AGREEMENT BETWEEN COUNTY AND CONTRACTOR

This Agreement Between County and Contractor, (this "Agreement") made and entered into by and between Marion County, a political subdivision of the State of Florida, located at 601 SE 25th Ave, Ocala, FL 34471 (hereinafter referred to as "COUNTY") and **DAB Consulting, Inc.**, located at 3977 NW 63rd St, Gainesville, FL 32606, possessing FEIN# 61-1653435 (hereinafter referred to as "CONTRACTOR") under seal for the AXIS Security Video Surveillance Systems, (hereinafter referred to as the "Project"), and COUNTY and CONTRACTOR hereby agreeing as follows:

WITNESSETH:

In consideration of the mutual covenants and promises contained herein, COUNTY and CONTRACTOR (singularly referred to as "Party," collectively "Parties") hereto agree as follows:

Section 1 – The Contract. The contract between COUNTY and CONTRACTOR, of which this Agreement is part, consists of the Contract Documents. This Agreement approved by the Board of County Commissioners on October 3, 2023 shall be effective on the last signature date set forth below.

Section 2 – The Contract Documents. The Contract Documents are defined as this Agreement, the Specifications, the Drawings, all Purchase Orders, Change Orders and Field Orders issued hereafter, any other amendments hereto executed by the Parties hereafter, together with the following (if any):

Marion County #23Q-173 - AXIS Security Video Surveillance Systems, the Offer, Project Bid Scope and/or Specifications, Plans and Drawings, any/all Addenda as issued in support of this Bid, Recorded Bonds as required, Certificate of Insurance, and Notice to Proceed.

Should any conflict arise between the Contract Documents and the Agreement, the terms of the Agreement shall govern.

Section 3 – Entire Agreement. The Contract Documents form the agreement between Parties for the Project and the CONTRACTOR acknowledges receipt of a copy of each and every Contract Document. The Contract Documents represent the entire and integrated agreement between the Parties and supersede prior negotiations, representations or agreements, either written or oral. This Agreement may be amended or modified only in writing. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than COUNTY and CONTRACTOR.

Section 4 – Term. This Agreement shall commence upon Board approval and shall be valid for a term of three (3) years, through October 31, 2026; there are two (2) one-year renewal options available.

Section 5 – Scope of Services. As per specifications and requirements of project 23Q-173, CONTRACTOR shall perform AXIS security video surveillance system maintenance, repairs, and related work to complete the scope of services advertised under each Task Order (the "Work"); those exceeding the Board's threshold will be separately reviewed by the Board for approval. No project under this Agreement shall require bid, payment, or performance bonds unless specifically noticed in the Task Order. Task Orders will commence only upon the start date listed in the written Notice to Proceed. Emergency work may be assigned at Information Technology's discretion per the scope of the RFQ, and shall be based upon the CONTRACTOR's expertise, or competitive proposal submittal. CONTRACTOR is required to respond to each advertisement when requested, whether by submitted offer or a written response of "no bid". If CONTRACTOR fails to respond to more than three (3) consecutive requests, CONTRACTOR shall be removed from the program, and all subsequent bidding opportunities under this Agreement. CONTRACTOR shall complete Work for individual Task Orders under 23Q-173 AXIS Security Video Surveillance Systems, per the Scope of Work - Exhibit A hereto, Video Surveillance Standards Guidelines - Exhibit B hereto, and Infrastructure Cabling and Wiring Standards Guidelines - Exhibit C hereto.

Section 6 - Compensation. COUNTY shall make payment to CONTRACTOR under COUNTY's established procedure and upon completion of the work described under each Task Order, unless otherwise specified in the Task Order's terms and conditions. COUNTY may assess Liquidated Damages (LD's) for projects that are not completed in accordance with the timeline/schedule proposed in the Task order and/or Purchase Order and/or Notice to Proceed. When LD's are not specifically identified in a Task Order or a Notice to Proceed has not been issued clarifying LD's, COUNTY reserves the right to calculate and assess LD's based on the actual loss to COUNTY. Continual assessment of LD's for projects may be cause for recommendation for termination of contract, as timely performance is a requirement of the RFQ, as is the quality of the Work.

Section 7 – Use of Other Contracts. COUNTY reserves the right to utilize any COUNTY contract, State of Florida contract, city or county governmental agencies, school board, community college/state university system or cooperative bid agreement. COUNTY reserves the right to separately bid any single order or to purchase any item on this Agreement if it is in the best interest of COUNTY.

Section 8 – Assignment. CONTRACTOR may not transfer, assign or subcontract all or any part of this Agreement without written approval by COUNTY.

Section 9 – Laws, Permits, and Regulations. Prior to the performance of any Work hereunder, CONTRACTOR shall obtain and pay for all licenses and permits, as required to perform the Work. CONTRACTOR shall at all times comply with all appropriate laws, regulations, and ordinances applicable to the services provided under this Agreement.

Section 10 – Amendments. This Agreement may only be amended by mutual written agreement of both Parties.

Section 11 – Books and Records. CONTRACTOR shall keep records of all transactions, including documentation accurately reflecting the time expended by CONTRACTOR and its personnel. COUNTY shall have a right to request records from CONTRACTOR, and for those records to be made available within a reasonable timeframe depending on method of acquisition.

Section 12 – Public Records Compliance

A. IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO ITS DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT COUNTY'S CUSTODIAN OF PUBLIC RECORDS AT:

Public Relations | 601 SE 25th Ave, Ocala, FL 34471
Phone: 352-438-2300 | Fax: 352-438-2309
Email: publicrelations@marionfl.org

B. CONTRACTOR shall comply with public records laws, specifically:
- Keep and maintain public records required by COUNTY to perform the Work;
- Upon request from COUNTY's custodian of public records, provide COUNTY with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law;
- Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the Term and following completion of this Agreement if CONTRACTOR does not transfer the records to COUNTY; and,
- Upon completion of this Agreement, transfer, at no cost, to COUNTY, all public records in possession of CONTRACTOR or keep and maintain public records required by COUNTY to perform the Work. If CONTRACTOR transfers all public records to COUNTY upon completion of this Agreement, CONTRACTOR shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If CONTRACTOR keeps and maintains public records upon the completion of this Agreement, CONTRACTOR shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to COUNTY, upon request from COUNTY's custodian of public records, in a format that is compatible with the information technology systems of COUNTY.

C. If CONTRACTOR fails to provide the public records to COUNTY within a reasonable time, CONTRACTOR may be subject to penalties under Section 119.10 Florida Statutes and may be subject to unilateral cancellation of this Agreement by COUNTY. This section shall survive the termination of the Agreement.

Section 13 – Indemnification. CONTRACTOR shall indemnify and hold harmless COUNTY, its officers and employees, from liabilities, damages, and losses, including, but not limited to, property damage, harm or personal injury to third persons, such as death, and costs, including but not limited to reasonable attorneys'

fees, which COUNTY, its officers or employees may sustain, or which may be asserted against COUNTY or its officers, or employees, arising out of the activities contemplated by the Agreement, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of CONTRACTOR and persons employed or utilized by CONTRACTOR in the performance of the Agreement. This Section shall not be construed in any way to alter COUNTY's waiver of sovereign immunity or the limits established in Section 768.28, Florida Statutes. This section shall survive the termination of the Agreement.

Section 14 – Insurance. As applicable, during the period of Work, insurance policies shall be with a company or companies authorized to do business in the State of Florida. COUNTY shall be notified if any policy limit has eroded to one half its annual aggregate. CONTRACTOR shall provide, within the timeframe noted in the Award Letter, a Certificate of Insurance, issued by a company authorized to do business in the State of Florida and with an A.M. Best Company rating of at least A-. Self-Insured companies that cannot be rated, will also be considered. All policies must include all requirements listed below, reference the project number and show Marion County as additional insured. The Certificate should also provide for 30-day cancellation notice to the Procurement Director's address, set forth herein.

WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

Coverage to apply for all employees at STATUTORY Limits in compliance with applicable state and federal laws.

- Employer's Liability limits for not less than $100,000 each accident $500,000 disease policy limit and $100,000 disease each employee must be included.
- The Contractor/Vendor, and its insurance carrier, waives all subrogation rights against Marion County, a political subdivision of the State of Florida, its officials, employees and volunteers for all losses or damages which occur during the contract and for any events occurring during the contract period, whether the suit is brought during the contract period or not.
- The County requires all policies to be endorsed with WC00 03 13 Waiver of our Right to Recover from others or equivalent.

COMMERCIAL GENERAL LIABILITY

Coverage must be afforded under a Commercial General Liability policy with limits not less than

- $1,000,000 each occurrence for Bodily Injury, Property Damage and Personal and Advertising Injury
- $2,000,000 each occurrence for Products and Completed Operations

BUSINESS AUTOMOBILE LIABILITY

Coverage must be afforded including coverage for all Owned vehicles, Hired and Non-Owned vehicles for Bodily Injury and Property Damage of not less than $500,000 combined single limit each accident.

- In the event the Contractor/Vendor does not own vehicles, the Contractor/Vendor shall maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Section 15 – Independent Contractor. In the performance of this Agreement, CONTRACTOR will be acting in the capacity of an "Independent Contractor" and not as an agent, employee, partner, joint venture, or associate of COUNTY. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures utilized by CONTRACTOR in the full performance of this Agreement.

Section 16 – Default/Termination. In the event CONTRACTOR fails to comply with any of the provisions of this Agreement, COUNTY may terminate this Agreement for cause by first notifying CONTRACTOR in writing, specifying the nature of the default and providing CONTRACTOR with a reasonable period of time in which to rectify such default. In the event the default is not cured within the time period given, COUNTY thereafter may terminate this Agreement for cause upon written notice to CONTRACTOR without prejudice to COUNTY. In the event of termination of this Agreement for cause, COUNTY will then be responsible to compensate CONTRACTOR only for those services timely and satisfactorily performed pursuant to this Agreement up to the date of termination. COUNTY may terminate this Agreement without cause providing at least thirty (30) days written notice to CONTRACTOR. In the event of termination of this Agreement without cause, COUNTY will compensate CONTRACTOR for all services timely and satisfactorily performed pursuant to this Agreement up to and including the date of termination. Notwithstanding any other provision of this Agreement, this Agreement may be terminated if for any reason there are not sufficient appropriated and available monies for the purpose of maintaining COUNTY's or other public entity's obligations under this Agreement. Should this occur, COUNTY shall have no further obligation to CONTRACTOR other than to pay for services rendered prior to termination.

Section 17 – Damage to Property. CONTRACTOR shall be responsible for all material, equipment and supplies sold and delivered to COUNTY under this Agreement and until final inspection of the Work and acceptance thereof by COUNTY. In the event any such material, equipment and supplies are lost, stolen, damaged or destroyed, or COUNTY property, buildings, or equipment is damaged during delivery or unloading, or in the course of the WORK prior to final inspection and acceptance, CONTRACTOR shall replace the same or be returned to original state without additional cost to COUNTY, as applicable.

Section 18 – Governing Law. Law, Venue, Waiver of Jury Trial, and Attorney's Fees. This Agreement and all the Contract Documents shall be construed according to the laws of Florida and shall not be construed more strictly against one party than against the other because it may have been drafted by one of the parties. In the event of any legal proceeding arising from or related to this Agreement; (1) venue for state or federal legal proceedings shall be in Marion County, Florida (2) for civil proceedings, the parties consent to trial by the court and waive right to jury trial, (3) the prevailing party shall be entitled to recover all of its costs, including attorney's fees. This section shall survive the termination of the Agreement.

Section 19 – Termination for Loss of Funding/Cancellation for Unappropriated Funds. The obligation of COUNTY for payment to a CONTRACTOR is limited to the availability of funds appropriated in a current fiscal period, and continuation of this Agreement into a subsequent fiscal period is subject to appropriation of funds, unless otherwise authorized by law.

Section 20 – E-Verify, pursuant to Section 448.095, F.S. COUNTY hereby affirms it is duly registered, uses, and adheres to the practices of the E-Verify system, including those outlined in the clauses below.

Beginning January 1, 2021, Section 448.095, F.S., requires CONTRACTOR to register and use the E-Verify system to verify the work authorization status of all newly hired employees and prohibits CONTRACTOR from entering into this Agreement unless it is in compliance therewith. Information provided by CONTRACTOR is subject to review for the most current version of the State or Federal policies at the time of the award of this Agreement.

By previously signing the RFQ Acknowledgment and Addenda Certification Form, and this Agreement, CONTRACTOR has agreed to perform in accordance with the requirements of this subsection and agrees:

a. It is registered and uses the E-Verify system to verify work authorization status of all newly hired employees.
b. COUNTY shall immediately terminate CONTRACTOR if COUNTY has a good faith belief that CONTRACTOR has knowingly violated Section 448.09(1), F.S., that is, that CONTRACTOR knowingly employed, hired, recruited, or referred either for itself or on behalf of another, private or public employment within the State an alien who is not duly authorized to work by the immigration laws or the Attorney General of the United States.
c. If CONTRACTOR enters into a contract with a subcontractor, CONTRACTOR shall obtain from the subcontractor an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien.
d. CONTRACTOR shall maintain a copy of such affidavit for the duration of this Agreement and provide it to COUNTY upon request.
e. CONTRACTOR shall immediately terminate the subcontractor if CONTRACTOR has a good faith belief that the subcontractor has knowingly violated Section 448.09(1), F.S., as set forth above.
f. If COUNTY has a good faith belief that CONTRACTOR's subcontractor has knowingly violated Section 448.095, F.S., but that CONTRACTOR has otherwise complied, COUNTY shall promptly order CONTRACTOR to terminate the subcontractor. CONTRACTOR agrees that upon such an order, CONTRACTOR shall immediately terminate the subcontractor. CONTRACTOR agrees that if it should fail to comply with such an order, COUNTY shall immediately terminate CONTRACTOR.
g. If COUNTY terminates this Agreement with CONTRACTOR, CONTRACTOR may not be awarded a public contract for at least one (1) year after the date of termination.
h. CONTRACTOR is liable for any additional costs incurred by COUNTY as a result of a termination under this subsection.
i. Any such termination under this subsection is not a breach of this Agreement and may not be considered as such.

j. CONTRACTOR shall maintain records of its registration, use, and compliance with the provisions of the E-Verify system, including the registration and use by its subcontractors, and to make such records available to COUNTY or other authorized governmental entity.

k. To comply with the terms of this Employment Eligibility Verification provision is made an express condition of this Agreement and COUNTY may treat a failure to comply as a material breach of this Agreement.

Section 21 – Force Majeure. Neither CONTRACTOR nor COUNTY shall be considered to be in default in the performance of its obligations under this Agreement, except obligations to make payments with respect to amounts already accrued, to the extent that performance of any such obligations is prevented or delayed by any cause, existing or future, which is beyond the reasonable control and not a result of the fault or negligence of, the affected Party (a "Force Majeure Event"). If a Party is prevented or delayed in the performance of any such obligations by a Force Majeure Event, such Party shall immediately provide notice to the other Party of the circumstances preventing or delaying performance and the expected duration thereof. Such notice shall be confirmed in writing as soon as reasonably possible. The Party so affected by a Force Majeure Event shall endeavor, to the extent reasonable, to remove the obstacles which prevent performance and shall resume performance of its obligations as soon as reasonably practicable. A Force Majeure Event shall include, but not be limited to acts of civil or military authority (including courts or regulatory agencies), acts of God, war, riot, or insurrection, inability to obtain required permits or licenses, hurricanes, severe floods, epidemics and pandemics.

Section 22 – Counterparts. Original signatures transmitted and received via facsimile or other electronic transmission of a scanned document, (e.g., PDF or similar format) are true and valid signatures for all purposes hereunder and shall bind the Parties to the same extent as that of an original signature. Any such facsimile or electronic mail transmission shall constitute the final agreement of the Parties and conclusive proof of such agreement. Any such electronic counterpart shall be of sufficient quality to be legible either electronically or when printed as hardcopy. COUNTY shall determine legibility and acceptability for public record purposes. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original and all of which shall constitute the same instrument.

Section 23 - Scrutinized Companies, pursuant to Section 287.135, F.S.

A. Certification.

1. If this Agreement is for One Million Dollars or more, CONTRACTOR certifies that at the time it submitted its bid or proposal for this Agreement or before entering into this Agreement or renewing same, CONTRACTOR was not then and is not now:
   a. On the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, F.S., or
   b. Engaged in business operations in Cuba or Syria.
2. If this Agreement is for any amount, CONTRACTOR certifies that at the time it submitted its bid or proposal for this Agreement or before entering into this Agreement or renewing same, CONTRACTOR was not then and is not now:
   a. On the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, F.S. or
   b. Engaged in a boycott of Israel.

B. Termination, Threshold Amount. COUNTY may, entirely at its option, terminate this Agreement if it is for One Million Dollars and CONTRACTOR meets any of the following criteria.

1. Was entered into or renewed on or after July 1, 2011, through June 30, 2012, and CONTRACTOR is found to meet any of the following prohibitions:
   a. Submitted a false certification as provided under Section 287.135(5), F.S., or
   b. Been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, F.S.
2. Was entered into or renewed on or after July 1, 2012, through September 30, 2016, and CONTRACTOR is found to meet any of the following prohibitions:
   a. Submitted a false certification as provided under Section 287.135(5), F.S.;
   b. Been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, F.S.; or
   c. Been engaged in business operations in Cuba or Syria.
3. Was entered into or renewed on or after October 1, 2016, through June 30, 2018, and CONTRACTOR is found to meet any of the following conditions:
   a. Submitted a false certification as provided under Section 287.135(5), F.S.;

b. Been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, F.S.;
c. Been engaged in business operations in Cuba or Syria; or
d. Been placed on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, F.S. or is engaged in a boycott of Israel.

4. Was entered into or renewed on or after July 1, 2018, and CONTRACTOR is found to meet any of the following prohibitions:
   a. Submitted a false certification as provided under Section 287.135(5), F.S.;
   b. Been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, F.S.; or
   c. Been engaged in business operations in Cuba or Syria.

C. Termination, Any Amount. COUNTY may, entirely at its option, terminate this Agreement if it is for any amount and meets any of the following criteria.
1. Was entered into or renewed on or after July 1, 2018, and
2. CONTRACTOR is found to have been placed on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, F.S. or is engaged in a boycott of Israel.

D. Comply; Inoperative. The Parties agree to comply with Section 287.135, F.S., as it may change from time to time during the Term. The contracting prohibitions in this Section become inoperative on the date that Federal law ceases to authorize the State of Florida to adopt and enforce such contracting prohibitions.

Section 24 – Sovereign Immunity. Nothing in the Agreement shall be deemed to waive the sovereign immunity protections provided COUNTY pursuant to Florida law. Notwithstanding anything stated to the contrary in the Agreement, any obligation of COUNTY to indemnify CONTRACTOR, if provided, is limited and shall not exceed the limits set forth in Section 768.28, Florida Statutes. This Section shall survive the termination of the Agreement.

Section 25 – On-Going Compliance. The Parties acknowledge that the Agreement may contain provisions prescribed by laws, statutes, and regulations that can change during the Term of the Agreement. The Parties understand and agree that the Agreement is intended to reflect and require the Parties' compliance with all laws at all times. The Parties expressly and specifically agree to perform the Agreement in full compliance with the governing laws, statutes, and regulations, as same may change from time to time.

Section 26 – CONTRACTOR Conduct: These Guidelines govern CONTRACTOR while doing work on COUNTY property, as well as its employees, agents, consultants, and others on COUNTY property in connection with CONTRACTOR's work or at CONTRACTOR's express or implied invitation.

- **Courtesy and Respect:** COUNTY is a diverse government institution and it is critical that CONTRACTOR and its employees conduct themselves in a manner that is lawful, courteous, businesslike, and respectful of all staff, guests, or visitors.
- **Language and Behavior:** CONTRACTOR and its employees cannot engage in behavior that is rude, threatening, or offensive. Use of profane or insulting language is prohibited. Harassment of any type, including sexual harassment is strictly prohibited. Abusive, derogatory, obscene or improper language, gestures, remarks, whistling, cat calls or other disrespectful behavior cannot be tolerated. Roughhousing, fighting, fisticuffs, physical threats, destruction of property, vandalism, littering, or physical abuse of anyone on COUNTY property is not permitted under any circumstance.
- **No Weapons, Alcohol, or Drugs**: The use, possession, distribution, or sale of any weapon, alcohol, illegal drug, or controlled dangerous substance by CONTRACTOR or its employees is prohibited. Offenders will be removed from COUNTY property and/or reported to law enforcement.
- **Smoking**: CONTRACTOR and its employees are not permitted to smoke in or near any COUNTY buildings.
- **Fraternization**: CONTRACTOR and its employees may not fraternize or socialize with COUNTY staff.
- **Appearance**: CONTRACTOR and its employees are required to wear appropriate work wear, hard hats and safety footwear, as the case may be, while on the job. Articles of clothing must be neat and tidy in appearance, and cannot display offensive or inappropriate language, symbols or graphics. COUNTY has the right to decide if such clothing is inappropriate.
- **Reporting**: CONTRACTOR is required to report any matter involving a violation of these rules or any matter involving health or safety, including any altercations, to COUNTY's Procurement Services immediately.

CONTRACTOR is responsible for its employees, agents, consultants and guests. If prohibited conduct does occur, CONTRACTOR will take all necessary steps to stop and prevent any future occurrence. Any breach of these conditions will result in the removal of the person responsible from COUNTY property and prohibited actions could result in the immediate termination of any or all of CONTRACTOR's contracts with COUNTY.

Section 27 – Authority to Obligate. Each person signing this Agreement on behalf of either Party individually warrants that he or she has full legal power to execute this Agreement on behalf of the Party for whom he or she is signing, and bind and obligate such Party with respect to all provisions contained in this Agreement.

Section 28 – Notices. Except as otherwise provided herein, all written communication between the parties, including all notices, shall be by electronic mail, U.S. Mail, a courier delivery service, or delivered in person. Notices shall be deemed effective if mailed, when deposited in a United States Postal Service mailbox with postage prepaid and if hand delivered, upon personally handing same to the party to whom the notice of other communication is addressed with signed proof of delivery. If otherwise delivered, notices shall be considered delivered when reflected by an electronic mail read receipt, a courier service delivery receipt, other mail service delivery receipt, or when receipt is acknowledged by recipient. All parties certify that each has software capable of sending electronic mail read receipts to the other. Any party sending notice by electronic mail acknowledges and accepts the inherent risks that come with same. If notice is delivered in multiple ways, notice shall be considered delivered at the earliest delivery time. CONTRACTOR's and COUNTY's representatives and addresses for notice purposes are:

CONTRACTOR: DAB Consulting, Inc.
3977 NW 63rd St, Gainesville, FL 32606
CONTACT PERSON: David Blumberg | 800-695-5370

COUNTY: Marion County Information Technology
c/o Marion County, a political subdivision of the State of Florida
601 SE 25th Ave, Ocala, FL 34471

A copy of all notices to COUNTY hereunder shall also be sent to:

Procurement Services Director
Marion County Procurement Services Department
2631 SE 3rd St., Ocala, FL 34471

Alternatively, the parties may elect to receive said notices by e-mail. COUNTY hereby elects to receive all notices solely by email and designates its email address as procurement@marionfl.org. If CONTRACTOR agrees to accept all notices solely by e-mail and acknowledges and accepts the inherent risks that come with accepting notices solely by e-mail, CONTRACTOR may designate up to two (2) e-mail addresses: david.blumberg@dabconsulting.com and sales@dabconsulting.com. Designation signifies CONTRACTOR's election to accept notices solely by e-mail.

[Signature page to follow]

IN WITNESS WHEREOF the Parties have entered into this Agreement, as approved by the Marion County Board of County Commissioners, on the date of the last signature below.

ATTEST:

10/03/2023

GREGORY C. HARRELL, DATE
MARION COUNTY CLERK OF COURT

FOR USE AND RELIANCE OF MARION COUNTY ONLY, APPROVED AS TO FORM AND LEGAL SUFFICIENCY

For: 11/01/23

MATTHEW G. MINTER, DATE
MARION COUNTY ATTORNEY

MARION COUNTY, A POLITICAL SUB-DIVISION OF THE STATE OF FLORIDA

10/03/2023

CRAIG CURRY, DATE
CHAIRMAN

BCC APPROVED: October 3, 2023
23Q-173 | AXIS Security Video Surveillance Systems

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WITNESS:

SIGNATURE
Melissa Boyer
PRINTED NAME

WITNESS:

SIGNATURE
Jessica L. Jenkin
PRINTED NAME

DAB CONSULTING, INC.

10/12/2023

BY: DATE
David Blumberg
PRINTED:
President
ITS: (TITLE)

SCOPE OF WORK

EXHIBIT A

Background

Marion County Information Technology (MCIT) is standardized to AXIS Communications security surveillance system network cameras and video recorders. This includes associated video management software, peripherals, accessories, professional services, and warranties.

Intent and General Information

This contract is for Gold or Silver level AXIS Communications rated contractors to provide continuing services for installation, maintenance, and repairs of AXIS Communication surveillance system network cameras and surveillance video recorders.

Task Orders

Work under this contract will be performed as a series of tasks. The Task Orders will define the scope, location, limits of the projects and schedule for each work request. The Task Order will provide for unit prices for certain common items and for standard labor and equipment rates to be used for other tasks.

Task Orders will generally cover single sites or similar activities within proximity. A Task Order may include multiple work activities to complete a project. Separate Task Orders shall be used for unrelated projects scattered over a large area. Task Orders under $50,000 may be issued a Purchase Order (PO). Task Orders which exceed $50,000 must be brought before the Board of County Commissioners for approval. Task Orders which exceed $200,000 (by Florida Statute) and any at the Department's request shall be subject to Payment & Performance Bonding at the value of 100% of the value of the job; Firms must be able to provide bonding by an agency, or cashier's check prior to contract execution in these cases. In all cases, the Task Order will have a detailed pricing schedule, reflecting the County's total cost for the project.

Change Orders

Changes in the Work within the scope of the Task Orders, consisting of additions, deletions, revisions, or any combination thereof, may be ordered without invalidating the Task Order Agreement, by Change Order. The Agreement price and the Term may be changed only by Change Order. Changed Work cannot be started until a fully executed Change Order is on file with COUNTY; including but not limited to Change Orders that need approval of COUNTY's Board of County Commissioners.

The Contract will operate as follows:

1) After Contractors are selected, the master Contract specifying general terms of the Contract will be executed by the Contractor and Marion County.

2) The County will define specific tasks to be performed under this Contract and will provide the following information to the Contractor:
   a) Location and description of the project – including drawings, specifications, and other details as required defining the project.
   b) Required schedule.
3) Contractor will respond to the Task Order solicitation with the detailed cost proposal, using the itemized line items for all work and materials and agreement that County timeline is acceptable. Where quantities of one or more of the work items cannot be estimated prior to performing the work, the Task Order will provide for payment of such work items based on the contract prices and the actual quantity of work performed.
4) Upon agreement with the Contractor's proposal, the County will authorize the work in writing through the execution of the Task Oder. This Task Order will specify:
   a) Project location and description.
   b) Authorized payment.
   c) Schedule (begin and end dates)
5) Following notification by the Contractor that the work is complete, the County will inspect to verify that the work has been performed in accordance with the Task Order. This includes Contractor providing a field test report that includes the cable status report (pass/fail) and validation of grounding and distance of each cable installed. MCIT must sign off on this document. If acceptable, the County will authorize payment of the Task Order amount. If issues are found, the Contractor will need to make corrections to items at no additional cost to the County prior to payment being authorized.

Description of Project

This project will provide installation, maintenance, and/or repairs for AXIS Communications security surveillance system network cameras and video recorders. The work shall include review of installation plan, running of cables, mounting of cameras, testing of equipment, and clean-up of all materials form the job site.

Miscellaneous work will be ordered by an issuance of a Task Order at the time services are required. Each Task Order will specify the location or project area for which the task or work is to be completed, anticipated start date an any other details specific to the work.

Quality of Work and Material Requirements

MCIT will hold a kick-off meeting prior to the Notice to Proceed (NTP) and will also perform quality checks at certain points during the project. This will vary per task order (e.g. at 25%, 50%, and 75% or 1/3 and 2/3 of project completion). These quality checks must be scheduled with MCIT five (5) days prior to expected completion of that percentage agreed upon during the kick-off meeting.

All work and materials provided pursuant to this Contract shall satisfy the requirements of the MCIT Video Surveillance Management System Standards and Guidelines and Infrastructure Cabling and Wiring Standards and Guidelines.

Contractors Responsibilities

Contractor shall furnish all labor, equipment, materials, and twelve (12) month Labor Warranty to perform all operations necessary to complete work in strict accordance with these specifications and subject to the terms and conditions of the Contract. These specifications will provide a basis for the furnishing of all materials, equipment, labor, transportation, testing, and other goods and services necessary to service County-maintained security surveillance network cameras and video recorders.

Contractors will be required to comply with all electrical and building codes as well as pull all required permits.

The County may require vendor personnel, including Sub-Contractors, working on-site for Criminal Justice Information Services (CJIS) sensitive locations to have a CJIS level finger print based background check performed through the Marion County Sherriff's Office.

Schedules for some locations may require work after normal business hours and/or weekend work.

Contractors are expected to be able to own and/or lease larger equipment to be able to install or repair complex projects. Equipment includes, but is not limited to forklift(s), scissor lift(s), and bucket truck(s).

Contractors should be able to respond to urgent repair requests within a twenty-four (24) hour period.

The County reserves the right to decline Sub-Contractors.

Marion County Information Technology

Video Surveillance Management System Standards and Guidelines

Prepared By: Network Systems Team

Version 1.0 – May 21, 2023

Version Revision History

Version	Change Description	Date	By
1.0	Final	May 21, 2023	JR

Contact Information

Marion County Information Technology
2630 SE 3rd Street
Ocala, FL 34471
Phone# 352-671-8809
helpdesk@marionfl.org

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Introduction

This document's purpose is to ensure that all video surveillance systems are designed and implemented to a consistent standard within Marion County.

Where these standards cannot be achieved, consultation with Marion County Information Technology (MCIT) is required to be held during the design stage or before the commencement of any installation. Any exceptions to these standards shall be reviewed and formally approved by the MCIT Director or Designee.

This document covers the basic requirements detailing the standards for video surveillance systems infrastructure and implementation. MCIT follows the ANSI, IEC, ISO, IEEE, and TIA guidelines for these specifications.

With this standard, the County shall utilize approved Original Equipment Manufacturer (OEM) components for government facilities to comply with the National Defense Authorization Act (NDAA) Section 889.

MCIT will update this document as functional needs and technologies evolve. Each updated edition includes its effective date on the cover and the current version.

Associations Establishing Technology Standards

ANSI - The American National Standards Institute (ANSI) is a private, non-profit organization that administers and coordinates the U.S. voluntary standards and conformity assessment system.

IEC - The International Electrotechnical Commission (IEC) headquartered in Geneva, Switzerland, is the organization that prepares and publishes international Standards for all electrical, electronic and related technologies.

ISO - International Organization for Standardization is a nongovernmental organization that comprises standards bodies from more than 160 countries, with one standards body representing each member country.

IEEE - Institute of Electrical and Electronics Engineers is an association for electronic engineering and electrical engineering. As a leading developer of industry standards in a broad range of technologies, that drives the functionality, capabilities, safety, and interoperability of services.

NEC - National Electric Code; Electrical standards for USA

TIA - TIA is accredited by the American National Standards Institute (ANSI) as a standards developing organization (SDO).

Definitions

ACS - Axis Camera Station; a video management and access management software especially developed to fit a wide range of installations.

ARTPEC – Axis Real Time Picture Encoder; a series of Application Specific Integrated Circuit (ASIC) chips developed by Axis that allows advanced video processing tasks in real-time with minimal bandwidth usage.

Blanking Panels - Blanking panels are used to fill the empty spaces in a rack and separate the hot and cold zones of air.

Cable Management Devices – A range of devices that are designed to fit in standard 19" racks. It provides a clean, planned, and simple means of organizing from small to large bundles of cables.

Display port – A high-resolution replacement for the original display connections such as VGA (Video Graphics Array) and DVI (Digital Visual Interface).

FOV - Field of View; refers to the range or coverage of area a camera can "see".

FPS - Frames Per-Second; the number of images a camera captures and/or transmits in one second.

GOP - Group of Pictures; a collection of video frames.

HDMI - High-Definition Multimedia Interface is an audio-video interface for transmitting compressed or uncompressed digital video and audio data from display devices.

IP - Internet Protocol; a set of rules governing the format of data sent over the internet or other network.

LAN - Local Area Network; a group of computers and peripheral devices that share a common communications line or wireless link to a server within a distinct geographic area.

KMM - Keyboard-Monitor-Mouse; a rack mount console for local access and monitoring of NVR.

MCIT - Marion County Information Technology.

MMF - Multi-Mode Fiber; a type of optical fiber designed to carry multiple light rays or modes simultaneously inside a glass core.

MP - Megapixel; a unit of measurement in graphic resolution equivalent to 1 million pixels, squares of visual information captured by a digital camera sensor.

Definitions (Continued)

NDI - Network Device Interface enables video-compatible products to communicate, deliver, and receive high-definition audio video over Ethernet.

NEC - National Electric Code; Electrical standards for USA.

NVR - Network Video Recorder; a computer system that records video footage and stores it on a hard disk, a mass storage device, or cloud storage.

OEM - Original Equipment Manufacturer; an organization that makes devices from component parts bought from other organizations.

ONVIF - Open Network Video Interface Forum; an open standard protocol that allows cameras to communicate with each other and with network recording devices.

- **Profile S**: This profile is the most basic ONVIF profile and specifies common functionalities for video streaming and recording. Profile S is suitable for most IP-based video surveillance products and provides support for H.264 and MJPEG video codecs.
- **Profile T**: This profile defines functionalities for advanced video streaming and adds support for H.265 video codec, which provides better compression and reduces network bandwidth usage.
- **Profile M**: This profile specifies functionalities for metadata streaming and analytics. Profile M enables cameras to send additional information about the video stream, such as object detection and tracking, to the VMS (Video Management System).

POE - Power over Ethernet cabling; a technology for implementing wired Ethernet local area networks (LANs) that enables the electrical current necessary for operating each device to be carried by Ethernet data cables instead of standard electrical power cords and wiring.

Rack (cabinet, enclosure) - A frame or enclosure with mounting rails to house AV equipment.

RU - Rack unit which, as defined in IEC 60297-3-100: 1 rack unit = 44.45 mm (1.75 inches) height.

SFP - Small Form-factor Pluggable; transceivers used for transmitting data across fiber optic and/or Ethernet cabling.

SMF - Single-Mode Fiber; a type of optical fiber designed to carry a single mode or light ray inside a glass core.

UPS – Uninterruptible power supply or uninterruptible power source is a conditioned electrical device that provides emergency power to a load when the input power source or mains power fails.

Definitions (Final)

VAPIX – Application programming interface (API) developed by Axis that enables cameras and video encoders to communicate between the device and other software applications.

Video Surveillance Systems - A mechanical, electronic or digital surveillance system or device that enables continuous or periodic video recording, observing, or monitoring of individuals, assets and/or property.

Video Surveillance System Standards Implementation

Axis Communications network video recorders (NVR) and surveillance cameras are Marion County Information Technology's manufacturer to work in conjunction with the Axis Camera Station applications analytics. The following search and/or recognition features shall be compatible with Axis Camera Station and Axis cameras: object classifications/detections, motion, license plate capture, time in area functionality, vehicle recognition, primary color recognition, facial recognition, security alerts and IR. Cameras at each site shall connect to the video surveillance network using an all-in-one NVR capable of being managed by Axis Camera Station, network switches, power-over-Ethernet (PoE) injectors for camera power supply, and/or storage servers for data retention and public records requirements.

Other specification requirements include:

- ARTPEC-7/8 SoC (system-on-chip) or later
- ACS/CMS Smart Search compatibility
- Axis Zipstream compatibility
- Axis VAPIX compatibility

If for any logistical reason, Axis Communications network video recorders and surveillance cameras are unavailable, ONVIF profile **S**, T, and **M** compatible devices may be used **ONLY** if tested and confirmed functionality by MCIT. NVRs and surveillance cameras **MUST** be compatible with Axis Camera Station.

With continuing technology advancements, cameras today have the ability to be provide multiple fields-of-view (FOV) and higher video resolution, with a single camera accounting for multiple camera angles. Reducing the number of cameras needing procurement, installation, and maintenance significantly while improving overall coverage.

MCIT shall provide the design, configuration, and revision of any new systems that a County department may request with the use of the AXIS Site Designer tool.

The AXIS Site Designer tool shall be used to configure and determine the following, but not limited to, necessary requirements:

Projected bandwidth use and reports;

Recording schedules and scenarios;

System proposals including the switch port count, storage server capacity, and power supply budget requirements to meet minimum capacity requirements;

List of installation materials including network switches, storage servers, power supplies, mounting hardware and accessories;

Site maps, and layout of camera locations with floor plans;

Providing proposed fields-of-view (FOV) and camera scenarios with the ability to make comparable revisions;

Ability to see estimated pixel density of footages at a proposed distance in relation to target height and installation height of proposed camera, providing a more accurate representation of the overall design.

NVR Requirements

All-in-one NVR and/or network switch models shall be sized to provide the following minimum standards of:

20% future growth in device licenses;

20% future growth in switch port capacity;

20% future growth in PoE power supply budget.

Video Storage Requirements

Required storage capacity shall be for a minimum of 30 days video retention to comply with state law with an extra 20% storage capacity in future growth to be allotted for.

Recording scenarios are to be configured with zip-streaming dynamic group-of-pictures (GOP) & dynamic frames-per-second (FPS) minimum 5 and maximum 15 FPS to lower bandwidth and storage requirements.

Audio recording shall be disabled to comply with Florida State Statute Chapter 934;

System Infrastructure

Vendor shall provide a "turn-key" solution when installing new or upgrading existing surveillance system infrastructure. Preferred infrastructure hardware manufacturers include are standardized to AXIS Communications with approvals for APC, Cisco Systems Inc., Commscope, Corning Inc., Dell Inc., Ditek, Hubble Inc., Juniper Networks, StarTech, & Tripp Lite when logistics require. Vendor shall pull necessary permit for low-voltage installation.

MCIT requests the listed quantities of cameras be detailed by location and model of camera:

(#) of interior building cameras with model (#) shall have map locations with proposed field-of-views. (e.g., single-channel, multi-channel, panoramic, 360°, or point-tilt-zoom).

(#) of building exterior mounted and/or outdoor cameras with model (#) shall have map locations with proposed FOV.

Cameras exposed to weather elements shall have a minimum IP rating of IP66 or a NEMA rating of at least 4.

Cameras with a proposed FOV farther than 50ft shall have a minimum standard of 4K resolution or 8MP.

2-Post Racks & 4-Post Equipment Cabinets

Video surveillance system equipment are typically mounted in a standard 19-inch-wide 42RU height enclosed rack. Racks must be provided with a minimum clearance of three (3) feet on the sides and three (3) feet in the front and rear, unless wall mounted. Cabinets shall have display port or HDMI compatible 19-inch rack mount KVM console for local management of NVR. All equipment, where possible, will have rack ears for mounting. If equipment is not suitable for rack mounting a minimum of a 1RU cantilevered shelf will be provided to appropriately support each piece of equipment. In addition, all front-facing open areas will be covered with blank plates for proper airflow.

Rack design must allow for only a maximum of 80% fill to accommodate future growth.

A minimum of one AC rack-mounted power conditioner (UPS) that meets MCIT approval with power overload switches will be installed at the bottom of each rack. All UPS conditioners will have no more than 80% of the load in the design so that a 20A unit will have a maximum 16A load. The power load calculations will be derived from the face plate of the equipment and will be incorporated into the project's HVAC designs for the BTU calculations for each rack assembly to prevent unacceptable temperatures.

Where equipment is installed in 4-post cabinetry, front and rear access, in the form of a lockable door is to be provided. All cabinets and racks will be keyed alike and at least 2 keys will be provided to MCIT.

All entry points (Power and AV cabling) will be through the bottom or top of the rack.

All cabling inside the rack will be harnessed with velcro cable management. Zip ties shall not be used on any category or fiber cabling.

Wall Mount Enclosures

If new video surveillance system or replacement of existing system is installed in or near a standard 19-inch-wide wall mount enclosure, the system shall be located in the immediate vicinity of MCIT network equipment.

Larger enclosures can be either floor or wall mounted. They must be installed as per the manufacturers' specifications and should be of a high-quality professional-grade mount. The mount should be capable of having rear access with the door swinging away from the wall and able to house compatible 19-inch rack mount KMM console for local management of NVR.

The wall mount for enclosures will be backed with a minimum of 3/4-inch plywood using lag screws into wood or metal studs, and lag shield anchors when into solid concrete.

Wall mount enclosures shall be lockable, have rack mountable cooling kits to mitigate heat output of

equipment, able to house 19-inch rack mount KMM console for local management, and shall be sized with minimum standard of 50% room for future growth.

Some locations where the surveillance systems infrastructure equipment is to be installed may not have a controlled environment, may be exposed to vandalism and/or harsh weather elements, thus decreasing equipment lifespan.

In these scenarios, the vendor shall provide/install enclosures with a minimum IP rating of IP66 or a NEMA rating of at least 4.

Enclosures for housing surveillance system equipment shall have cooling kits to mitigate high temperatures.

Final product selection and mounting position will be determined during the design consultation process with MCIT.

End User Equipment

All PC-based end user equipment will be individually specified for each space by MCIT during the design process. Typically, these are units purchased by the department using the device.

From time-to-time dedicated hardware may be required in secure areas that provide monitoring services, this equipment shall be individually specified for each space by MCIT during the design process and have the client application for monitoring video surveillance installed.

Lighting

Due to low-light scenarios such as remote campus areas, parking lots, or construction sites, some areas within a FOV may require lighting to be installed for nighttime scenarios. Where areas cannot be illuminated, surveillance cameras shall be capable of optimized image processing in 1 lux low-light scenarios.

Power Surge Protection

All video surveillance equipment must be protected from electrical surges. Surge protection must be provided in at least one of the methods listed below.

- Surge protection at the main distribution frame.
- Surge protection at the intermediate distribution frame.
- Surge protection at the end device camera.

Vendor shall install MCIT approved Ethernet surge protection between NVR and end device to mitigate surge ingress from end device. (e.g., APC model #PRM24 and PNETR6).

This shall be bonded to the nearest grounding busbar properly to be in compliance with TIA-607-C Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.

Removal of Cameras

If pre-existing cameras are not being used with a new surveillance system or being replaced, and their mounted locations are not to be reused hence nullifying the exterior box or mount, then proper steps shall be taken to seal or close the mounting box/housing after removal of the obsolete camera. For the intent to protect the inside from weather elements and possible future reuse.

All replaced NVR systems and surveillance cameras shall be returned to MCIT for decommissioning and disposal.

All abandoned Ethernet cabling shall be removed to be in compliance with NEC Article 800.25 "Abandoned Communications Cable"

All removed cabling shall be disposed of by the vendor.

Cabling Pathways

All cabling must adhere to the Federal, State, and local codes for low-voltage installation. If the code requires an armored or plenum-rated cable, the same specification as the original cable specified will be used with the proper requirement outer material.

All transitions from one area to another that goes through walls shall follow the fire and local codes. The transition shall consist of two-inch (or greater) pipes or a box that is 4 by 12 (4x12) inches, with an initial fill ratio no greater than 40%.

The vendor will be responsible for verifying the cable installation requirements before purchasing the cables.

All cables shall use Velcro straps to secure the cabling as a general practice. All work must be neat and secure while using designated cable paths.

All cable paths are for category cabling or fiber cabling only, no high-voltage electrical (greater than 25v) can be in parallel less than five (5) feet away from the low voltage. If high-voltage electrical is less than five (5) feet away, it must be enclosed in a conduit. A high voltage path may cross perpendicularly or at 90° with a conduit.

Cabling terminating at the end device camera shall have a minimum standard of a three (3) foot service loop. Cabling terminating at the main or intermediate distribution frame shall have a minimum standard of fifteen (15) foot service loop.

Any cable paths must be supported off the ceiling and floors. This can be achieved by using U-tray, J-tray, or any device that holds no less than twenty cables. If the cable supports have any gaps, they can be no

larger than two (2) feet.

All main cable paths will need to be accessible at the start, intersections, and end with multiple access points along the paths and branches. The access points should be no more than ten (10) feet apart for access. Any exception on the cable paths must be reviewed and approved by MCIT.

Transition to/from the ceiling to the floor will use the Water Fall specifications. The path consists of two (2), 6-inch (or greater) pipes or a box that is 4 by 12 inches at all locations. One pull string per pipe is to be installed at the time of the installation of the piping.

Exterior cabling shall be installed utilizing solid or flex PVC conduit to protect cabling from vandalism and/or mitigate harsh weather elements. Vendor shall present scenarios to MCIT if there arises inability to perform this work.

Abandoned Ethernet cabling shall be removed and disposed of in compliance with NEC 800.25.

Cable management on 2-post racks or 4-post cabinets shall be used. For example: horizontal and/or vertical cable management trays to secure, bundle and route the cables. All existing cable management covers must be returned to original closed positions.

Yellow patch cabling shall be used for denoting surveillance cameras.

Vendor installing cabling shall certify each new cable and provide test results to MCIT prior to project being signed off as complete.

Cabling Labeling

Patch cables are to be "flag" labeled with near-end switch port #, far-end camera location as description, along with length of horizontal cabling to end device in the following format: PORT_#_DIRECTION_LOCATION_DISTANCE

Example given: PORT_1_NE_EXTERIOR_150FT

A spreadsheet will be created with the test results of the on-site made cables. All cables need to meet or exceed the manufacturer specification for the type of installation of that cable.

Cabling Specifications

The following cable Specifications are to be used as the minimum cabling requirement. Substitutes or any non-specified cable types must be approved in writing by the MCIT before purchasing.

Ethernet Cabling

As a minimum standard, F/UTP CAT6A 23AWG solid copper Ethernet cabling shall be used for horizontal pathways up to 100m in length to far-end device cameras.

Ethernet cabling shall have service loops of fifteen (15) feet to twenty-five (25) feet at both ends of cabling, contingent upon project needs for different scenarios (e.g., camera relocation). In compliance with ANSI/TIA-568-D, horizontal cabling shall not exceed maximum distance of 100m (328ft). This shall include service loops to compensate for longer patch cabling at the main distribution frame (MDF), intermediate distribution frame (IDF), or at the far-end device.

Due to distance and power-over-Ethernet (PoE) requirements, some cameras may require PoE mid-span injectors.

For distances longer than 100m and up to 250m (859 feet), MCIT shall approve the use of F/UTP shielded "Game Changer" CAT6 cabling by Paige Datacom Solutions for PoE pathway to far-end device.

Fiber Optic Cabling

Multimode OM4 fiber optic cabling (MMF) 50µm/125µm shall be used for distances over 100m (328 feet) and up to 800m (2625 feet).
Single-mode OS2 fiber optic cabling (SMF) 9µm/125µm shall be used for distances over 800m (2625 feet).

Small form-factor pluggable (SFP) transceivers of Cisco Systems Inc. manufacturer shall be used for all fiber optic infrastructure connections. SFP shall utilize network switch ports or fiber-to-copper media converters to connect fiber pathway to far-end devices or an IDF.

Documentation

Upon completion, documentation must be provided by the vendor to MCIT. It must contain two hard copies and a single USB digital copy of:

All equipment manuals, software, license keys, and warranty details.

'As Built' system drawings.

A complete list of equipment with the location. The list will include the manufacturer, model,

description, serial number, passwords, MAC address, and IP address.

All configuration and program files of the equipment.

Inspection and Testing

Upon completion of the work, the vendor must perform a full system test of all supplied equipment, operating functions, and connectivity. On-site sign-off will be with MCIT and a punch list will be made if any issues arise. This shall be performed to confirm camera physical locations and camera field-of-views. This shall happen pre-construction and post to ensure requested FOVs are provided.

Quality Control

Vendor shall clean up any debris or trash created in the process of installing the cabling and equipment, as well as removing abandoned cabling and equipment.

MCIT will perform a quality control (QC) inspection with vendor post-installation of system. Any QC items out of specification shall be addressed and/or remedied by the vendor to meet MCIT requirements before signing off on project.

Operational Training

The vendor must provide training to the MCIT and the end-user on the installed system. This training session is to take place at the final handover stage of the project. The duration of training will vary depending on the size of the project.

Warranty, Service Support

The integrator, for the period of twelve (12) months from the date of delivery of services guarantees all parts and equipment, manufactured, or supplied, against all defects which are due to defective materials, faulty design, poor workmanship, or defective equipment.

Marion County Information Technology

Infrastructure Cabling and Wiring Standards and Guidelines

Prepared By: Network Systems Team

Version 1.0 – June 2, 2023

Version Revision History

Version	Change Description	Date	By
1.0	Final	June 2, 2023	CY

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Contents

Introduction

This document's purpose is to ensure that all wired and wireless network infrastructures are designed and implemented to a consistent standard within Marion County.

These guidelines will be used as the cabling standards for renovations and new construction projects to promote consistency throughout County premises. Where these standards cannot be achieved, consultation with Marion County Information Technology (MCIT) is required to be held during the design stage or before the commencement of any construction. Any exceptions to these standards shall be reviewed and formally approved by the MCIT Director or Designee.

This document covers the basic physical requirements detailing the standards for wired and wireless infrastructure implementation. MCIT follows the ANSI, IEC, ISO, IEEE, and TIA guidelines for this Cabling & Wiring Standards specifications.

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Definitions

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IP - Internet Protocol; a set of rules governing the format of data sent over the internet or other network.

LAN - Local Area Network; a group of computers and peripheral devices that share a common communications line or wireless link to a server within a distinct geographic area.

LIU – Light Interface Unit; an optical fiber interconnecting unit used for routing, terminating, and managing fiber optic cable terminations.

KMM Keyboard-Monitor-Mouse; a rack mount console for local access and monitoring of NVR.

MCIT - Marion County Information Technology.

MMF - Multi-Mode Fiber; a type of optical fiber designed to carry multiple light rays or modes simultaneously inside a glass core.

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Video Surveillance Systems - A mechanical, electronic or digital surveillance system or device that enables continuous or periodic video recording, observing or monitoring of individuals, assets and/or property.

General Guidelines

Specification of Criteria

This document conforms to Electronic Industries Association, IEC 60050 standards for language used to identify criteria. Two categories of criteria are specified - mandatory and advisory. Mandatory requirements designated by the word "shall". Advisory requirements designated by the words "should", "may" or "desirable", and used interchangeably in this Standard.

Mandatory criteria generally apply to protection, performance, administration and compatibility. They specify the absolute minimum acceptable requirements. Conformance with the additional Advisory criteria of this Standard will typically enhance the performance and usability of the cabling infrastructure.

The definitions of terms, acronyms or abbreviations used within this document derived from the ANSI/TIA/EIA-606-A: Standard for Telecommunications Infrastructure.

Major Renovation and New Construction

The architectural engineer for major renovation and new construction projects shall work very closely with Marion County Facilities Management and Information Technology departments, during the initial (schematic, preliminary) planning stages. These departments are key stakeholders in helping ensure requirements are understood, that applicable codes and standards are conformed to in the design phase, and the resulting project is sustainable over the course of its planned lifecycle. Close coordination between the architectural engineer and these departments is essential to protect the investments the County has made in infrastructure and to minimize ongoing operating support costs associated with the project. Ensuring requirements are clear and standards incorporated in the design phase significantly reduces the risk of costly revisions later.

Minor Renovation and New Construction

Information Technology staff shall be consulted during the planning stages of any building construction or building renovation to identify the impact of new uses or requirements on current telecommunications distribution frames, and assess changes required to accommodate the modified use of the building space.

Telecommunications Room Planning

Spaces for interconnecting the building premise cabling with the outside provider cabling must be a separate room, not shared with other utility services, particularly electrical services that can potentially cause issues with interference to communication transmissions. When possible, this room will not be adjacent to the electrical distribution room.

Project Timeline and Coordination

To ensure buildings network infrastructure is consistent with standards, MCIT should be included during the design, bid, and construction phases of projects with Information Technology components.

Relevant Codes and Standards

MCIT recognizes and implements national codes and standards as a means to provide for and administer the critical infrastructure necessary for daily information technology use. Contracted personnel hired to develop designs, perform renovations, construction, or any actions that impact telecommunications and network infrastructure shall be required to adhere to the codes and standards listed in this section.

This section intends to raise awareness of codes and standards and to provide additional guidance on their implementation at Marion County. It does not replace any code, either partially or wholly. In all cases, work performed shall met or exceed the following installation, documentation, component and system industry specifications in order to satisfy Marion County Information Technology standard:

TIA-568.0-D (2017) and amendments
Generic Telecommunications Cabling for Customer Premises
TIA-568.1-D (2017) and amendments
Commercial Building Telecommunications Cabling Standard
TIA-568.2-D (2017) and amendments
Balanced Twisted-Pair Telecommunications Cabling and Components Standard
TIA-568.3-D (2017) and amendments
Optical Fiber Cabling Components
TIA-569-E (2019) and amendments
Telecommunications Pathways and Spaces
TIA-606-C (2012) and amendments
Administration Standard for Telecommunications Infrastructure
TIA-607-C (2015) and amendments
Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
ANSI/NEMA WC 66/ICEA S-116-732-2013 and amendments
Standard for Category 6 and 6A, 100 Ohm, Individually Unshielded Twisted Pairs, Indoor Cables (With or Without an Overall Shield) For Use In LAN Communication Wiring Systems
ANSI/TIA/EIA-526-7
"Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant"
ANSI/TIA/EIA-526-14A
"Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant"
ANSI/BICSI 002-2019
"Data Center Design and Implementation Best Practices" Manual
BICSI TDMM
"Telecommunications Distribution Methods Manual, 14th Edition"
CENELEC EN 50173:2018 and amendments
"Information Technology – Generic Cabling Systems"
IEC/TR3 61000-5-2 – Ed. 1.0 and amendments
"Electromagnetic compatibility (EMC) – Part 5: Installation and mitigation guidelines – Section 2: Earthing and cabling"
ISO/IEC 11801:2002 Ed 2.0 and amendments
"Information technology – Generic cabling for customer premises"
NEC Article 300.21
"Spread of Fire or Products of Combustion"

Relevant Codes and Standards (Continued)

NEC Article 725
"Class 2 or Class 3 wire types"
NEC Article 725.25
"Abandoned Class 2, Class 3, and PLTC Cables"
NEC Article 770
"Optical Fiber Cables and Raceways"
NEC Article 800
"Communications Circuits"
NEC Article 800.25
"Abandoned Communications Cable"
NEC Article 820
"Coaxial"
NFPA70 National Electric Code – Article 645 and Article 800 2.2.15. NFPA 70E
"Standard for Electrical Safety in the Workplace, 2017 Edition" 2.2.16.
NFPA 75
"Standard for the Protection of Information Technology Equipment, 2017 Ed."
NFPA 76
"Standard for the Fire Protection of Telecommunications Facilities, 2016 Edition"

Professional Workmanship

The list of codes and standards have specific applications to the planning, design, development, and maintenance of Marion County's infrastructure. It is not all-inclusive. Personnel acting in any professional capacity have a responsibility to comply with and perform their work in accordance with all applicable national, state, and local codes governing their profession.

Standards precedence and conflict resolution

The latest edition of these referenced standards shall be the controlling document. In the case of proposed standards, the latest available draft shall be the controlling document. Where the standards appear to conflict with one another, the one with the most stringent requirements shall be applicable.

There is latitude within the standards to expand or vary implementation by applying criteria that are more stringent and/or to specify organizational guidance on how these standards shall be applied and administered. The remaining sections of this document provide information on how these standards shall be followed at Marion County.

General Planning Guidance for Work Area Infrastructure

This section contains infrastructure guidelines for the work areas typically found at Marion County Facilities. These are the minimum initial planning requirements to design and build the appropriate infrastructure to support the foreseeable use of the intended facility. For each type of work area listed in this section, the end user shall consult with MCIT to help determine the specific configuration necessary to meet work area requirements.

The recommended location for Ethernet outlets is as follows:

- Mid-point of walls without windows or doors, but not more than 4m from the next adjacent outlet if high density outlets are deemed necessary; Ethernet outlet shall be installed at same height as nearby power outlets above finished floor, and on opposite side of studs from adjacent power outlet.
- Mid-point of the wall-area of walls with doors and windows, but not more than 4m from the next adjacent outlet if high density outlets are deemed necessary; Ethernet outlet shall be installed at same height as nearby power outlets above finished floor, and on opposite side of studs from adjacent power outlet.

Offices, Rooms, and Cubicles

Rooms may be designed to be subdivided, by adding or removing walls, and often are in future renovations to maximize space. Design specifications and communication outlet locations may be increased to accommodate this use. In anticipation of room adjustments, a 25' service loop shall be left in cabling runs above ceiling space with conduit chases at opposing walls terminating at a single-gang box for future cable drops or relocations of existing wiring.

Conference Rooms

Conference rooms will have a minimum of one communication outlet designated for Wireless Access Points on the ceiling within 25 feet of the center of the room, this outlet may be outside of the room. With varying design specifications and depending on the room size, if necessary, communication outlet locations shall be minimum of one gang box location per wall to accommodate design. At minimum, 50% of these locations shall be wired with 25-foot service loops left in cabling runs. Each gang box location to have conduit chases for future cabling pulls or relocations of installed cabling.

Conference room tables: If floor boxes are not existing or proposed to be installed, conductor ribbon tape could be utilized under the carpet as it can accommodate furniture moves.

High Density Rooms

For high-density hardwired device locations: Install minimum of four (4) Ethernet ports. In addition to the room types above, High Density Rooms can be identified by using higher numbers of hardwired network-connected devices (e.g. computers and appliances).

HVAC, Electrical and/or Mechanical Rooms

As IoT devices are becoming more common with Building Access Control systems, if required by Marion County Facilities Management, a minimum of two (2) drops (one (1) spare) to be installed in necessary locations.

Infrastructure Planning

Telecommunications rooms and cabling facilities (conduit, cable trays, raceways, equipment cabinets/racks, etc.) are required for connecting work areas with the building communications equipment and cross-connect rooms. Previously, cross-connects were referred to as main distribution frames (MDFs)

and/or intermediate distribution frames (IDFs). This document will use the term main distribution area (MDA) and/or intermediate distribution area (IDA) to represent either the main or intermediate cross-connect.

MDA, IDA, and/or entrance rooms (ER) for access provider equipment shall have cooling requirement analysis performed for proper air flow using a hot and cold aisle design. Due to pre-existing structural layout or physical network design, switching equipment for harsh environment and higher temperatures should be utilized. Rack cooling air flow may be necessary for smaller footprint locations with slat doors and/or vent fan in ceiling for egress.

Telecommunications entrance rooms for service providers may be adjacent to or combined with the MDA. Fire rated plywood shall be utilized in all ER, MDA, or IDA for installation of all wall mounted network equipment.

Wall mount enclosures requirements shall be lockable with key sets provided to MCIT; have rack mountable cooling kits to mitigate heat output of equipment; able to house 19" rack mount KMM console for local management; and shall be sized with minimum standard of 50% rack units available for future growth.
Some installations or renovations may require equipment installed in harsh or outdoor environments, these may be exposed to vandalism and/or harsh weather elements, thus decreasing equipment lifespan.

> In these scenarios, the vendor shall provide/install enclosures with a minimum IP rating of IP66 or a NEMA rating of at least 4.
>
> Enclosures for housing network equipment in these scenarios shall have cooling kits to mitigate high temperatures.

Final product selection and mounting location will be determined during the design consultation process with MCIT.

Main Distribution Area (MDA)

MDA or main cross-connect (MC) shall have backbone cabling pathways to the ER, IDA, or horizontal distribution areas (HDA) by either extending the cable tray, providing J-hook style hanging supports, ladder rack runway, or through conduit access. The MDA or network closet housing the MDA shall provide sufficient space for infrastructure equipment, desirably a minimum footprint of 15 ft. x 15 ft. A minimum of 3 feet of front and back clearance shall be provided for installation of equipment. If project is for retrofit building and has existing space limitations, Information Technology will negotiate design modifications with Facilities.

MDA and IDA network closets shall have appropriate air intake filtration and removal to comply with ANSI/TIA/EIA standards.

Electrical Requirements

Server rooms shall have sub panel sized for maximum load. IDA or MDA area to have their own sub panel with room for fifty percent (50%) growth.

Although the electrical load is usually minimal (most devices draw less than 1 amp), devices connected to communications outlets can sometimes use power provided by telecommunications equipment called PoE (Power over Ethernet). These typically draw twelve (12) to ninety (90) watts each. Other devices require separate electrical service: computers, copiers, printers, monitors, etc. Each communication outlet should be in proximity to a duplex electric outlet to accommodate the need to plug in the electronic equipment using the communication outlet.

Power Surge Protection

All equipment must be protected from electrical surges. Surge protection must be provided in at least one of the methods listed below.

Surge protection at the main distribution frame

Surge protection at the intermediate distribution frame

Surge protection at the end device

Vendor shall install MCIT approved Ethernet surge protection to mitigate surge ingress from other sources.

This shall be bonded to the nearest grounding busbar properly to be in compliance with TIA-607-C Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.

Backbone Cabling Requirements

Backbone cabling shall meet all requirements specified in ANSI/TIA/EIA-568-C.2 and ANSI/TIA/EIA-568-C.3. Originating from the MDA and distributed to each co IDA on each floor in the building, preferably using a star topology. Utilizing CAT6A copper twisted pair, single mode fiber (SMF), and/or multimode fiber (MMF), whichever deemed necessary by IT.

Riser cabling from the MDA telecom closet to and between each of a multi-floor building shall be minimum six strands (6) SMF or MMF with fire retardant jacket. Fiber optic cable shall have at least 50 feet of additional cable (slack) on each end upon entering the cross-connect room.

Fiber Optic Cabling

Multimode OM4 fiber optic cabling (MMF) 50µm/125µm shall be used for distances over 100m (328 feet) and up to 800m (262 feet).

Single-mode OS2 fiber optic cabling (SMF) 9µm/125µm shall be used for distances over 800m (262 feet).

Small form-factor pluggable (SFP) transceivers of Cisco Systems Inc. manufacturer shall be used for all fiber optic infrastructure connections. SFP shall utilize network switch ports or fiber-to-copper media converters to connect fiber pathway to far-end devices or an IDF.

Fiber Optic Termination

The type of termination used for all fiber optic cabling shall be LC type connections and conform to requirements of the specified fiber manufacturer. Application of connector shall be determined by

consulting with MCIT staff and providing details of its intended use.

Fiber Optic Connectors

Each LC Fiber Connector shall be a pre-polished fiber connector with a fiber stub.

Be available in single mode and multimode versions. Have a domed zirconia ferrule. Be a PC polish type connector. Accept a nominal fiber diameter of 125 micrometers. Have a typical insertion loss of 0.25 dB for multimode and 0.05 dB for single mode. Capable of reusable termination. Have an insertion loss change of less than 0.2 dB after 500 reconnects. Be stable over an operating range of -40°C to +75°C.

Hot and Cold Aisles

Cabinets and racks shall be arranged in an alternating pattern, with the front of cabinets or 2-post racks facing each other in a row to create "hot" and "cold" aisles. Cold aisles shall be in front of racks and cabinets while hot aisles shall be behind racks and cabinets.

Intermediate Distribution Area (IDA)

IDA locations need to have analysis of space requirements for rack equipment and physical access for maintenance. If project is for retrofit building and has existing space limitations, MCIT will negotiate design modifications with Facilities. A minimum of 3 feet of front and back clearance shall be provided for installation or servicing of equipment.

2-Post Racks & 4-Post Equipment Cabinets

Video surveillance system equipment are typically mounted in a standard 19-inch-wide 42RU height enclosed rack. Racks must be provided with a minimum clearance of three (3) feet on the sides and three (3) feet in the front and rear, unless wall mounted. Cabinets shall have display port or HDMI compatible 19-inch rack mount KVM console for local management of NVR. All equipment, where possible, will have rack ears for mounting. If equipment is not suitable for rack mounting a minimum of a 1RU cantilevered shelf will be provided to appropriately support each piece of equipment. In addition, all front-facing open areas will be covered with blank plates for proper airflow.

Rack design must allow for only a maximum of 80% fill to accommodate future growth.

A minimum of one AC rack-mounted power conditioner (UPS) that meets MCIT approval with power overload switches will be installed at the bottom of each rack. All UPS conditioners will have no more than 80% of the load in the design so that a 20A unit will have a maximum 16A load. The power load calculations will be derived from the face plate of the equipment and will be incorporated into the project's HVAC designs for the BTU calculations for each rack assembly to prevent unacceptable temperatures.

Where equipment is installed in 4-post cabinetry, front and rear access, in the form of a lockable door is to be provided. All cabinets and racks will be keyed alike and at least 2 keys will be provided to MCIT.

All entry points (Power and AV cabling) will be through the bottom or top of the rack.

All cabling inside the rack will be harnessed with velcro cable management. Zip ties shall not be used on any category or fiber cabling.

Wall Mount Enclosures

Enclosures can be either floor or wall mounted. They must be installed as per the manufacturers' specifications and should be of a high-quality professional-grade mount. The mount should be capable of having rear access with the door swinging away from the wall and able to house compatible 19-inch rack mount KMM console for local management.

The wall mount for enclosures will be backed with a minimum of 3/4-inch plywood using lag screws into wood or metal studs, and lag shield anchors when into solid concrete.

Wall mount enclosures shall be lockable, have rack mountable cooling kits to mitigate heat output of equipment, able to house 19-inch rack mount KMM console for local management, and shall be sized with minimum standard of 50% room for future growth.

Some locations where the infrastructure equipment is to be installed may not have a controlled environment, may be exposed to vandalism and/or harsh weather elements, thus decreasing equipment lifespan.

In these scenarios, the vendor shall provide/install enclosures with a minimum IP rating of IP66 or a NEMA rating of at least 4.

Enclosures for housing infrastructure equipment shall have cooling kits to mitigate high temperatures.

Final product selection and mounting position will be determined during the design consultation process with MCIT.

Outside Plant Vaults and Pathways

All new building construction planning must include a cable path into existing vaults or manholes, or new vault/duct systems included as part of the new construction. The size of the cable path to be based on the requirements of the facility. This path shall be used exclusively for data, voice, low voltage control/alarms, and video cables. In accordance with BICSI Data Center Design 14.5.1.1: The upper surface of the underground cable pathways shall be no less than 600 mm (24 in) below the surface; The entrance pathways shall maintain appropriate pathway separation from electrical and mechanical underground piping systems.

Conduit Specifications

Conduits to communication outlets are to be a minimum of 3/4 inch. A dedicated conduit will serve each outlet box. Any conduit paths used to pull cabling that are longer than 100 ft., shall have a pull box, and shall have no more than two 90-degree bends. Pull boxes, if needed, must be accessible. Do not place pull boxes above fixed ceilings, HVAC ducts or piping. All conduits requiring pull boxes shall have a spare pull string in case of future necessity.

Firestop

A firestop system is comprised of the item or items penetrating the fire rated structure, the opening in the structure and the materials and assembly of the materials used to seal the penetrated structure. Firestop

systems comprise an effective block for fire, smoke, heat, vapor and pressurized water stream. Fire stops shall be installed in ceilings, walls, floors, or partitions when penetrating fire rated structures per NEC article 300.21.

All penetrations through fire-rated building structures (walls and floors) shall be sealed with an appropriate firestop system. This requirement applies to through penetrations (complete penetration) and membrane penetrations (through one side of a hollow fire rated structure). Any penetrating item i.e., riser slots and sleeves, cables, conduit, cable tray, and raceways, etc. shall be properly fire-stopped.

Firestop systems shall be UL Classified to ASTM E814 (UL 1479) and shall be approved by a qualified Building Inspector. Proposed systems including the UL Drawings shall be including in the submittals prior to installing the firestop systems.

Firestop device systems must have ratings up to 4 hours for fire rated walls and up to 3 hours for fire rated floors. Firestop putty must be remain soft and moldable for the duration of the installation. Only re-enterable materials shall be used.

Pull Strings

The electrical contractor will provide a pull string in all empty conduits and conduits with room for expansion.

Horizontal Cabling

Also known as station or premise wiring. TIA/EIA Category 6A (CAT6A) plenum or non-plenum shall be used for all new or replacement horizontal wiring in Marion County Facilities. Cabling shall be minimum 23 AWG, 4 Pair, Unshielded or Shielded (contingent upon Scope of Work), with Solid Bare Copper Conductor.

Ethernet cabling shall have service loops of fifteen (15) feet to twenty-five (25) feet at both ends of cabling, contingent upon project needs for different scenarios (e.g., cable relocation or cubicle farms). In compliance with ANSI/TIA-568-D, horizontal cabling shall not exceed maximum distance of 100m (328ft). This shall include service loops to compensate for longer patch cabling at the main distribution frame (MDF), intermediate distribution frame (IDF), or at the far-end device.

Due to distance and power-over-Ethernet (PoE) requirements, some devices may require PoE mid-span injectors.

For distances longer than 100m and up to 250m (859 feet), MCIT shall approve the use of F/UTP shielded "Game Changer" CAT6A cabling by Paige Datacom Solutions for PoE pathway to far-end device.

Shielded cabling when used to mitigate EMI and outside surge interference, shall have the flood wire bonded at both ends with either RJ45 shielded modules or RJ45 shielded connectors. Bonding for shielded cabling flood wire shall be provided with cabling test results.

Horizontal cabling jacket and module color standards:

White and Blue jacket colors shall be preferred for cabling and matching plate modules.

Optional horizontal cabling jacket, patch cables, and wall plate module colors if additional colors needed to mitigate mistaken demarcation.

1. Yellow
2. Purple
3. Green

Cabling Pathways

All cabling must adhere to the Federal, State, and local codes for low-voltage installation. If the code requires an armored or plenum-rated cable, the same specification as the original cable specified will be used with the proper requirement outer material.

All transitions from one area to another that goes through walls shall follow the fire and local codes. The transition shall consist of two-inch (or greater) pipes or a box that is 4 by 12 (4x12) inches, with an initial fill ratio no greater than 40%.

The vendor will be responsible for verifying the cable installation requirements before purchasing the cables.

All cables shall use Velcro straps to secure the cabling as a general practice. All work must be neat and secure while using designated cable paths.

All cable paths are for category cabling or fiber cabling only, no high-voltage electrical (greater than 25v) can be in parallel less than five (5) feet away from the low voltage. If high-voltage electrical is less than five (5) feet away, it must be enclosed in a conduit. A high voltage path may cross perpendicularly or at 90° with a conduit.

Cables terminating at the far-end shall have a minimum standard of a fifteen (15) foot service loop. Cabling terminating at the main or intermediate distribution frame shall have a minimum standard of fifteen (15) foot service loop.

Any cable paths must be supported off the ceiling and floors. This can be achieved by using U-tray, J-tray, or any device that holds no less than twenty cables. If the cable supports have any gaps, they can be no larger than two (2) feet.

All main cable paths will need to be accessible at the start, intersections, and end with multiple access points along the paths and branches. The accfess points should be no more than ten (10) feet apart for access. Any exception on the cable paths must be reviewed and approved by MCIT.

Transition to/from the ceiling to the floor will use the Water Fall specifications. The path consists of two (2), 6-inch (or greater) pipes or a box that is 4 by 12 (4x12) inches at all locations. One pull string per pipe

is to be installed at the time of the installation of the piping.

Exterior cabling shall be installed utilizing solid or flex PVC conduit to protect cabling from vandalism and/or mitigate harsh weather elements. Vendor shall present scenarios to MCIT if there arises inability to perform this work.

Abandoned Ethernet cabling shall be removed and disposed of in compliance with NEC 800.25.

Cable management on 2-post racks or 4-post cabinets shall be used. For example: horizontal and/or vertical cable management trays to secure, bundle and route the cables. All existing cable management covers must be returned to original closed positions.

Vendor installing cabling shall certify each new cable and provide test results to MCIT prior to project being signed off as complete.

Modular Patch Panels at Horizontal Distribution Area (HDA)

Modular Patch Panels shall meet CAT6A when component compliance met and be verified by a third-party nationally recognized independent testing laboratory or device. Use low emission IDC contacts. Use dual reactance technology to enhance the signal-to-noise ratio. Require standard termination practices using a 110 impact tool or be an unloaded panel using High Density (HDJ) jacks. Use an IDC housing designed to accept larger category 6a conductors. Support both T568B and T568A wiring. Include easy to follow wiring labels with label fields. Patch panel labeling shall include the Rack Unit of patch panel on port 1 side for delineation. Media equipment shall be on a separate patch panel with port labeling numerically 1, 2, n, and sequentially lettered W (1White, 2White). Port labeling will be numerically 1, 2, n, and sequentially lettered W, B, (1White, 1Blue, 2White, 2Blue), left to right when more than one color is terminated on individual patch panel. Allow for the use of icons if needed. Include full length metal rear cable management. Be available in standard or high density. Be backward compatible to category 3, 5, 5e, and 6. Be center tuned to category 6a test specifications.

Work Area Outlets

In scenarios where wired connections are necessary (e.g. patron device separations), work area cables shall each be terminated at their designated work area location in the connector types described in the subsections below. Modular telecommunication jacks to be used in all work area outlets. These connector assemblies shall snap into a faceplate.

Telecommunications Outlets

Provide additional accommodations for specific locations as noted in the plans for optical fiber and/or additional copper cables as necessary. Blank filler plate shall be installed when extra ports are not used. Dust caps/stuffer caps shall be provided on all modular jacks. Multiple jacks identified in close proximity on the drawings but not separated by a physical barrier may be combined in a single assembly.

The contractor shall be responsible for determining the optimum compliant configuration based on the products proposed. The same orientation and positioning of jacks and connectors shall be utilized throughout the installation. Prior to the installation, the contractor shall submit the proposed configuration for each outlet assembly for review by Information Technology staff. The modular jack shall incorporate a printed label strip on the dust cap module for identification purposes. Printed labels shall be permanent and compliant with ANSI/TIA–606-C. Hand printed labels shall not be accepted.

Faceplates shall be UL listed and CSA certified. Constructed of high impact, ABS plastic UL 94V-0 construction (except where noted otherwise). Matched in color used for other utilities in the building or match the color of the raceway if installed in surface raceway. Easy to access for moves, adds, and changes by front removal of jack modules. Recessed designation windows to facilitate labeling and identification. Equipped with a clear plastic cover to protect labels in the designation window. Equipped with mounting screws located under recessed designation windows. ANSI/TIA-606-C work area labeling standard.

Voice and data jacks shall be 8-position, 8-conductor (8P8C) modular jacks and shall be minimum category 6a performance as defined by the references in this document including ANSI/TIA-568-C.2. All pair combinations must be considered, with the worst-case measurement being the basis for compliance.

Modular jack performance shall be third-party verified by a nationally recognized independent testing laboratory. The modular jack shall be backwards compatible to category 3, 5, and 5e. The modular jack shall be center tuned to category 6a test specifications.

Wireless Infrastructure and Support

Wireless access point installation locations shall be documented on plans. Each wireless access point shall have Category 6A wiring pulled back to the floor's MDA or IDA. Communication outlets designated for Wireless Access Points may be mounted inside drop ceilings but shall follow all termination and labeling standards. Access Point Hardware shall be mounted on the interior surface of the room wall, ceiling, or ceiling tile grid.

Removal of Wiring

MCIT shall be consulted before removal of telephone, communications wire and equipment, i.e., when office walls partitions are relocated. All wiring must be removed all the way back to the cross-connect source. If a run is planned to be re-used, it must have sufficient length to be re-terminated properly at the communication outlet without splicing. The wire can be temporarily coiled up out of the way of construction until it is ready to be re-used. Re-used runs mused be verified to have proper labeling. Abandoned Ethernet cabling shall be removed and disposed of in compliance with NEC 800.25 and NFPA 70, article 645.5(G), cables that are not in use must berernoved, unless they are terminated and contained in a cable raceway.

Removal of Cameras

If pre-existing cameras are not being used with a new surveillance system or being replaced, and their mounted locations are not to be reused hence nullifying the exterior box or mount, then proper steps shall be taken to seal or close the mounting box/housing after removal of the obsolete camera. For the intent to protect the inside from weather elements and possible future reuse.

All replaced NVR systems and surveillance cameras shall be returned to MCIT for decommissioning and disposal.

All abandoned Ethernet cabling shall be removed to be in compliance with NEC Article 800.25 "Abandoned Communications Cable".

All removed cabling shall be disposed of by the vendor.

Drop Ceilings

A cable wire tray may be placed above drop ceilings with minimum three-quarter inch (3/4") communication outlet conduits stubbed to the cable tray from individual room outlets. This tray will provide a path back to the MDA or IDA. The cable wire tray will have a maximum of 8-inch (8") spacing between cable supports. Width of the tray to be determined by the quantity of cables in the tray, and projected growth. Cable trays and conduits must be properly grounded. All NEC codes for grounding of cable trays shall be adhered to.

Cabling Specifications

The following cable Specifications are to be used as the minimum cabling requirement. Substitutes or any non-specified cable types must be approved in writing by the MCIT before purchasing.

PoE Injectors

Power over Ethernet injectors or mid-spans if needed, shall be installed and secured at MDA/IDA telecom closet.

Labeling

All the information to label wall plates, horizontal cabling, patch panels and cross-connects shall be included in Information Technology cable management records. The naming and labeling conventions in this section identify specific methods of implementing ANSI/EIA/TIA-606-C Standard.

Each character in the identifier represents a key piece of information. The 606-C Standard allows administrative flexibility to accommodate variations in naming conventions format and is compatible with the requirements of the ISO/IEC TR14763-2-1. Renovation construction may use pre-existing labeling to keep consistency at the sole discretion and determination of MCIT.

When required, jack locations are identified upon entering each room through its main entrance and sequentially numbering them, 1, 2, n, from left to right (clockwise), and vertically from top to bottom, around the room. Each jack position on every wall plate is also labeled with the corresponding color, for example, W, B, (white, blue), left to right, then top to bottom. Room identifiers can be 3 or 4 character unique alphanumeric designators (i.e., 103, 206, B09) within the building (first character matching floor identifier, i.e. 1st floor, 2nd floor, Basement, respective to these examples). Renovation construction may use pre-existing labeling to keep consistency.

Wall Plate Labeling

Each room's Data, Telephone, and Audio/Visual wall plates are to be labeled to show the horizontal link identifier. This consists of the originating telecommunications space (TS), rack and patch panel port where the link originates. MCIT also requires the work area identifier, wall plate, and jack identifier be labeled where the horizontal link is terminated. These are mandatory data elements to be included in infrastructure records. See ANSI/EIA/TIA-606-C. Renovation construction may use pre-existing labeling to keep consistency at the sole discretion and determination of MCIT.

Multi-Floor Patch Panel Port labeling

The Marion County data port labeling represents the originating IDA identifier, the originating patch panel and port number, room's data Jack and Port location, the destination floor/room identifier. For instance, the label "202-F:41-04-206T" would identify IDA room 202(if multiple floors), Rack F, Rack Unit of patch panel followed by port 04, corresponding with jack location/position 04 in room 206T. Note that room identifiers typically use the first character(s) position to specify floor(s). NOTE: Renovation construction may use pre-existing labeling to keep consistency at the sole discretion and determination of IT.

- One to two numeric characters designating jack location within the work space
- One alpha character to represent the jack position within the wall plate
- One to four alphanumeric characters to uniquely identify the work space

Documentation

Upon completion, the documentation must be provided by the vendor to MCIT. It must contain two hard copies and a digital copy of:

All equipment manuals, software, license keys, and warranty details.

'As Built' system drawings.

A complete list of equipment with the location. The list will include the manufacturer, model, description, serial number, passwords, MAC address, and IP address.

All configuration and program files of the equipment.

Inspection and Testing

All initial installation and modifications to cable paths, backbone cabling, cross-connects, horizontal wiring, termination and testing is to be documented in accordance with ANSI/TIA/EIA 606A standards. Information Technology shall be furnished documentation and as-built drawings in electronic and printed form for large projects and installations. Information Technology shall maintain this documentation for modifications and small projects.

As-Built Drawings

Drawings are to include cable routes and outlet locations. Outlet locations shall be identified by their sequential number as defined elsewhere in this document. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. Information Technology staff will provide floor plans when available in paper and/or electronic formats on which as-built construction information can be added. Contractors shall annotate the base drawings and return a hard copy and electronic form.

Cable Plant Records

All cable and station wiring that is to be connected to, or disconnected from, the Marion County network infrastructure must be reported to MCIT for approval. This information must be submitted and tracked so that accurate infrastructure records can be maintained.

Quality Control

Vendor shall clean up any debris or trash created in the process of installing the cabling and equipment, as well as removing abandoned cabling and equipment.

MCIT will perform a quality control (QC) inspection with vendor post-installation of system. Any QC items out of specification shall be addressed and/or remedied by the vendor to meet MCIT requirements before signing off on project.

Operational Training

The vendor must provide training to the MCIT and the end-user on the installed system. This training session is to take place at the final handover stage of the project. The duration of training will vary depending on the size of the project.

Warranty, Service Support

The integrator, for the period of twelve (12) months from the date of delivery of services guarantees all parts and equipment, manufactured or supplied, against all defects which are due to defective materials, faulty design, poor workmanship, or defective equipment.