performing the work.
4. Notify the County of any discrepancies, conflicts or other field conditions that will affect the Work to be performed.

Contractor shall have actual knowledge of the construction and labor conditions under which the Work is to be performed, has inspected the sites, and has read and is reasonably familiar with the Agreement, Specification, Attachments and Exhibits, documentation, and plans provided by County prior to the execution of the Agreement for the buildings in which the Work is to be performed.

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It is acknowledged that substantial construction and renovation is occurring on a continuous basis at the Airport and that Contractor's knowledge is limited to its actual knowledge of existing conditions at the time the work is requested. Failure to read or become familiar with said Agreement, documents, plans or specifications shall neither exempt, excuse, nor relieve the Contractor of its obligations to furnish all necessary Equipment, Services, and labor necessary to satisfy the Contractor's obligations under the Agreement and to complete the Work for the consideration set forth herein.

Contractor shall at all times conduct its Work so as to ensure the least possible obstruction to the County and the least inconvenience to the vicinity of the work site. The Contractor shall assume full and complete responsibility for, and all risks in connection with the Services.

#### **1.3.6 Special Conditions at the Sites**

All material for the installation of services shall be delivered and the Work conducted so as to minimize any interference with concurrent work of others and normal operations in existing MDAD facilities. Every effort shall be made to limit dust, noise and fire hazards during installation.

Debris due to Contractor's work shall be cleaned and carted away by the Contractor prior to leaving the premises.

At the job sites, noise from equipment shall be kept to a minimum by use of adequate mufflers or other acceptable means. Noisy installation of equipment shall be scheduled when disruption to MDAD, SATS customers and the public shall be minimal and cause the least inconvenience.

The Contractor shall conform to applicable fire regulations and building codes.

The Contractor shall protect against injury to persons, and damage to pipes, conduits, trees, fences or other visible structures.

Precautions shall be exercised at all times for the protection of persons and property. The Contractor and its subcontractors shall conform to all OSHA, Federal, State and County regulations. Any fines levied by the above mentioned authorities due to failure to comply with any requirements shall be borne solely by the Contractor.

#### **1.4 Specification Compliance**

If repair requirements arise on existing cable plant that is not installed according to manufacturer or industry specifications, the Contractor shall provide notice and an estimate to the County to bring such infractions to

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specification while accomplishing the repair.

The Contractor shall be liable for circuit continuity and maintaining circuit records from the local service provider to the station jacks. In many instances, the Tenant has a Key Service Unit (“KSU”) or other devices in the middle of this cable path and the existing cable records may or may not have records showing these outlets. Under these circumstances, the Contractor shall document any non-specification issues, provide notice to MDAD and jointly work with MDAD and/or the Tenant to upgrade this infrastructure to County specification and document said upgrade in the cable records. The Tenant will incur the expense of bringing such facilities up to County specification.

### **1.5 Telecommunication and Data Infrastructure Coverage**

MIA has installed a structured-cabling infrastructure or Premise Distribution System (PDS) including copper and fiber optic, riser cable, backbone cable, horizontal distribution cable, computer equipment & telecom rooms, throughout all terminals (horizontally and vertically). The intent is for the County to utilize this telecommunication infrastructure as a common system to support basic Building/Terminal technology systems, and deliver shared IS & T Services (voice, data, radio, CATV and CCTV) to terminal Tenants. The Contractor shall Operate and Maintain this Infrastructure. The Contractor shall provide, as required, additional cabling infrastructure terminating at and within each Tenant’s Leasehold area. The respective Tenant shall be responsible for installing and servicing their private equipment and systems (within their respective leasehold).

This structured-cabling infrastructure includes the lines for both voice and data lines and cable termination, associated wiring to the point of interconnection including switched equipment and nodes dedicated for access to the public switched network and to on-airport locations of MDAD and Tenants of MIA.

The Contractor shall have the responsibility to (a) maintain all equipment and facilities required for the provision of the service describe herein in good working order, and (b) maintain connectivity of the system to permit private telecommunications services. It shall be Contractor’s obligation to restore service for malfunctions of equipment which affect MDAD or its Tenant’s operations.

### **1.6 Equipment Failure**

If any Equipment malfunction is determined by the Contractor to be the fault of any other company, the County will so notify said company and request appropriate repairs and alterations. The County, Contractor, and the other company, if pertinent, will mutually determine the point of failure and the party responsible for payment. Notwithstanding the foregoing, if there is an



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emergency, the Contractor shall repair same in accordance with the Problem and Reporting Escalation subarticle in the Agreement and if during off hours, the County shall compensate the Contractor as provided herein and seek reimbursement from the other company. If the Equipment malfunction is associated with the Contractor's failure to install the Equipment properly or according to the Manufacturer's specifications, the Contractor shall pay all costs.

**1.7 Maintenance of Equipment, Systems, or Sub-Systems Purchased from Others.**

In the event the County adds or purchases equipment, systems or sub-systems from other contractors or vendors, the County shall timely notify the Contractor in writing of the installation of said equipment, systems or sub-systems. After installation, and unless otherwise notified by the County, the Contractor shall be responsible for maintaining the equipment, systems, or sub-systems, pursuant to the Scope of Services Article of this Specification.

**1.8 Penetrations in Concrete or Other Structural Members**

Core drilling of poured concrete slabs, walls, beams, and the like, shall be performed in a safe and workmanlike manner, performing X-Ray testing as required, to minimize danger and damage to personnel and/or equipment and property, and dust production and in full compliance with MDAD Design Guideline Manual. All core drilling shall be completed in all telecommunications closets, MDF, IDF, before cable placement begins. Periodic clean up and removal of debris generated during core drilling operations shall be performed by the Contractor.

The Contractor shall temporarily plug all slab penetrations as they are drilled to prevent dust and debris from the floor above from damaging any facilities on the floor below. Core drilling shall be scheduled and reviewed with the appropriate Building Manager before commencement.

The Contractor shall utilize approved fire barrier materials.

**1.9 Unsatisfactory Work**

The County shall inform the Contractor of Unsatisfactory Work. The Contractor has five (5) calendar days, commencing from the notification to remedy and cure the Unsatisfactory Work (the "Cure Period"), prior to the County withholding payment for the work and taking other measures provided for by the Agreement. The County may extend the Cure Period.

**End-of-Services Transition Program Plan:**

Upon termination or expiration of the Agreement, the Contractor shall take all reasonable steps to assist the County in effecting a smooth transition to a

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new provider, such as the staffing overlap of managerial, administrative, or technical personnel from the Contractor, with the incoming new provider or the Department's personnel, to ensure that either the new vendor or the Department's qualified operating and maintenance personnel are trained in all aspects of the System. The support shall be provided in the areas that pertain to the County, and Contractor on-site operations for the County.

Such transition shall take place one hundred-twenty (120) days, but in no event less than thirty (30) days prior to last day of Agreement expiration or termination. In addition, the County may negotiate with the Contractor for a contract extension for such a transition program.

Contractor shall provide MDAD with all necessary assistance to allow the Services to continue without interruption or adverse effect to MIA, its Airlines, Tenants and users, and to facilitate the orderly transition of Services to MDAD's staff or its new vendor/designee. At no additional charge to MDAD, the Contractor shall assist MDAD to develop a plan for the transition of all of the Services required under the Agreement.

The purpose of the End-of-Services Transition Program Plan is to ensure that either the new vendor or the County's qualified operating and maintenance personnel or their assigns are trained in all aspects of the System, provided that the Contractor's sole responsibility shall be to implement a program in good faith and in no event shall the Contractor have any liability or responsibility for whether the new vendor or the Department's qualified operations and maintenance personnel actually are competent to perform the Services to which they are assigned.

As part of this End-of-Services Transition Program Plan, the Contractor shall ensure that all applicable equipment and systems are operational and installed in accordance with plans and specifications, and ensure that Documentation is updated and submitted to the Department including, but not limited to, as-built/record documents and manufacturer's operations and maintenance manuals, and operational procedures specific to MDAD.

#### **1.10 Natural Disasters, Emergency Response and Evacuation Procedures**

Contractor shall follow MDAD's and its IS&T Division's established procedures and guidelines for Natural Disasters, Emergency Response and Evacuation Procedures. Reference in these procedures to network, telecommunications, telephone or Information Systems personnel shall be inferred to include Contractor and Contractor's employees. Contractor shall be required to assist County with preparations to protect and prepare the Airport for such disasters.

### **ARTICLE 2**

### **PERFORMANCE STANDARDS AND DETAILED REQUIREMENTS**

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## **2.1 General**

The objective of the Performance Standards and Detailed Requirements is to outline Contractor's requirements to assist the Airport in its support, operation and management of its telecommunication and data infrastructure. These requirements are to be used as a general guide and it is not intended to be a complete list of all Work necessary to provide all the Services, contemplated under the Agreement.

The following are general requirements that apply to all Services:

**Badging:** All on-site employees shall have MDAD AOA Badges and Custom's seals if applicable. Contractor shall be responsible for all cost associated with obtaining AOA and Customs' badging. All airside drivers shall obtain all required licenses and permits.

**All-Inclusive:** Contractor shall furnish all supervision, labor, tools, machinery, hardware, test equipment, materials, services, third party software and hardware support, and shall furnish forces (shown below) and work such hours as agreed to herein to ensure compliance for the Scope of Work and SLAs stated herein. As workload may change throughout the term of the Agreement, Contractor and MDAD shall meet from time to time to discuss if on-site hours and/or number of personnel should be adjusted. Management Fee shall be adjusted for such changes as shown in Agreement Article - Payment and Cost Reimbursements.

Contractor's service organization shall provide support including dispatching resources in response to alarms, complaints, and requests for service. Activities will be coordinated through the Service Desk.

**Comply with Service Level Requirements:** Contractor shall strive to meet required Service Level for problem resolution, circuit provisioning, and MACs and shall escalate as needed in accordance with the procedures provided herein.

Contractor shall anticipate and be responsive to high call volumes during the peak travel times.

Unless otherwise stated in this document, the Contractor's staff shall be available on site to perform the services outlined in this document from 8 am to 5 pm Monday through Friday except Holidays.

Staff normal work hours shall coincide with the hours necessary for the nature of the work. The County shall not pay overtime for Work that is normally done in the evening hours or after mid-night.

For those services that are not 24 x 7 x 365, during off hours, weekends, and holidays, the Contractor shall have "on-call" trained technicians to cover all the Equipment and systems specified in this document.

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**Documentation and Reporting:** Contractor shall document and report operational metrics, including activity logs and SLAs. Frequency of reports shall be monthly or as requested by MDAD. Upon analysis of these metrics, Contractor shall address and remedy any systematic problems or negative performance trends.

**Environmental Maintenance:** Contractor shall provide Environmental Maintenance of all equipment and Core Rooms (Bldg. 3030 Switchroom) and notify the Department of any issues identified in Telecommunications Rooms shared by other vendors, users, and tenants of the Airport termination rooms. Environmental Maintenance is defined as keeping these areas free from excess papers, tickets, bag tags, trash, dust and dirt. The electronic equipment is sensitive and need to be kept in a clean, maintained environment. This shall be considered part of preventive maintenance.

Upon completion of any MAC, maintenance, or repairs, the Contractor shall reconnect any utilities, equipment, or appliances removed by the Contractor in the course of work, and replace all furniture, and objects moved by the Contractor for the performance of the work. Debris and rubbish created by the Contractor shall be removed and the premises left clean. This includes dust caused by the removal of ceiling tiles. Contractor shall be responsible for replacing any ceiling tiles that are broken by its personnel or subcontractors.

It shall be the Contractor's responsibility to reconstruct Work Areas as originally found.

**Tenant Access:** Access to Tenant premises shall be coordinated by the Contractor with the Tenants.

The County will at all times have access to all Equipment, Systems, Sub-Systems and work areas.

**Coordination:** Contractor shall fully cooperate, and when directed by the County, coordinate the installation and maintenance of all Systems, Sub-Systems, and Equipment with any other contractor under contract with County, and with County personnel for work related to, but not included in, this Specification. Contractor shall not modify the work of any other contractor or the County without the express, written consent of the County.

Contractor's Staff shall work with designated Airport Staff on various levels of support, including working to resolve Help Desk Tickets.

**Service / Performance Levels Not Met:** In addition to the monetary Monetary Assessment for Non-Performance stated in the Agreement, the Contractor shall ensure that proper coverage will be achieved at all times in the support and maintenance of Miami International Airport. In the event of illness or staff mutation, The Contractor shall increase shift time, utilize (bring onto site) one of its national technicians or transfer resources from other

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projects until such time as local manpower coverage is normalized (to the previous approved staffing level) at no additional cost to the County.

## **2.2 Performance Requirements**

### **2.2.1 Voice Equipment and Maintenance Services**

#### **Hours of Operation**

Service shall be provided 24 x 7 x 365. Technical staff on-site 7:00 A.M. – 11:00 P.M. Monday through Friday with an on-call function Monday – Friday, from 11:00 P.M. – 7:00 A.M and 24 hours a day, weekends and holidays. The Contractor shall have “on call” trained personnel to cover all of the equipment and systems described herein. The County reserves the right to require the Contractor to provide on-site staff 24 hours a day for this service provided the Contractor’s staff levels are adjusted as necessary.

The Contractor shall provide MDAD, for approval, a general description of its daily staffing requirements that will apply over the term of the Agreement. Staffing plans may be modified from time-to-time by written Agreement of both parties.

#### **Qualification Requirements for Telecommunication Services**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

#### **Service Levels and Deliverable Requirements for Telecommunication – Voice Services**

The Contractor shall be responsible to provide and maintain all telecommunications systems, circuits and cabling. Contractor Services shall include the diagnostic, maintenance, and user support services to ensure the system availability.

Contractor’s maintenance of the telecommunications infrastructure shall ensure optimum performance and availability. The intent of maintenance is to identify, quantify and rectify any potential problems before they evolve to a service-affecting situation. Such systems, circuits and cabling include, but are not limited to:

The current Telecommunications systems are detailed in Exhibit B. It includes; (i) two (2) CS1000M Switches (located in Building 3030 C wing, and in the Concourse E switch room E2386 (collectively, the “Core Rooms”)); (ii) two (2) CS1000M switches located at the Opa Locka, Kendall-Tamiami, general aviation facilities (reflected in the current Voice Topology Drawing), and two (2) BCM50 switches located at the Homestead General

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Aviation Airport and the Opa-Locka airport tower.<sup>1</sup>  
(iv) 16 Baker Consoles provide communication systems integration in the Airside Control Towers as follow:

A Tower - 3 consoles

Airside room S-1411 – 1 console

Landside Ops (park 3) – 2 consoles

Terminal PBX room – 1 console

E Tower – 4 consoles

J Tower – 5 consoles

The number of telephone ports currently in use are:

CS 1000M Switch, located in the Terminal Building:	2531 ports
CS 1000M Switch, located in Building 3030:	718 ports

Twenty three (23) Intelligent Peripheral Equipment (IPE) systems located in Fourteen (14) different locations:

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<sup>1</sup> The CD Building 3030 source book and the CD Main Terminal source book are available for review and inspection when authorized by the Department in accordance with federal, state and local law.

Served from terminal PBX: (1056 from South Terminal)	3376
Served for Building 3030 PBX: (1056 from South Terminal)	3300

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Total 9,925 ports in use

**Main PBX/Switch Rooms**

For telephone rooms, the Contractor shall comply with ANSI EIA TIA Commercial Building Standard for Telecommunications Pathways and Spaces.

**Telephone Distribution Points**

The Contractor shall comply with the following:

- (a) Telephone distribution to areas distant from main telephone rooms requires an additional telephone closet or closets. Access to these spaces have the same requirements as telephone rooms as specified in the EIA/TIA 568 Standard. In addition, since many distribution

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points are in shallow closet-type areas, free access space in front of telephone backboards shall be provided. This area shall be kept clear for maintenance personnel for a minimum distance of three (3) feet.

- (b) A plywood backboard, 3/4" exterior grade, painted black or blue with a minimum size of four feet by four feet (4'-0" x 4'-0") shall be installed at all telephone distribution points.
- (c) A minimum of one (1) four-outlet (quad) receptacle on a dedicated circuit shall be installed at the telephone and data backboard. This outlet shall be at a minimum height of sixty (60) inches AFF.
- (d) Adequate lighting shall be supplied at all telephone distribution points.
- (e) Each telephone distribution point shall be supplied with a suitable earth ground. The minimum size wire shall be number 4 AWG and shall terminate on a grounding bus at the lower right or left side of backboard.

**Uniformity and Standardization of Components**

All components used in service provisioning shall be of the same type and manufacture as other components used for the same purpose in existing portions of the network. The Department Manager shall approve, in writing, any proposed changes to this component list due to obsolescence or other commercially acceptable reasons.

**Removal of Unused Cabling and Equipment**

During remodeling efforts or furniture rearrangements within existing space, new MAC requests are submitted by the customers of MDAD. Existing outlets are to remain during this process, unless specifically identified in the request for removal. In addition, when walls are removed, the jacks shall be disconnected and cable records amended to reflect that change. In order to maximize existing cable plant, the Contractor shall avidly pursue disconnecting unused jacks for cross- connects to backbone cabling. Associated blocks shall be re-labeled and cable records updated where affected. The Contractor shall be responsible for opening and re-sealing fire rated assemblies when such assemblies are involved with the removal of unused cable and equipment.

**Existing Utilities/Cable/Duct Locate Services**

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The utilities at MIA are covered under a blanket locate agreement for incidental jobs. The Contractor shall provide on-site cable locating support to augment the current locate service provider in situations where cable depth shall be determined, or where direct buried facilities which fall outside of the provider service shall be located. In addition, the Contractor's locate capability shall be used to meet delivery schedules of MAC or repair service.

***Existing Utilities***

- (a) The Contractor shall contact all concerned utilities before performing any utility modifications, utility shutdowns, or any hot work on existing utilities within a building.
- (b) Contractor shall complete the Underground Utilities Clearance Sign-Off sheet and submit to the assigned Department Manager.
- (c) Contractor shall complete the Shut Down Request form and submit it to MDAD Maintenance Engineering in accordance with the form's instructions.
- (d) Before initiating hot work, the Contractor shall submit the hot work permit application. Hot work includes, but is not limited to, brazing, cutting, grinding, soldering or thawing of utility pipes, torch applied roofing, and welding.

**Visual Maintenance**

Visual maintenance is essential to efficient operation Visual maintenance is to be performed by certified technicians at scheduled intervals. This maintenance category is performed according to the requirements set forth in the manufacturer's operations and maintenance manuals and referenced industry standards.

**Corrective Maintenance**

Corrective maintenance includes those actions performed by certified technicians to restore components of the telecommunications infrastructure to operational status after a failure has been identified.

The maintenance functions performed under this category shall include, but are not limited to, fault isolation, removal and repair or replacement of faulty infrastructure components.



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The corrective maintenance process begins the moment the Help Desk function is informed of a service outage affecting any part of the communications infrastructure.

**Performance Standards**

All telephone services provided to the end user shall meet the following service availability criteria: The grade of service and blockage at any Airport facility shall not exceed 2% for each access and egress and 1% for transport. The grade of service shall be determined using the Airport’s facilities average monthly business day busy hour traffic data. Call setup delay shall not exceed 5,550 milliseconds on average and 900 milliseconds for the 95<sup>th</sup> percentile over a 24-hour period. Availability of service shall be 99.99%, not including time used for planned preventive maintenance.

**Service Levels:**

In addition to the service level requirements shown in 2.2.10, Contractor shall achieve the following performance standards for all Telecommunications needs:

<b>Service</b>	<b>Service Level</b>
Performance	<ul style="list-style-type: none"> <li>▪ The Airport standard is no down time; however, understanding that a service window is required to perform maintenance, network reliability shall be 99.98%.</li> </ul>
System availability	<ul style="list-style-type: none"> <li>▪ Network up-time shall be 99.98% or greater during peak Airport business hours between 7:00 a.m. to 11:00 p.m., seven days a week.</li> <li>▪ Any non-emergency network downtime shall occur after 48 hours’ notification has been provided to MDAD and its Users/Tenants, (Monday – Friday).</li> </ul>
Response Time – During On-Site Hours	When responding to trouble tickets, the Contractor shall respond within 10 minutes by telephone or 20 minutes to the location of the problem and resolve 98% of equipment problems within 2 hours and cable problems within 4 hours.
<b>Service</b>	<b>Service Level</b>
Response Time – During On-Call Hours	Shall respond within one hour after notification is sent. Critical and Major Failure repairs to commence and be fully restored within 4 hours of notification.
User Support	24 x 7 x 365

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**Monetary Assessment for Non-Performance:**

Five or more documented complaints in any given month from MDAD management or Users/Tenants regarding the Contractor's responsiveness, or inability to complete restoration in a timely manner shall result in Monetary Assessment for Non-Performance being invoked. Monetary Assessment for Non-Performance shall also be invoked if Availability of Service falls below 97% in any given month. Refer to "Monetary Assessment for Non-Performance" Article in the Agreement.

**2.2.2 Data Network Equipment and Services**

**Hours of Operation**

Service shall be provided 24 x 7 x 365. Technical staff shall be on-site 24 X 7 X 365. At a minimum, at least one (1) Network Engineer will be on- site at all times.

The Contractor shall provide MDAD, for Approval, a general description of its daily staffing requirements that will apply over the term of the Agreement. Staffing plans may be modified from time-to-time by written Agreement of both parties.

**Qualification Requirements for Data Services Technicians**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

**Service Level and Deliverable Requirements for Data Network Equipment and Services**

The Contractor shall be responsible to provide and maintain all system hardware, devices and Software associated with the operation and management of the ATM and Ethernet backbone. Contractor Services shall include the diagnostic, maintenance, and user support services to ensure that the system providing user connectivity at various Airport offices remains operational.

Contractor's maintenance of the data communications infrastructure shall ensure optimum performance and availability of the infrastructure. The intent of maintenance is to identify, quantify and rectify any potential problems before they evolve to a service-affecting situation.

The current MDAD, MIA Enterprise Network (MEN) is a Cisco MPLS based Network, it has a 10 gigabit backbone, twenty eight 6500's layer 3 switches, Seven 6500's layer 2 switches, Thirty

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3750 layer 2 switches, Three Hundred 2960, layer 2 switched and 9 routers (2611, 2811, 3745, 3825, 3845), today MEN provides services to approximately 7,273 active ports. These switches are currently located in Telco rooms in Building 3000, Concourses, Building 3030, Building 5A, Building 100, the Cargo Clearance Center ("CCC"), 700's and 800's buildings, the Satellite Building, Landside Administrative Offices on the Ground Floor of the Dolphin Garage, MDAD computer rooms, and the MDAD Administration Building second - seven floor.

There are 281 Telecommunication Rooms with MEN equipment presence and 448 passive Telecommunications Rooms. Total Telecommunication Rooms 729.

The MEN interconnects with the new security network ("New Security Network") effectively. Contractor shall be expected to eventually take over the maintenance of the security network which is comprised of 10/100/1000 Mbps and 3/12/48 ATM backbone. The installed network conforms to IEEE 802.3 and IEEE 802.5 standards for switching. The installed switches are capable of concurrent switching of all protocols specified in this Specification, AUI Ethernet (IEEE 802.3, 10BaseTX, 100BaseTX), and Asynchronous Transfer Mode ("ATM") 1000Base Gigabit and 10 Gigabit Ethernet media connections. The Contractor shall notify the Department in writing and justify if an additional headcount is required in order to take over the maintenance of this system.

The Local Area Networks conforms to the following standards:

- a) IEEE 802.3 10BaseT, 100BaseT, 1000 and 10 Gigabit Ethernet
- b) ATM Standard

The installed network has the capability to interface with and shall conform to the following networking protocol standards:

- a) TCP/IP (RFC 793 / RFC 791)
- b) OSI (ISO)
- c) ATM

The installed network conforms to IEEE 802.3 and IEEE 802.5 standards for transparent routing. The installed routers are capable of routing all protocols specified in this document, and support dual mode, AUI Ethernet (IEEE 802.3, 10BaseTX and 100BaseTX), and ATM media connections.

Test equipment shall include, but is not limited to, Sniffer analyzer,

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FLUKE, OTDR, Optical Interferometer, an Optical Loss / Return Loss Test Set including, Dual Wavelength 850/1300 nm LED source with ST connector and InGaAs detector, Dual Wavelength 1310/1550nm Cooler LASER with HRL faceplate connector and InGaAs detector.

For the purposes of the cable infrastructure, two (2) types of maintenance shall be performed: visual maintenance (a derivative of preventive maintenance); and, corrective maintenance. Types of Maintenance shall include but is not limited the following:

#### **Visual Maintenance**

Visual maintenance ("VM") is essential to efficient operation. VM is to be performed by certified technicians at scheduled intervals. This maintenance category is performed according to the requirements set forth in the manufacturer's operations and maintenance manuals, industry standards and MDAD instruction. VM activities include such functions as changing verifying revision level on spare hardware, inspecting/updating documentation, etc.

In addition to the actual copper and fiber cabling, the following systems/equipment are understood to be included in the visual maintenance processes:

- Air Conditioning in Equipment rooms
- Channel banks, Main Distribution Frames, raceways and associated wire assemblies
- Switches and Routers
- Ground Buss Bars
- Batteries, rectifiers, inverters and other associated power equipment

Visual maintenance is practiced to help prevent service outages due to performance degradation or physical deterioration. The visual maintenance program shall consist of periodic on-site inspections and performance monitoring.

The following visual inspections shall be performed at each location:

- Inspection of all equipment and cables for physical condition, including abrasions, breaks, and deformities
- Inspection of site for cleanliness
- Inspection for environmental problems due to temperature, humidity, or water leakage

In addition to the visual inspections, the technicians shall perform

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any necessary cleaning of equipment supported/policing of the area and notify the Department of any issues identified as a result of other vendors, users, and tenants in support of the highest standards of workmanship.

Contractor is responsible for the development and execution of a visual maintenance schedule. This schedule includes the following detail:

- Task Number
- Task Description (VM activity to be performed)
- Frequency (Daily, Weekly, Monthly, Semi-Annual, Annual)
- Day of Week to be Performed (If weekly or monthly)
- Initials of Personnel performing the VM Task

The VM Schedule shall be constructed in such a manner that all tasks requiring the same frequency of VM are grouped under the following headings:

- Daily
- Weekly (Noting day of week)
- Monthly (Noting day of month, i.e., 1<sup>st</sup> Mon, 1<sup>st</sup> Tue, etc.)
- Semi-Annual (Quarterly, Every other Quarter, etc.)
- Annual

**Corrective Maintenance**

Corrective maintenance includes those actions performed by certified technicians to restore components of the communications infrastructure to operational status after a failure has been identified.

The maintenance functions performed under this category shall include, but are not limited to, fault isolation, removal and repair or replacement of faulty infrastructure components.

The corrective maintenance process begins the moment the Help Desk function is informed of a service outage affecting any part of the communications infrastructure.

**Service Level Requirements**

In addition to the service level requirements shown in 2.2.10, Contractor shall achieve the following performance standards for all Data Network Infrastructure:

Service	Service Level
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Performance	<ul style="list-style-type: none"> <li>▪ The Airport standard is no down time; however, understanding that a service window is required to perform maintenance, network reliability shall be 99.98%.</li> <li>▪</li> </ul>
System availability	<ul style="list-style-type: none"> <li>▪ Network up-time to be 99.98% or greater during peak Airport business hours between 7:00 a.m. to 11:00 p.m., seven days a week.</li> <li>▪ Any non-emergency network downtime shall occur after 24 hours' notification has been provided to MDAD and its Users/Tenants.</li> </ul>
Response Time – During On-Site Hours	When responding to trouble tickets, the Contractor shall respond within 10 minutes by telephone or 20 minutes to the location of the problem and resolve 98% of equipment problems within 2 hours and cable related problems within 4 hours.
Response Time – During On-Call Hours	Shall respond within one hour after notification is sent. Critical and Major Failure repairs to commence and be fully restored within 4 hours of notification.
User Support	24 x 7 x 365

**Monetary Assessment for Non-Performance:**

Five or more documented complaints in any given month from MDAD management or Users/Tenants regarding the Contractor's responsiveness, or inability to complete restoration shall result in Monetary Assessment for Non-Performance being invoked. Refer to "Monetary Assessment for Non-Performance" Article in the Agreement.

**2.2.3 Power Supplies**

**Hours of Operation**

Service shall be provided 24 x 7 x 365. Technical staff on-site 7:00 A.M. – 11:00 P.M. Monday through Friday with an on-call function Monday – Friday, from 11:00 P.M. – 7:00 A.M and 24 hours a day week-ends and holidays. The Contractor shall have "on call" trained personnel to cover all of the systems as specified

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herein. The Contractor shall provide for MDAD Approval, a general description of its daily staffing requirements that will apply over the term of the Agreement. Staffing plans may be modified from time-to-time by written Agreement of both parties.

### **Qualification Requirements for Services**

In addition to requirements shown in Exhibit C, the technician providing maintenance and repair services for UPS should have two (2) years UPS field experience and factory certified training.

The Contractor shall be versed in the repair, analysis and solutions to power system problems. Knowledge of grounding of power supplies and equipment cabinets is of primary importance. The Contractor: (i) shall be able to follow manufacturer's specifications for grounding; (ii) shall have appropriate test equipment, and be able to test systems for differences in ground potentials; and (iii) correct systems that do not meet manufacturer's specifications.

### **Service Levels and Deliverable Requirements**

Contractor shall provide services in accordance with the following requirements, as applicable, for each UPS:

#### **A. Visual Inspection when requested and at no additional charge:**

- \* The electrolyte level of the battery
- \* All fuses, panel meters, panel lamps and circuit breakers
- \* All power connections for signs of overheating
- \* All printed circuit board connections. Swab contacts if necessary
- \* All printed circuit board capacitors, including DC and AC capacitors, subassemblies, and bridges, looking for signs of component defects, stress or leakage

#### **B. Check All:**

- \* Battery float voltages
- \* Cable connections
- \* ECE power supply voltage
- \* Terminals
- \* Circuit breakers
- \* Output terminal volts, fuses, charge current and equalize voltage on the battery charger
- \* Load current

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- \* Inverter frequency controller
- \* DC ground detection offset
- \* Inverter leg current average balance
- \* Output filter current average phase balance
- \* Rectifier bridge current average leg balance
- \* AC and DC protection settings and operation
- \* Input and output frequency and voltage bandwidth settings
- \* Power supply voltages and waveforms\* System input voltages and input currents (all phases)
- \* DC charging voltage, record settings. Adjust to nominal if necessary.
- \* Rectifier and inverter phase
- \* System bypass voltages (all phases)
- \* UPS area ambient temperature and condition of ventilating equipment
- \* Cleanliness of UPS area and UPS power module
- \* Monitoring System parameters including alarm archive and printing

**C. Clean, Replace, and Adjust – Contractor shall:**

- \* Clean all battery terminals
- \* Clean all circuit breakers
- \* Clean all fuses
- \* Clean control panel / CRT screen
- \* Replace all circuit breakers and fuses as required but not less than once every two years
- \* Replace cell or battery as required
- \* Replace monitor bulbs
- \* Replace all air filters twice a year
- \* Replace power supply back-up control battery cells once a year
- \* Adjust all panel meters to measured values

**D. Test all:**

- \* Electrolyte gravity
- \* Switch in the transfer switch and by-pass switch
- \* Voltage output and current draw in the inverter
- \* DC filter capacitance
- \* Local and remote alarm lamps
- \* Verify Generator operation and interface



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Contractor shall perform preventative maintenance (“PM”) at least three (3) times a year on all applicable UPS. During each PM, Contractor shall:

**Battery Room Environment:** Check the general appearance of the batteries and area. Record ambient temperature and note changes in temperature and battery appearance. Verify that the air conditioning and ventilation equipment is working.

**Battery Inspection:** Visually inspect each battery, and the supported racks. Check batteries for signs of damage, staining, corrosion, and excessive swelling. Clean container tops, racks, and battery room. Ensure all rack support s are checked for corrosion, deformity, and physical damages. Repair as necessary.

**Charging System:** Check that the charging system is operating properly. Compare the recommended float voltage for the system to the actual output and reading on the panel meter. Adjust and correct as required.**Battery Capacity Testing:** Perform a momentary high rate load (integrity) test by placing a 100 amp load for 10 seconds across each battery and measure and record the voltage drop under load.

**Individual Battery Terminal Temperature:** Measure and record the temperature of the negative terminals of every fourth battery using a non- contact (infrared type) thermometer. If the maximum battery temperature variation is greater than 5 degrees F., the cause shall be found and eliminated as failure to balance temperatures in the battery system could dramatically decrease battery capacity and service life.

**Connection Maintenance:** Randomly check the torque on 10% of the inter- unit connections. Once a year, measure and record the inter-unit connection resistance of each battery using a Digital Low Resistance Ohmmeter (“DLRO”) and/or re-torque every inter-unit connection to battery manufacture’s torque specifications.

**Reports and Graphs:** Provide a detailed written monthly report describing the condition of the batteries and any additional corrective maintenance required or recommended.

## **2.2.4 IT Service Desk / Network Management**

### **System Hours of Operation**

Contractor’s IT Service Desk shall be staffed on-site and operate 24 hours a day, seven (7) days a week, 365 days a year (24 x 7 x 365).

### **Qualifications Requirements for IT Service Desk Technicians**

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In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

**General Scope and Requirements:**

The existing Network Management System (“NMS”) is currently hosted on MS Windows 2000 using the HP Network Node Manager. The NMS shall monitor all network components using standard SNMP applications. An audit trail of system operations and configuration changes shall be maintained by the Contractor using the NMS. The Contractor shall provide the following network management functions using the NMS applications:

1. Fault management.
2. Configuration management.
3. Performance monitoring management.
4. Accounting management.
5. Security management.
6. Remote monitoring
7. Network utilization report
8. Network errors report.
9. Respond to alarms.

All network components shall be SNMP manageable and conform to RFC 1157. Online system health monitoring shall be provided for verifying the health status of major network components and to support software and hardware maintenance activities.

**Functions of the IT Service Desk include:**

- a. Continuously monitor the health of all IT infrastructure hardware and the Airport’s business-critical systems to ensure optimal network connectivity and performance
- b. Identify potential problems in circuits, hubs, routers, servers, hardware and applications before end-users are affected using Contractor provided tools
- c. Report outages
- d. Dispatch technicians
- e. Manage with appropriate parties any moves, adds, and changes to the network

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- f. Schedule equipment maintenance
- g. Monitor network security
- h. Provide availability measurements
- i. Accept incoming IT Service Desk requests for network assistance according to established procedures
- j. Provide outbound notification of service interruptions to identifies points of contact
- k. Track, monitor, resolve, and report all open trouble tickets assigned to the IT Service Desk
- l. IT Service Desk Technician shall 'ping' to determine availability and round-trip response time for selected network systems, and trace route information
- m. Periodic Adhoc Reports

#### **IT Service Desk Requirements and Deliverables**

IT Service Desk Requirements and Deliverables shall include, but is not limited to the following.

- a. Staff and manage a 24 x 7 x 365 IT Service Desk on-site at the Airport.
- b. Demonstrate that IT Service Desk staff consists of individuals certified in Cisco, Avaya and Marconi Networking and Switching, Asynchronous Transfer Mode ("ATM"), Ethernet technology and equipment.
- c. Log all requests and resolutions.
- d. Meet Service Levels for problem resolution and escalation.
- e. Document and report on network-related availability metrics, including but not limited to the following:
  - \* Inventory information reports from applicable managed nodes and endpoints generated after scans of desktops for applications and platforms.
  - \* Monitoring profile reports (standard and customized) of the network's environmental parameters such as disk space and CPU utilization.
  - \* Reports on specific network hardware devices and monitoring network utilization.
- f. Other analyses based on IT Service Desk data may be requested on an as-needed basis. The frequency of standard reports shall be monthly or as requested by Airport ITT.

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- g. Maintain hourly log of ALL IT Service Desk Alarm activity.
- h. Respond to monitored alerts and perform first level diagnostics to identify problem. Open trouble ticket and provide details to assist next level of support. Escalate problem as necessary.

**Service Level Requirements**

In conjunction to the service level requirements shown in 2.2.10, Contractor shall achieve the following for *all Common Use Infrastructure*:

**Service Level Requirements**

In conjunction to the service level requirements shown in 2.2.10, Contractor shall achieve the following for *all Common Use Infrastructure*:

<b>Service</b>	<b>Service Level</b>
Performance	<ul style="list-style-type: none"> <li>▪ The Airport standard is no down time; however, understanding that a service window is required to perform maintenance, network reliability shall be 99.98%.</li> </ul>
System availability	<ul style="list-style-type: none"> <li>▪ Network up-time to be 99.98% or greater during peak Airport business hours between 7:00 a.m. to 11:00 p.m., seven days a week.</li> <li>▪ Any non-emergency network downtime shall occur after five (5) working days notification has been provided to MDAD and its Users/Tenants.</li> </ul>
Problem determination and resolution.	<ul style="list-style-type: none"> <li>▪ Critical Equipment, including Circuits, infrastructure, applications, and servers: Immediate response 24 hours a day, seven (7) days a week. Resolution / fix 2 hours for 98% of all problems.</li> <li>▪ Non-critical systems: Resolution / fix 4 hours for 98% of all problems</li> </ul>

**Monetary Assessment for Non-Performance:**

Two or more documented complaints in any given month from MDAD management or Users/Tenants regarding the inattention to alarms, failure to respond, or professionalism of Contractor’s employees shall result in Monetary Assessment for Non-Performance being invoked. Monetary Assessment for Non-Performance will also be invoked if Uptime falls below 97% in any given month. Refer to “*Monetary Assessment for Non- Performance*” Article in the Agreement.

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### **Milestones - Submittals**

Contractors shall provide a IT Service Desk Staffing Plan developed and presented for MDAD's approval. This is required no later than thirty (30) days following the issuance of authority to proceed.

Contractor's IT Service Desk Operational Plan developed and presented for MDAD's approval. The Operational Plans shall detail the Contractor's approach to the management, operation, and maintenance activities that shall be conducted to ensure that the performance levels specified in the SLAs are met. This is required no later than thirty (30) days following the issuance of authority to proceed.

### **2.2.5 MDAD IT Service Desk**

#### **Hours of Operation**

IT Service Desk shall operate 24 hours a day, seven (7) days a week, 365 days a year (24 x 7 x 365) on-site at the Airport. (Note: From 10:00 pm to 7 am Contractor's IT Service Desk could answer, log and if necessary, dispatch appropriate on-call technician to assist with the problem.

#### **Qualification Requirements for Data Services Technicians**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

#### **IT Service Desk Service Requirements and Deliverables**

- a. The Contractor shall be responsible for maintaining coverage in accordance with this article in the Agreement, of the IT Service Desk for MDAD and SATS customers at the Airport, in order to coordinate repair services.
- b. The IT Service Desk shall be responsive to customer needs and requests. The main components of the IT Service Desk shall consist of:
  - \* The telephone Service Line (305 869-5900) provided by County.
  - \* IT Service Desk /Incident software shall be provided by County This system shall be used to log, track, escalate and close reported trouble items. At any time during the course of the Agreement, MDAD may require Contractor to use and maintain and configure County provided software for this function.

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- \* Contractor shall configure the software to meet Airport's Requirements. Such configuration must be completed within 90 days from start of transition.
- \* Support Staff, provided by Contractor. The County will provide the Contractor with the Service Management software that includes the ability to:
  - \* Automatically assign ticket number
  - \* Track open and closed tickets
  - \* Forward tickets and dispatch orders
  - \* Provide audit trail of where a service order or trouble ticket has been and how long it remained at each service level
  - \* Allow analysis of history of specific user or device/software types
  - \* Capable of integrating with Airport's Microsoft Outlook Email system
  - \* Track problems by component type, location, and users
  - \* Provide summary and detailed reports

Upon Termination or Expiration of the Agreement, Contractor shall abandon-in-place all County provided IT Service Desk software, application and database. All rights to license and use shall be transferred, in writing, to the County.

- c. The Contractor shall obtain from all Users and Tenants the following information:
- \* Account (Tenant) name
  - \* Their name and phone number
  - \* Their location
  - \* Detailed description of the issue/request, including type of device or system
  - \* Exact location of device
  - \* Asset Number
  - \* If telephone related, provide name of service provider, main telephone number (ILEC/CLEC account number) and telephone number of defective device, if applicable
  - \* Business hours of locations
- d. Provide staff to operate a 24 hours a day, seven (7) days a week, 365 days-a-year ("24 x 7 x 365") IT Service Desk on-site at the Airport.

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- e. IT Service Desk support for the Users shall include notifying appropriate dispatcher/department in response to complaints, and requests for service. Activities to be coordinated through the IT Service Desk include trouble reporting, trouble detection/reception, notification, verification, location and repair, repair verification, and acceptance testing and Service Requests.
- f. Maintain automated logs of all requests for service or assistance and resolution of calls in a IT Service Desk/Service Management Software provided by Contractor.
- g. Meet Service Level Agreements (“SLAs”) for incident resolution and escalation.
- h. Document requests for new service and routine moves, adds, and changes (“MACs”), assign ticket number for tracking purpose and route to appropriate MDAD or Contractor dispatcher for MAC processing / approval.
- i. Anticipate and be responsive to high call volumes during the transitional phase of building occupancy and holidays.
- j. Document and report on IT Service Desk operational metrics, including activity logs and Service Levels. Frequency of reports shall be bi-weekly or as requested by MDAD. Upon analysis of these metrics, the Contractor shall address and remedy any systematic problems or negative performance trends.
- k. County shall provide the necessary access to enable the Contractor to provide Level 1 telephone support to MDAD Employees for Microsoft Office Applications.

The process begins the moment the IT Service Desk function is informed of a service problem affecting a user.

Once an IT Service Desk Customer Service Representative (“CSR”) is informed of such a situation, a ticket is created and the ticket number is given to the user calling in the problem. The CSR shall then notify the appropriate dispatcher to rectify the incident.

The CSR tracks the corrective maintenance activity and activates the escalation process described herein. The reporting user is kept informed of each level of escalation invoked until the problem is resolved.

Once the incident is resolved, the CSR notifies the reporting user and then ensures the repair ticket is closed.

**Milestones - Submittals:**

The Contractor’s IT Service Desk Staffing Plan shall be developed

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and presented for MDAD's approval. The staffing plans shall detail the Proposer's anticipated level of staffing and organizational arrangements that the Contractor believes will best meet the needs of the Airport as described in this Specification. The Contractor shall present organization charts with personnel complements specified and a description of performance standards and objectives for each position to be maintained by the Contractor in the performance of its duties pursuant to the Agreement. Assignment of Work within the proposed team should also be described.

The Contractor's final IT Service Desk Operational Plan developed and presented for MDAD's approval. The Operational Plans shall detail the Contractor's approach to the management, operation, and maintenance activities that shall be conducted to ensure that the performance levels specified in the SLAs are met. Contractor shall submit these milestones submittals as part of its **comprehensive** detailed Transition-in Plan for MDAD's approval thirty (30) days prior to start of transition period.



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**Service Level Requirements**

The following matrix provides a summary of the levels of services required for the IT Service Desk:

<b>IT Service Desk Service</b>	<b>Service Level</b>
Call Reception	<ul style="list-style-type: none"> <li>▪ 24 hours per day, 7 days per week, 365 days per year</li> <li>▪ Average time on hold not to exceed one (1) minute.</li> </ul>
Trouble Ticket Issuance	<ul style="list-style-type: none"> <li>▪ 100% of calls</li> </ul>
Escalation Assistance	<ul style="list-style-type: none"> <li>▪ 100% of all Incident Tickets to be tracked by IT Service Desk Staff.</li> <li>▪ All Incident Tickets assigned to Level 1 within 3 minutes from receipt of call.</li> <li>▪ CSR to escalate all Incidents not resolved within 2 hours.</li> <li>▪ CSR to escalate all problems not resolved within the six-hour combination of Levels 1 and 2 are escalated to Level 3.</li> </ul>
Trouble Ticket Resolution	<ul style="list-style-type: none"> <li>▪ 95% of Incident Tickets to be closed/resolved within 24 hours.</li> <li>▪ 100% of Incident Tickets to be closed/resolved within 72 hours.</li> </ul>
Customer Satisfaction Survey	<ul style="list-style-type: none"> <li>▪ Annual surveys of IT Service Desk End Users (Airport employees and Tenants) to yield an average rating of “Completely Satisfied” or better (98% or higher).</li> </ul>

**Monetary Assessment for Non-Performance:**

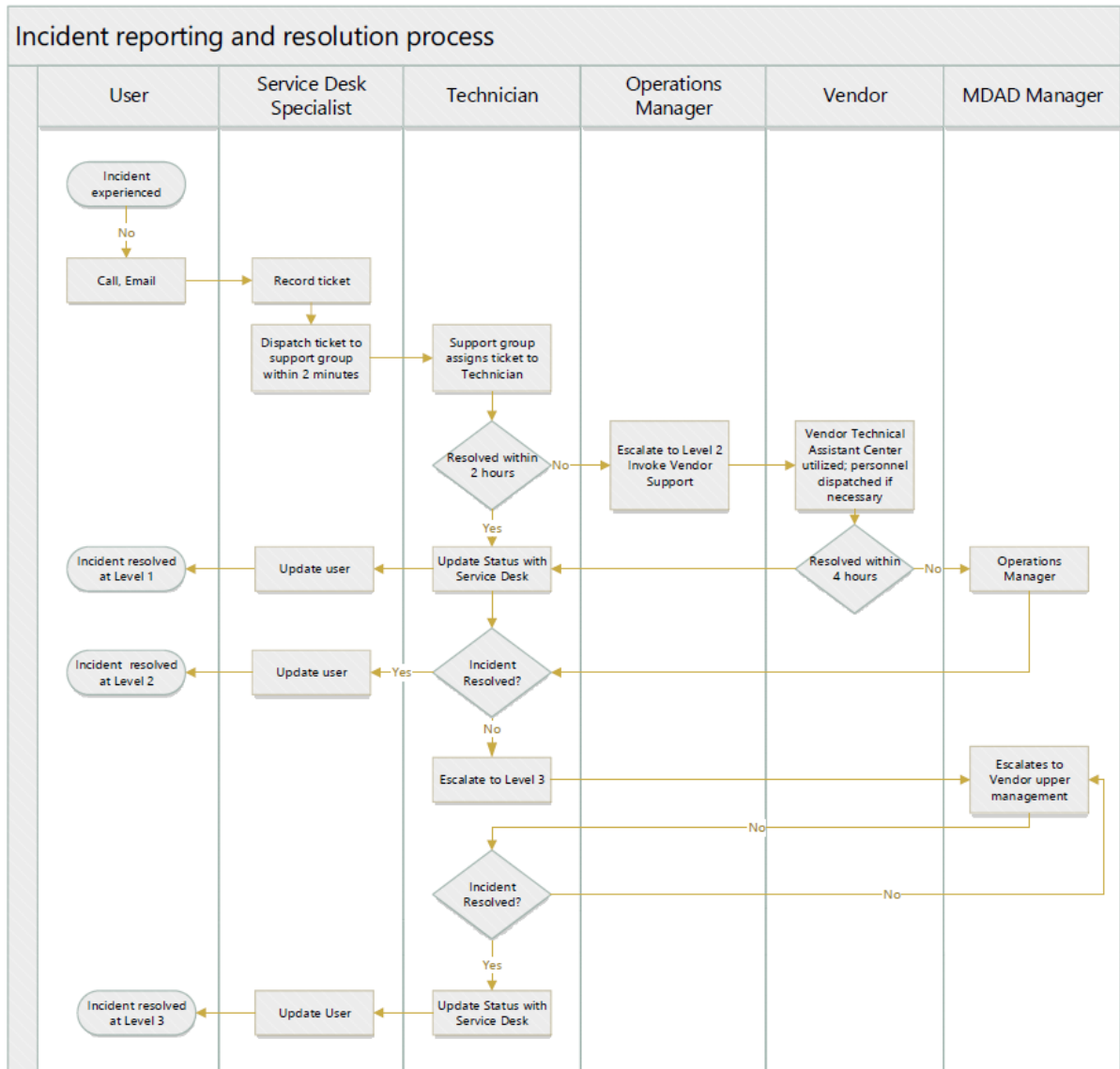
Five or more documented complaints in any given month from MDAD management or Users / Tenants regarding the responsiveness, or professionalism of Contractor’s employees shall result in Monetary Assessment for Non-Performance being invoked. **Refer to “*Monetary Assessment for Non-Performance*” Article in the Agreement.**

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**Example of IT Service Desk Flow Chart**



**2.2.6 Hardware / Software Configuration**

**Hours of Operation**

Service shall be provided 24 x 7 x 365. Technical staff on-site

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7:00 A.M. – 11:00 P.M. Monday through Friday with an on-call function Monday – Friday, from 11:00 P.M. – 7:00 A.M and 24 hours a day week-ends and holidays. The Contractor shall have “on call” trained personnel to cover all of the systems as specified herein.

The Contractor shall provide MDAD, for Approval, a general description of its daily staffing requirements that will apply over the term of the Agreement. Staffing plans may be modified from time-to-time by written Agreement of both parties.

#### **Technician Qualifications**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

#### **Hardware / Software Configuration, Software modifications, and Database Entry Service Requirements and Deliverables**

The Contractor shall be responsible for configuring software (including County owned software) and hardware as may be required for maintenance, the projects or jobs assigned, and to provide a turnkey system.

These services include but is not limited to, maintaining configuration files, PBX and network devices configuration, IT Service Desk Software customization and maintenance, Network Management System network configuration & graphics, and Cable Management System data entry.

If the Contractor does not have the expertise in-house to configure software/hardware on any of the above systems, utilize the services of subcontractors, provided they are factory certified to work on the System. All such cost shall be deemed to be included in Contractor’s proposal/bid and is incorporated herein as part of the monthly/annual Service Agreement Fee. In any event, the Contractor shall provide MDAD with the appropriate Documentation detailing software and hardware configurations provided.

### **2.2.7 Move, Add and Change Services Description**

#### **Hours of Operation**

The Contractor’s staff shall be available on site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours shall coincide with the hours

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necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

**Technicians Qualifications**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications. Contractor shall perform work outside of these hours when required and approved by MDAD.

**MAC Service Requirements and Deliverables**

Contractor shall be responsible for performing moves, adds, and changes in addition to implementing new service.

**Installation Time Intervals**

Routine additions, deletions and relocations (also known as moves, adds, and changes) shall meet the standards stated below depending on their number, assuming that conduit, power, and other required facilities are existing at the time of the work order. Contractor shall be required to obtain all necessary permits and licenses.

Requests for moves, adds, and changes shall be completed by Contractor as defined below. However, Contractor shall endeavor to improve upon all completion durations below throughout the term of the Agreement:

WORK	COMPLETION DURATION
<b>REQUEST</b>	
MAC Qty 1 – 5	Completed and fully operational within a maximum of 24 hours of request
MAC Qty 6 – 10	Completed and fully operational within a maximum of 48 hours of request
MAC Qty 11 – 50	Completed and fully operational within a maximum of 5 days of request
Over 50	Completed and fully operational within a maximum of 5 days of request  Individual case basis to be mutually negotiated  In the event equipment is not in stock, MACs shall be completed and fully operational within the time frames shown once the equipment is received on site.

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Any other work requests shall be completed and made operational in time scales mutually agreed between MDAD, its Users/Tenants.

The Contractor shall keep staffing levels and technicians on hand to meet the above completion requirements. The Contractor shall be responsible for directly coordinating with the Tenant and/or local service provider until the MAC is complete.

Priority moves, adds and changes are those that are designated a "Priority" by MDAD. Priority Work shall have written justification and be approved by MDAD IS/T. Priority work orders shall supersede other work orders and will be worked on and completed as soon as possible by the Contractor. The due date for routine work orders shall be adjusted by the County for delays caused by priority work orders. For all conflicts of schedule, MDAD shall be the final authority on the final timing and have responsibility for the resulting impact on other work and Equipment.

**Monetary Assessment for Non-Performance Monetary Assessment for Non-Performance:**

Five or more documented complaints in any given month from MDAD management or Users/Tenants regarding the responsiveness, ability to complete the Work in the duration shown above, or professionalism of Contractor's employees shall result in a monetary assessment for non- performance Monetary Assessment for Non-Performance being invoked. Refer to "*Monetary Assessment for Non Performance*" Article in the Agreement.

**2.2.8 Circuit Engineering and Documentation**

**Hours of Operation**

The Contractor's staff shall be available on site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

**Circuit Engineering and Documentation. Service Requirements and Deliverables**

***Standard Circuit Specifications*** – All new Circuits engineered shall conform to the same specifications as similar circuits

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installed in the regulated telephone environment.

The Contractor shall compile and maintain a complete catalog of circuit offerings at the Airport including circuit type, description, worst case circuit parameters, thresholds where the circuit shall be deemed unusable and in need of repair and special requirements for end user provided terminating equipment.

The Contractor shall update this catalog for its own use. One updated copy of this catalog shall be maintained by Contractor at MDAD Telecommunications for reproduction and distribution to Tenants, and other users of MDAD telecommunications facilities.

***Custom Circuit Types*** - Custom Circuits shall be defined as circuit types that have not been previously engineered or provisioned at the Airport. The Department shall supply end-to-end specifications for these circuits to the Contractor. The Contractor shall engineer these circuits at the Department's request and thereafter add these circuits to the catalog of available circuit types.

***Repeaters, special conditioning equipment and circuit terminating equipment*** - necessary for the successful performance of these circuits shall be properly documented. This equipment shall be installed, tested and commissioned at the Department's cost. Test results for the circuit shall be documented and compared against the engineering worksheet for each specially engineered circuit.

***Special Maintenance Spares*** - It is recognized that special circuits may require equipment that is presently not part of the spares inventory. Per the requirements outlined in 1.2.15 and 2.2.15, in cases where this occurs, the Contractor shall be permitted to purchase a quantity of repair parts sufficient to maintain the circuit in the event of component failure. These maintenance spares shall be included in MDAD master component list as long as one or more of the circuits is in use.

***Documentation*** - The following Documentation shall be provided by Contractor:

1. Cable Management System - All voice, data, video and other circuits shall be engineered and documented in MDAD cable management system by the Contractor. (Refer to Section 2.2.22) This engineering includes circuits which are provisioned over copper and fiber facilities and virtual LAN and wireless circuits which are provisioned over MDAD local area networks.
2. Circuit Engineering Worksheets shall be provided for all circuits either as part of the cable management system application

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or as part of a separate database. These worksheets shall reflect the beginning, end and all intermediate points of connection for each circuit and parameters such as loop resistance, attenuation, optical loss, etc., which, are relative to the type of circuit being engineered.

3. As-Built Drawings - Any Work performed by the Contractor, which involves (i) additions or changes or deletions to equipment, (ii) cabling, or

(iii) raceways shall be reflected in the as-built drawings provided by MDAD. Existing drawings shall be made available to the Contractor in read-only form on MDAD server. With each change, the Contractor shall download the appropriate drawings, incorporate the latest changes, and mark the drawing with the next revision level and date. The Contractor shall transmit the revised drawing to both the MDAD CAD Manager and the Project Manager. The MDAD CAD Manager, after reviewing the changes will replace the previous version of the drawing on the write protected server. One plot of the revised drawing will be transmitted to the Contractor via inter-office mail for the purpose of updating the PDS record set of drawings.

4. The Contractor shall provide and maintain complete technical and systems documentation. The extent of the documentation required shall include, but not be limited to, all technical manuals, key sheets, system's printout, cable records up to the IDF level for existing structure installed at beginning date of the Agreement and for installations completed after that date, sketches, blueprints, CAD drawings with soft copy and as-built documentation provided by MDAD, and users handbook.

5. The Contractor shall establish and maintain complete project documentation and documentation of all Equipment, including installation instructions, if appropriate, and shall deliver same to the County throughout the course of the Agreement. All documentation shall be available to the IS&T Director/ County at any time during the Agreement upon request.

6. All documentation when delivered with any Equipment purchased by the County shall be available to the County in a designated area, agreed upon by both the County and the Contractor. Contractor shall execute any and all documents needed or requested by the County to perfect the County's right, title or interest in the System documentation and any other records.

7. The Contractor shall provide Telecommunication Topology

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drawings as requested by the County.

8. The Contractor shall maintain, keep current and publish monthly an inventory of all telephone switches.

### **Service Level Requirements**

**Documentation:** All such documentation shall be delivered at time of installation, but in no event, later than 30 days after completion of change, work, or addition.

**Circuit:** All circuit types shall be completed within 11-15 days from the date the circuit has been ordered.

**Monetary Assessment for Non-Performance:** Two or more documented complaints in any given month from MDAD management or Users/Tenants regarding the Contractor's responsiveness, or inability to complete the Work in a timely manner shall result in a Monetary Assessment for Non-Performance being invoked. Refer to "*Monetary Assessment for Non Performance*" Article in the Agreement.

## **2.2.9 Preventative Maintenance Services**

### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

### **Service Level Requirements**

The Contractor shall develop a comprehensive routine preventative maintenance plan, and submit to MDAD within 120 days after Agreement Award Date. Preventative Maintenance Plan shall include each of the following elements:

- (a) Each element of voice or network systems and equipment shall be monitored for performance on a continuous basis. In addition to reporting of failed equipment, thresholds shall be established to report traffic problems or abnormal latency. Statistics shall also be required for management reports that outline system capacities and utilization levels.
- (b) Regular periodic performance testing shall be provided for each element of active electronic equipment that is not continuously monitored. This periodic testing shall be performed in accordance with manufacturer's published



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preventive maintenance procedures. Where no published preventive maintenance plan exists, measures, that are acceptable to MDAD IS/Telecommunications, shall be implemented. The Contractor shall make special provisions (whether self-performed or via subcontract) to clean optical fiber connectors, battery cable terminations and other connections, which require periodic cleaning to avoid performance degradation.

Note: The Contractor is responsible to maintain clean working areas when providing services throughout the Airport's equipment rooms and notify the Department when it finds debris left by other contractors, vendors, suppliers, users, and tenants of the Airport. Each telecommunications equipment room shall be provided with periodic cleaning to ensure an environment that is suitable for the equipment. This cleaning (whether self-performed or via subcontract) shall ensure a dust free environment, removal of debris and cleaning of equipment, cabling and terminations for all primary and Special Equipment Rooms.

- (c) The preventive maintenance plan shall include routine replacement of lamps, indicators, protectors, batteries, DC power plant equipment, 48VDC powered inverters and other components, which may fail through normal use. The preventive maintenance plan shall not include requirements for replacement of equipment room lighting components, air conditioning filters, ceiling tiles and other components that are part of the building and are not related to the network itself. The preventive maintenance plan shall require that these latter items be reported to the MDAD Work Order Center, to open a service request with MDAD Facilities Maintenance if found to be defective or in need of repair. The Preventive Maintenance Plan shall include operation and maintenance of DC plant in IDF rooms that support switching equipment.
- (d) Each month, the Contractor shall provide MDAD with a written report detailing the results PM, inspections, report of corrections or adjustment, and make specific recommendations toward future remedial actions, upgrades or sparing.
- (e) The Preventative Maintenance Plan shall include provisions for non-scheduled maintenance and repair of equipment that may fail or degrade during normal operation.

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- (f) Preventive maintenance shall be completed on a monthly schedule. The schedule shall be planned in advance and entered into the Preventive Maintenance section of the activity log. All Equipment shall be identified location, room number and system address where applicable. Each month completed Preventive Maintenance log shall form part of the Monthly Report.
- (g) Devices identified as ‘deteriorating’ and ‘needs replacement’ shall be brought to the attention of the Department in writing.
- (h) Contractor shall actively work with vendors to resolve repeat issues.
- (i) Preventative Maintenance shall be performed in accordance with the manufacturers’ requirements. Preventative Maintenance shall only be carried out on Equipment and Networks that are not in use and in such a way that it shall not affect the Service Levels or disrupt User’s operation.
- (j) PM that disrupts services to MDAD and tenants shall be coordinated in advance with the affected groups by the Contractor.
- (k) Definitions of “good”, “deteriorating” and “needs replacement”:

Device	Good	Deteriorating	Needs replacement
All Equipment & devices including routers, switches, Cables including power leads and network connection cables	Meets manufacturers operating requirements and no visible damage to cables	Marginally meets manufacturers operating requirements but there is visible damage to cables, device. Performance is perceptually degrading with time	Fails to meet manufacturers operating requirements

**Monetary Assessment for Non-Performance:** Monetary Assessment for Non-Performance will be invoked if degraded service or Equipment failure is found and documented to be caused by lack of maintenance required. Refer to “Monetary Assessment for Non-Performance” Article in the Agreement.

**2.2.10 Maintenance and Trouble Resolutions**

**Hours of Operation**

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Service shall be provided 24 x 7 x 365.

Voice staffing requirements: Technical staff on-site 7:00 A.M. – 11:00

P.M. Monday through Friday with an on-call function Monday – Friday, from 11:00 P.M. – 7:00 A.M and 24 hours a day weekends and holidays. The Contractor shall have “on call” trained personnel to cover all of the systems as specified in the Requirements of the Agreement.

Data staffing requirements: Technical staff shall be on-site 24 X 7 X 365. At a minimum, at least one (1) Network Engineer will be on-site at all times.

#### **Qualification Requirements for Services**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

#### **Maintenance and Trouble Resolution Service Levels, Requirements and Deliverables**

The Contractor’s IT Service Desk shall issue service tickets and contact the assigned personnel responsible to perform such repairs for major or minor failures in accordance within the time frames described in this Specification. The dispatched personnel will coordinate with the County Warehouse to obtain the repair equipment as recommended by MDAD auditor and responsible for properly returning the equipment for repairs or replacements. The dispatched personnel shall be responsible for keeping the CRC informed of problems, and reporting to MDAD a real-time status of repair progress. After hour calls shall be routed to the Technician on call.

The Contractor’s dispatched personnel shall coordinate with MDAD, local service provider, or SATS customer as required and MDAD shall make the determination as to the type and quantity of resources required to correct the problem, if necessary.

Should a major outage be related to the local exchange company’s network, the Contractor’s personnel shall act as the County’s agent to open a repair ticket with the local exchange company and work on behalf of the County, as commercially reasonable and necessary, to troubleshoot the problem until the major outage is corrected. The Contractor shall also coordinate access issues directly with the user. The County requires the Contractor to propose spare parts levels for the various systems

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in order that the repairs can be made in a timely fashion based on the classification of the repair as described in this Specification.

In case of emergency during after hours, Contractor shall proceed to attempt to repair while continuing an attempt to contact MDAD per the escalation notification list to be provided by the Contractor, based on information provided by MDAD.

Critical events shall be reported immediately to the Operations Manager and the IS/T Director. The applicable resources shall be mobilized to respond to the Critical event.

The Contractor shall guarantee specific levels of performance and availability for each segment of the network described in this Specification.

All Service Levels shown in this Specification shall be adhered to. Circuit segments and their required level of availability include the following:

a.	Voice Circuits	99.98%
b.	Data Circuits (Point-to-Point)	99.98%
c.	LAN Circuits	99.98%

Availability shall be calculated on a monthly basis. Availability shall be calculated based on the following formula:

$$\text{Availability} = \frac{\text{Available Time} - \text{Downtime}}{\text{Available Time}} \times 100$$

**Available Time:** The number of circuits of a given type multiplied by the number of hours in the month.

**Downtime:** The sum in hours of all circuit outages or performance degradation commencing when the trouble is reported and ending when the trouble ticket is completed and closed out. For aggregate services such as T1 circuits downtime shall be the sum of the outage duration times the number of active channels (24) contained in the aggregate circuit. LAN downtime shall be the outage duration times the number of ports, which are reported as out of service or suffering from degraded operation.

**Monetary Assessment for Non-Performance:** Service response and restoration to be performed as shown above or a Monetary Assessment for Non-Performance will be invoked. Refer to "Monetary Assessment for Non-Performance" Article in the Agreement.

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### **2.2.11 Project Management Services**

Project Management services shall include, but shall not be limited to:

1. Perform needs assessment, field surveys, and cost estimates
2. Oversee all work orders from start to finish
3. Design telecommunications systems to meet user requirements
4. Design Inside/Outside Plant and network changes and extensions
5. Provide MDAD with requirements for Building Projects
6. Coordinate installation of MDAD infrastructure and equipment
7. Competitively bid sub-contracts for execution of this work
8. Manage telecommunication construction related activities and coordination with related work contractors
9. Update MDAD as-built CAD drawings for the managed infrastructure

#### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

#### **Qualifications Requirements for Services**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

#### **Service Levels, Requirements and Deliverables**

New projects shall be on a work order basis, as approved in writing by the MDAD Project Manager or agent authorized in writing by the Project Manager. Each authorization shall be accompanied by a written scope of work, and conceptual drawing where appropriate. No projects are to be undertaken without this authorization.

In the case of new buildings where services do not exist, or additional services to existing buildings, the County shall either provide the Contractor with conduit or a suitable path to access the service demarcation point, or request the Contractor to provide such conduit at a cost approved in writing by the County.

If, at the request of the County, the Contractor provides the conduit, the County shall reimburse the Contractor for the

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approved cost of providing the conduit. Upon the request of the County and advice as to the Work to be performed by the Contractor, the Contractor shall manage same in accordance with the provisions stated in the Agreement.

Once a project has been authorized, the Contractor shall obtain required permits, execute and coordinate the design and estimate the cost of construction. On projects that involve only the telecommunications systems, the design shall be coordinated with MDAD IS/T Division. On multi-discipline projects this coordination shall include designers of other disciplines or other MDAD Divisions that may be involved in the project.

Design and estimating services shall be provided directly by the Contractor or under a sub-contract agreement with a qualified telecommunications design firm. MAC or day-to-day operation of the system shall not be affected as a result of the Contractor's role in new projects.

- A.** All design work performed under the awarded contract shall be in full compliance with MDAD, EIA/TIA, BICSI and other applicable standards. Drawing files for existing portions of the system shall be obtained from MDAD staff. These drawings shall be modified and supplemented as required to include the new work. These drawings are to be supplemented with specifications, standards and other information to form a competitive bid package for the work. In all cases, new Work shall be specified to be uniform with existing installations and equipment of similar nature at MIA. MDAD Telecommunications shall approve any deviation or changes in advance.
- B.** Subcontractors shall only be used, subject to prior written approval from the Department, when the Contractor's existing work force is unable to perform project management services within established time frames.
- C.** Where subcontracting is required for all new design packages for cable and conduit installations, the Contractor shall utilize the CSBE sub-contractor identified in the Contractor's Schedule of Intent. The Contractor must have a written contract with the identified CSBE subcontractor and adhere to the CSBE Implementing Order No. 3-22 (Exhibit J), which delineates the requirements of this County program and the requirements for attaining the CSBE Trade Set Aside - Electrical contract measure, all in accordance

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with applicable federal and state laws, and County ordinances.

- D. The Contractor shall supplement its workforce as necessary to provide construction administration services for authorized projects. This administration work shall include attendance of construction meetings, inspection of installed work, coordination with related work trades and resolution of issues that arise in the course of construction. All labor for performance of purchase order contracts shall utilize Contractor personnel who are not involved in normal operations, maintenance and MAC contract activity. Contractor shall ensure sufficient reserves of personnel are available for delivery of services and to manage backlogs.
- E. All projects shall be segmented into elements of design, bidding and negotiation, and construction administration services. The cost of this Work to the County shall be the sum of the lowest responsive subcontractor bids plus an amount not to exceed ten percent (10%) of the price of the subcontractor's work.
- F. The construction administration work for authorized projects shall include attendance of construction meetings, inspection of installed work, and coordination with related work trades and resolution of issues that arise in the course of construction.
- G. As-Built Documentation shall be maintained for all authorized projects. The Contractor shall revise existing drawings affected by or involved in a new project. These drawings shall be produced or modified in electronic form and delivered in both electronic and hard copy to MDAD IS/T. Where an existing drawing is involved, the Contractor shall obtain a current copy of the drawing in electronic form, incorporate revisions to the drawing and return the drawing to the MDAD as-built archive with a new revision level.
- H. All special projects shall be broken into elements of design, bidding and negotiations, and construction administration services. The cost of this Work to the County shall be the sum of the lowest responsive subcontractor bids PLUS an amount not to exceed 10% for Contractor's participation in the work. All such projects shall be authorized by MDAD.
- I. **Monetary Assessment for Non-Performance:** Five or more documented complaints in any given month from MDAD management or Users / Tenants regarding the

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responsiveness, or professionalism of Contractor's employees shall result in a Monetary Assessment for Non-Performance being invoked. Monetary Assessment for Non-Performance shall also be invoked if Contractor fails to complete the Work within the agreed upon Project Schedule, Refer to "*Monetary Assessment for Non-Performance*" Article in the Agreement.

## **2.2.12 Marketing and Providing New Shared Airport Tenant Services**

### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

### **Qualification Requirements for Services**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

### **Service Levels, Requirements and Deliverables**

The Airport has Tenants that require services (both voice and data) for their on-going operation. The skills necessary to provide quotations, perform voice and data systems engineering, understand the physical cable (copper, fiber, wireless) plant, and provide for provisioning and coordinating the installation of these services, shall be required by the Airport. Contractor shall be responsible to:

- a. Provide engineering support to prepare quotations for service
- b. Maintain and track customer orders and quotations in an Airport- provided tracking system
- c. Provide provisioning support to deliver services
- d. Coordinate with outside providers for extraordinary service items
- e. Produce and distribute informational brochures to SATS customers and prospective customers.
- f. Market SATS to prospective customers.
- g. Develop competitive pricing structure(s) for offered services.
- h. Ensure Tenant is billed properly and in a timely manner.
- i. Obtain MDAD IS/ Director's review and approval of all new



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**SATS.**

Contractor shall be responsible for providing and managing Shared Airport Tenant Services for Voice, Data and Point-to-Point Connectivity. Request for such services may encompass one or more of the following services:

1. Voice: PBX Telephone Service or VOIP
2. Point-to-Point: Internal connections originating and terminating on the MIA campus. Dry Copper pairs for DSO (Voice, Private Line or subrate data), DS1 (full rate data) or Dark Fiber for T3, OC3, OC12 and OC48.
3. Data: External connections originating off MIA campus. DSO (Private Line & Subrate data), DSI (full rate data, and T3, OC3 or OC12.

An initial request for connectivity service may be generated when a new Tenant receives an Occupancy Packet that includes the Request for Service Forms or when the IT Service Desk receives a request for Service Order.

Upon receipt of the Service Order, Contractor's Telecommunication Specialist ("TS") shall determine the Work to be done. The TS shall coordinate with the user, the communications infrastructure staff and the service provider to ensure the Work is properly performed and meets the Tenant's needs. TS shall build the work order ticket, check the Tenant lease/space agreement and meet with requester to confirm their needs and information. MDAD must approve all price quotes before work proceeds. Upon such approval MDAD will issue an IPON to Contractor approving the work.

After receiving MDAD's approval, the TS shall complete the pre-order analysis and design, categorize service type, assign an order number and due date. TS shall advise Circuit Facility Assignment ("CFA") and order number information to the service provider or shall ensure Tenant has these numbers and relays them to their Provider.

TS shall work with assigned technician to coordinate work, including cross connects, test and turn up circuit. The Technician shall be responsible to perform, in a timely manner, remote test and test access point at the Minimum Point of Entry ("MPOE"). The Technician shall test at Litespan port with test set, or if applicable, provide loop back towards the Service Provider, and shall verify and report circuit complete to the service provider. The Technician shall also conduct test at the wiring closet demark.

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The Technician shall assist the Tenant/User to test dial tone (for POTS) and perform end-to-end test between User and Service Provider as might be applicable for example a DS1.

The TS shall remain the point-of-contact for the Tenant/User until completion of testing and Turn-up, obtains Tenant's confirmation and the order number is closed. Service Level for this is 11 – 15 days to complete.

The Contractor shall not provide communications services to other entities using MDAD telecommunications infrastructure without the written consent of MDAD. During their respective work hours, Contractor's on-site employees shall only engage in activities on behalf of MDAD and the SATS customers of the Department as provided in the Agreement.

**Monetary Assessment for Non-Performance:** Two or more documented complaints in any given month from MDAD management or Users/Tenants regarding the responsiveness, accuracy, ability to complete the Work within the required Service Level shown above, or professionalism of Contractor's employees shall result in a Monetary Assessment for Non-Performance being invoked. Refer to "Monetary Assessment for Non-Performance" Article in the Agreement.

## **2.2.13 Training Programs**

### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

### **Service Levels, Requirements and Deliverables**

All Contractor provided training to County employees and Tenants shall include:

- a. Training Plan approved by County
- b. Training Manuals
- c. Visual Aids

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d. Hands-on Training

#### **2.2.14 Configuration, Change, Asset Management**

Configuration & Change Management shall include the ability to (1) understand and control the complex interrelationship of the various users, devices and systems on the network, and (2) monitor and control the introduction of change in the Airport's Infrastructure.

Contractor shall be responsible to maintain Configuration Files.

The Contractor shall work with MDAD and its Tenants in coordinating changes and definition of dependencies such as prerequisite and co-requisite changes.

In the event of an emergency, MDAD reserves the right to take a hands-on approach to fix the problem if the Contractor's personnel are not available or is unable to resolve the problem. A strict configuration and change management process shall be adhered to, which documents all changes to the respective network. At the beginning of each year, the Contractor shall submit a configuration and change management procedural plan on a yearly basis for review and approval by MDAD.

Voice and Data Systems and infrastructure changes shall be approved by MDAD and a detailed record of all changes, updates and upgrades shall be reported monthly.

The Contractor shall give a minimum of three (3) business days advanced written notification of all planned changes/preventive maintenance activities on MIA managed components prior to the activity. Upon notification from the Contractor, MDAD will provide notification to its Tenants of any activities that may affect MDAD and Tenant equipment. The written notification shall contain the following information:

- Description of activity
- Reason for activity
- Expected outcome
- Schedule of events
- Impact (real and potential) on Customer
- Potential Risks
- Contingency Plan

#### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall

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coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

### **Service Levels, Requirements and Deliverables**

The County, its Users and any third party that may be affected shall mutually agree upon all installed changes.

- For Contractor initiated planned changes; at least seven (7) days notice shall be given to the County and each affected Tenant or designated representative, including Airline HDQ representative. However, it is acknowledged the parties shall work together to develop a plan to expedite non-critical, non-platform changes.
- Unless, with prior unanimous agreement of the County and its Users, all planned changes are to be undertaken during Non-Operational Hours.
- Unplanned changes shall only be undertaken if the County and its User insist or agree that the work is essential to the operation and cannot be deferred, or, without notification in order to restore Service Availability.
- Installation of additional Equipment, which affects other devices, shall be undertaken during Non-Operational Hours.

### **Monetary Assessment for Non-Performance:**

Two or more documented system problems or failures caused by changes not managed or performed in accordance with the above requirements shall result in a Monetary Assessment for Non-Performance being invoked. *Refer to "Monetary Assessment for Non-Performance" Article in the Agreement.*

## **2.2.15 Procurement**

### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

### **Qualification Requirements for Services**

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In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

**Service Levels, Requirements and Deliverables**

**A.** Capital Expenditure Approval: The Contractor shall not make any capital expenditures except as expressly pre-approved by the Department in accordance with the Expenditure Authority article of the Agreement.

**B.** Installed Inventories: The Contractor shall provide and maintain an inventory of all hardware, devices and systems, including serial numbers, version number and locations for the Equipment and cost.

**C.** The Contractor, throughout the term of the Agreement, shall maintain a current and up-to-date perpetual installed inventory listing. Following the completion of each inventory required herein, except that required prior to the effective date of the Agreement, the Contractor shall pay to the County the net book value of any losses from inventory resulting from the negligence of the Contractor. Nothing contained herein shall be construed to authorize the Contractor to dispose of any capital property of the County without the prior written approval of the Department.

**D. Purchasing Procedures**

**1.** The Contractor shall sell to the County, at State of Florida contract price, or other agreed fixed price, whichever is lower, or at a mutually agreed upon price if there is no State of Florida price applicable, all parts and equipment necessary to perform the Work under the Agreement.

**2.** The Contractor shall pass on to the County any additional discounts offered by the equipment vendors and invoice MDAD for the actual price plus agreed upon markup, net of discount received for such equipment or parts by the Contractor.

**3.** For Special Project Work, at MDAD's option, the Contractor shall provide to MDAD three (3) qualified bids, for MDAD's acquisition of specified parts, equipment, wiring, cables, materials, supplies, systems, sub-systems, or software necessary to provide the Services under the Agreement whenever the value of the installation exceeds five thousand dollars (\$5,000).

All such parts, equipment, wiring, cables, materials,

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supplies, systems, sub-systems, or software necessary to provide the Services under the Agreement that have been approved in writing by MDAD, shall be procured by Contractor and invoiced to MDAD for actual cost incurred plus an amount not to exceed 10% handling fee.

4. The dollar threshold for purchasing equipment and parts, and appropriate authority levels are as described in the Expenditure Authority article of the Agreement. The Contractor shall obtain prior written approval in accordance with this schedule prior to purchasing any equipment or parts.
5. Procurement of major purchases, like a new PBX system, if not included in any of the existing contracts above, may necessitate the issuing of a separate solicitation document.

**F. Deliveries and Shipping Costs**

1. Deliveries of material shall be scheduled and handled solely by the Contractor. The Contractor shall assume all responsibility for the delivery of all purchased items. The Contractor shall make all deliveries of equipment and supplies in such manner and at such times and locations as may be reasonably approved. Emergency deliveries may be made at other times subject to prior arrangements with MDAD Telecommunications.
2. Shipping Costs: All shipments shall be via standard freight carriers and expedited shipment shall be utilized only when required and requested by MDAD.

**G. Material storage space**

The Contractor shall be provided storage space.

**H. Instrument Inventory and Labeling**

All major equipment installed or stored shall be inventoried, labeled and tagged by MDAD, in accordance with MDAD Capital Inventory Requirements. Disconnected equipment shall be de-inventoried and the paper work turned in as required by MDAD.

**I. Equipment Provisioning**

If the County requests refurbished or remanufactured Equipment, the Contractor shall provide County with the cost for the refurbished or remanufactured Equipment and shall provide the refurbished or remanufactured Equipment upon

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County request. Contractor shall supply refurbished or remanufactured equipment only if said equipment is available via the Contractor's secondary market provider.

If Equipment is rejected by the assigned IS/T Director or his or her designee, the validity of rejection shall be corrected with the terms of the Agreement. Contractor, if determined to be at fault, will as soon as practicable correct the Equipment. Failure of the Contractor to correct the problem(s) within 24 hours shall give the County the right to cease use of the Equipment and return it to the Contractor for full credit. Any installed but rejected Equipment shall be disconnected and removed by Contractor from the original installation site of the Equipment. Upon Equipment removal, the Contractor shall use all commercially reasonable efforts to return the site to its original condition.

The County reserves the right to request the Equipment manufacturer be brought on-site to provide technical support for the Contractor, if or when necessary.

#### **J. Title**

Title to Equipment and/or parts shall pass to the County upon the County's reimbursement to the Contractor of the cost of the particular item.

#### **Monetary Assessment for Non-Performance:**

Two or more documented complaints in any given month from MDAD management or Users / Tenants regarding the responsiveness, accuracy, or professionalism of Contractor's employees shall result in a Monetary Assessment for Non-Performance being invoked.

### **2.2.16 Maintenance of Spare Parts**

#### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. Contractor shall make available spare parts needed for trouble resolution after normal working hours. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

#### **Service Levels, Requirements and Deliverables**

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The Contractor shall recommend spare parts inventory (the "Spare Parts Inventory") which shall be stored and administered by MDAD in a County designated secured area to support both scheduled and non-scheduled maintenance and repair, to ensure prompt repair of Equipment and for MAC services. From time to time it may be necessary to add or delete certain items from the Spare Parts Inventory due to equipment obsolescence or changes in network configuration that preclude the need for these materials.

The Contractor shall regularly monitor the Spare Parts Inventory and recommend the addition and/or deletion of specific items. MDAD Telecommunications shall review the Contractor's recommendations and where appropriate, issue written direction for the addition and/or removal of items from the Spare Parts Inventory. The Contractor shall purchase on behalf of the County when and as required all parts necessary for the ongoing operation and maintenance of all telecommunication, and data.

The County reserves the right to request that the quantity of stocked spare parts be modified, based upon supply and demand to service the Airport. The Contractor shall supply refurbished and remanufactured equipment if said equipment is requested by the County and is available via the Contractor's general product provider.

## **2.2.17 SATS Order Taking and Billing**

### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

### **Qualification Requirements for Services**

In addition to the requirements stated in herein, refer to Exhibit C for further Job Descriptions and Qualifications.

### **Billing Submittals and Service Requirements**

The Contractor shall provide and maintain computer hardware and Software associated with any billing system the Contractor chooses to employ subject to approval by MDAD.



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The Contractor shall provide a billing system that is compatible with MDAD's financial systems. These systems shall be maintained and operated at a level suitable to maintain the quality of service or additional requirements outlined in other sections of the Agreement and its Specification. Back-ups shall be performed and maintained off-site by the Contractor on all key technical systems to ensure data integrity. **If billing is found after two consecutive months to have excessive errors or delayed processing, Monetary Assessment for Non-Performance will be invoked. Refer to "Monetary Assessment for Non-Performance" Article in the Agreement.**

### **Types of Charges**

Contractor shall be responsible for ensuring the following charges are billed by the Airport for Shared Airport Tenant Service:

- A. Monthly Recurring Charges – Airport Communications Infrastructure Charges ("ACIC") - are monthly recurring charges for utilizing the Airport communications infrastructure. This charge is based on the type and/or quantity of services(s) required by the user. This charge is billed in arrears for the previous months usage.
- B. Non-Recurring Charges – Moves, Adds and Changes – would be charges billed to the Tenant for cost of moving, adding or making changes to service. Non-Recurring charges are billed following the completion of work.
- C. Non-Recurring Charges – Billable Repair are charges for maintenance repairs performed by the Contractor on the communications infrastructure are NOT billable to the Tenant. However, if the user, Contractor, or the Airport determines a problem to lie within the Tenant's space and if the Tenant authorizes the Airport to repair it, a billable repair charge shall apply. This charge is based on the actual time and material required to complete the repair. The charges are billed following the completion of the repair.
- D. Non-Recurring Charges – Customized Services are charges for customized services and special request and are addressed on an individual case basis and are billed accordingly.
- E. The Contractor shall provide billing information to MDAD telecommunications staff on a monthly basis. The information provided shall meet the following requirements:

\* Identify separately any MAC work performed, new installations, and monthly service charges.

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- \* The information shall provide a breakdown between itemized material charges and labor charges.
  - \* Individual billing information shall be provided for each SATS customer, management companies or any other user entity. The SATS currently include, but are not limited to voice and data services, dry pairs and dark fiber.
- F. In cases where the Contractor technicians are called out repeatedly to troubleshoot a Tenant problem the Contractor technician labor may become a billable item to the Tenant if equipment abuse above ordinary wear and tear had taken place. When human intervention and fault can be determined or linked to an outage/repair requirement (e.g. a cable dig as part of construction), the Contractor shall work with MDAD to make determination as to who shall pay for the repair and provide invoice information to the appropriate party.

**SATS Billing Procedures**

The Contractor shall submit billing details to MDAD Finance Division. MDAD Finance shall invoice all SATS customers. Customer Checks are to be made payable to Miami-Dade Aviation Department. SATS customers shall be instructed to send checks directly to the Department's Finance Division to the following addresses:

**In Person** – To: during normal business hours, 8:00 A.M. to 5:00 P.M. (Monday through Friday)

Miami-Dade Aviation  
Department Finance Division  
Suite  
300  
Building  
5A  
4200 N.W. 36  
Street Miami  
International  
Airport Miami,  
Florida 33122

**By First Class Mail – To:**

Miami-Dade Aviation Department  
Finance Division  
P.O. Box 526624  
Miami, Florida 33152-6624

**By Express Mail – To:**

Miami-Dade Aviation Department

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Financ  
e  
Divisio  
n Suite  
300  
Buildin  
g 5A  
4200 N.W. 36 Street  
Miami, Florida 33122

**By Wire Transfer:** In accordance with wire transfer instructions provided by MDAD Finance Division

## **2.2.18 Reports, Submittals and Records**

### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

### **Reports Submittals and Service Requirements**

The following list represents mandatory reports that the County requires at the listed interval or as requested by MDAD. Samples and formats of the reports shall be provided by the Contractor no later than fifteen (15) days after the execution of the Agreement. The format of all reports shall be approved by the Department.

#### **A. Occurrence Reports**

- Parts Price List - *As Requested*
- Circuit Cut-Sheets - *As Requested*
- Custom Cable Record Reports - *As Requested*

#### **B. Monthly Reports**

- Average response time for major and minor failures categorized by regular and after hour activity
- Percent of work orders completed within specific time frames
- List of completed and pending work orders

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- Order Report that outlines number of hours by labor type and activity for all personnel
- Availability Reports which outline availability of all circuit types/ports, PBX switches, trunks, fiber links, network and other major systems
- SATS Billing Report, which shall include the following information
  - Dates of transactions
  - Dollar values of transactions (both billing rates as well as cost calculations and support)
  - Invoice date and number
  - Monthly Financial Statement, reflecting SATS expenses and SATS billings incurred pursuant to the Agreement
  - Preventive Maintenance Inspection Reports that outline what is done to maintain manufactured suggested maintenance for equipment covered under this contract
  - Audit Reports that detail results of locations and circuit types tested/audited for cable record accuracy. These activities are aimed at ensuring accurate cable records and recovering existing cable plant not in use
  - Circuit Capacity Reports that outline circuit types / amounts / % capacity for various locations
  - Service Order Report with subcategories broken down by regular and after hours, number of orders, and total hours.

**C. Quarterly Reports**

- Reports that outline total amounts invoiced by activity type outlined in Invoice matrix. Reports shall also indicate number of hours expended by job classification type towards that specific activity
- Equipment Inventory - Includes PBX, network, and Gigabit Ethernet® Components / Systems and sparing levels
- Contractor Staffing Organization Chart
- Contractor Staffing Contact / Notification List

**D. Annual Reports**

- By September 1<sup>st</sup> of each year, the Contractor shall submit a configuration and change management

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- procedural plan for review and approval by MDAD
- Marketing and customer service plan
- Revenue and billing management plan
- Annual budget

**E. System Availability Reporting**

The Contractor shall provide a monthly circuit availability report to MDAD Telecommunications which states the required level of availability for each of the classes of circuits listed in the Levels of Performance subarticle of the Agreement. This report shall include the actual level of availability for each class of circuit, based upon the calculation method listed herein. The difference between the required level of availability and actual availability for each class of circuit shall be identified in the report.

**F. Other**

**Reports**

**Management**

**Reports**

Management Reports may include the following:

- (1) Response time, availability, and outages for networks, systems and Web services (weekly)
- (2) Resource utilization in WAN and LAN (weekly)
- (3) CPU and disk storage utilization – for systems Contractor is responsible for maintaining (monthly)
- (4) Error statistics for communication interfaces or processes/services (weekly)
- (5) Utilization of ATM connections (monthly) or other core switches such as Gbit Ethernet
- (6) Analysis high levels of recurring causes of problems, response time by the technician – time to fix and identification of high failure rates in equipment through Meantime Between Failure (MTBF) analysis (monthly)
- (7) Work Order Status & MTTR Reports (weekly)
- (8) Repair Order Status Reports (weekly)
- (9) Service Level Reports (month-to-date and year-to-date)

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- (10) Cable and Wire Records Reports
- (11) Grade of Service Report

MDAD may also determine from time-to-time additional or ad- hoc management reports that may be required regarding the administration of the telecommunication system, SATS and Infrastructure management, and IT Service Desk. The Contractor shall provide other reports that may or may not be generated by the Contractor in the normal course of operations upon request from the Department at no additional cost to the County

**G. Records and other documents.**

The Contractor shall deliver copies of all original documents and records required to be maintained pursuant to the Agreement or necessary to perform the Services no later than fifteen (15) days after the request for the documents or records. Upon request and during regular business hours, the Department shall be provided all documents and records required to be maintained pursuant to the Agreement, and permitted to inspect such documents and records. Further, if and to the extent that any other records are required to be furnished under Chapter 119, Florida Statutes, the Contractor shall provide same. The Department shall require the Contractor to provide all documents and records required to be maintained pursuant to the Agreement, including, but not limited to, inspection reports, progress reports and financial records.

**2.2.19 Disaster Recovery Plan and Back-Up Services**

**Hours of Operation**

Staff normal work hours shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

**Disaster Recovery Service Requirements**

Contractor shall work with County to establish a plan for alternative data & telecommunications for the equipment shown

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in Exhibit B in the event of a Disaster. Once approved by MDAD IS/T Division, Contractor shall be responsible to finalize, periodically test and update such plan.

Once a plan has been developed, Contractor shall be responsible to work with MDAD's IS/T Division to implement the plan in the event of an emergency. Contractor shall be responsible to provide communications equipment, labor, and data lines required under the adopted plan with respect to communications between the identified third site from which the Contractors service are being performed during a Disaster.

The plan shall include description how servers, network, routers, hubs, and switches operating in various buildings and locations can be restored to operation in the event of destruction or disaster. The Plan shall describe recovery by location/building and the technique of recovery through restoration of files in equipment.

The Disaster Recovery Plan for data and telecommunications shall be updated by Contractor at least annually as changes in the business/technical environment dictate, and each updated Plan shall be made available to County for review prior to implementation.

#### **Back-Up Services Requirements**

MDAD (ISO Systems Group) shall be responsible for Back-Up Services Requirements.

### **2.2.20 Attend Meetings, as Required**

#### **Meeting Requirements**

- A. Informal Meetings:** The first week of every month, the MDAD IS/T Director and the Contractor's Service Manager shall meet to discuss current issues of mutual concern.
- B. Weekly Staff Meeting:** Both parties and their appointed staff shall meet weekly to discuss daily operational issues and on-going project status. Contractor shall maintain an on-going Action-item list.
- C. Weekly Bulletins:** Contractor shall provide weekly bulletins or newsletter as a means of mass communications for all their on-site employees and County's Management to update them as to what is happening on key projects, initiatives, and issues.
- D. Meeting Minutes and Action Items:** Contractor shall prepare meeting minutes and prepare, manage, and update action item.

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### **2.2.21 Third – Party Support Agreements**

Contractor shall secure for County an acceptable maintenance Agreement for the Equipment with the Manufacturers or Service Organizations (if specified) in Exhibit J. The Fee for the maintenance service shall be at the Manufacturer's then prevailing and negotiated rates which approximates the industry standard on one percent (1%) per month of equipment cost.

Such Maintenance Agreements shall be paid for on an annual basis or on an hourly basis the rates shown therein.

#### **Third Party Support Agreement Requirements**

The Contractor shall:

- 1 Maintain maintenance and technical support agreements with vendors associated with the telecommunications systems shown in Exhibit J.
- 2 Be responsible and pay for all maintenance contracts and support contracts necessary to perform the services outlined in this Specification (collectively, the "Agreements with Vendors")
- 3 Be solely responsible for hands-on management of the systems.
- 4 Ensure the maintenance of all such agreements is kept current, up-to-date.
- 5 Ensure all such Agreements provide for the support necessary to provide the 24 x 7 x 365 coverage for Critical and Major failures, or as defined by MDAD as adequate for the system type and usage.

### **2.2.22 Cable Management System Administration**

#### **Hours of Operation**

The Contractor's staff shall be available on-site to perform the services outlined in this section Monday through Friday except Holidays. Staff normal work hours (typically 8 am – 5 pm) shall coincide with the hours necessary for the nature of the work. When requested and authorized by MDAD, work that needs to be done in the evening hours due to Tenant or MDAD operations, or due to special project requirements, overtime will be authorized for that work.

#### **Service Levels, Requirements and Deliverables**

The Contractor shall provide two (2) staff positions to verify cable usage installation, and identification for MEN, and PDS and enter



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this information into the Cable Management System. All infrastructure and cabling information must be kept up-to-date and accurate.

**"Monetary Assessment for Non-Performance"**

If excessive errors or obsolete information is found to remain in the database, Monetary Assessment for Non-Performance will be invoked. **Refer to "Monetary Assessment for Non-Performance" Article in the Agreement.**

**2.3 Failure Classification**

**Critical Failure:**

A Critical Failure shall be considered to occur when

A reported problem (1) severely impact the operation of the Airport, (2) severely impede the ability for a Tenant to conduct business at the Airport, **or** (3) affects the **life/safety** related circuit, system, or device, and are defined as an occurrence of **any** of the following:

- A failure of the PBX, telephone switch, Trunks, station lines, its common equipment or power supplies which renders it or them incapable of performing normal functions for ten percent (**10%**) or more of the stations or trunks;
- **Any** of the terminal building fiber cabling allocated for data transmission fails or is inoperative;
- A failure of network components that shall render over ten percent (**10%**) of an Airport Tenant or Airport Staff work stations inoperative;
- An indication of a major alarm condition as defined by the manufacturer in any of the switching or power equipment;
- A central processor in a provider switch serving MDAD or it's Tenant's lines fails or is inoperative;
- Any voices lines, which have been identified by MDAD and Tenants as critical to MDAD operations, fails or is inoperative including the telephone sets on such lines;
- **Any** on-airport line provided for voice calls or data fails or is inoperative;

**Major Failure:**

Major Failure are those that severely impacts the ability for a Tenant or MDAD User to conduct business at the Airport and shall be defined as an occurrence of **any** of the following:

- Five percent (5%) or more of the telephone switch,

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telecommunications trunks, its common equipment or power supplies fails, are incapable of performing normal functions or are inoperative;

- Failure of **Any** circuit or Equipment that affects the operation of **any** ticket counter, gate area, passenger boarding, baggage handling or an Airline's back office operation;
- Five percent (5%) or more of the telephone sets installed for MDAD or any one of its Tenants cannot send or receive calls;
- Five percent (5%) or more of the telecommunications trunks which service MDAD or its Tenants fail or are inoperative.

**Minor Failure:**

A Minor failure is defined as any infrastructure, Common Use or IS/T System or subsystem problem which is not a Major or Critical failure and which degrades service.

**Order of Precedence:**

Normally, the Contractor technician work force shall be dispatched on jobs in a "First In-First Out" fashion as long as the Tenant deadlines can be met. MDAD shall review and authorize all work orders, including SATS orders, and reserves the right to prioritize various activities that the Contractor undertakes in order to meet deadlines. In general, MAC activity shall take a lesser priority to repair activities pending the circumstances surrounding the given situation. The County reserves the right to mandate that the Contractor reallocate resources to deal with the various repairs, MAC requests or project work as they see fit.

Also, In the event of a conflict in work priorities, Major or Critical failure work shall take precedence over moves, adds, and changes.

The Contractor shall provide or arrange to provide maintenance technicians so as to meet the alarm response procedures stated above. The Contractor is responsible for providing or arranging to provide certified maintenance technicians, including PABX- certified technicians for switch maintenance. The Contractor shall be considered the main point of contact for Service and is responsible for notifying other responsible parties such as, AT&T, etc.

**2.4 Normal, After Hours Coverage and Emergency Service Response Requirements for Critical, Major and Minor Failures**

Service for all critical and major failures shall be available twenty-four (24) hours a day, seven (7) days a week, and 365 days per year. In the event Contractor fails to respond, County shall have the right, at any time to call in any qualified and certified service organization to perform the necessary

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repairs and charge back the Contractor for all expenses incurred.

“Respond” is equated to having qualified technical support and/or troubleshooting actively working the problem within aforementioned times. Note that during the troubleshooting process, the Contractor is coordinating directly with the user and/or the local service provider until the problem is resolved.

**Response Requirements for Critical and Major Failures** – Contractor shall provide immediate response during on-site hours (Monday-Sunday) and within one (1) hour to respond during off-site hours.

During on-site hours, Contractor shall immediately begin remedial maintenance for a critical or major failure, which may consist of remote diagnostics during the first fifteen (15) to thirty (30) minutes, after repair notification via the Contractor’s tracking processes with the appropriate service ticket number. If during off-site hours, problem cannot be corrected remotely, the Contractor’s personnel shall be on-site no less than two (2) hours from the repair notification time documented by the IT Service Desk. Contractor shall start immediately and work continuously until the problem is resolved.

After being notified that a Critical or Major failure has occurred, the Contractor shall:

- a. Promptly initiate actions to verify the reported failure; and
- b. If the failure is verified by the Contractor’s technicians, and is the responsibility of the Contractor to initiate corrective action on a 24x7x365 basis to restore the service to its contracted level (a) within two (2) hours for MDAD-classified Critical alarms or (b) within four (4) hours from MDAD-classified Major alarms; or
- c. If the Contractor is unable to verify the reported failure, or if the failure is responsibility of Others, Contractor shall so advise proper authorities immediately upon making such determination.

Contractor shall abide with the Escalation article of this Specification, in order to resolve a critical or major outage.

**Failure to respond or perform:**

**Monetary Assessment for Non-Performance will be invoked in accordance with the “Monetary Assessment for Non-Performance” Article in the Agreement.**

**Response requirements for Minor Failure** - After being notified that a Minor failure has occurred the Contractor shall:

- a. Promptly initiate actions to verify the reported failure; and

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If the failure is verified by the Contractor's technicians it shall be the responsibility of the Contractor to initiate corrective action to restore the service to its contracted level within two (2) business hours and (a) on the same day when such alarms occur between Monday and Friday from 8 AM to 5 PM or (b) on the following day by 11 am, when such alarms occur between Monday and Friday from 5 pm – 7 am or anytime on week-ends and holidays.

Contractor shall begin any repair not defined as a critical or major failure as expeditiously as possible and complete repairs within four (4) hours from the time the incident is reported and is documented via the Contractor's tracking processes with the appropriate service ticket number.

All Repairs shall be made by a certified technical personnel either through a premise visit or via electronic access through the use of a remote maintenance terminal. However, in all cases, the repair shall be confirmed and the status updated by notification to the IT Service Desk.

**Failure to respond or perform:**

In addition to other provisions describe in the Agreement, in the event restoration for ANY Critical or Major Failure is not met within four hours, **Monetary Assessment for Non-Performance will be invoked in accordance with the "Monetary Assessment for Non-Performance" Article in the Agreement.**

**2.5 Escalation – Support Levels**

**First Level Support**

A technician shall contact the Tenant or MDAD user within 10 minutes after the IT Service Desk call, email or page is placed to the dispatcher or technician.

Once the repair ticket is assigned to the technician, the repair ticket should be completed within two (2) hours if it is an equipment related issue or within 4 hours if a cable related issue. If not completed within windows, the Technician shall ask the IT Service Desk to advise the Contractor's Service Manager and IS/T Director. At this step, the Contractor's Service Manager shall evaluate the situation and deploy additional resources to resolve the situation, and escalate the repair problem to the management of the applicable vendor.

The technician can invoke the escalation process at any time before the expiration of the two (2) hour window based upon an assessment of the extent, type and severity of the failure. If it is recognized that the repair problem cannot or shall not be resolved within the two (2) or four (4) hour windows as specified above, the technician shall advise the IT Service Desk and is responsible to escalate the repair problem to Second Level Support.

**Second Level Support**

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At this point assistance is requested from the applicable vendor's customer Account team and/or applicable vendor's remote technical support facility. During Second Level Support, the Contractor's Service Manager shall keep the Tenant apprised of the situation and be in contact with the technician and/or vendor representative. If the repair problem is not resolved within the next two (2) hour window of Second Level Support, the problem is escalated to Third Level Support.

### **Third Level Support**

If applicable, the technician / Service Manager shall contact the off-site vendor's technical support center for the Third Level Support. If required, vendor shall dispatch the appropriate technical support personnel to the trouble location assisting the IS/T or Contractor Support personnel. The Technician remains directly involved in the trouble resolution, providing the vendor personnel with on-site assistance, while updating the Help Desk and management with repair and activity status for the repair order record using email or pager.

### **Fourth Level Support**

If the problem is not resolved within the six (6) hour combination of First, Second and Third Level Support, it is elevated to Fourth Level Support. Fourth Level Support combines the Contractor's Service Manager, IS/T Director, IS&T Chief of Telecommunications, MDAD Operations Manager, On-site/off-site vendor Technical Support Center resources, vendor account representatives and the higher level departmental management levels of the Contractor/Vendor and the Airport. The purpose of involving so many people at this level is to create a full support team whose primary focus is to resolve the trouble by committing all available resources and talents.

MDAD's IS/T Director shall be the Airport's focal point for coordination of efforts until the Fourth Level support scenario is declared completed and service is restored to a normal operating condition. MDAD's IS/T Director escalates the situation to the applicable vendor's upper management. If necessary, MDAD's IS/T Director shall dialogue with the vendor's upper management until assurances are in place that the applicable vendor shall provide replacement parts, on-site technical assistance, or whatever other resources is necessary to resolve the repair problem.

MDAD's IS/T Director shall hold regular status updates every two (2) hours with the applicable vendor's upper management to ensure that the commitments made by the vendor are being met. These updates shall continue until the problem is resolved. MDAD IS/T Director shall also be responsible for notifying the Tenant and Airport upper management of the escalation situation.

## **2.6 Coordination of Work with Others and Possible Future Additional**

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### **Scope of Work.**

This Specification and Agreement is a **non-exclusive** contract to provide management, maintenance, and operations associated with the existing MIA voice and data networks. MDAD has implemented a New Security Network System (“NSNS”), a Premise Distribution System (“PDS”) including fiber and Cat 5e cabling, network hubs to various systems associated CCTV switching, recording equipment, audio and visual paging, Building Management System, Fire and Smoke detection, public address, Flight, Baggage and Visual displays (FIDs, BIDs, VIDs), Common Use Terminal Equipment (“CUTE”), an interconnecting network (MEN), network management system, and a cable management system. In addition, acquire and support of PC/desktop and ancillary equipment, essential to Airport operations. Original contracts for the above include a specified period for the vendor to provide management operations and maintenance of this system after final acceptance by MDAD.

Exhibit B identifies all current Equipment at locations to be maintained under this Specification. As new Equipment items or locations are added to MDAD telecommunications and infrastructure and the original Contractor’s Support has terminated, the County may elect to add that Scope of Work to this Specification upon written mutual agreement of both the MDAD IS/T Director and the Contractor.

The network connections associated with the Special Systems listed above are quite significant. The following are estimates of the number of individual IP address that will be required:

- BMS, each local controller and central server, estimated 2000.
- Fire and Smoke detection, each local controller and central server, estimated at 2000.
- Public Address (“PA”), each central server in each equipment room, estimated at 100.
- CUTE, each central server and workstation and printers, estimated at 3000.
- FIDS, BIDS and other Visual Displays, each central server and display device, estimated at 2000.

The Contractor is required to coordinate its Work including maintenance whenever the Contractor’s Services or Work is dependent upon the work or services or actions of IS/T, other suppliers or contractors.

Planned expansions or projects currently on-going that may impact the services needed in the future are:

#### **2.6.1 New Security Network**

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New Security Network System is composed of a high speed fiber optic based ATM network, up to thirty (30) equipment rooms, CCTV and Intercom switching equipment, and CCTV and Intercom recording equipment. The rooms shall be linked via a new security network. This network shall accommodate interface with the PDS. The PDS provides CAT5e cabling from the network switch located in these rooms to all devices requiring an IP address and network connection. The Contractor may be asked to take over the management, maintenance, and operations responsibility, unless directed otherwise by MDAD, once the current management and operation contract with the NSNS provider is over.

The main backbone of the New Security Network System is comprised of multiple fiber optic loops, which create multiple distinct data areas in the Main Terminal area. A main loop runs through the main Terminal through the equipment rooms. The main loop has four (4) room ATM OC48 configuration (rooms C4121, B3017, A3129, and H1472) with an OC-48 data rate. The ATM shelves in the four (4) equipment rooms shall connect to switches at an OC-12 (ATM) data rate. The switches in the remaining eleven (11) equipment rooms (H3730, G1107, G1764, F1540, F1770, E1502, E1803, S1558, D3917, A3820, and A3105) shall be capable of connecting to multiple network protocols (i.e., ATM, and Ethernet). Two (2) separate backbone loops (a primary OC-12 backbone and a secondary OC-12 backbone) connect the eleven (11) rooms to the four (4) OC-48 equipment rooms via separate diverse routes.

The New Security Network will also consist of a high-speed digital video, audio, and access control data transport system.

## **2.6.2 Wireless Network**

In conjunction with the PDS, wireless antennas located approximately three hundred (300) feet apart are located throughout the Terminal at MIA. This system shall also improve the use of wireless MDAD system phones throughout the terminal areas. Tenant airlines are envisioning more wireless customer service devices similar to what rental car companies use today, when checking in cars.

Airlines are anticipating that their customer base will increase the use of wireless Internet devices for telecommuting while in airports and on airplanes. A system is installed in the terminal that handles the wireless traffic and places MDAD in the position of controlling this part of the telecommunications infrastructure. During the term of the Agreement, the Contractor shall interface with the Wireless System provider to provide network services via the PDS and interfaces with

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the network backbone and other service providers.

### **2.6.3 Common Use Terminal Equipment**

Common Use Terminal Equipment System is used for the purpose of increasing the operational capacity by allowing airline and terminal management staffs to more effectively manage available resources.

CUTE Applications, running on the County's common use backbone, include Systems with which to ticket, check-in and board passengers; to communicate information about flights and to reconcile boarding passengers.

During the term of the Agreement, the Contractor shall interface with the CUTE provider to provide network services via the PDS /MEN

It is possible the Contractor may be asked to take over the management, maintenance, and operations responsibility when the present operation and maintenance contract with the original CUTE provider expires.

### **2.6.4 Airport Operational Information System**

The Airport Operational Information Database ("AOIS") is the core system of the Total Airport Management System ("TAMS"), and consists of applications servers, workstations, network connectivity, information display devices, computer applications, application interfaces, application integration, application data migration, and facilities infrastructure. It provides the data for an integrated visual display solution for the flight related display applications at MIA, as well as the central database for Airport Operations

During the course of the Agreement, the Contractor shall interface with the AOIS provider to provide network services via the PDS / MEN

### **2.6.5 Paging System**

Terminal Paging Systems are located in airport concourses within the MDAD Systems Rooms and includes an Audio Distribution Local Area Network and an Audio Control Local Area Network. It uses dedicated Complex Paging System network hardware and the Audio Control LAN uses a Virtual Private Network all part of the dark fiber that was installed as part of the new MDAD Network. The system is located throughout the concourses including Ticketing, Baggage Claims, Baggage Makeup, Passenger Lounges, Hospitality, Retail, Restrooms and Driveways. This system provides audio and visual paging and will be operated through the Optical Operational Control Room. Currently it is anticipated that the Paging System will be maintained and operated by the original Vendor and MDAD staff as it



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is considered part of the Life Safety and Security system. Contractor will be required to maintain and monitor the network hardware. During the term of the Agreement, the Contractor shall interface with the Paging System vendor and MDAD to provide network services via the PDS and interfaces with the network backbone and other service providers.

#### **2.6.6 Building Management System**

Like the ACS System, the Airport and the BMS provider will operate the BMS System. It shall operate across the local area network at a speed of 100 Mbps. The high-speed LAN will provide transfer of point data, alarms and file activity among workstations and the System/application server. This LAN supports ASHRAE/ANSI 135 (with associated addenda) Building Automation and Control Networking (BACnet) protocol. Any data from an equipment controller is also transported to the LAN via an application/terminal server. Global data sharing shall occur simultaneously with the transmission of alarm data and user activity. During the term of the Agreement, the Contractor shall interface with the BMS vendor and MDAD Staff to provide network services.

#### **2.6.7 Access Control System (ACS)**

Currently the Airport has implemented a Matrix Inc. Access Control System. This system includes remote Ethernet based messaging network between the host computers and card reader network loops. During the term of the Agreement, the Contractor shall interface with the ACS Vendor and MDAD Staff to provide network services.

#### **2.6.8 CCTV**

The CCTV System will operate throughout the Airport from coaxial cable distribution. The Contractor Scope of Work may include maintaining the Close Circuit Television System associated conduit and cable and perhaps, at some future time the CCTV cameras, and intercom system. During the term of the Agreement, the Contractor shall interface with the CCTV vendor and MDAD Staff to provide network maintenance and installation services.

#### **2.6.9 CATV**

The CATV System operates throughout the Airport. The head end, has Distribution amplifiers and power dividers to extend CATV signals to a MDAD Telecom Room (MTR) for distribution. During the term of the Agreement, the Contractor shall interface with the CATV vendor and MDAD Staff to provide network maintenance and installation services.