The School Board of Miami-Dade County, Florida
Bid 010-PP04
Wireless Networks, Telecommunication (Furnish and Install)
SPECIFICATIONS

1.0 **GENERAL**

1.1 The purpose of this document is to provide a mechanism by which wireless networking technology can be systematically purchased, installed and supported within Miami-Dade County Public Schools (M-DCPS) sites. M-DCPS views wireless networking technology as a supplement to the hard-wired infrastructure. This Invitation to Bid is to survey, engineer, project manage, furnish, install and maintain and repair wireless connections. M-DCPS reserves the right to request any combination of the preceding, as may be required.

1.2 This bid shall establish a pool of pre-qualified vendors for the purchase of estimated requirements for the items listed in the Groups.

It is intended that the wireless connection be transparent to the operation of the local area network and have an availability of **95%** with no increase in the bit error rate.

1.3 Bidders shall have an established business or principal personnel with a minimum of seven years experience in installing telecommunications wiring systems using copper and fiber optic cable and wireless systems used for telecommunications. Bidders shall have specific experience in the engineering, furnishing, installation and maintenance of short range and longer range microwave systems, which may or may not require a Federal Communications Commission (FCC) license. If a license is required, the bidders shall be capable of applying for the license. Bidders shall provide in their bid a list of their craft-persons that are currently employed and will work on this contract. The list shall provide names, dates of certification and certificates and shall be updated as personnel changes occur. Bidders shall provide proof of their experience in their bid by submitting a work history showing current projects and projects completed within the past five years, with dates, client's name and address and phone number. A brief description of each project shall be included in the bid. A minimum of three (3) references are required. Bids, which do not include such proof, may be considered non-responsive.

1.4 Bidders shall have a full time employee licensed by the State of Florida as a Specialty Electrical Contractor for the term of the bid. In addition, bidders shall have an employee that is licensed by the FCC for any work requiring such a license.

1.5 Bidders shall have an agreement with the manufacturer of the cabling and radio frequency hardware that indicates the bidder is a certified installer of the hardware being offered and both the manufacturer and the bidder are jointly responsible for the warranty agreement (proof shall be included in the bid). Bids, which do not include a copy of the warranty agreement, will not be considered. This requirement shall also apply to bidders who function as both manufacturers and installers of the systems. **Bidders that bid wire and/or cable of one manufacturer and connection hardware such as jacks, panels and cross connects of another manufacturer shall include in their bid a letter from the hardware manufacturer that states that in the event the bidder ceases to be in business during the warranty period, that the hardware manufacturer will perform all required actions to meet the warranty requirements.**

1.6 It is the intent of The School Board of Miami-Dade County (M-DCPS) to award all responsive responsible bidder meeting specification. Each awarded contractor shall have the opportunity to quote on pending work, and the awards will be based on the total low quoted price, meeting specification per site. The School Board of Miami-Dade County estimates the value of this contract at approximately $2,000,000 dollars.

1.7 The contractor shall provide plans for each completed project. The plans are intended to be as-built plant-in-place records for the new systems and shall show the following:

1. The location of all antennas, transmitters and receiver modules, data wiring closets, and backboards and terminal blocks.
2. Routing of cables from the antennas to the transmitter and receiver modules, and from the transmitter and receiver modules to each closet, backboard and terminal block using a riser diagram.
3. Detail of each cross-connect and punchdown block identifying pairs to the remainder of the system.

1.8 In order to assist bidders in understanding the wiring and conduit arrangements used by Miami-Dade County Public Schools, see Master Specifications, Divisions 13 and 16. This document can be found at http://facilities.dadeschools.net/. Link through Planning to Planning and Standards. The notes are intended to show the M-DCPS standards, and are based on Electronic Industries Association/Telecommunications Industries Associates (EIA/TIA) standards 568 and 569, and field experience. The notes were originally developed to assist architects and engineers who had little or no experience with telecommunications wiring. Each installation must be based on the concepts in these notes. All installations must be coordinated with Infrastructure Systems Support (ISS) project managers.

1.9 Normally, in new construction, the conduit with pull-strings and backboards, and terminal cabinets will be installed by the electrical subcontractor(s) to the general contractor. The wireless contractor(s) shall carefully inspect the conduit work for adequacy and inform the ISS Infrastructure Support Services project manager of any needed changes. In the event that conduit, terminal cabinets, and backboards are required but have not been supplied by the general contractor or electrical sub-contractor, the wireless contractor shall be responsible for installing conduit and backboards as needed. In existing buildings, the wireless contractor shall be responsible for installing needed conduit, cabling and backboards.

1.10 The contractors awarded this contract, shall inspect the wiring and report any required changes to the ISS Communication Services project manager. The wiring contractor, the equipment contractor, ISS Infrastructure Support Services project manager and construction project manager shall cooperate with each other to resolve any problem regarding the installation of the wireless systems.

1.11 EXAMINATION OF SPECIFICATIONS: Each bidder is required to examine carefully the specifications and to be informed as thoroughly as possible regarding any and all conditions and requirements that may affect the work to be performed.

1.12 Scheduling of visits to the various schools shall be coordinated by ISS Infrastructure Support Services in order to insure adequate access for the visitors and to minimize disruptions at the schools.

1.13 BID SUBMISSION: Bidders must submit one original hard copy, an electronic copy and should submit seven (7) copies of their bid, and all supporting documentation are to be submitted. Bidder shall complete all information requested. Bidders are to furnish a hard copy and a CD or Jump Drive of price lists with bid submissions.

1.14 NEW SCHOOL CONSTRUCTION: Any site plans for new schools under construction or in design will be available for viewing at the ISS Annex, 2740 N.W. 104 Ct., Miami, Florida 33172, David Labrie, 305-995-3361. Plans for older schools will be made available from various sources at the time the decision is made to install new wiring at that particular school. No additional allowances shall be made because of lack of knowledge of site conditions unless they are the result of additions or changes requested by M-DCPS's representatives. Awardees, should advise during site walk-through of any conditions or specification issues would impeded the ability to successfully complete the required work.

2.0 CONTRACTOR'S RESPONSIBILITY AND QUALIFICATIONS

2.1.1 The Contractor shall have in operation a business adequate for and devoted to the installation of Telecommunications wiring systems involving copper wires and fiber optic cable and associated hardware. The intent of this Section is to ensure single source responsibility for all material, and labor proposed by the Contractor.

2.1.2 The Contractor shall manage the installation program, provide transportation, storage of material, testing and installation of all material on an engineer, furnish and install basis. The entire system shall be on a turnkey basis. Various locations are not able to guarantee a secure storage area for the contractors' material, tools, and supplies. Therefore, the contractor shall be responsible for on-site security of his/her material, tools, and supplies until final acceptance.

2.1.3 It is important for M-DCPS to receive timely responses to request for quotations (RFQ). The following is the deadline for timely submission:

AMOUNT OF RFQ	DEADLINE
$5,999.99 or less	2 working days
$6,000.00 to $24,999.99	5 working days

$25,000.00 or greater	10 working days

2.1.4 As a courtesy, ISS may E-mail a Request for Quotation (RFQ) to the selected contractors; however, it is the responsibility of the contractors to contact ITS, ISS for outstanding RFQ's.

2.1.5 In the event of an emergency, as determined by the Executive Officer of ITS, the bidder that submitted the lowest bid shall be given the first opportunity to respond for the emergency work. If the lowest bidder is unable to respond within an acceptable time period, the work shall be offered to the other contractors. Should none of the contractors selected through this bid be able to respond adequately to the emergency, the work may be done by any other resource that can respond in a timely manner.

2.2 PRICES AND PAYMENTS

2.2.1 All bid prices shall be F.O.B. destination, delivered, and installed at the site intended in Miami-Dade County, Florida, per specifications, and shall include a two (2) year warranty on the wireless equipment, a five (5) year warranty on wiring workmanship and fifteen (15) years warranty for wiring material after date of acceptance.

2.2.2 M-DCPS policy allows payment only for goods and services received; therefore, no advance payment can be made for goods not received. MDCPS also reserves the right to provide material.

2.2.3 The following shall be the payment terms on a per location basis.

Partial payment may be made on materials delivered to the intended site. The material received on site must be verified by the ISS project manager. The contractor assumes all responsibility for all materials delivered to the intended site. Total partial payment may not exceed 80% of the total quoted price for the materials, excluding labor. The remaining balance will be paid upon completion, inspection and final acceptance by the ITS Network Expansion Services project manager.

MDCPS will not pay for travel time. Work found to be deficient will be corrected by the vendor at the vendor’s expense prior to any payment being made. The vendor will not be compensated for waste and/or surplus materials. The vendor shall not be paid for any services which have not been authorized by the MDCPS authorized representative and not accompanied by an MDCPS purchase order.

2.2.4 The contractor may not assign their rights under this contract without prior written approval of M-DCPS. However, no assignment of any contract rights shall relieve the Contractor of any of their obligation under this contract, including, but not limited to their obligation to meet the Bid specifications for labor, material, warranty repair, and replacement of the wiring as required. The Contractor may not assign or transfer their performance obligations under this contract to any other person.

2.2.5 In the event that the obligations and assets of the Contractor are merged or assumed by some other legal entity, the Contractor agrees to provide written notice to M-DCPS or its designee, and M-DCPS shall be given the right to allow the contract to continue under the new ownership or to terminate the contract without penalty. Such election shall be made at the sole discretion of M-DCPS.

2.2.6 INVOICE AND PAYMENT: Vendor shall invoice based on the actual labor hours expended and materials utilized. MDCPS does not pay for travel time. Invoices for Additional Services shall be sent to the M-DCPS, Contract Financial Services (CFS).

The invoice document shall contain the following information:
a. District's purchase order number
b. M-DCPS work order control number
c. Description of work
d. Start date and completion date
e. Work location number and name, incident number, where services were rendered
f. Purchase order line item number MUST match bid line item number and description of materials utilized, quantities and unit prices
g. Any E-Rate invoices MUST include FRN number, Application number, SPIN number and BEN number.
A clean and clearly legible copy of service tickets (AMC) and/or certificates of acceptance shall accompany the invoice. The document(s) shall indicate the technician's name (printed) dates and times services were provided. Service tickets SHALL include the printed and signed name of the work location staff. Certificates of acceptance SHALL include the printed and signed name of the ISS Project Manager.

Invoices could be e-mailed to cfs@dadeschools.net in lieu of US Mail or Fax. M-DCPS is tax exempt and therefore does not pay taxes.

Invoices not submitted in accordance with the procedures and requirements defined herein will not be processed for payment and will be returned to the vendor.

2.2.7 <u>CONTRACT AWARD</u>

It is the intention of The School Board of Miami-Dade County to award this contract to all responsive, responsible bidders meeting the specifications per Group.

2.3 The School Board of Miami-Dade County reserves the right, before awarding the contract, to require bidders to submit such evidence of their qualifications as it may deem necessary, and may consider any evidence available to it of the financial, technical and other qualifications and abilities of the bidder, including past performance (experience) with other customers of the bidder in making the award in the best interest of the School Board of Miami-Dade County.

2.3.1 Due to statutory budgetary requirements, M-DCPS reserves the right to cancel the Contract at the end of each fiscal year or the end of each year of the contract period. No guarantee is expressed

2.3.2 DOUBT OR DIFFERENCE OF OPINION

Resolution of any doubt or difference of opinion as to the items to be furnished hereunder, the quality of the items, the quality of workmanship, the detail of information in the as-built plant-in-place documents and any other item related to a contract award as a result of this BID shall be handled through the following procedure:

FIRST STEP

BOARD	CONTRACTOR
M-DCPS Project Manager	Vendor Project Manager

SECOND STEP

Supervisor	Equivalent Management
ITS Network Expansion Services	Level

THIRD STEP

Executive Officer	Equivalent Management
Information Technology	Level
Services	

FOURTH STEP

Chief Financial Officer or designee	Equivalent Management
Financial Affairs	Level

FIFTH STEP

The School Board of Miami-Dade County	Petition to the Board

2.4 VERIFICATION OF VENDOR FACILITES AND/OR REFERENCES

M-DCPS may, at option, visit the operational facilities of the bidder for the purpose of evaluating the capabilities of the bidder. The bidder shall, at the request of M-DCPS, supply the location where a typical installation of the proposed wiring systems is available for evaluation. It is required that the location be in Miami-Dade or Broward counties.

2.5 WARRANTY

All wireless equipment purchased or provided, shall be guaranteed by the Contractor against mechanical and electrical defects for a minimum of three (3) years. Warranty work shall include equipment and labor. All wiring materials purchased or provided shall be guaranteed by the Contractor against mechanical and electrical defects for a minimum period of fifteen (15) years. Manufacturer's warranties in excess of fifteen (15) years shall be provided to M-DCPS at no additional cost. In the event, defects become evident within the fifteen-year warranty period after date of acceptance, the Contractor shall furnish all replacement parts, materials and labor at no cost to M-DCPS. Additionally, contractor(s) shall include five (5) year warranty on workmanship. Warranty shall begin at system acceptance.

2.6 The warranty on operation of the wireless system shall be that the system meets the performance standards of the ANSI/TIA/EIA-568-A (Annex E) standard and TIA/EIA Telecommunications Systems Bulletin 67. This shall apply to the radio frequency link and both horizontal link and channel performance. In addition, the wireless systems shall meet the performance of the relevant IEEE 802.11 WLAN standards. See Section 5 for additional technical requirements.

The warranty on operation shall be that the supporting horizontal cabling system meets the performance standards of the latest TIA/EIA 568-B.2 Category 6 standards. All fiber optic cable shall comply with the ITU-TG.652 and ISO/IEC 793-2 type B1 standards. This shall apply to both horizontal link and channel performance as described in TIA/EIA-568-A Annex E and TIA/EIA TSB 67. All category cabling manufacturers must be able to provide documentation from an independent third-party testing agency that verifies through random sampling that cable components perform at or above the levels contained on their product specification, not simply at or above the standard.

2.6.1 During the warranty period, the Contractor shall maintain an adequate supply of spare parts, either on site or at their local service facility.

2.6.2 Craft persons that install the wiring shall be certified by the manufacturers of the panels and jacks as being qualified to properly install all wiring. The District may require letters of certification from the manufacturers.

2.6.3 ADDITIONS, MOVES AND CHANGES (AMC)

2.7 After the award of the bid, the contractor shall provide a quote for each project/location, based on bid unit prices. In addition, the contractor shall provide a basic description of the plan used to develop the list of materials. Bidders are requested to provide in their bid a list of their craftsperson's that are currently employed and will work on this bid. The list shall provide names, dates of certification and certificates and shall be updated as personnel changes occur.

2.7.1 Unless otherwise approved by M-DCPS Project Manager, it is agreed that no charges for any AMC's shall be made if work is not based on the original plan or estimate. Authorized AMC's shall be charged by adjusting the prices, based on the price sheets, up or down, as appropriate.

AMC shall be completed within ten (10) business days of notification or as mutually agreed to M-DCPS and awardee(s). Failure to complete work as agreed to will result in a penalty of 10% per day of the total cost of the AMC scope

2.7.2 Bidders shall state their person-hour labor rates for various skill levels as per line item pricing on Bid Proposal Form.

2.7.3 WIRELESS SITE SURVEY

2.8 In order to provide 99.99% coverage in areas deemed critical, a site survey may be requested. Awarded contractors will be called upon to provide a quote for the cost to perform a comprehensive wireless site survey. This cost will include all time and materials necessary to provide an accurate diagram of the proposed design which will ensure successful deployment of the proposed infrastructure. The successful "Site Surveyor" shall be precluded from bidding on the installation for the job as defined in said survey.

Services rendered and responsibilities in the Site Survey shall (at a minimum) provide for ultimate accountability of the design, which the installation contractor will follow as specified to ensure successful wireless coverage.

Site survey will consists of the following steps at a minimum:

1. Pre-Deployment Survey to provide necessary data to render a report for location and coverage of the wireless infrastructure. The pre-deployment survey will specify the hardware specifications to be installed and will provide, at minimum, the following reports and maps per floor
    - Heat Maps
    - Signal Strength coverage
    - Access point location
    - Cable Lengths
    - AP's Location
    - Antenna type to be used
    - Signal to noise ratio (active and passive reports)
    - Roaming Prediction.
    - Data Rates
    - Quadrant Map of coverage.
    - Failover prediction (what kind of coverage will be available in case one of the AP's fails)
    - Spillage reports (signal radiation outside the specified area)
    - Rogue access points
    - Channel usage
    - Load balancing report
    - Floor Plans

- Interference (noise)
- AP signal strength

2. Installation Contractor Request for Quote Walk thru will be performed by the Site Survey contractor and M-DCPS project manager. The Site Survey shall be provided as part of the RFQ documents with all the necessary data and reports for the installation to the contractors providing quotes. Each bidding contractor will receive the necessary bill of materials (AP's, cable lengths, power sources, Location of AP's , Antenna type, etc.) to complete their respective quote.

3. Post deployment survey. After the awarded Installation Contractor completes the job, the Site Survey vendor will perform another site survey, to confirm the installation and will confirm the system is working as specified and designed and meets M-DPCS availability requirements. Should the survey findings confirm a successful installation, ISS and site will sign off on the installation and be provided with the pre and post-deployment survey for comparison.

4. Production Survey will be completed 30 days after successful installation, to make sure that performance conditions have not changed. Walk-through will be completed with M-DCPS ISS personnel.

2.8.0 M-DCPS reserves the right to request Project Management services on this contract. Bidders are requested to supply pricing for this service on the attached Bid Proposal Form.

2.8.1 After the award of the Contract, the Contractor shall provide a bill of materials and costs for each project/location, based on contract unit prices, prior to commencement of work. The contractor shall also provide a basic description of the wireless system plan used to develop the bill of materials. Bidders are requested to provide in their bid a list of their employees that may be employed during the contract period. The list should provide names, dates of certifications and copies of their current certificates.

2.8.2 It is agreed that no charges for moves shall be made if no work has been started based on the original plans. Changes shall be charged by adjusting the prices, based on the price sheets, up or down as appropriate for the change being made. Additions shall be charged for at the prices listed on the price sheets and as agreed to if items are not covered on the price sheets. Charges may be made on a time and material basis but shall not exceed those listed on the price sheets, provided the material and labor are listed on the price sheets.

2.8.3 Bidders shall state their person-hour labor rates for various skill levels that may be requested by Miami-Dade County Public Schools. The levels as per line item pricing on the Bid Proposal Form.

2.8.4 Awarded bidders on this contract will be requested to provide services, as needed, for adds, moves, and changes of existing equipment. Work will be completed in accordance with OEM standards and as specified by ISS staff.

2.8.5 Awarded bidders on this contract will be requested to provide services, as needed, for repair of existing equipment. Equipment repairs will be completed in accordance with OEM standards and as specified by ISS staff.

2.9 LIMITATION OF CONTRACTOR'S LIABILITIES

If the performance of any part of this contract by the contractor is prevented, hindered, delayed or otherwise made impracticable by reason of flood, riot, fire, explosion, war or any other casualty or any other cause of whatever nature that is beyond the control of the Contractor, the Contractor shall be excused from such performance during the continuance of any such happening or event, for as long as such event shall continue to prevent, hinder or delay such performance, provided that in the event of a lockout, or other disturbance, the Contractor shall provide the requirements of this contract using any personnel deemed necessary. This paragraph shall apply to the installation and warranty requirements of this Invitation To Bid (ITB).

2.10 MATERIALS AND WORKMANSHIP

All wireless equipment, copper wire and cable and fiber optic cable and component parts furnished shall be guaranteed to be new, meet all requirements of this bid, and be in an operable condition at the time of delivery. No part or attachment shall be substituted or applied contrary to the manufacturer's recommendations and standard practices. **All copper and fiber optic cabling products supplied for installation must be manufactured in the USA and compliant with the American Recovery and Reinvestment Act (ARRA) section 1605.**

2.11 FAILURE TO PERFORM UNDER WARRANTY AGREEMENT

The following option shall be available to M-DCPS and shall be applied, in the event of failure on the part of the contractor to perform under the warranty agreement, as stated in this bid. This shall be applied on a per location basis.

a) During the warranty period, each failure to respond or correct in a timely manner based on service call level shall obtain a one-month extension of the cost-free warranty maintenance period. In the event, twelve such response failures occur within one year, M-DCPS shall receive a warranty extension for the balance of the year in which the failures occurred, as well as the next full calendar year. This shall be in addition to the five-year and twenty five year warranty period.

b) More than six (6) warranty response failures within a six (6) month period may result in termination of the contract. Contractor(s) will be notified in writing, listing the specific areas of non-compliance and/or non-performance. If these are not corrected within the time specified, M-DCPS may, without prejudice to other remedies they may have, apply penalty fees and/or take over the assigned work or such portion thereof as may be in default, and correct and make good the deficiencies.

In such case, the cost thereof, including compensation for supplementary services and expenses made necessary by such default, neglect or failure, may be deducted from any amount due or to become due the Contractor(s) from M-

DCPS. If payments then or thereafter due the Contractor(s) are not sufficient to cover such amounts, the Contractor(s) shall pay the difference to M-DCPS.

The following situations are worthy of a NON-COMPLIANCE notification and penalty fee assessment:

NON-COMPLIANCE	**PENALTY FEE**
Inappropriate or inadequate parts inventory, tools, equipment, software resulting in non-compliance, also failure to meet scope of work deadlines	$1000.00 per occurrrence
Damage to property	Repair costs as quoted by General Contractor and/or Vendor.
Deficient and defective workmanship	$1000.00 per call
Failure to comply with School Board policies and procedures (e.g. No-Smoking Zones and access to non-authorized areas)	$50.00 per occurrence

c) Priority One (1) warranty service calls must be given immediate attention and the service must occur before any other service calls. Response to a Priority One (1) must be that a technician must be on site within two (2) working hours of the initial call. If the service cannot be restored to normal operation within eight (8) working hours from time of M-DCPS call, the vendor must contact ISS with restoration plan. Time extension must be approved and agreed to by M-DCPS

Priority Two (2) warranty service calls must be served immediately after the Priority One (1) service call. Response to a Priority Two (2), must be that a technician must be on site within eight (8) working hours or the next business day of the initial call If the service cannot be restored to normal operation within sixteen (16) working hours from time of M-DCPS call, the vendor must contact ISS with restoration plan. Time extension must be approved and agreed to by M-DCPS

Emergency Service Calls must be given immediate attention and the service must occur before any other Service Calls not already in progress. The ISS Project Manager must be given a status update and a technician must respond, and if necessary, have remote access or, be on site within two (2) hours of the initial Emergency Service Call. Service must be restored within six (6) hours of the initial Emergency Call. The following situations shall be considered Emergencies:

a. Failure of school principal or site manager's connectivity.
b. Failure of 20% or more ports
c. Other failures as determined by M-DCPS (e.g. any safety to life issue)

Service Calls that are not an emergency will be considered routine. Routine Service Calls (P2) must be serviced after the Emergency Service Calls. A technician must respond by remote access or on-site within eight (8) work hours. Service must be restored within sixteen (16) work hours.

2.12 TERMINATION OF CONTRACT

The termination of contract shall be governed by the following terms and conditions if the contractor shall be considered in default.

A. Every contractor shall respond via E-mail to each request for quote. In the judgment of M-DCPS, the repeated failure of the contractor to respond to request for quotes (three (3) consecutive times within a six (6) month period) via E-mail may result in the termination of the contract.

B. Should the contractor fail or neglect to execute the work properly and diligently in substantial accord and compliance with the schedule or schedules agreed upon, as may be determined by M-DCPS, or, if the contractor shall fail or refuse to perform any requirement or provision of the Contract specified to be performed by the contractor, then M-DCPS may immediately take over the work, or such portion thereof as may be in default or arrears, and correct the fault and make good the deficiency, and the cost thereof will be deducted from the contract price and may be withheld from any amount then due or that may become due the contractor from M-DCPS. M-DCPS may complete the work by M-DCPS's own staff or in such a manner and means as M-DCPS may deem necessary or expedient.

2.13 M-DCPS APPROVAL

Contractor's entire responsibility for the correctness and suitability of the work shall not be affected by the grant to, or the exercise or non-exercise by, M-DCPS of its right to inspect, test, review, comment on and approve the work, including, without limitation, drawings, data, and other documents or work provided by contractor.

No failure or delay by M-DCPS to insist on strict performance or observance by Contractor of any of the terms or conditions of the Contract, or to exercise any right or remedy under the Contract shall operate as a waiver thereof by M-DCPS; nor shall any single or partial exercise of any such right or remedy preclude any other further exercise thereof or the exercise of any other right or remedy under the contract.

2.14 SEVERABILITY AND COUNTERPARTS

If any part of the contract is held to be invalid, void or otherwise unenforceable, the other parts of the contract shall continue in full force and effect unless the severance of the

portion held unenforceable would render impossible performance in accordance with the purposes of the contract.

2.15 ADDITIONAL INFORMATION REQUIRED OF THE BIDDER

The bidder is requested to provide a statement giving the following information regarding the bidder(s) support activities.

1. The number of support persons on duty during the normal workweek and on weekends.
2. The extent of the technical training and years of experience of personnel.
3. An escalation chart for problem resolution.
4. The location of the bidder's local facility.

would render impossible performance in accordance with the purposes of the contract.

2.16 WIRELESS SYSTEM ACCEPTANCE AND TESTING

Wireless system acceptance is and shall be understood and agreed to be the acceptance of the entire wireless project for a location by The Miami-Dade County School Board and not on an individual equipment basis.
The date of wireless system acceptance is defined as the date of verification of successful operational testing and completion of plant-in-place drawings and associated wiring information. The date shall be mutually agreed to by representatives of ISS Infrastructure Support Services and the Contractor. This shall be done on a per location basis. Reference numbers provided by ISS shall be depicted on all of the following documentation. Printouts of the test results shall be provided in electronic form (CD or E-mail) prior to the final walkthrough inspection. Successful testing shall be understood to be as follows:

A. Copper Wiring Tests (If applicable)

Every pair of copper wires shall be tested for their appropriate characteristics. The tests shall be as follows: attenuation, near-end crosstalk, line mapping, length, capacitance, DC loop resistance, and attenuation-to-crosstalk ratio.

A printout of 100% of these test results is required. The tests shall be conducted using the WAN cable tester. The test signal frequency shall be 100 MHz or shall be a sweep frequency from 1 MHz to 550 MHz. Automatic testing that gives results in terms of pass or fail criteria is acceptable if the criteria is clearly stated and conforms with EIA/TIA Bulletin TSB40 criteria or better.

Transmission Characteristics must be guaranteed to meet or exceed the outlined specifications (no typical or average performances will be accepted):

a) DC resistance of any conductor shall not exceed 9.38 Ohms per 100m max. at 20 C. Measured in accordance with ASTM D 4566.

b) The mutual capacitance of any pair at 1 kHz for 100m of cable shall not exceed 5.1 nF .

c) DC resistance unbalance between any two conductors of any pair shall not exceed 3% when measured at or corrected to 20 C in accordance with ASTM D 4566.

d) The capacitance unbalance to ground at 1 kHz of any pair shall not exceed 330 pF per 100m.

e) Structural return loss, return loss, insertion loss, equal level far-end crosstalk, and power sum equal level far end crosstalk shall be guaranteed up to a frequency of 350 MHz.

f) Structural return loss swept measurement for 100m or longer shall meet or exceed the following:

Frequency (MHz)	1.0	4.0	10.0	20.0	31.25	62.5	100	250	350	500	550
Max. SRL(dB)	20.0	23.6	26.0	26.0	25.0	23.5	22.5	20.5	19.8	19.0	18.8

g) The maximum insertion loss of any pair in a cable for a length of 100m (328ft) shall be less than the following:

Frequency (MHz)	1.0	4.0	10.0	20.0	31.25	62.5	100	250	350	500	550
Max. Insertion Loss (dB)	2.0	3.8	5.9	8.4	10.6	15.3	19.7	32.6	39.5	48.6	51.4

h) The NEXT coupling loss between pairs in a cable shall be greater than or equal to the following:

Frequency (MHz)	1.0	4.0	10.0	20.0	31.25	62.5	100	250	350	500	550
NEXT Loss Worst Pair (dB)	79.3	70.3	64.3	59.8	56.9	52.4	49.3	43.3	41.2	38.8	38.2

i) The PSNEXT coupling loss between pairs in a cable shall be greater than or equal to the following:

Frequency (MHz)	1.0	4.0	10.0	20.0	31.25	62.5	100	250	350	500	550
PSNEXT Loss Worst Pair (dB)	77.3	68.3	62.3	57.8	54.9	50.4	47.3	41.3	39.2	36.8	36.2

j) The ACRF loss between pairs in a cable for a length of 100m (328ft) shall be greater than or equal to the following:

Frequency (MHz)	1.0	4.0	10.0	16	31.25	62.5	100	250	350	500	550
ACRF Loss Worst Pair (dB)	72.8	60.7	52.8	48.7	42.9	36.8	32.8	24.8	21.9	18.8	17.9

k) The PSACRF loss between pairs in a cable for a length of 100m (328ft) shall be greater than or equal to the following:

Frequency (MHz)	1.0	4.0	10.0	16.0	31.25	62.5	100	250	350	500	550
PSACRF Loss Worst Pair (dB)	69.8	57.7	49.8	45.7	39.9	33.8	29.8	2189	18.9	15.8	14.9

l) The return loss between pairs in a cable shall meet or exceed the following:

Frequency (MHz)	1.0	4.0	10.0	20.0	31.25	62.5	100	250	350	500	550
Min. RL (dB)	20.0	23.6	26.0	26.0	25.0	23.5	22.5	20.5	19.80	19.0	18.8

m) Minimum longitudinal and transverse conversion loss (LCL & TCL) for a length of 100m (328ft)shall meet or exceed the following:

Frequency	1.0	4.0	10.0	31.25	62.5	100	200	250	350	500	550

(MHz)											
LCL & TCL (dB)	50.0	44.0	40.0	35.1	32.0	30.0	27.0	26.0	24.0	23.0	22.6

n) Minimum equal level transverse conversion loss (EL TCTL) for a length of 100m (328ft) shall meet or exceed the following:

Frequency (MHz)	1.0	4.0	10.0	16.0	20.0	30.0
EL TCTL (dB/100m)	35.0	23.0	15.0	10.9	9.0	5.5

o) The propagation delay of any pair at from 1 to 250 MHz for a length of 100m (328ft) shall meet or exceed the following

Frequency (MHz)	1.0	4.0	10.0	20.0	31.25	62.5	100	200	250 -550
Propagation Delay (ns)	570	552	545	542	540	539	538	537	536

B. Optic Fiber Tests (If applicable)

Every multi-mode fiber optic strand shall be measured for distance and end-to-end for power loss at 850 nm and 1300 nm. The optical loss per mated connector pair shall not exceed 1.5 db. The loss through any type of fiber splice shall not exceed 0.3 db. The maximum loss of the fiber strand without connectors and splices shall not exceed 3.75 db/km at 850 nm and not exceed 1.0 db/km at 1300 nm. **At minimum the multimode fiber shall be 50um, 850nm, low metal content, complying with the ITU-TG.652 and ISO/IEC 793-2 type B1 standards, the modal bandwidth, equal or greater than 2000mhz/km. On an individual job basis, manufacturers' specifications of the fiber to be installed shall be provided with each quote.**

Every single-mode fiber optic strand shall be measured for distance and end-to-end power loss at 1310 nm and 1550 nm. The optical loss per mated connector pair shall not exceed 1.5 db. The maximum loss of the fiber strand without connectors and splices shall not exceed 1.5 db at 1310 nm and 1550 nm. **The single mode fiber shall be 50um, 850nm, low metal content, single-mode, fiber-optic, complying with the ITU-TG.652 and ISO/IEC 793-2 type B1 standards. On an individual job basis, manufacturers' specifications of the fiber to be installed shall be provided with each quote.**

Applicable fiber shall comply with the appropriate category in TIA-568-C.3 and meet the following macrobend specification:

Mandrel Diameter (mm)	Number of Turns	Induced Attenuation (dB)	
		850 nm	1300 nm
37.5	100	≤ 0.05	≤ 0.15
15	2	≤ 0.1	≤ 0.3
7.5	2	≤ 0.2	≤ 0.5

C. Wireless System Tests

Each remote unit shall maintain no lower than a 95% connection rate with a network utilization no lower than 15%. The wireless system shall appear transparent to the end users attached to the wireless equipment. The system shall not be adversely affected by interference from other radio frequency signals or due to fading of the wireless signal.

A printout of the link test to each remote unit shall be provided. The testing results shall be provided in electronic form (CD or E-mail) prior to the final walkthrough inspection.

2.17 It is recognized that until the various items of equipment utilized are installed, that errors and/or problems will not be known. The contractor shall cooperate fully with M-DCPS and the equipment contractors to repair any problems that are found during or after the various systems are activated.

2.18 In the event that during the warranty period it becomes evident that a pattern of chronic malfunctions and/or failures develop which severely limits the use of the equipment and which the contractor has been unable to remedy, M-DCPS shall notify the contractor in writing, listing the specific malfunctions and/or failures to be remedied and the time in which the remedies are to be accomplished. If the remedies are not accomplished within the specified time, M-DCPS may declare the contractor in default and issue a new purchase order to the second lowest bidder to replace the installed wiring and to continue the work of new installations. M-DCPS shall be accountable to the contractor in default for portions of the work performed by him/her which is re-used; however M-DCPS shall be reimbursed by the contractor in default for funds previously paid for the wiring being replaced by the new contractor. If the faulty installation is partially usable it shall remain in place and be serviced under the warranty until replacement is installed.

2.19 PERMITS AND LICENSES

The contractor shall be responsible for obtaining any necessary construction and installation permits and licenses and shall comply with all federal, state, and local codes and ordinances without additional cost to M-DCPS.

This work will be generally accomplished under the auspices of the Annual Maintenance Permit issued to each facility. The vendor may not be responsible for obtaining this Permit. However, a specific building permit may be required for any category of work administered and supervised by any MDCPS department other than Maintenance Operations and certain projects defined by the Florida Building Code.

2.20 INSURANCE

Prior to commencing work under this bid, the contractor shall obtain and maintain without interruption the insurance as outlined in special conditions. The contractor agrees to furnish a fully completed certificate of insurance signed by an authorized representative of the insurer providing such insurance coverage.

2.21 PATENTS AND ROYALTIES

The Bidder, without exception, shall indemnify and save harmless, M-DCPS and its employees from liability of any nature or kind, including cost and expenses for or on account of any copyrighted or unpatented invention, process or articles manufactured or used in the performance of the contract, including its use by M-DCPS. If the bidder uses any design, device or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the proposed prices shall include all royalties or costs arising from the use of such design, device, or materials in any way involved in the work.

2.22 LIQUIDATED DAMAGES

As a result of the contractor's survey and subsequent approval by ITS Network Expansion Services, the contractor will have established a schedule, which shall state the number of calendar days after commencement of work that the work will be completed. Time of completion of each installation and/or project shall be given by this schedule, which may be adjusted by mutual agreement of the contractor and M-DCPS, Florida. The time of completion shall be of the essence. Should the contractor fail to complete the work or obtain acceptance within the time agreed to, and provided the contractor has not previously obtained an extension from M-DCPS, a minimum sum of $500.00 shall be deducted from the contract price for each calendar day of delay as liquidated damages. If the contract price exceeds $50,000, then 1-1/2% of the contract price shall be deducted for each day of delay as liquidated damages. This deduction shall be applied to each installation individually. The contractor consents and agrees that it is not necessary for M-DCPS to prove monetary loss.

2.23 **CONTRACT MANAGER**

2.23.1 The contractor shall designate an individual acceptable to M-DCPS to perform the contractor's program management function. The Contract Manager shall provide a single point interface between M-DCPS and the contractor on all matters concerning the contract. The contract manager shall provide on demand status/progress reports and attend monthly status meetings throughout the contract period as required by M-DCPS.

2.23.2 After award of contract, the Contract Manager shall be in residence in South Florida and shall be available to M-DCPS on a schedule that shall be mutually agreed to by M-DCPS and the contractor.

2.23.3 An M-DCPS, ITS and ISS Supervisor shall designate an ISS Bid Administrator to manage the contract for M-DCPS.

2.23.4 For individual projects The ISS Project Manager shall inspect all installation materials and workmanship and ensure contract compliance for final acceptance. The wiring contractor's Contract Manager shall interface with and cooperate with M-DCPS ISS Project Manager, the construction project manager and the equipment contractor.

2.24 ADDITIONS OR CHANGES DURING INSTALLATION

2.24.1 The Contract Manager or contractor shall not accept requests or agree to perform services beyond the contract requirements from persons other than authorized personnel of M-DCPS, ITS. All requests for additions and/or changes shall be directed to and handled by authorized personnel of M-DCPS ITS, ISS.

2.24.2 M-DCPS, without invalidating the Contract, may order changes in the work within the general scope of the Contract consisting of additions, deletions or other revisions.

2.24.3 The cost or credit to M-DCPS resulting from a change in the work shall be determined in one of the following ways:

1) By mutual acceptance of a properly itemized lump sum amount supported by sufficient substantiating data to permit evaluation, if not listed in the Contract Documents.
2) By unit, prices stated in the Contract Documents or subsequently agreed upon.

2.25 FAMILIARITY WITH LAWS

The bidder is presumed to be familiar with all Federal, State and Local Laws, Ordinances, Code Rules and Regulations that may in any way affect the work. Ignorance on the part of the bidder shall in no way relieve him/her from responsibility. Bidders are advised that M-DCPS and the Florida Department of Education may have additional requirements beyond those contained in the locally accepted Building Codes.

2.26 INDULGENCE

Indulgence by M-DCPS of any nonconformance by the contractor does not constitute a waiver of any rights under this agreement.

2.27 SUB-CONTRACTS

a) Nothing contained in the specifications shall be construed as creating any contractual relationship between any subcontractor and M-DCPS.

b) The Contractor shall be as fully responsible to M-DCPS for the acts and omissions of the sub-contractor and of persons employed by them as he/she is

for acts and omissions of persons directly employed.

2.28 EMPLOYEES OF THE CONTRACTOR AND SUB-CONTRACTOR

All employees of the contractor and sub-contractor shall be considered to be at all times the sole employees of the contractor or sub-contractor under the contractor's sole direction and not an employee or agent of M-DCPS. The contractor and sub-contractor shall supply competent and physically capable employees, and M-DCPS may require the contractor to remove an employee it deems careless, incompetent, or insubordinate and whose continued employment on M-DCPS property is not in the best interest of M-DCPS. Each employee shall have and wear proper identification on the job and have already met the background screening requirements of M-DCPS.

3.0 TECHNICAL INFORMATION

3.1 DEFINITIONS

Wiring: shall be considered to include all copper wires, copper multi conductor cables, fiber optic strands and multi strand fiber optic cable. The words wire and cable are intended to have the same meaning and are used interchangeably.

Telecommunications Wiring: Shall be construed to mean the wire and cable for voice (telephone) and for data.

Conduits: Shall be construed to include all metal and plastic tubing, all cable trays and ducts in which telecommunications wiring may be installed. These items are also referred to as raceways.

Wireless System: Shall be construed to include all antennas, antenna mounts, ground cabling, lighting arrestors, pigtails/cabling adaptors, radio frequency transmitters, radio frequency receivers, antenna cables if used, input and output wiring to and from any existing network and ac power wiring to the wireless system.

3.2 Architects and engineers have been requested to provide a basic design for telecommunications for a new school building as follows:

a) A main equipment room shall be in or near the administration offices of a school.

b) There shall be satellite equipment rooms and/or wiring closets in each building.

c) Within a building there shall be a wiring closet for approximately every 20 to 25 rooms or offices.

d) The locations of the satellite rooms and wiring closets shall be such that the maximum wire distance from a room or closet to a jack is 250 feet and the maximum wire distance between equipment rooms and wiring closets is 300 feet.

3.3 Conduit design for the above has been requested as follows:

a) There shall be a minimum of three conduits of a minimum of 2" diameter from the main equipment room to each satellite room or wiring closet. The actual quantities and sizes of the conduit shall be reviewed by ISS for adequacy during the design phases of the project.

b) No conduit smaller than ¾ inch shall be used to any voice or data outlet.

c) Note that voice and data cable may share conduit.

3.4 Wire termination at the various equipment rooms and wiring closets shall be as follows:

a) There shall be three panels in the main equipment room that shall be the main distribution frame (MDF). In an elementary school all panels are category 5e patch panels. In a secondary school the voice panel is a punch-down and the others are category 5e patch panels.

b) All jacks shall be hard wired to their respective panels.

c) All copper pairs used for voice and data shall be protected at both ends of the cable if the cable leaves and enters a building.

d) At the MDF the voice panel shall be hard wired to the cable protectors. Data cables will terminate on category 6 RJ 45 patch panels.

e) The fiber optic cable shall be terminated in a suitable interface unit that provides for fan-out of the strands and termination in LC-type (single mode) and SC-type (multimode) connectors. The number of strands and arrangement of separation and fan-out shall be approved by ISS Infrastructure Support Services.

3.5 Cable management shall be included in all installations to neatly organize all patch cables at each intermediate distribution frame (IDF) and MDF locations. Patch Cables should be of appropriate length for cabinet, rack or shelf where applicable.

4.0 <u>INSTALLATION PRACTICES</u>

4.1 All wiring and terminations shall be installed according to the best industry practices and manufacturer’s specifications. Cable not in conduit shall meet fire codes and all cable shall be neatly run and have proper mechanical protection. Cables shall be supported by

bridle rings and ties to permanent supports. **In any new installations fiber optic cable shall be continuous, without splices. All horizontal cable and fiber shall be plenum rated. All cable in raceway concealed in concrete slab on grade or buried below shall be deemed wet and outdoor water resistant cable & is required. All fiber shall be Indoor/Outdoor Plenum rated.**

4.2 It is agreed and understood that the installation work may require mechanical work such as removal of ceiling tiles, drilling holes in walls and floors and similar changes to an existing building or site. Contractors shall restore such disturbed areas as close to the original condition as possible. Note that some buildings may have interlocking tile ceilings as well as drop-in type ceiling tiles. Tiles damaged by the contractor shall be replaced by the contractor, at no cost to the Board.

4.3 All wiring shall be concealed to the maximum extend practical. When retrofitting existing systems, existing conduits, floor ducts and power poles shall be used where possible. This will require the removal of existing wiring and replacement with new wiring.

4.4 At retrofit locations, the existing systems shall be maintained in operation to the maximum extent possible, while the new systems are being installed. It is understood that there may be reductions in service and that various locations may be out of service while they are being replaced. It will be necessary to cooperate with the building personnel to reduce interruptions to a minimum.

4.5 Prior to performing any work the contractor and the Board's representative shall determine if a hazard exists. If, during the work, asbestos is suspected or discovered the contractor shall immediately notify the Board's safety office and designated Board personnel. If there is a hazard all work will stop at that location until the hazard is removed by the Board.

4.6 No PVC conduit shall be used above ground but may be installed underground. If PVC is installed underground it shall be no smaller than 1" diameter and shall be schedule 40 type. Metal conduit shall be used at the end of underground PVC where the run leaves the earth and enters a building, if it enters through an outside wall and is exposed.

4.7 Conduit shall be mounted ten feet above the floor or as high as practical if the ten feet height is not possible.

4.8 The types of conduit and the locations where each type may be used shall be governed by Miami-Dade County Public Schools Master Specifications, see Master Specifications, Divisions 13 and 16. This document can be found at http://facilities.dadeschools.net/. Link through Planning to Planning and Standards

5.0 ADDITIONAL TECHNICAL REQUIREMENTS

5.2 The equipment and software shall enable Windows based personal computers, and Apple computers, equipped with Ethernet 10/100BaseT network interface cards, to connect to a wireless station (adapter) with a standard cable. In addition to enabling

wireless network interface cards to connect to a wireless station. These computers shall be able to access common applications provided via the network such as Internet browsing, mainframe computer CICS applications etc.

5.3 The equipment known as an access point, used for the connection between the wireless and wired network shall be manageable by a direct connection to the access point or from the LAN/WAN.

5.4 The wireless system shall provide security by the use of data encryption or by the use of keys, codes or MAC addresses to restrict access to each channel of the system. Encryption shall be provided as a required part of each system. A detailed list of the security features shall be provided with the Bid Proposal.

5.5 The wireless system shall provide seamless roaming and load balancing from one access point to another access point. Roaming from access points across subnets is not required.

5.5.1 The system shall include software that will provide diagnostic, troubleshooting and other related management capabilities. A detailed list of the features of this software should be provided with the Bid Proposal.

END OF SPECIFICATIONS