

4.3.4. Solicitation Preparation Expenses

4.3.4.1. All costs incurred in the preparation and submission of an offeror's proposal will be borne by the offeror and shall not be incurred in anticipation of receiving reimbursement from the County.

4.3.5. Tie Scoring

4.3.5.1. In case of a tie in the numerical Qualification and Selection Committee scoring, the tie will be resolved by offering the proposed contract to the offeror who has its principal place of business in Montgomery County, Maryland. If there is a tie between two or more offers, each of whom have its principal place of business in Montgomery County, Maryland, then the tie will be resolved in accordance with the criteria stated under Procurement Regulation 4.1.2.4(f); See Procurement Regulations at: (<https://www.montgomerycountymd.gov/pro/help.html>)

4.3.6. Verbal Explanations

4.3.6.1. Verbal explanations or instructions given by a Montgomery County employee to an offeror in regard to this or any other solicitation will not be binding on the County.

4.3.7. Health Insurance Preference

4.3.7.1. Only a proposal from a Certified Small Business with Health Insurance that submits a certificate issued by Montgomery County Department of Health and Human Services at the date and time of proposal submission will received a % evaluation factor that will be utilized to recalculate an Offeror's QSC written or interview score(s) for the Method of Award process, in accordance with the criteria stated under Procurement Regulation 11B.77.01.06; See Procurement Regulations at: <https://www.montgomerycountymd.gov/PRO/vendor-resources/laws-regulations.html>

## 4.3.8. Local Business Preference

4.3.8.1 Only an Offeror who: (1) has a valid local business certification when the business submits a timely proposal; or (2) has applied for local business certification prior to the due date/time to submit a proposal, will receive an evaluation factor worth 10% of the total points under an RFP, in accordance with Executive Regulations 13-20. Also, refer to: <https://www.montgomerycountymd.gov/PRO/DBRC/local-business-preference.html>.

**END SECTION A – INSTRUCTIONS, CONDITIONS AND NOTICES****5. SECTION B – SCOPE OF SERVICES:**

## 5.1. Background

- 5.1.1. Montgomery County, Maryland is a 498-square mile jurisdiction, adjacent to Washington, DC, and home to over 1.0 million people. The County operates a 650 mile, 11-hub, 4 data center fiber optic communications system known as FiberNet. FiberNet serves as the Wide Area Network (WAN) for over 630 community anchor institutions, including County government, libraries, community centers, public schools, community college campuses and public sector commissions. In serving these clients, Montgomery County provides Inside Plant (ISP) and Outside Plant (OSP) construction services.
- 5.1.2. On a case-by-case basis, the County deploys Air-Interface, Active Ethernet, and Optical Local Area Network (OLAN) technology for selected new construction and major renovations. The County is also working to enable its network infrastructure to be used to deliver diverse communications technologies over a single structured communications plant. Regardless of technology, the goal of every chosen Open System Interconnection (OSI) physical and link layer technology will be to fully leverage its ability to carry multiple types of traffic over a single copper or fiber optic structured communications infrastructure – data, voice, video, GPON/PON, CATV, CCTV, audiovisual (A/V), analog voice, Single Pair Ethernet (SPE), and Distributed Antenna System (DAS).

- 5.1.3. Thus: The delivery of the above traffic requires an Information and Communications Technology<sup>1</sup> (ICT) infrastructure to deliver the services when and where needed. Therefore, Montgomery County's ICT needs/requires access to contractors able to design, install and commission standards based structured communications systems using the latest proven technologies over the most appropriate physical media: copper, optical or air-interface.
- 5.1.3.1. Further, Montgomery County requires access to contractors capable of providing ICT systems design and integration services including active project management in the construction and commissioning of such systems as well as post installation support services including operations and maintenance.
- 5.1.3.2. Construction projects range in size from small offices to fire stations growing to multi-story new building construction and large renovation projects. Full design-build-project support is needed to assess client needs, design architectures, develop bills of material, assist in equipment procurement, provide project management, maintain quality control, commission systems and place these into production.
- 5.1.3.3. As mentioned above, Project Management is an extremely important qualification in the selection of contractors who might bid on the County's projects. Construction project management is complex and needs to recognize the timing between the many phases of such projects to ensure coordination with the General Contractor's schedules and subcontractors.
- 5.1.3.4. Support for operation, monitoring and maintenance of ICT systems is essential. This is especially true where the County's ICT teams have responsibility to ensure systems are always functional, but may not yet have developed competency, staffing levels or expertise in the operation, monitoring, and maintenance of these technologies.
- 5.1.3.5. Because of the number and scale of upcoming construction projects and speed of technological innovation, the County desires to enter into a contract with contractors capable of performing a full range of work from the smallest projects, such as installing a few data drops, to all the way up to building a large campus network using the most current and sophisticated technologies. The successful offeror(s) will work directly with and under the technical direction of the County's Department of Technology Enterprise Business Solutions (TEBS)

## 5.2. Intent

- 5.2.1. The County, through TEBS is issuing this Request for Proposals (RFP) to solicit proposals from highly qualified ICT Contractors to provide a mix of construction, deployment, procurement, operations management/maintenance, and consulting services for Montgomery County Government Departments and Agencies.
- 5.2.1.1. The County intends to enter into a contract(s) with two (2) experienced and qualified firms, hereinafter referred to as "Contractor," to provide the goods and services described in this RFP on an as-needed basis. The Contract will be awarded to the two (2) highest-ranked offerors (a Primary and Secondary contractor) based on the QSC's combined written and interview scores and its responsibility determination.
- 5.2.1.2. The objective of this solicitation is to enable the County to procure ICT services for the complete range of consulting, design, equipment and materials procurement, construction, installation, project management, requirements analysis, ICT system design, equipment receiving, installation, construction supervision, system configuration, provision of recommendations to the County to purchase goods and services related to ICT systems, and Operation and Maintenance (O&M) in a timely and economical manner. The successful offeror(s) will work directly with and under the technical direction of TEBS.
- 5.2.1.3. Structured Cable Systems for Enterprise Communications Systems, including but not limited to Active Ethernet, Air-Interface, and Optical Local Area Network (OLAN) technology including post-construction, warranty support, warranty protection, ancillary tasks, or other related requirements:
- 5.2.1.3.1. ICT Systems Integration, Design and Project Management
- 5.2.1.3.2. Operations and Maintenance (O&M) Support post installation

## 5.2.1.3.3. Quick-Turn-Around ICT Services

## 5.2.2 New Technology in Structured Cabling System:

- 5.2.2.1 New Technology: As new cabling technology arises and future bandwidth demands increase, future structured cabling inventions that may not be mentioned in this solicitation and the resulting contract but may be acceptable to use in the event a project arises with bandwidth demands that the traditional structured cabling system is unable to support or achieve the project goals without the new cabling system will be considered. The Contractor must provide a technical and pricing proposal for any proposed new technology intended to be added to the awarded Contract for evaluation. If approved, a Contract amendment to add the new technology will be issued in accordance with the County's Procurement Regulations.

5.3. County's Responsibility

- 5.3.1. When services are needed, the County will contact the Primary Contractor that is under Contract with the County for the provision of those services (items) required by the County through the issuance of a Service Request Order (SRO). The work assignments will be based on the County's need and the Contractor's equipment and personnel services available. If the Primary Contractor is not available to undertake the services upon notification from the County, the County will assign the 'SRO' to the Secondary Contractor. The Contractor must not commence any services until a purchase order has been executed by the Office of Procurement, and a notice to proceed has been issued by the Using Department.

5.4. Scope of Work

- 5.4.1. Installing terminated and unterminated copper and fiber optic cable and ancillary equipment to support data, video, and voice applications and networks. This will include but is not limited to GPON, PON, A/V, DAS, Active ethernet, inside plant equipment, and other fiber optic and copper networks.
- 5.4.1.1. PON (Passive Optical Network) and GPON (Gigabit Passive Optical Network) are point-to-multipoint technologies that connect an Optical Line Terminal (OLT) to many Optical Network Terminals (ONTs) or Optical Network Units (ONUs). A GPON network utilizes passive splitters between the OLT and ONT to split the wavelength so all ONTs on the fiber can see it.
- 5.4.1.2. Audio Visual (A/V). A/V is electronic media possessing both a sound and a visual component, such as slide-tape presentations, films, television programs, corporate conferencing, church services, and live theater productions
- 5.4.2. All cable installations must be completed safely, neatly, professionally, and structured and conform to Building Industry Consulting Service International (BICSI) standards for installation.
- 5.4.3. The Contractor must meet or exceed the applicable American National Standard Institute (ANSI) and Electronic Industries Association/Telecommunications Industry Association (EIA/TIA) 568 and 569 specifications as well as all local, County, State, and National (IBC) building codes.
- 5.4.4. The Contractor may participate in a wide range of design and consulting services including but not limited to:
- 5.4.4.1. Design/review of data centers and structured cabling systems;
- 5.4.4.2. Development and review of cabling specifications and designs for County facilities;
- 5.4.4.3. Development and review bills of material for structured cabling systems for County facilities;
- 5.4.4.4. Development and review of construction bid documents related to cabling including all aspects of integrating the delivery of ICT systems as requested or required by the County; and
- 5.4.4.5. Attend meetings as the County's ICT consultant with general contractors of the County
- 5.4.4.6. The Contractor may be required to:

- 5.4.4.6.1. Participate in activities such as meetings with end users, general contractors, electrical subcontractors, and County construction project managers;
- 5.4.4.6.2. Provide pre-construction Network Analysis, Design and Configuration services, with required activities to include preparation of System Requirements and Designs, Computer-Aided Design (CAD) drawings and Level of Effort requirements for any of the following: Cellular Distributed Antennae Systems, millimeter wave radio and other licenses and unlicensed wireless transmission equipment and antennas/receivers, Security Cameras, Public Safety Bidirectional Amplifier, Paging Systems, Life Safety communications, Sound Masking, WiFi, Audio Visual and Conference Room Systems;
- 5.4.4.6.3. Provide Site Assessment services, with activities to include preliminary site visits to determine readiness for installation;
- 5.4.4.6.4. Provide Hardware, Receiving, Configuration, Deployment and Commissioning;
- 5.4.4.6.5. Provide Systems Integration and Interfacing – activities include working with County users, their contractors, and others to integrate ICT technology into Montgomery County communications networks;
- 5.4.4.6.6. Provide Post Installation Network Operations and Warranty Support services, at no additional cost to the County, with activities to include problem resolution for a fixed one-year period after the network is installed; and
- 5.4.4.6.7. Provide power protection and provisioning design, including, without limitation, integration with UPS, generators, and DC power provisioning systems.
- 5.4.4.7. Provide product testing and burn in facilities.
- 5.4.4.8. Develop and review implementation and configuration plans for ICT systems, including Active Ethernet, Wi-Fi, and DAS systems at County facilities.
- 5.4.4.9. Project management and oversight of the installation of ICT systems.
- 5.4.4.10. Develop test plans for acceptance of ICT systems.
- 5.4.4.11. Perform quality assurance/quality control on new ICT systems.
- 5.4.4.12. Bring to the attention of the County's Contract Manager all deviations from design, deficiencies in construction and failures to perform by County contractors constructing such systems.
- 5.4.4.13. Inventories of devices placed including serial number, location reference, and MAC address.
- 5.4.5. The Contractor must ensure that qualified personnel install all fiber media and related connecting hardware, outlets, and other components.
- 5.4.6. Supplied materials, including, but not limited to, any conduit, manholes, splice cases, fiber distribution panels, category distribution panel, inner-duct, and fiber optic cable, must be new, unused, and must meet the latest design and fabrication standards of the Electronics Industry Association (EIA) and Telecommunications Industry Association (TIA).
- 5.4.7. Labeling – applies to patch panels, faceplates, patch cable, cabinets/racks. Use TIA-606-C and Montgomery County Government labeling standard document; see Appendix A (Attachment E)
  - 5.4.7.1. All components of the structured cabling system require physical labeling. At a minimum, the following components must be labeled:
    - 5.4.7.1.1. Communications outlets
    - 5.4.7.1.2. IDF/MDF is connecting hardware.
    - 5.4.7.1.3. Cables
    - 5.4.7.1.4. Terminal/equipment ports
- 5.4.8. The Contractor must test installed products to ensure they meet the standards and provide written certification of test results of all cable installations within seven (7) business days from job completion and before County acceptance.
  - 5.4.8.1. Copper cabling provided and installed by the Contractor must be tested in accordance with the following criteria:
    - 5.4.8.1.1. All cabling and related connecting hardware, outlets, and other components installed must be tested and certified at the conclusion of the installation.
    - 5.4.8.1.2. Depending on the project, copper cable certification will use a level III cabler certifier/tester or above.

- 5.4.8.1.3. Certification for fiber optic will use Optical Time Domain Reflectometer (OTDR) Testing and Optical Loss Testing.
- 5.4.8.1.4. Before performing final acceptance tests, the contractor must test all cables and connectors for continuity and polarity, including open, short, split, and reversed circuits (pairs).
- 5.4.8.1.5. The final test before acceptance must consist of a performance test, which must involve testing the installed cable plant using live data. The final test after installation and before County acceptance must also consist of a continuity test. Satisfactory results from these tests will be necessary for the acceptance of the cabling project and subsequent payment. Service Request Order.

## 5.5. Contractor's Qualifications and Certification

### 5.5.1. Contractor Requirements Per Project

- 5.5.1.1. Certified low voltage/telecommunication installer with industry or manufacturer certification
- 5.5.1.2. Required Certifications:
  - 5.5.1.2.1. Building Industry Consulting Service International (BICSI) – BICSI: Registered Communications Distribution Designer (RCDD)
- 5.5.1.3. Optional Certifications:
  - 5.5.1.3.1. Building Industry Consulting Service International (BICSI) – Technician (TECH)
  - 5.5.1.3.2. Building Industry Consulting Service International (BICSI) Installer Level 2 – Fiber
  - 5.5.1.3.3. Building Industry Consulting Service International (BICSI) Installer Level 2 – Copper
  - 5.5.1.3.4. Building Industry Consulting Service International (BICSI) -Registered Telecommunications Project Manager (RTPM).
- 5.5.1.4. Any telecommunication certification from a registered industry or manufacturer – Electronics Technicians Association, International (ETA)
  - 5.5.1.4.1. Hubbell
  - 5.5.1.4.2. Leviton
  - 5.5.1.4.3. Ortronic
  - 5.5.1.4.4. Panduit
  - 5.5.1.4.5. Belden
  - 5.5.1.4.6. CommScope
  - 5.5.1.4.7. Corning
  - 5.5.1.4.8. Signamax

### 5.5.2. INDUSTRY STANDARDS AND BEST PRACTICES:

- 5.5.2.1. Generic Telecommunications Cabling for Customer Premises (ANSI/TIA/EIA-568-C.0)
- 5.5.2.2. Commercial Building Telecommunications Cabling Standard (ANSI/TIA/EIA-568-B.1, ANSI/TIA/EIA-568-C.1)
- 5.5.2.3. Optical Fiber Cabling Components Standard (ANSI/TIA/EIA-568-B.3)
- 5.5.2.4. Balanced Twisted-Pair Telecommunications Cabling and Components Standard (ANSI/TIA/EIA-568-C.2)
- 5.5.2.5. Optical Fiber Cabling Components Standard (ANSI/TIA/EIA-568-C.3)
- 5.5.2.6. Commercial Building Standard for Telecommunications Pathways and Spaces (ANSI/TIA/EIA-569-A) (See Section 5.5.1)
- 5.5.2.7. Residential Telecommunications Cabling Standard (ANSI/TIA/EIA-570-A, ANSI/TIA/EIA-570-B)
- 5.5.2.8. Customer-Owned Outside Plant Telecommunications Infrastructure Standard (ANSI/TIA/EIA-758-B)
- 5.5.2.9. Telecommunications Infrastructure Standard for Data Centers (ANSI/TIA-942)
- 5.5.2.10. Telecommunications Infrastructure Standard for Industrial Premises (ANSI-TIA-1005)
- 5.5.2.11. Administration Standard for the Telecommunications Infrastructure of Commercial Buildings (ANSI/TIA/EIA-606)

- 5.5.2.12. Commercial Building Grounding and Bonding Requirements for Telecommunications (ANSI/TIA/EIA-607)
- 5.5.2.13. Building Automation Systems Cabling Standard for Commercial Buildings (ANSI/TIA/EIA-862)
- 5.5.2.14. Building Industry Consulting Services International (BICSI)
- 5.5.2.15. National Electrical Safety Code (NESC) (IEEE C 2)
- 5.5.2.16. Institute of Electrical and Electronics Engineers (IEEE)
- 5.5.2.17. National Electrical Code (NEC) 2017 or newer
- 5.5.2.18. Standard for the Fire Protection of Information Technology Equipment (NFPA 70,75,76,77)
- 5.5.2.19. ANSI/TIA-606-C and Montgomery County Labeling.
  - 5.5.2.19.1. Montgomery County Government labeling standard document, see Appendix A
  - 5.5.2.19.2. Montgomery County Government Labeling requirement:
    - 5.5.2.19.2.1. All lettering will be in uppercase.
    - 5.5.2.19.2.2. 18mm or 24mm black letters on white tape for labeling patch cables/racks/cabinet/coax cables/coax splitter/fiber panels, fiber jumpers, and lettering RJ45 patch panels
    - 5.5.2.19.2.3. 12mm or 9mm for wall plates
    - 5.5.2.19.2.4. 9mm black letters on white tape for RJ45 patch panel ports, 110/66 blocks
    - 5.5.2.19.2.5. Use a dash (-) to separate words/numbers for all labeling.
    - 5.5.2.19.2.6. Labels should be placed 2 inches or greater from the connector on the cable/jumper.
    - 5.5.2.19.2.7. Font size should be readable.
    - 5.5.2.19.2.8. Labeling tape size can be adjusted or subject to change depending on the project requirements.
- 5.5.2.20. Qualifications to include resumes of installers, project managers, and consultants. Certification of Installer, project manager, and consultants.
  - 5.5.2.20.1. Minimum Education – High School Diploma
  - 5.5.2.20.2. Project Manager -: Four (4) years of experience in managing communications cabling projects.
  - 5.5.2.20.3. Technicians /Installers - One (1) year of experience in cable installation.
  - 5.5.2.20.4. Consultant - Five (5) years of experience in the design, implementation, and integration of communications cabling projects.
- 5.5.2.21. Subcontracting:
  - 5.5.2.21.1. The Contractor may subcontract the performance of required services with other contractors or third parties, or change subcontractors, with the prior written consent of the County. However, the selected Contractor remains solely responsible for the performance of its subcontractors.
  - 5.5.2.21.2. Subcontractors, if any, must adhere to the same standards as the selected Contractor. Notwithstanding any other term herein, the Contractor must timely
  - 5.5.2.21.3. exercise its contractual remedies against any non-performing subcontractor and, when appropriate, substitute another subcontractor with prior written consent of the County.
  - 5.5.2.21.4. The contractor warrants qualified personnel, including subcontractor staff, will provide services in a professional manner. “Professional manner” means that the personnel performing the services will possess the skill and competence consistent with the prevailing business standards in the information technology industry and the requirements of the RFP and the resulting Contract.
  - 5.5.2.21.5. Contractor is the Prime Contractor under this Contract. Contractor is legally responsible for the performance and payment of the subcontractor(s). Names of any third-party contractors or subcontractors of Contractor may appear for purposes of convenience in Service Request Order documents; but that does not limit Contractor’s obligations hereunder. The Contractor must retain executive

representation for functional and technical expertise as needed to incorporate any work by subcontractor(s).

5.5.2.22. General Requirements:

- 5.5.2.22.1. Work under this contract must not be performed until notice to proceed and a Purchase Order has been issued by the County in writing.
- 5.5.2.22.2. The Contractor is responsible for all licensing, permits, bonding, and insurance required to perform the SRO.
- 5.5.2.22.3. The Contractor must have a minimum of five years of experience installing inside cabling for both copper and single—and multi-mode fiber optic cabling.
- 5.5.2.22.4. The Contractor must be an authorized reseller of the networking and infrastructure components quoted in any Service Request Order(s) (SROs) Proposals bill of material (BOM) and show proof thereof.
- 5.5.2.22.5. The project may require a Registered Communications Distribution Designer (RCDD) to supervise work during all phases of the installation. When required the Contractor must have RCDD available to technicians and installers any time work is being performed.
- 5.5.2.22.6. Should it be necessary to halt the work because of incorrect or unsatisfactory operations under the terms of the resulting Contract or because of failure to follow safety standards applicable hereto, the Contractor must take immediate steps to remedy the deficiencies.
- 5.5.2.22.7. Should repair or correction of any safety defect or deficiency not be immediately undertaken and should the County be required to protect the site or make the repair or correction, the cost of such work will be deducted from payment due to the Contractor.
- 5.5.2.22.8. Depending on the scope of the project, the County may require the Contractor to build to the structured cable plant design of a third party and not that of the Contractor.
- 5.5.2.22.9. Participate in the execution of a much larger project plan and to provide all documentation associated with large-scale construction project documentation, including but not limited to:
  - 5.5.2.22.9.1. Certified link test results.
  - 5.5.2.22.9.2. As-built drawings; and
  - 5.5.2.22.9.3. Inventories of devices placed including serial number, location reference, and MAC address.
- 5.5.2.22.10. Installation Requirements:
  - 5.5.2.22.10.1. The installation of copper and fiber optic cabling within County facilities as well as the installation of structured wiring components including Main Distribution Frame (MDF) and Intermediate Distribution Frame (IDF), entrance facilities, grounding and bonding systems, racks, raceways, conduit, cable management systems, labeling, as-builts, fire-stopping and Wall Area Outlet (WAO) cable terminations and patch panels. Grounding and bonding systems, racks, raceways, conduit, cable management systems, labeling, and as-built documentation.
- 5.5.2.22.11. The Contractor must have a minimum of five years of experience in the installation of inside cabling for both copper and single & multi-mode fiber optic cabling.
- 5.5.2.22.12. The Contractor must be a certified installer on infrastructure components being provided and show proof thereof.
- 5.5.2.22.13. The Contractor must be an authorized reseller of the networking and infrastructure components quoted in any project bill of material (BOM) and show proof thereof.
- 5.5.2.22.14. The projects may require a Registered Communications Distribution Designer (RCDD) to supervise work during all phases of the installation. When required

- the Contractor must provide an RCDD to be available to technicians and installers any time work is being performed.
- 5.5.2.22.15. The Contractor's foreman and installers must be trained and registered with the BICSI's Cabling Installation Program.
- 5.5.2.22.16. The Contractor must ensure all fiber optic cabling and related connecting hardware, outlets, and other components are installed by qualified personnel and in accordance with the manufacturer and industry standards.
- 5.5.2.22.17. The Contractor must follow all applicable local standards. The Contractor must be aware of all standards and their application within Maryland. Ignorance or lack of knowledge is not an excuse for improper work to occur. Any work constructed in violation of any applicable code must be corrected and re-installed properly at the Contractor's expense.
- 5.5.2.22.18. Should it be necessary to halt the work because of incorrect or unsatisfactory operations under the terms of the Contract or because of failure to follow safety standards applicable hereto, the Contractor must take immediate steps to remedy the deficiencies.
- 5.5.2.22.19. Should repair or correction of any safety defect or deficiency not be immediately undertaken and should the County be required to protect the site or make the repair or correction, the cost of such work will be deducted from payment due the Contractor.
- 5.5.2.22.20. During any inspection including, but not limited to, the final inspection of each work site, should it be found that non-concealed work is substandard, the burden of proof that the concealed work is up to standard will be the contractor's, who will do such as is necessary, including exposing the concealed work, to clearly establish that the concealed work meets the specifications as outlined.
- 5.5.2.22.21. Depending on the scope of the project, the project may require the Contractor to build to the structured cable plant design of a third party and not that of the Contractor.
- 5.5.2.22.22. Participate in the execution of a much larger project plan and provide all documentation associated with large-scale construction project documentation, including but not limited to.
- 5.5.2.22.23. All Cabling work must conform to industry standards set forth in the Commercial Building Telecommunications Wiring Standard (TWEIA 568), the Commercial Telecommunications Pathway and Spaces (TIA/EIA 569), and the Optical Fiber Cabling Components Standard (TIA/EIA 568-C.3).
- 5.5.2.22.24. All work must be in accordance with good engineering practices.
- 5.5.2.22.25. All work must be performed in accordance with the latest requirements of the National Electrical Code adopted by the County, State, and local codes, ordinances, and regulations of any governing body having jurisdiction.
- 5.5.2.22.26. The Contractor must execute designs that adhere to the County's Standard CSI/Master Format Division 27 specification as amended or not amended at the County's sole discretion for each project.
- 5.5.2.22.27. The Contractor must inform the County's designated Project Manager in writing of any instance where the design deviates from standards, code or best industry practice
- 5.5.2.22.28. Low voltage Contractors will follow all codes, industry standards, and best practices.
- 5.5.2.22.29. Communication cabling will be maintained 12 inches from all electrical wires or devices.
- 5.5.2.22.30. Installation should follow all NEC, NFPA codes, and ANS/NECA/BICSI standards.
- 5.5.2.22.31. National Electrical Code (NEC) 2017 or higher
- 5.5.2.22.31.1. NEC article 800 communication
- 5.5.2.22.31.2. NEC Article 300.17
- 5.5.2.22.31.3. NEC 800.133(A)(c)



- 5.5.2.22.32. Bundling cables – don't bundle any low-voltage cables tightly.
  - 5.5.2.22.32.1. Category cable shall not exceed 24 cables per bundle.
- 5.5.2.22.33. All communication cabling should not be bundled with any electrical cable exceeding 50 volts.
- 5.5.2.22.34. Raceway boxes will not exceed three (3) per cable run.
- 5.5.2.22.35. No sharp 90-degree bends on the cable
- 5.5.2.22.36. All network equipment and cabinets will be grounded with 6AWG or greater.
- 5.5.2.22.37. All inside cabling needs to come with and provide a 20-year warranty through the vendor.
- 5.5.2.22.38. If the jurisdiction or building owner or landlord requires the use of a raceway /conduit, then all communication cabling should be placed in its own raceway/conduit and not share any raceway/conduit with electrical wires (800.133(A)(c)) and sized not to exceed 40% fill ratio (NEC 300.17). If a raceway/conduit is required, the acceptable raceways/conduits listed below:
  - 5.5.2.22.38.1. Inner duct
  - 5.5.2.22.38.2. EMT conduit
  - 5.5.2.22.38.3. PVC, schedule 40 or greater
  - 5.5.2.22.38.4. Greenfield/flex tube
  - 5.5.2.22.38.5. Non-metallic flexible conduit
- 5.5.2.23. Cable Requirements
  - 5.5.2.23.1. Category 6 (cat6) – rating of 250MHz or greater.
  - 5.5.2.23.2. Category 6a (Cat6a) – rating of 500 MHz or greater.
  - 5.5.2.23.3. Category 8.1 or 8.2 – rating of 2000MHz or greater.
  - 5.5.2.23.4. Submittals are required for all digital equity projects.
  - 5.5.2.23.5. BICSI standards for cable length limits of 90m.
  - 5.5.2.23.6. Plenum or CMP rating. No riser or CMR is to be used on any installation project without approval from the County.
  - 5.5.2.23.7. Category cable will be terminated at each end with the 568B (TIA/EIA standard).
  - 5.5.2.23.8. Terminating category cable– the cable pair twists must be maintained to within 13 mm (0.5 in) from the point of termination (ANSI/TIA/ 568-C.0).
- 5.5.2.24. No patch cable should exceed 5 meters from the patch panel to the network devices to help limit signal degrading.
- 5.5.2.25. Fiber Optic
  - 5.5.2.25.1. OFNP or OFCP – plenum-rated cables for use in indoor air handling spaces or plenums OFNR or OFCR – riser-rated cables for vertical runs or install horizontal when not in air return space.
  - 5.5.2.25.2. Never exceed the maximum pulling load rating
  - 5.5.2.25.3. Never exceed the cable bending radius
  - 5.5.2.25.4. Multimode should be OM4 or greater 50/125 with UPC/LC connectors.
  - 5.5.2.25.5. Single mode will be OS1 or OS2 with UPC/LC connectors.
  - 5.5.2.25.6. The jacket size of the fiber optic cable should be 2.0mm or greater.
  - 5.5.2.25.7. Multimode (OM4 or greater) and be 6,12, 24, 48, 96, 144 and 216 -strand fiber count.
  - 5.5.2.25.8. Single mode (OS2 or OS1) loose tube, tight tube, and/or Ribbon fiber and can be 6,12, 24, 48, 96, 144, and 216 strand fiber count. Single mode may be outdoor rate or indoor rated depending on the project requirements.
  - 5.5.2.25.9. Bend insensitive fiber (ANSI/TIA/EIA-568B.3)
  - 5.5.2.25.10. All fiber optic cables should stay within the link attenuation loss allowance below.
  - 5.5.2.25.11. Connector loss is defined as 0.75dB per mated connector.
    - 5.5.2.25.11.1. Splice or fusion splice is defined at 0.3dB per splice.
  - 5.5.2.25.12. Total loss should follow EIA/TIA 568 B3 – see Appendix B
- 5.5.2.26. Labeling – applies to patch panels, faceplates, patch cables, cabinets/racks. Use Montgomery County Government Cable labeling standard document; see Appendix A

## 5.6. Client/End User Driven Systems Requirements Analysis

The Contractor may be required to participate in activities such as meetings with end users, general contractors, electrical subcontractors, and county construction project managers.

- 5.6.1. Provide pre-construction Network Analysis, Design and Configuration services, with required activities including preparation of System Requirements and Designs, Computer-Aided Design (CAD) drawings and Level of Effort requirements for any of the following: Cellular Distributed Antennae Systems, millimeter wave radio and other licenses and unlicensed wireless transmission equipment and antennas/receivers, Security Cameras, Public Safety Bidirectional Amplifier, Paging Systems, Life Safety communications, Sound Masking, Wi-Fi, Audio Visual and Conference Room Systems.
- 5.6.2. Provide Site Assessment services, with activities to include preliminary site visits to determine readiness for installation.
- 5.6.3. Provide Hardware, Receiving, Configuration, Deployment and Commissioning.
- 5.6.4. Provide Systems Integration and Interfacing – activities include working with County users, their contractors, and others to integrate ICT technology into Montgomery County communications networks; activities to include problem resolution for a fixed one-year period after the network is installed.
- 5.6.5. Provide power protection and provisioning design, including without limitation integration with UPS, generators, and DC power provisioning systems; and
- 5.6.6. Provide product testing and burn in.
- 5.6.7. Provide Post Installation Network Operations and Warranty Support services.

#### 5.7. Reports/Deliverables

- 5.7.1. The Contractor test reports must be provided no later than one (1) week after completion of the project.
- 5.7.2. All deliverables and design documentation must be submitted electronically as requested by the County and specific as to the format from among Word, Excel, PDF, CADD, or Visio.
- 5.7.3. As built, documentation will be due one (1) week after completing the project.
  - 5.7.3.1. As-built shall include the following:
    - 5.7.3.1.1. Floor layout, showing work outlets, cable path (j-hooks or cable tray, horizontal and riser), sleeves, and conduits using industry-standard symbols
    - 5.7.3.1.2. Detailed Work Area Outlets (WAO) with labeling
    - 5.7.3.1.3. Must be indelible and printed (handwritten documentation is not acceptable)
    - 5.7.3.1.4. As-builts will be submitted in PDF format.
  - 5.7.3.2. ANSI/TIA level III or higher cable certification in PDF format.
  - 5.7.3.3. OTDR test results in PDF format.

#### 5.8. Warranty

- 5.8.1. All installation materials, network equipment, fiber optic cable, termination panels, splices and path restoration furnished by the Contractor must be fully guaranteed against defects in materials and workmanship for a minimum period of one (1) year after installation and final acceptance at no additional cost to the County.
- 5.8.2. A standard manufacturer's warranty on parts and labor or one year warranty on parts and labor, whichever is greater, for new network equipment, fiber termination panels, fiber optic cable work must be included as part of these conditions.
- 5.8.3. All defective items must be replaced free of charge during the warranty period. All other terms and conditions of the warranty must be provided in the quote.
- 5.8.4. Staffing
  - 5.8.4.1. The Contractor must provide a single point of contact for all issues that may arise under this Contract, including sales, technical support, delivery, warranty, or billing issues. The Contractor's point of contact must have electronic mail access, and voice mail and must return all service calls within the same business day if received before 12:00 p.m. or the next business day if received after 12:00 p.m.
  - 5.8.4.2. SECURITY & BACKGROUND CHECKS
    - 5.8.4.2.1. The County reserves the right to require a security background check or otherwise approve any employee or agent provided by the Contractor, and to refuse

access to or require replacement of any such personnel for cause, including, but not limited to, technical or training qualifications, quality of work, change in security status, or non-compliance with the County's security or other requirements. This approval requirement does not relieve the Contractor of its obligations to perform all work in compliance with the Contract. The Contractor may be required to bear the cost of performing the background check if specified in the individual Service Request Order. The County reserves the right to reject, remove, and/or bar any Contractor personnel, whether employee or agent, from County facilities if, for any reason the County perceives as a breach of contract.

- 5.8.4.3. Contractor personnel must not hold themselves out to be representatives, in any capacity, of the County. In all communications with third parties, Contractor personnel must identify themselves as contractors and must specify the name of the Contractor. In all communications with other contractors in connection with a Service Request Order, the Contractor personnel must state that he or she has no authority to in any way change the contract or the Service Request Order and that if the other contractor believes a particular communication to be a direction to change the requirements of a Service Request Order they should notify the Contract Administrator (CA) for the Service Request Order and not carry out the direction until a clarification has been issued by the CA. The Contractor must ensure that all of its personnel are informed of the substance of this section, and the substance of this section must be included in all subcontracts at any tier.

## 6. SECTION C – PERFORMANCE PERIOD

### 6.1. TERM

The effective date of this Contract begins upon signature by the Director, Office of Procurement and ends after a two-year period. Contractor must also perform all work in accordance with time periods stated in the Scope of Work. Before this term for performance ends, the Director at his/her sole option may (but is not required to) renew the term. Contractor's satisfactory performance does not guarantee a renewal of the term. The Director may exercise this option to renew this term five (5) times up to one year each.

## PRICE ADJUSTMENTS

- 6.2.1 Prices quoted are firm for a period of two (2) years after execution of the contract. Any request for a price adjustment after this two (2) year period is subject to the following:
- 6.2.1.1. Approval or rejection by the Director, Office of Procurement or designee
  - 6.2.1.2. Submission in writing to the Director, Office of Procurement and accompanied by supporting documentation justifying the Contractor's request. A request for any price adjustment may not be approved unless the contractor submits to the County sufficient justification to support that the Contractor's request is based on its net increase in costs in delivering the goods/services under the contract.
  - 6.2.1.3. Submission within sixty (60) days prior to contract expiration date, if the contract is being renewed.
  - 6.2.1.4. The County will not approve a price adjustment request that exceeds the amount of the annual percentage change of the Consumer Price Index (CPI) for the twelve-month period immediately prior to the date of the request. The request must be based upon the CPI for all urban consumers issued for the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan area by the United States Department of Labor, Bureau of Labor Statistics for ALL ITEMS.
  - 6.2.1.5. The County will approve only one price adjustment for each contract term, if a price adjustment is approved.
  - 6.2.1.6. The price adjustment, including its effective date, must be incorporated into a written contract amendment.
- 6.2.2. If pricing is based on percentage discounts, the percentage discount is fixed throughout the term of the contract.