Request for Proposals #274-2024-RCPAC-11R2

Title: Access Control System Upgrades Issue

Date: **October 04, 2024**

Due Date: **December 13, 2024 not later than 4:00 PM ET**
LATE PROPOSALS WILL NOT BE ACCEPTED

Issuing Department: ***Raleigh Convention and Performing Arts Complex***

Direct all inquiries concerning this RFP to:
Byron Johnson II
Director of Public Safety and Security
Email: Byronk.Johnson@raleighnc.gov

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1 Introduction

1.1 Purpose

The City of Raleigh (COR) is solicitating proposals from one or more firm(s) with which to contract for the following services: Provide all goods and services for the turnkey Access Control, Surveillance and Intrusion Detection Systems replacement for the Raleigh Convention and Performing Arts Complex (RCPAC). A detailed scope of services is provided in Section 5 of this solicitation.

All information related to this solicitation, including any addenda, will be posted to the North Carolina electronic Vendor Portal (eVP) at: https://evp.nc.gov/solicitations/

1.2 Background

The City of Raleigh, the Capital City of North Carolina, remains one of the fastest growing areas in the country. A great economy, top educational institutions, and exceptional health care facilities are some of the characteristics that attract people to the Triangle Area. The mild climate, diverse work force and proximity to Research Triangle Park combine to make Raleigh a great place to live.

Raleigh is a 21st Century City of Innovation focusing on environmental, cultural, and economic sustainability. The City conserves and protects our environmental resources through best practice and cutting-edge conservation and stewardship, land use, infrastructure and building technologies. The City welcomes growth and diversity through policies and programs that will protect and enhance Raleigh's existing neighborhoods, natural amenities, history, and cultural and human resources for future generations. The City leads to improve quality of life for neighborhoods and standard of living for all citizens. The City works with universities, colleges, citizens, and local partners to promote new technology, create new job opportunities, and encourage local businesses and entrepreneurs. The City enlists and prepares 21st Century staff with the skill sets to carry out the duties of the City through transparent civic engagement and by providing the very best customer service to our citizens.

The Raleigh Convention and Performing Arts Complex (RCPAC) includes the Raleigh Convention Center, Martin Marietta Center for Performing Arts, Red Hat Amphitheater and Coastal Federal Credit Union Music Park at Walnut Creek. This project will expand the existing security contingent for RCPAC by providing enhancements to outdated systems. The City wishes to engage the services of a qualified vendor capable of providing technologically advanced and reliable components for delivery of a comprehensive access control, surveillance and intrusion detection system. The City wishes to engage the services of a qualified vendor capable of providing a fully operational solution. Following installation of the fully operational solution the selected vendor would provide quality, timely service, and maintenance of the system.

1.3 Request for Proposal (RFP) Timeline

Provided below is a list of the anticipated schedule of events related to this solicitation. The City of Raleigh reserves the right to modify and/or adjust the following schedule to meet the needs of the service. All times shown are Eastern Time (ET):

RFP Process	Date	Time
RFP Advertisement Date	October 04, 2024	
Pre-Proposal Conference (required) **Sub-contractors recommended to attend as well.**	October 17, 2024 9:00am, Raleigh Convention Center (In-Person)	
Deadline for written questions	October 25, 2024	**3:00 P.M.**
City Response to questions (anticipated)	November 06, 2024	
Proposal Due Date and Time	**December 13, 2024**	**4:00 P.M.**
Evaluation Meeting (anticipated)	December 17, 2024	
Selection Announced at Council Meeting (tentative)	January 21, 2025	

1.4 Pre-Proposal Conference (Raleigh Convention Center, 500 S. Salisbury St. Raleigh, NC 27601)

The City of Raleigh will hold an in-person Pre-Proposal Conference hosted by Optima Engineering. Attendance by prospective proposers is mandatory and all proposers must register by 5:00 P.M. on Wednesday, October 16, 2024, by sending an email to Todd Hedrick (thedrick@optimaengineering.com). The email must include the contact name, company name, and email address of any attendee(s). **Sub-contractors are recommended to attend** as well! Invitations to the pre-bid meeting, Appendix VI Functional Specifications, editable Pricing Lists and Appendix VII Functional Drawings will be emailed upon request following registration for the Required Pre-Proposal Conference. Prospective proposers are encouraged to submit written questions in advance to Byron Johnson II (Byronk.Johnson@raleighnc.gov). Date and time of the pre-proposal conference is shown above in Section 1.3, entitled RFP Timeline.

1.5 Proposal Question

It is the Proposer's responsibility to ensure that all addenda have been reviewed and considered in the preparation of its proposal. Requests for clarification and questions to this RFP must be received by the City not later than the date shown above in Section 1.3, entitled "RFP Timeline" for the submittal of written inquires. The firm's failure to request clarification and submit questions by the date in the RFP Timeline above shall be considered to constitute the firm's acceptance of all City's terms and conditions and requirements except as noted in the form provided in Appendix V. The City shall issue addenda reflecting questions and answers to this RFP, if any, and shall be posted to North Carolina electronic Vendor Portal (eVP). No information, instruction or advice provided orally or informally by any City personnel, whether made in response to a question or otherwise in connection with this RFP, shall be considered authoritative or binding.Respondents shall be entitled to rely *only* on written material contained in an

Addendum to this RFP.

It is important that all Respondents submitting to this RFP periodically check eVP for any Addenda. It is the Respondents responsibility to ensure that all addenda have been reviewed and, if required signed and returned.

All questions related to this solicitation must be submitted in writing (via email) to the following individual:

Contact Name	Email Address
Byron Johnson II	Byronk.Johnson@raleighnc.gov

Questions submitted via telephone will not be answered.

1.6 Proposal Submission Requirements and Contact Information

Proposals must follow the format as defined in Section 2 PROPOSALS, and be addressed and submitted as follows:

DELIVERED BY US POSTAL SERVICE	DELIVERED BY ALL OTHER MEANS
City of Raleigh ATTN: Byron Johnson II Raleigh Convention Center 500 S. Salisbury St. Raleigh, NC 27601 RFP #274-2024-RCPAC-11R2 Access Control System Upgrade	City of Raleigh ATTN: Byron Johnson II Raleigh Convention Center 500 S. Salisbury St. Raleigh, NC 27601 RFP #274-2024-RCPAC-11R2 Access Control System Upgrade

Proposals must be enclosed in an envelope or package and clearly marked with the name of the submitting company, the *RFP number* and the *RFP Title***.** Proposers must submit:

A. one (1) signed original;
B. one (1) electronic version of the signed proposal and;
C. four (4) copies of RFP No. 274-2024-RCPAC-11R signed proposal.

The electronic version of the Proposal must be submitted as a viewable and printable Adobe Portable Document File (PDF) on a Flash Drive. Proposals should be minimized in total page count. Both hard copy and electronic versions must be received by the City on or before the RFP due date and time provided in Section 1.3. Proposals received after the RFP due date and time will not be considered and will be returned unopened to the return address on the submission envelope or package.

Any requirements in the RFP that cannot be met must be indicated on Appendix V, "Exceptions to RFP" and submitted with proposal. Proposers must respond to the entire Request for Proposals (RFP). Any incomplete proposal may be eliminated

from competition at the discretion of the City of Raleigh. The City reserves the right to reject any or all proposals for any reason and to waive any informality it deems in its best interest.

Proposals that arrive after the due date and time will not be accepted or considered for any reason whatsoever. If the Firm elects to mail in its response, the Firm must allow sufficient time to ensure the City's proper receipt of the package by the time specified in Section 1.3, "RFP Timeline". Regardless of the delivery method, it is the responsibility of the Firm to ensure that their response arrives at the designated location specified in this Section by the due date and time specified in Section 1.3, "RFP Timeline".

1.7 Rights to Submitted Material

All proposals and supporting materials, as well as correspondence relating to this RFP, shall become the property of the City. The content of all submittals will be held confidential until the selection of the firm is made. Proposals will be reviewed by the Evaluation Team, as well as other City staff and members of the general public who submit public record requests. *Any proprietary data must be clearly marked.* In submitting a Proposal, each Prospective Proposer agrees that the City may reveal any trade secret materials contained in such response to all City staff and City officials involved in the selection process and to any outside consultant or other third party who serves on the Evaluation Team or who is hired by the City to assist in the selection process.

The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the Proposer of the conditions contained in this Request for Proposal.

Proposals marked entirely as "confidential", "proprietary", or "trade secret" will be considered non-responsive and will be removed from the evaluation process.

1.8 Communications

All communications of any nature regarding this RFP with any City staff, elected City officials, evaluation committee members, are strictly forbidden from the time the solicitation is publicly posted until award. Questions must be submitted in writing to the individual designated in Section 1.1. prior to the deadline provided in Section 1.3.

Violation of this provision may result in the firm's proposal being removed from consideration.

1.9 Lobbying

By responding to this solicitation, the firm certifies that is has not and will not pay any person or firm to influence or attempt to influence an officer or employee of the City or the State of North Carolina, or any elected official in connection with obtaining a contract as a result of this RFP.

1.10 Conflicts of Interest

City of Raleigh contracts are controlled by three conflict of interest provisions.

First, federal procurement standards provide in 2 CFR 200.318 (c)(1),

No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a Federal award if he or she has a real or apparent conflict of interest. Such a conflict of interest would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or a firm which employs or is about to employ any of the parties indicated herein, has a financial or other interest in or a tangible personal benefit from a firm considered for a contract. The officers, employees, and agents of the non-Federal entity may neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts.

Similarly, the North Carolina General Statutes provides a *criminal* statute for conflicts of interest in public contracting. N.C.G.S. § 14-234(a):

(1) No public officer or employee who is involved in making or administering a contract on behalf of a public agency may derive a direct benefit from the contract except as provided in this section, or as otherwise allowed by law. (2) A public officer or employee who will derive a direct benefit from a contract with the public agency he or she serves, but who is not involved in making or administering the contract, shall not attempt to influence any other person who is involved in making or administering the contract. (3) No public officer or employee may solicit or receive any gift, favor, reward, service, or promise of reward, including a promise of future employment, in exchange for recommending, influencing, or attempting to influence the award of a contract by the public agency he or she serves.

City of Raleigh Charter Section 3.9 regulates private transactions between the City and its officials and employees. The Charter states:

"No member of the City Council, official, or employee of the City of Raleigh shall be financially interested, or have any personal beneficial interest, either directly or indirectly, as agent, representative, or otherwise, in the purchase of, or contract for, or in furnishing any materials, equipment or supplies to the City of Raleigh, nor shall any official or employee of the City of Raleigh accept or receive, or agree to accept or receive, directly or indirectly, from any person, firm or corporation to whom any contract may be awarded or from whom any materials, equipment or supplies may be purchased by the City of Raleigh, by rebate, gift, or otherwise, any money or anything of value whatsoever, or any promise, obligation or contract for future reward or compensation, for recommending or procuring the uses of any such materials, equipment or supplies by the City of Raleigh; no member of the City Council, official or employee of the City of Raleigh shall for his own personal benefit operate, directly or indirectly, any concession in any building or on any lands of the City of Raleigh, nor shall any official or employee of the City of Raleigh bid for or be awarded any contract granting concessionary rights of any nature or kind from the City of Raleigh; it shall be unlawful for any member of the City Council, official or employee of the City of Raleigh to bid for or to purchase or to

contract to purchase from the City of Raleigh any real estate, equipment, materials, or supplies of any nature or kind whatsoever, either directly or indirectly, at either public or private sale, either singly, or through or jointly with any other person."

1.11 Proposer Expenses

The City of Raleigh will not be responsible for any expenses incurred by any Proposer in the development of a response to this Request for Proposal or any other activities associated with this procurement including but not limited to any onsite (or otherwise) interviews and/or presentations, and/or supplemental information provided, submitted, or given to City of Raleigh and/or its representatives. Further, the City of Raleigh shall reserve the right to cancel the work described herein prior to issuance and acceptance of any contractual agreement/purchase order by the recommended Proposer even if the awarding authority for each entity has formally accepted a recommendation.

1.12 Proposer Acceptance

Submission of any proposal indicates a Proposer's acceptance of the conditions contained in this RFP unless clearly and specifically noted otherwise on Appendix V, "Exceptions to RFP" and submitted with proposal. Furthermore, the City of Raleigh is not bound to accept a proposal on the basis of lowest price, and further, the City of Raleigh has the sole discretion and reserves the right to cancel this RFP, and to reject any and all proposals, to waive any and all informalities and/or irregularities, or to re-advertise with either the identical or revised specifications, if it is deemed to be in the City of Raleigh's best interests to do so. The City of Raleigh reserves the right to accept or reject any or all of the items in the proposal, and to award the contract in whole or in part and/or negotiate any or all items with individual Proposers if it is deemed in the City of Raleigh's best interest. Moreover, the City of Raleigh reserves the right to make no selection if proposals are deemed to be outside the fiscal constraint or not in the best interest of the City of Raleigh.

2 PROPOSALS

Responses must follow the format outlined below. The City may reject as non-responsive at its sole discretion any proposal that does not provide complete and/or adequate responses or departs in any substantial way from the required format.

2.1 Request for Proposals Required Document Format

Responses should be divided using tabs to separate each section, listed sequentially as follows:

Tab 1: Cover Letter

Provide an introduction letter summarizing the unique proposal of your firm to meet the needs of this service requirement. This letter should be presented on the firm's official letterhead and signed by an authorized representative who has the authority to enter into a contract with the City on behalf of the firm. Additionally, include the name, address, telephone and email address of the individual who serves as the point of contact for this solicitation.

Tab 2: Corporate Background and Experience

Include background information on the firm, project subcontractors, and provide detailed information regarding the firm's experience with similar projects in the last three (3) years. Provide a list of all similar contracts performed in the past three (3) years, accompanied by at least three (3) references (contact persons, firm, telephone number and email address).

Include a detailed description for each example project indicating the total amount invoiced for each listed project, the length of the project, the size of the project (# of parking facilities, # of lanes, etc.), the original contract amount and any approved change orders on each project, type of equipment and software installed, and list of those involved in the project who are also proposed for the subject project named in this solicitation. Failure to provide a list of all similar contracts in the specified period may result in the rejection of the firm's proposal. The evaluation team reserves the right to contact any or all listed references, and to contact other public entities regarding past performance on similar projects.

Submit proof of all current licensing required by the State of North Carolina.

Tab 3: Financial Information

Review and provide one of the following three (3) financial statement options:

1. Recent audited or reviewed financial statements prepared by an independent certified public accountant (CPA) that shall include, at a minimum, a balance sheet, income statement (i.e., profit/loss statement) and cash flow statement **and**, if the audited or reviewed financial statements were prepared more than six (6) months prior to the issuance of this RFP, the Proposer shall submit its most recent internal financial statements (balance sheet, income statement and cash flow statement or budget with entries reflecting revenues and expenditures from the date of the audited or reviewed financial statements to the end of the most recent financial reporting period (i.e., the quarter or month preceding the issuance date of this RFP)).

OR

2. Recent compiled financial statements prepared by an independent CPA that shall include, at a minimum, a balance sheet, income statement (i.e., profit/loss statement) and cash flow statement **and**, if the compiled financial statements were prepared more than three (3) months prior to the issuance of this RFP, the Proposer shall submit its most recent internal financial statements (balance sheet, income statement and cash flow statement or budget with entries reflecting revenues and expenditures to date), and other evidence of financial stability such as most recently filed income tax return, evidence of a line of credit/loans/other type of financing with statement of amount in use/outstanding balance (e.g., a complete copy commitment letter, loan agreement, billing

statement reflecting the line of credit or statement from lender acknowledging the commitment to fund the Proposer's stated financing), personal guaranty with copies of personal income tax filing and statement of net worth or such other evidence that is accurate, reliable and trustworthy regarding the Proposer's financial stability.

OR

3. Include a certified, signed statement from a licensed CPA regularly engaged in the review of the firm's financial information verifying the financial viability of the firm.

All financial information, statements and/or documents provided in response to this solicitation shall be kept confidential provided that EACH PAGE is marked as follows: "CONFIDENTIAL – DO NOT DISCLOSE EXCEPT FOR THE EXPRESS PURPOSE OF PROPOSAL EVALUATION. "

"Recent" shall be defined as financial statements that were prepared within the 12 months preceding the issuance date of this RFP.

Consolidated financial statements of the Proposer's parent or related corporation/business entity shall not be considered, unless: (1) the Proposer's actual financial performance for the designated period is separately identified in and/or attached to the consolidated statements, (2) the parent or related corporation/business entity provides the State with a document wherein the parent or related corporation/business entity will be financially responsible for the Proposer's performance of the contract and the consolidated statement demonstrates the parent or related corporation's/business entity's financial ability to perform the contract, financial stability and/or such other financial considerations identified in the evaluation criteria; and/or (3) Proposer provides its own internally prepared financial statements and such other evidence of its own financial stability identified above.

The firm's failure to provide any of the above-referenced financial statements may result in the proposal being removed from consideration. Proposers are also encouraged to explain any negative financial information, and to provide documentation supporting those explanations and demonstrating the financial strength of the firm.

Tab 4: Project Understanding, Approach and Schedule

- Provide a comprehensive narrative, outline, and/or graph demonstrating the firm's understanding and approach to accomplishing the tasks outlined in the Scope of Work section of this RFP.

- A description of each task and deliverable and the schedule for accomplishing

each shall be included.

- Describe the hardware and software components that are being provided as delineated in the functional specification requirements and functional drawings, respectively. Cut sheets can be provided as well. Provide a list of equipment or connections that the Proposer is expecting to be handled by the City. See also Section 5 “Scope of Services.”

- Project risk assessment: Identify and discuss the top three critical risks for the project, focusing on what the Proposer’s team considers the most relevant and critical to the success of the project.

- Identify any value engineering opportunities for enhanced project delivery.

- Outline the overall project schedule including procurement of equipment, approvals, City review times, installation, and testing. Illustrate the approach of which facility would be implemented first and why.

- Identify the list of key items and questions that the City would need to respond to during the phases of the project.

- Describe the approach to decommissioning, testing, training, customer service, support, and maintenance.

- Describe any exceptions to the requirements in this RFP and the specifications, or any items not applicable. Without specifically noting these exceptions, the City will assume that the Vendor is capable of providing all equipment and services required in this RFP. Bidders should submit their exceptions on Appendix V “Exceptions to RFP”.

Tab 5: Team Experience and Certifications

This section must include the proposed staffing, deployment and firm(s) of personnel to be assigned to this project, including any proposed subcontractors and subconsultants. The Team is expected to include a Vendor (that provides the equipment hardware and software) and an Installation Contractor – the entity that installs the infrastructure needed at each location.

However, it is up to the Proposer as to how to structure the Team and accomplish each of those key areas of responsibility. The Proposer shall provide information as to the Proposals and experience of all key personnel assigned to this project. Resumes must be provided for all key team members identified and must cite experience with similar projects and the responsibilities to be assigned to each person. A project-specific organizational chart which clearly illustrates the roles, responsibilities, and the reporting relationships of each team member should be included. The minimum key personnel identified must include:

a. Project Manager: person responsible for the overall management of the project and day to day point of contact for the City
b. Installation Manager: person responsible for overall Installation management (if different than the Project Manager)
c. Superintendent: person responsible for on-site field supervision and direction during Installation.
d. Commissioning Agent: person responsible for implementation of all testing required at the factory as well as in production.
e. Maintenance Staff: person responsible for call backs and maintenance of the system throughout the term of the agreement. Provide the business address from which the maintenance personnel will operate.

Tab 6: Forms

The forms in Appendix II and V shall be provided, whether exceptions are taken or not.

Tab 7: Cost

Provide a completed cost schedule. Hourly rates shall be fully burdened to include all costs, all applicable overhead and profit (including lodging, meals, and transportation). Attach any additional pricing details. See Appendix I for the Bid Cost Form worksheets to complete.

2.2 RFP Documents

This RFP is comprised of the base RFP document, any attachments, and any addenda released before Contract award. All attachments and addenda released for this RFP in advance of any Contract award are incorporated herein by reference.

3 PROPOSAL EVALUATION

3.1 Proposal Evaluation Criteria *(Stage 1)*

This is not a bid. There will not be a public opening. The Proposals received in response to this RFP will be evaluated and ranked, by the Proposal Evaluation Committee in accordance with the process and evaluation criteria contained below. Responses will be evaluated in light of the material and substantiating evidence presented in the response, and not on the basis of what is inferred. After thoroughly reading and reviewing this RFP, each Evaluation committee member shall conduct his or her independent evaluation of the proposals received and grade the responses on their merit in accordance with the evaluation criteria set forth in the following table.

The maximum interview/demonstration points a Proposer can receive is 5 points. The Proposers selected for interviews/demonstrations under this section will be notified in writing of the date and time. The Proposer's interview/demonstrations shall be based solely upon information provided in each Proposer's original proposal. No new information may be presented.

Criteria	(a) Weight	(b) Score (0-3)	(a) x (b) Weighted Score
Corporate Background and Experience	20		
Firm Financial Stability	10		
Project Understanding	25		
Project Approach	15		
Team Firm Experience	15		
Proposed Cost	15		
Final Score			

Score Points

0- Missing or Does Not Meet Expectation
1- Partially Meets Expectation
2- Meets Expectation
3- Exceeds Expectation

***Cost Formula*:** The cost criterion is rated by giving the proposal with the lowest total cost the maximum number of Cost points available. The remaining proposals are rated by applying the following formula:

$$1 - \frac{B - A}{A} \times C = D$$

A—the lowest Proposer's cost.
B—the Proposer's cost being scored.

C—the maximum number of cost points available.
D—Proposer's cost score (points).

Note: If the formula results in a negative number (which will occur when the Offeror's cost is more than twice the lowest cost), zero points shall be assigned.

3.2 Final Selection

Proposals will be evaluated and ranked according to the criteria and weighted values set forth in section 3.1. Either a final selection for recommendation will be made at this time or the short-list of firms will be invited to participate in Stage 2 of the evaluation process. If Stage 2 is implemented, each firm will be evaluated and assigned a score to determine the best firm for recommendation.

After which negotiations of a contract with the most qualified firm will commence. If negotiations are unsuccessful, the City will then pursue negotiations with the next most qualified firm. All Proposers will be notified of their standing immediately following the City's decision.

The City shall not be bound or in any way obligated until both parties have executed a contract. The City also reserves the right to delay the award of a contract or to not award a contract.

3.3 Notice to Proposers Regarding RFP Terms and Conditions

It shall be the Proposer's responsibility to read the Instructions, the City's contract terms (Appendix IV), all relevant exhibits, attachments, and any other components made a part of this RFP and comply with all requirements and specifications herein. Proposers are also responsible for obtaining and complying with all Addenda and other changes that may be issued in connection with this RFP.

4 CONTRACT TERMS

The installation work required by this contract shall be completed by this contractor not later than **365 Days** unless extended by both parties by written amendment.

The annual maintenance term shall have an initial term of three (3) years beginning at the end of the warranty period. At the end of the Contract's current term, the City shall have the option, in its sole discretion, to renew the Contract on the same terms and conditions for up to a total of two (2) additional one-year terms. The City will give the Contractor written notice of its intent whether to exercise each option no later than ninety (90) days before the end of the Contract's then-current term. In addition, the City reserves the right to extend a contract term for a period of up to 180 days in 90-day-or- less increments.

5 SCOPE OF SERVICES

The existing RCPAC access control system does not exist or is comprised of legacy equipment in which support, software updates, and maintenance are becoming increasingly difficult and expensive to provide. It also requires significant manual effort to operate and maintain. Additionally, the system components and infrastructure have limited capabilities to share information with all the different stakeholders.

The new RCPAC access control system must avoid increasing maintenance costs and improve reliability while delivering a seamless system from back of house to front end user interface. These improvements closely align with current hospitality industry trends toward improving the overall customer experience. It is planned to replace the existing equipment with new state-of-the-art functionalities and add capabilities. Due to the scope of work and operation of facilities, a phased construction approach is recommended to make sure that users of the facilities only get minimal disruptions while the vendor concentrates efforts in just one facility at a time. The facilities will remain open and in operation during construction.

The project should have the appropriate team members including a general contractor, electrical contractor, fire alarm contractor, security contractor, fence and gate contractor.

Electrical power and wiring for equipment will be supplied from buildings existing emergency power system where applicable or utility power as shown on plans. The plan is to use the best available where possible. All routing of conduits will need to be detailed and coordinated to meet the need and preserve the look of the existing facility. All facilities are to be constructed in compliance with all applicable state and local codes. All testing and training shall be provided by the Proposer.

Refer to **Appendix VI** and **Appendix VII** for the pricing lists templates, functional specification requirements, and functional drawings, respectively. Final design of the system will be the responsibility of the selected Proposer.

The City of Raleigh intends to convert and/or provide a new Access Control System, Digital Video System, Communication System, and associated security components at the following locations:

1. Raleigh Convention Center (RCC)

2. Martin Marietta Center for Performing Arts (MMPAC)

3. Red Hat Amphitheater

Alternate One:

1101 Green St, Raleigh, NC 27603

The following is a summary for each project.

- Raleigh Convention Center (RCC)
- Martin Marietta Center for Performing Arts (MMPAC)
- Red Hat Amphitheater (RHA)
- Green Street (Alternate)

RALEIGH CONVENTION CENTER (RCC):

RCC Security Installation Scope

Access Control System:

RCC currently has an existing Vykon access control system that will be replaced based on the project needs to support the security operation of the facility. This conversion and expansion project will include the addition or upgrade of specific gates and doors identified throughout the facility. Each gate and door will require a card access reader, electronic door lock or gate controller, request to exit device, and door contact(s) as required to create a fully functional and secure gate or door. In addition to the door and gate equipment, new and expanded system components, power supplies and supporting conductors shall be required to complete a fully functional and integrated system. All programming will be required to make the system fully functional and integrated with the existing Milestone Video Management System. The electrical scope will include power and pathways. The security system will need to be integrated with the fire alarm system as required per code. Certain doors identified on plans will have egress signs added/removed per new egress plans.

Video Management System:

RCC currently has an existing Milestone Video Management System that will be expanded based on the project needs to support the security operation of the facility. This expansion project will include the addition or upgrade of specific cameras identified throughout the facility. Each camera location will require a new camera, camera mount, and CAT-6 or Fiberoptic cable as required to connect to the existing City of Raleigh POE network switch. In addition to the camera equipment, new media converters or POE injectors may be required to complete a fully functional and integrated system. All connections and programming will be required to make the system fully functional and integrated with the new Access Control System. The electrical scope will include power and pathways.

Communication System:

RCC has existing intercom communication in several locations throughout the facility. The communication system will be expanded based on the project needs to support the security operation of the facility. This expansion project will include the addition or

upgrade of specific intercom units identified throughout the facility. Each intercom location will require a new intercom, intercom mount, and CAT-6 or Fiberoptic cable as required to connect to the existing City of Raleigh POE network switch. In addition to the intercom equipment, new media converters or POE injectors may be required to complete a fully functional and integrated system. All connections and programming will be required to make the system fully functional and integrated with the existing Milestone Video Management System. The electrical scope will include power and pathways.

Command Center Upgrade:

As part of this project the existing command center at RCC will receive a technology upgraded that includes new console desks, workstations, workstation display monitors, and large wall monitors. The electrical scope will include new lighting, power, pathways and fire panel control integration.

RCC Services and Maintenance Scope

The Contractor will provide service and maintenance for the converted and/or new Access Control System, Video Management System, Communication System and associated security components at the Raleigh Convention Center (RCC). This maintenance service will also include at a minimum yearly milestone patches/software updates to the milestone applications. In performing the services described herein, it is mutually agreed that time is of the essence. The Contractor will provide 24/7 emergency call support with the ability to respond within a timely manner through remote technical support or on-site assistance. When replacement products are needed as determined by either or a combination of the City of Raleigh, Raleigh Convention and Performing Arts Complex (RCPAC), or Contractor, it is requested of the Contractor to install equipment associated with Access Control System, Video Management System, Communication System and associated security components. Contractor is expected to provide the equipment at the Contractor's cost with an installation labor cost. All work must be performed by Contractor and cannot be subbed out to another contractor without the express consent of Raleigh Convention and Performing Arts Complex (RCPAC). The contractor must also have replacement parts for commonly used devices for our systems in stock to minimize systems downtime.

The contractor must have the ability to work on all systems and components included in the converted and/or new Access Control System, Video Management System, Communication System and associated security components at the Raleigh Convention Center (RCC).

MARTIN MARIETTA PERFORMING ARTS CENTER (MMPAC):

MMPAC Security Installation Scope

Access Control System:

As part of the access control system conversion project at RCC, a new access control system will be expanded to the MMCPA via the City of Raleigh's "direct" fiber network between the facilities. The expansion of field devices will be based on the project

needs to support the security operation of the facility. This expansion project will include the addition or upgrade of specific gates and doors identified throughout the facility. Each gate and door will require a card access reader, electronic door lock or gate controller, request to exit device, and door contact(s) as required to create a fully functional and secure gate or door. In addition to the door and gate equipment, new access control and security system components, power supplies and supporting conductors shall be required to complete a fully functional and integrated system. All programming will be required to make the system fully functional and integrated with the existing Milestone Video Management System at RCC. The electrical scope will include power and pathways. The security system will need to be integrated with the fire alarm system as required per code.

Video Management System:

RCC currently has an existing Milestone Video Management System that will be expanded to the MMCPA via the City of Raleigh's "direct" fiber network between the facilities. The expansion of cameras will be based on the project needs to support the security operation of the facility. This expansion project will include the addition or upgrade of specific cameras identified throughout the facility. Each camera location will require a new camera, camera mount, and CAT-6 or Fiberoptic cable as required to connect to the existing City of Raleigh POE network switch. In addition to the camera equipment, new media converters or POE injectors may be required to complete a fully functional and integrated system. All connections and programming will be required to make the system fully functional and integrated with the new Access Control System at RCC. The electrical scope will include power and pathways.

Communication System:

MMCPA has existing intercom communication in several locations throughout the facility. The communication system will be expanded based on the project needs to support the security operation of the facility. This expansion project will include the addition or upgrade of specific intercom units identified throughout the facility. Each intercom location will require a new intercom, intercom mount, and CAT-6 or Fiberoptic cable as required to connect to the existing City of Raleigh POE network switch. In addition to the intercom equipment, new media converters or POE injectors may be required to complete a fully functional and integrated system. All connections and programming will be required to make the system fully functional and integrated with the existing Milestone Video Management System at RCC. The electrical scope will include power and pathways.

Site:

This expansion project will include the addition of fencing and gates around the facility. The fencing will separate the facility from Shaw university. Gates will control access and allow deliveries. Each gate will require a gate controller to create a fully functional and secure. The electrical scope will include power and pathways.

MMPAC Services and Maintenance Scope

The Contractor will provide service and maintenance for the converted and/or new Access Control System, Video Management System, Communication System and associated security components at Martin Marietta Center for Performing Arts (MMPAC). This maintenance service will also include at a minimum yearly milestone patches/software updates to the milestone applications. In performing the services described herein, it is mutually agreed that time is of the essence. The Contractor will provide 24/7 emergency call support with the ability to respond within a timely manner through remote technical support or on-site assistance. When replacement products are needed as determined by either, or a combination of, the City of Raleigh, Raleigh Convention and Performing Arts Complex (RCPAC), or Contractor, it is requested of the Contractor to install equipment associated with Access Control System, Video Management System, Communication System and associated security components. Contractor is expected to provide the equipment at the Contractor's cost with an installation labor cost. All work must be performed by Contractor and cannot be subbed out to another contractor without the express consent of Raleigh Convention and Performing Arts Complex (RCPAC). The contractor must also have replacement parts for commonly used devices for our systems in stock to minimize systems downtime.

The contractor must have the ability to work on all systems and components included in the converted and/or new Access Control System, Video Management System, Communication System and associated security components at the Martin Marietta Center for Performing Arts (MMPAC).

RED HAT AMPHITHEATRE (RHA):

RHA Security Installation Scope

Access Control System:

As part of the access control system conversion project at RCC, a new access control system will be expanded to Red Hat via the City of Raliegh's "direct" fiber network between the facilities. The expansion of field devices will be based on the project needs to support the security operation of the facility. This conversion project will require the existing gate to remain fully functional and secure. In addition to maintaining the gate equipment, new access control system components, power supplies and supporting conductors shall be required to complete a fully functional and integrated system. All programming will be required to make the system fully functional and integrated with the existing Milestone Video Management System at RCC. The electrical scope will include power and pathways.

Video Management System:

RCC currently has an existing Milestone Video Management System that extends to the Red Hat facility via the City of Raliegh's "direct" fiber network between the facilities. The expansion of cameras will be based on the project needs to support the security operation of the facility. This expansion project will include the addition or upgrade of

specific cameras identified throughout the facility. Each camera location will require a new camera, camera mount, and CAT-6 or Fiberoptic cable as required to connect to the existing City of Raleigh POE network switch. In addition to the camera equipment, new media converters or POE injectors may be required to complete a fully functional and integrated system. All connections and programming will be required to make the system fully functional and integrated with the new Access Control System at RCC. The electrical scope will include power and pathways.

Communication System:

Red Hat has an existing intercom communication point at the gate. The communication system will be expanded based on the project needs to support the security operation of the facility. This expansion project will include the addition or upgrade of specific intercom units identified throughout the facility. Each intercom location will require a new intercom, intercom mount, and CAT-6 or Fiberoptic cable as required to connect to the existing City of Raleigh POE network switch. In addition to the intercom equipment, new media converters or POE injectors may be required to complete a fully functional and integrated system. All connections and programming will be required to make the system fully functional and integrated with the existing Milestone Video Management System at RCC. The electrical scope will include power and pathways.

Site:

This expansion project will include the addition of fencing and gates at the Lenoir street entrance. Gates will control access and allow deliveries. Each gate will require a gate controller to create a fully functional and secure. The electrical scope will include power and pathways.

RHA Services and Maintenance Scope

The Contractor will provide service and maintenance for the converted and/or new Access Control System, Video Management System, Communication System and associated security components at Red Hat Amphitheater (RHA). This maintenance service will also include at a minimum yearly milestone patches/software updates to the milestone applications. In performing the services described herein, it is mutually agreed that time is of the essence. The Contractor will provide 24/7 emergency call support with the ability to respond within a timely manner through remote technical support or on-site assistance. When replacement products are needed as determined by either or a combination of the City of Raleigh, Raleigh Convention and Performing Arts Complex (RCPAC), or Contractor, it is requested of the Contractor to install equipment associated with Access Control System, Video Management System, Communication System and associated security components. Contractor is expected to provide the equipment at the Contractor’s cost with an installation labor cost. All work must be performed by Contractor and cannot be subbed out to another contractor without the express consent of Raleigh Convention and Performing Arts Complex (RCPAC). The contractor must also have replacement parts for commonly used devices for our systems in stock to minimize systems downtime.

The contractor must have the ability to work on all systems and components included

in the converted and/or new Access Control System, Video Management System, Communication System and associated security components at the Red Hat Amphitheater (RHA).

GREEN STREET:

Green Street Security Installation Scope

Access Control System:

As part of the access control system conversion project at RCC, a new access control system will be expanded to the Green Street facility via the City of Raliegh's IT network. The addition of new field devices will be based on the project needs to support the security operation of the facility. This project will include the repair of one gate controller identified at the facility. The gate will require a card access reader, gate controller, request to exit device, and door contact(s) as required to create a fully functional and secure gate. In addition to the gate equipment, new access control system components, power supplies and supporting conductors shall be required to complete a fully functional and integrated system. All programming will be required to make the system fully functional and integrated with the existing Milestone Video Management System at RCC.

Video Management System:

RCC currently has an existing Milestone Video Management System that will be expanded to the Green Street facility via the City of Raliegh's network between the facilities. The expansion of cameras will be based on the project needs to support the security operation of the facility. This expansion project will include the addition of one specific camera identified at the facility. This camera location will require a new camera, camera mount, and CAT-6 or Fiberoptic cable as required to connect to the existing City of Raleigh POE network switch. In addition to the camera equipment, new media converters or POE injectors may be required to complete a fully functional and integrated system. All connections and programming will be required to make the system fully functional and integrated with the new Access Control System at RCC.

Green Street Services and Maintenance Scope

The Contractor will provide service and maintenance for the converted and/or new Access Control System, Video Management System, Communication System and associated security components at Green Street. This maintenance service will also include at a minimum yearly milestone patches/software updates to the milestone applications. In performing the services described herein, it is mutually agreed that time is of the essence. The Contractor will provide 24/7 emergency call support with the ability to respond within a timely manner through remote technical support or on-site assistance. When replacement products are needed as determined by either or a combination of the City of Raleigh, Raleigh Convention and Performing Arts Complex (RCPAC), or Contractor, it is requested of the Contractor to install equipment associated with Access Control System, Video Management System, Communication

System and associated security components. Contractor is expected to provide the equipment at the Contractor's cost with an installation labor cost. All work must be performed by Contractor and cannot be subbed out to another contractor without the express consent of Raleigh Convention and Performing Arts Complex (RCPAC). The contractor must also have replacement parts for commonly used devices for our systems in stock to minimize systems downtime.

The contractor must have the ability to work on all systems and components included in the converted and/or new Access Control System, Video Management System, Communication System and associated security components at Green Street.

APPENDIX I
Proposal Cost Form

Awarded Contractor shall perform the services to be performed as set forth in this RFP and more particularly described in Section 5 for a not to exceed total amount of

Base Contract: $_____.

Alternates: $_____.

Proposer shall attach proposal cost breakdown including subcontractor information to Appendix I – Proposal Cost Form.

Firm Name: _____

Authorized Signature _____ Date_____

Signed by: _____
[Type or Print Name]

Title of Signer: _____

APPENDIX I - Bid Form Worksheet
Total RCPAC Equipment and Installation Costs
BASE: RCC, MMPAC, RHA
ALTERNATE 1: Green St

Total RCPAC Equipment and Installation Costs							
BASE Contract or ALTERNATE	Project location	Specification section	Major equipment category	Quantity	Equipment cost	Labor Cost	Subtotal
BASE	RCC	281300	Card access	20	$2000	$2000	$4000
BASE	MMPAC	281300	Card access	20	$2000	$2000	$4000
BASE	RHA						
SUB-TOTAL BASE							
ALTERNATE 1	Green St						
SUB-TOTAL ALTERNATE 1							
GRAND TOTAL							

Note: These are sample pricing sheets. The bidder will be responsible for clarifying all line items in this format. All line items to include master equipment warranties, maintenance, and continuing extended warranties up to five years for all equipment.

APPENDIX I - Bid Form Worksheet
Annual Service and Maintenance Costs
RCC, MMPAC, RHA, Green Street

Service and Maintenance Costs					
COMPANY NAME:					
Location	Year 1 – (Warrantied) Annual Cost	Year 2 Annual Cost	Year 3 Annual Cost	Year 4 Annual Cost	Year 5 Annual Cost
Raleigh Convention Center (RCC)	X				
Martin Marietta Center for Performing Arts (MMPAC)	X				
Red Hat Amphitheater (RHA)	X				
Green Street	X				
TOTAL	X				
Service & Maintenance Hourly Rate:	X				
Service & Maintenance After Hours Rate:	X				
Service & Maintenance Holiday Rate Per Hour:	X				

APPENDIX I - Bid Form Worksheet
Pricing Lists
RCC, MMPAC, RHA, Green Street

Available in digital, editable format following Pre-Proposal Conference registration.

Includes project locations: RCC, MMPAC, RHA, Green St.

The following sheets are lists **of the major components for each location**. This is **NOT** a complete equipment list. Bidders should use these lists as a **starting point** and **add to the lists** to **provide pricing** for the Complete and Fully Functional systems they propose as well as a **lump sum**.

RedHat - Major Components Summary	Manufacturers model# if different than listed	QTY	Unit Price	Extended Price
Access Control				
Access Control Panel				
Door Controller				
Input Module				
Output Module				
Controller / Panel Backup Battery				
Panel Enclosure				
Power Supplies				
Card reader interface modules				
Door Contacts				
recessed ¾" magnetic door contacts				
surface-mount door contact with armored cable				
Card Readers				
HID Thin Line II and License				
HID Prox Pro II and License				
Cable				
Fiber Optic Cable				
Fiber Optic Tranceivers or Media Converters				
Network Cable				
Low Voltage Communication Cable				
Low Voltage Reader Cable				
Low Voltage Input / Output Cable				
Low Voltage Power Cable				
Communications				
Master Stations:				
Model IX-MV7-HB (Black chassis - Handset)				
Model IX-MV7-B (Black chassis - Hands Free)				
Audio Video Door Stations:				
Model IX-DV (Video Door Station - Surface Mount - Vandal Resistant)				
Model IX-DVF (Video Door Station - Flush Mount - Vandal Resistant)				
Video				
Vandal resistant fixed dome IP video camera Axis AXISP3267 or equal				
180 degree dome 14 megapixel IP video camera Q3819-PVE or equal				
4 Sensor 4x5 MP multidirectional camera AXIS P3737 or equal				
Dual-sensor multidirectional camera AXIS P4707 or equal				
PTZ Camera exterior AXIS Q6135-LE PTZ				
Flush, Surface or Pole mount kit and any additional mounting hardware as required for each camera.				
Camera Poles				
Pole to match existing poles. This requirement applies only to the locations where cameras are shown on the Contract Documents where exterior lighting poles are not available.				
NEMA 4 enclosure with backplane at the base of the pole which shall be painted to match the color of the pole.				
NEMA 4 enclosure with backplane at the base of the pole at the locations shown as "Future" within the Contract Documents.				

RCC - Major Components Summary	Manufacturers model# if different than listed	QTY	Unit Price	Extended Price
Security Command Center				
Dell Ultrasharp 27" 4K USB-c Hub monitor (U2723QE) or equivalent				
Sharp 49" Wide Color Gamut Ultra High-Definition Professional Display or equivalent				
Wall mounts for video display monitors.				
Winsted 96" E-SOC – Console Station with four (4) 15" adjustable monitor mounts				
Access Control				
Access Control Server and license				
Access Control Workstations and License				
Access Control Panel				
Door Controller				
Input Module				
Output Module				
Controller / Panel Backup Battery				
Panel Enclosure				
Power Supplies				
Card reader interface modules				
Door Contacts				
recessed ¾" magnetic door contacts				
surface-mount door contact with armored cable				
Card Readers				
HID Thin Line II and License				
HID Prox Pro II and License				
Door Hardware				
Electrified mortise lock with built-in REX monitor switch				
Electrified panic hardware lock(s) with built in REX monitor				
Von Duprin (QEL) Quiet Motorized Latch Retraction Kit				
Header strike with latch bolt monitoring and built-in REX monitor				
8-wire electric transfer hinge				
Electrified Power Transfer device				
DSI model ES4300A local alarm with removable core				
Cable				
Fiber Optic Cable				
Fiber Optic Tranceivers or Media Converters				
Network Cable				
Low Voltage Communication Cable				
Low Voltage Reader Cable				
Low Voltage Input / Output Cable				
Low Voltage Power Cable				
Communications				
Master Stations:				
Model IX-MV7-HB (Black chassis - Handset)				
Model IX-MV7-B (Black chassis - Hands Free)				
Audio Video Door Stations:				
Model IX-DV (Video Door Station - Surface Mount - Vandal Resistant)				
Model IX-DVF (Video Door Station - Flush Mount - Vandal Resistant)				
Video				
Video Server and License				
Video Archiver Server and License				
Video Workstation and License				
Vandal resistant fixed dome IP video camera Axis AXISP3267 or equal				
180 degree dome 14 megapixel IP video camera Q3819-PVE or equal				
4 Sensor 4x5 MP multidirectional camera AXIS P3737 or equal				
Dual-sensor multidirectional camera AXIS P4707 or equal				
PTZ Camera exterior AXIS Q6135-LE PTZ				
Flush, Surface or Pole mount kit and any additional mounting hardware as required for each camera.				
Camera Poles				
Pole to match existing poles. This requirement applies only to the locations where cameras are shown on the Contract Documents where exterior lighting poles are not available.				
NEMA 4 enclosure with backplane at the base of the pole which shall be painted to match the color of the pole.				
NEMA 4 enclosure with backplane at the base of the pole at the locations shown as "Future" within the Contract Documents.				

MMCPA - Major Components Summary	Manufacturers model# if different than listed	QTY	Unit Price	Extended Price
Security Command Center				
Dell Ultrasharp 27" 4K USB-c Hub monitor (U2723QE) or equivalent				
Sharp 49" Wide Color Gamut Ultra High-Definition Professional Display or equivalent				
Wall mounts for video display monitors.				
Winsted 96" E-SOC – Console Station with two (2) 15" adjustable monitor mounts				
Access Control				
Access Control Workstations and License				
Access Control Panel				
Door Controller				
Input Module				
Output Module				
Controller / Panel Backup Battery				
Panel Enclosure				
Power Supplies				
Card reader interface modules				
Door Contacts				
recessed ¾" magnetic door contacts				
surface-mount door contact with armored cable				
Card Readers				
HID Thin Line II and License				
HID Prox Pro II and License				
Door Hardware				
Electrified mortise lock with built-in REX monitor switch				
Electrified panic hardware lock(s) with built in REX monitor				
Von Duprin (QEL) Quiet Motorized Latch Retraction Kit				
Header strike with latch bolt monitoring and built-in REX monitor				
8-wire electric transfer hinge				
Electrified Power Transfer device				
DSI model ES4300A local alarm with removable core				
Fence				
8' Chain link fence, posts, fabic security cable, and top guard				
Manual chain link swing gates				
Sliding Gate System				
Hy-Security SlideDriver II 40 gate controller				
Gate				
Hoffman Box				
Multiple loops and sensors for safe operation				
Swing Gate Systems				
Hy-Security SwingRiser HRG-222- Twin gate controller				
Gates				
Hoffman Box				
Multiple loops and sensors for safe operation				
Pedestrian Gate System				
fence pedestrian gate with 24VDC electric panic hardware lock				
Electrified Power Transfer device				
Cable				
Fiber Optic Cable				
Fiber Optic Tranceivers or Media Converters				
Network Cable				
Low Voltage Communication Cable				
Low Voltage Reader Cable				
Low Voltage Input / Output Cable				
Low Voltage Power Cable				
Communications				
Master Stations:				
Model IX-MV7-HB (Black chassis - Handset)				
Model IX-MV7-B (Black chassis - Hands Free)				
Audio Video Door Stations:				
Model IX-DV (Video Door Station - Surface Mount - Vandal Resistant)				
Model IX-DVF (Video Door Station - Flush Mount - Vandal Resistant)				
Video				
Video Archiver Server and License				
Video Workstation and License				
Vandal resistant fixed dome IP video camera Axis AXISP3267 or equal				
180 degree dome 14 megapixel IP video camera Q3819-PVE or equal				
4 Sensor 4x5 MP multidirectional camera AXIS P3737 or equal				
Dual-sensor multidirectional camera AXIS P4707 or equal				
PTZ Camera exterior AXIS Q6135-LE PTZ				
Flush, Surface or Pole mount kit and any additional mounting hardware as required for each camera.				
Camera Poles				
Pole to match existing poles. This requirement applies only to the locations where cameras are shown on the Contract Documents where exterior lighting poles are not available.				
NEMA 4 enclosure with backplane at the base of the pole which shall be painted to match the color of the pole.				
NEMA 4 enclosure with backplane at the base of the pole at the locations shown as "Future" within the Contract Documents.				

Green St. - Major Components Summary	Manufacturers model# if different than listed	QTY	Unit Price	Extended Price
Access Control				
Access Control Panel				
Door Controller				
Input Module				
Output Module				
Controller / Panel Backup Battery				
Panel Enclosure				
Power Supplies				
Card reader interface modules				
Door Contacts				
recessed ¾" magnetic door contacts				
surface-mount door contact with armored cable				
Card Readers				
HID Thin Line II and License				
HID Prox Pro II and License				
Sliding Gate System				
Hy-Security SlideDriver II 40 gate controller				
Hoffman Box				
Multiple loops and sensors for safe operation				
Cable				
Fiber Optic Cable				
Fiber Optic Tranceivers or Media Converters				
Network Cable				
Low Voltage Communication Cable				
Low Voltage Reader Cable				
Low Voltage Input / Output Cable				
Low Voltage Power Cable				
Communications				
Master Stations:				
Model IX-MV7-HB (Black chassis - Handset)				
Model IX-MV7-B (Black chassis - Hands Free)				
Audio Video Door Stations:				
Model IX-DV (Video Door Station - Surface Mount - Vandal Resistant)				
Model IX-DVF (Video Door Station - Flush Mount - Vandal Resistant)				
Video				
Vandal resistant fixed dome IP video camera Axis AXISP3267 or equal				
180 degree dome 14 megapixel IP video camera Q3819-PVE or equal				
4 Sensor 4x5 MP multidirectional camera AXIS P3737 or equal				
Dual-sensor multidirectional camera AXIS P4707 or equal				
PTZ Camera exterior AXIS Q6135-LE PTZ				
Flush, Surface or Pole mount kit and any additional mounting hardware as required for each camera.				
Camera Poles				
Pole to match existing poles. This requirement applies only to the locations where cameras are shown on the Contract Documents where exterior lighting poles are not available.				
NEMA 4 enclosure with backplane at the base of the pole which shall be painted to match the color of the pole.				
NEMA 4 enclosure with backplane at the base of the pole at the locations shown as "Future" within the Contract Documents.				

APPENDIX II

PROPOSER QUESTIONNAIRE

The following questions must be answered, and data given must be clear and comprehensive. If necessary, questions may be answered on separate sheets. The Proposer may submit any additional information desired.

Company Name:				d/b/a (if applicable)			
Street / PO Box:							
City:				State:		Zip:	
Phone:		Fax:		E-Mail:			
Website (if applicable):							

☐ Sole Proprietor ☐ Partnership ☐ Corporation ☐ Other

Number of years in business under company's present name:			
Fed Tax ID #:		DUNS #	

Are you certified with the North Carolina Secretary of State to conduct business (if required)? (Check One) YES: ☐ NO: ☐ Not Applicable: ☐

Are you properly licensed/certified by the Federal and/or State of North Carolina to perform the specified work?
YES: ☐ NO: ☐ Not Applicable: ☐ ATTACH COPY OF ALL APPLICABLE LICENSING/CERTIFICATION DOCUMENTS

Are/will you be properly insured to perform the work? YES: ☐ NO: ☐

Contact for this Contract:				Title:	
Phone:		Fax:		E-Mail:	

Have you ever defaulted or failed on a contract? (If yes, attach details) YES: ☐ NO: ☐

List at least three (3) references for which you have provided these services (same scope/size) in the past three years - preferably government agencies. Do not include City of Raleigh as a reference to meet the requirement of listing at least (3) references.
PROPOSERS ARE RESPONSIBLE FOR SENDING REFERENCE QUESTIONNAIRE (APPENDIX III) TO THEIR REFERENCES.

1.	Company:					
	Contact Person:				Title:	
	Phone:		Fax:		E-Mail:	
Describe Scope of Work:						
2.	Company:					
	Contact Person:				Title:	
	Phone:		Fax:		E-Mail:	
Describe Scope of Work:						
3.	Company:					
	Contact Person:				Title:	
	Phone:		Fax:		E-Mail:	
Describe Scope of Work:						
4.	Company:					
	Contact Person:				Title:	
	Phone:		Fax:		E-Mail:	
Describe Scope of Work:						
5.	Company:					
	Contact Person:				Title:	
	Phone:		Fax:		E-Mail:	
Describe Scope of Work:						

The undersigned swears to the truth and accuracy of all statements and answers contained herein:

Authorized Signature:		Date:	

APPENDIX III

City of Raleigh

#274-2024-RCPAC-11 Access Control System Upgrades

Reference Questionnaire

The City of Raleigh, as a part of the RFP, requires proposing companies to submit a minimum of three (3) business references as required within this document. The purpose of these references is to document the experience relevant to the scope of services and provide assistance in the evaluation process.

The Proposer is required to send the reference form (the following two pages) to each business reference listed on Proposer Questionnaire. The business reference, in turn, is requested to submit the Reference Form directly to the City of Raleigh Point of Contact identified on the Reference Questionnaire form for inclusion in the evaluation process. The form and information provided will become a part of the submitted proposal. The business reference may be contacted for validation of the response. It is the Proposer's responsibility to verify their references have been received by the City of Raleigh Point of Contact by the date indicated on the reference form.

City of Raleigh
RFP #274-2024-RCPAC-11 Access Control System Upgrades

REFERENCE QUESTIONNAIRE

_____

(Name of Business Requesting Reference)

This form is being submitted to your company for completion as a business reference for the company listed above.
This form is to be returned to the City of Raleigh, Byron Johnson II, via email to byronkjohnson@raleighnc.gov no later than **4:00 *p.m. ET, December 13, 2024*** and **MUST NOT** be returned to the company requesting the reference.
For questions or concerns regarding this form, please contact the City of Raleigh, Point of Contact above.

Company Providing Reference _____
Contact Name and Title/Position _____
Contact Telephone Number _____
Contact Email Address _____

Questions:

1. In what capacity have you worked with this company in the past? If the company was under a contract, please acknowledge and explain briefly whether or not the contract was successful.
   Comments: _____

2. How would you rate this company's knowledge and expertise?
   ☐ 3= Excellent ☐ 2= Satisfactory ☐ 1= Unsatisfactory ☐ 0= Unacceptable
   Comments: _____

3. How would you rate the company's flexibility relative to changes in the scope and timelines?
   ☐ 3= Excellent ☐ 2= Satisfactory ☐ 1= Unsatisfactory ☐ 0= Unacceptable
   Comments: _____

4. What is your level of satisfaction with hard-copy materials, e.g. reports, logs, etc. produced by the company?
   ☐ 3= Excellent ☐ 2= Satisfactory ☐ 1= Unsatisfactory ☐ 0= Unacceptable
   Comments: _____

5. How would you rate the dynamics/interaction between the company and your staff?
   ☐ 3= Excellent ☐ 2= Satisfactory ☐ 1= Unsatisfactory ☐ 0= Unacceptable

   Comments:

6. Who were the company's principle representatives involved in providing your service and how would you rate them individually? Would you comment on the skills, knowledge, behaviors or other factors on which you based the rating?
   (3= Excellent; 2= Satisfactory; 1= Unsatisfactory; 0= Unacceptable)

   Name: _____ Rating: _____
   Name: _____ Rating: _____
   Name: _____ Rating: _____
   Name: _____ Rating: _____

   Comments:

7. With which aspect(s) of this company's services are you most satisfied?
   Comments:

8. With which aspect(s) of this company's services are you least satisfied?
   Comments:

9. Would you recommend this company's services to your organization again?
   Comments:

APPENDIX IV

CONTRACT STANDARD TERMS AND CONDITIONS

The contract terms provided herein shall become a part of any contract issued as a result of this solicitation. Any exceptions to the contract terms must be stated in the submittal. Any submission of a proposal without objection to the contract terms indicates understanding and intention to comply with the contract terms. If there is a term or condition that the firm intends to negotiate, it must be stated in the proposal. The successful firm will not be entitled to any changes or modifications unless they were first stated in the proposal. The City of Raleigh reserves the right, at its sole discretion, to reject any or all submittal package(s) containing unreasonable objections to standard City of Raleigh contract provisions.

1. Compensation; Time of Payment
   The standard City of Raleigh payment term is NET 30 days from the date of invoice. For prompt payment all invoices should be emailed to (accountspayable@raleighnc.gov) or mail to the City of Raleigh, Accounts Payable, PO Box 590, Raleigh, North Carolina 27602-0590. All invoices must include the Purchase Order Number. Invoices submitted without the correct purchase order number will result in delayed payment.

2. Workmanship and Quality of Services
   All work performed under this Contract shall be performed in a workmanlike and professional manner, to the reasonable satisfaction of the City, and shall conform to all prevailing industry and professional standards.

3. Non-discrimination
   To the extent permitted by North Carolina law, the parties hereto for themselves, their agents, officials, employees and servants agree not to discriminate in any manner on the basis of race, color, creed, national origin, sex, age, handicap, or sexual orientation with reference to the subject matter of this Contract. The parties further agree, to the extent permitted by law, to conform with the provisions and intent of City of Raleigh Ordinance 1969-889, as amended. This provision is hereby incorporated into this Contract for the benefit of the City of Raleigh and its residents, and may be enforced by action for specific performance, injunctive relief, or other remedy as provided by law. This provision shall be binding on the successors and assigns of the parties with reference to the subject matter of this Contract.

4. Minority and Women Owned Business Enterprise
   The City of Raleigh prohibits discrimination in any manner on the basis of race, color, creed, national origin, sex, age or handicap or sexual orientation and will pursue an affirmative policy of fostering, promoting and conducting business with women and minority owned business enterprises. The City of Raleigh encourages participation by certified minority and women-owned businesses. If there are any questions, Contact the MWBE Program Manager, PO BOX 590 Raleigh, NC 27602, mwbe@raleighnc.gov, or 919-996-4330.

5. Assignment

This Contract may not be assigned without the express written consent of the City.

6. Applicable Law

All matters relating to this Contract shall be governed by the laws of the State of North Carolina, without regard to its choice of law provisions, and venue for any action relating to this Contract shall be Wake County Civil Superior Court or the United States District Court for the Eastern District of North Carolina, Western Division.

7. Insurance

Contractor agrees to maintain, on a primary basis and at is sole expense, at all times during the life of this Contract the following coverages and limits. The requirements contained herein, as well as City's review or acceptance of insurance maintained by Contractor is not intended to and shall not in any manner limit or qualify the liabilities or obligations assumed by Contractor under this Contract.

Commercial General Liability – Combined single limit of no less than $1,000,000 each occurrence and $2,000,000 aggregate. Coverage shall not contain any endorsement(s) excluding nor limiting Product/Completed Operations, Contractual Liability or Cross Liability.

Automobile Liability – Limits of no less than $1,000,000 Combined Single Limit. Coverage shall include liability for Owned, Non-Owned and Hired automobiles. In the event Contractor does not own automobiles, Contractor agrees to maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Auto Liability policy. Automobile coverage is only necessary if vehicles are used in the provision of services under this Contract and/or are brought on a COR site.

Worker's Compensation & Employers Liability – Contractor agrees to maintain Worker's Compensation Insurance in accordance with North Carolina General Statute Chapter 97 with statutory limits and employees liability of no less than $1,000,000 each accident.

Additional Insured – Contractor agrees to endorse the City as an Additional insured on the Commercial General Liability, Auto Liability and Umbrella Liability if being used to meet the standard of the General Liability and Automobile Liability. The Additional Insured shall read **'City of Raleigh is named additional insured as their interest may appear'.**

Certificate of Insurance – Contractor agrees to provide COR a Certificate of Insurance evidencing that all coverages, limits and endorsements required herein are maintained and in full force and effect, and Certificates of Insurance

shall provide a minimum thirty (30) day endeavor to notify, when available, by Contractor's insurer. If Contractor receives a non-renewal or cancellation notice from an insurance carrier affording coverage required herein, or receives notice that coverage no longer complies with the insurance requirements herein, Contractor agrees to notify the City within five (5) business days with a copy of the non-renewal or cancellation notice, or written specifics as to which coverage is no longer in compliance. **The Certificate Holder address should read:**

City of Raleigh
Post Office Box 590
Raleigh, NC 27602-0590

Umbrella or Excess Liability – Contractor may satisfy the minimum liability limits required above under an Umbrella or Excess Liability policy. There is no minimum Per Occurrence limit of liability under the Umbrella or Excess Liability, however, the Annual Aggregate limits shall not be less than the highest 'Each Occurrence' limit for required policies. Contractor agrees to endorse City of Raleigh as an 'Additional Insured' on the Umbrella or Excess Liability, unless the Certificate of Insurance states the Umbrella or Excess Liability provides coverage on a 'Follow-Form' basis.

Professional Liability – Limits of no less than $1,000,000 each claim. This coverage is only necessary for professional services such as engineering, architecture or when otherwise required by the City.

All insurance companies must be authorized to do business in North Carolina and be acceptable to the City of Raleigh's Risk Manager.

8. Indemnity

Except to the extent caused by the sole negligence or willful misconduct of the City, the Contractor shall indemnify and hold and save the City, its officers, agents and employees, harmless from liability of any kind, including all claims, costs (including defense) and losses accruing or resulting to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this Contract, and from any and all claims, costs (including defense) and losses accruing or resulting to any person, firm, or corporation that may be injured or damaged by the Contractor in the performance of this Contract. This representation and warranty shall survive the termination or expiration of this Contract.

The Contractor shall indemnify and hold and save the City, its officers, agents and employees, harmless from liability of any kind, including claims, costs (including defense) and expenses, on account of any copyrighted material, patented or unpatented invention, articles, device or appliance manufactured or used in the performance of this Contract.

9. Intellectual Property

Any information, data, instruments, documents, studies, reports or deliverables given to, exposed to, or prepared or assembled by the Contractor under this Contract shall be kept as confidential proprietary information of the City and not divulged or made available to any individual or organization without the prior written approval of the City. Such information, data, instruments, documents, studies, reports or deliverables will be the sole property of the City and not the Contractor.

All intellectual property, including, but not limited to, patentable inventions, patentable plans, copyrightable works, mask works, trademarks, service marks and trade secrets invented, developed, created or discovered in performance of this Contract shall be the property of the City.

Copyright in and to any copyrightable work, including, but not limited to, copy, art, negatives, photographs, designs, text, software, or documentation created as part of the Contractor's performance of this project shall vest in the City. Works of authorship and contributions to works of authorship created by the Contractor's performance of this project are hereby agreed to be 'works made for hire' within the meaning of 17 U.S.C. 201.

10. Force Majeure

Except as otherwise provided in any environmental laws, rules, regulations or ordinances applicable to the parties and the services performed under this Contract, neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations by an act of war, hostile foreign actions, nuclear explosion, earthquake, hurricane, tornado, or other catastrophic natural event or act of God. Either party to the Contract must take reasonable measures and implement reasonable protections when a weather event otherwise defined as a force majeure event is forecast to be eligible to be excused from the performance otherwise required under this Contract by this provision.

11. Advertising

The Contractor shall not use the existence of this Contract, or the name of the City of Raleigh, as part of any advertising without the prior written approval of the City.

12. Cancellation

The City may terminate this Contract at any time by providing thirty (30) days written notice to the Contractor. In addition, if Contractor shall fail to fulfill in timely and proper manner the obligations under this Contract for any reason, including the voluntary or involuntary declaration of bankruptcy, the City shall have the right to terminate this Contract by giving written notice to the Contractor and termination will be effective upon receipt. Contractor shall cease performance immediately upon receipt of such notice.

In the event of early termination, Contractor shall be entitled to receive just and equitable compensation for costs incurred prior to receipt of notice of termination and for the satisfactory work completed as of the date of termination and delivered to the City. Notwithstanding the foregoing, in no event will the total amount due to Contractor under this section exceed the total amount due Contractor under this Contract. The Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Contract, and the City may withhold any payment due to the Contractor for the purpose of setoff until such time as the City can determine the exact amount of damages due the City because of the breach.

Payment of compensation specified in this Contract, its continuation or any renewal thereof, is dependent upon and subject to the allocation or appropriation of funds to the City for the purpose set forth in this Contract.

13. Laws/Safety Standards

The Contractor shall comply with all laws, ordinances, codes, rules, regulations, safety standards and licensing requirements that are applicable to the conduct of its business, including those of Federal, State, and local agencies having jurisdiction and/or authority.

All manufactured items and/or fabricated assemblies subject to operation under pressure, operation by connection to an electric source, or operation involving a connection to a manufactured, natural, or LP gas source shall be Installed and approved in a manner acceptable to the appropriate state inspector which customarily requires the label or re-examination listing or identification marking of the appropriate safety standard organization, such as the American Society of Mechanical Electrical Engineers for pressure vessels; the Underwriters' Laboratories and/or National Electrical Manufacturers' Association for electrically operated assemblies; or the American Gas Association for gas operated assemblies, where such approvals of listings have been established for the type(s) of devices offered and furnished. Further, all items furnished by the Contractor shall meet all requirements of the Occupational Safety and Health Act (OSHA), and state and federal requirements relating to clean air and water pollution.

Contractor must comply with *North Carolina Occupational Safety and Health Standards for General Industry, 29CFR 1910.* In addition, Contractor shall comply with all applicable occupational health and safety and environmental rules and regulations.

Contractor shall effectively manage their safety and health responsibilities including:

A. Accident Prevention

Prevent injuries and illnesses to their employees and others on or near their job site. Contractor managers and supervisors shall ensure personnel safety by strict adherence to established safety rules and procedures.

B. Environmental Protection

Protect the environment on, near, and around their work site by compliance with all applicable environmental regulations.

C. Employee Education and Training

Provide education and training to all contractors employees before they are exposed to potential workplace or other hazards as required by specific OSHA Standards.

14. Applicability of North Carolina Public Records Law

Notwithstanding any other provisions of this Contract, this Contract and all materials submitted to the City by the Contractor are subject to the public records laws of the State of North Carolina and it is the responsibility of the Contractor to properly designate materials that may be protected from disclosure as trade secrets under North Carolina law as such and in the form required by law prior to the submission of such materials to the City. Contractor understands and agrees that the City may take any and all actions necessary to comply with federal, state, and local laws and/or judicial orders and such actions will not constitute a breach of the terms of this Contract. To the extent that any other provisions of this Contract conflict with this paragraph, the provisions of this section shall control.

15. Miscellaneous

The Contractor shall be responsible for the proper custody and care of any property furnished or purchased by the City for use in connection with the performance of this Contract, and will reimburse the City for the replacement value of its loss or damage.

The Contractor shall be considered to be an Independent Contractor and as such shall be wholly responsible for the work to be performed and for the supervision of its employees. Nothing herein is intended or will be construed to establish any agency, partnership, or joint venture. Contractor represents that it has, or will secure at its own expense, all personnel required in performing the services under this Contract. Such employees shall not be employees of or have any individual contractual relationship with the City.

This Contract may be amended only by written agreement of the parties executed by their authorized representatives.

16. Right to Audit and Access to Records

1. The City may conduct an audit of any services performed and fees paid subject to this Contract. The City, or its designee, may perform such an audit throughout the contract period and for three (3) years after termination thereof or longer if otherwise required by law.

2. The Contractor and its agents shall maintain all books, documents, papers, accounting records, contract records and such other evidence as may be

appropriate to substantiate costs incurred under this Contract. The City, or its designee, shall have the right to, including but not limited to: review and copy records; interview current and former employees; conduct such other investigation to verify compliance with contract terms; and conduct such other investigation to substantiate costs incurred by this Contract.

3. "Records" shall be defined as data of every kind and character, including but not limited to books, documents, papers, accounting records, contract documents, information, and materials that, in the City's sole discretion, relate to matters, rights, duties or obligations of this Contract.

4. Records and employees shall be available during normal business hours upon advanced written notice. Electronic mail shall constitute written notice for purposes of this section.

5. Contractor shall provide the City or its designee reasonable access to facilities and adequate and appropriate workspace for the conduct of audits.

6. The rights established under this section shall survive the termination of the Contract, and shall not be deleted, circumvented, limited, confined, or restricted by contract or any other section, clause, addendum, attachment, or the subsequent amendment of this Contract.

7. The Contractor shall reimburse the City for any overcharges identified by the audit within ninety (90) days of written notice of the City's findings.

17. E – Verify

Contractor shall comply with E-Verify, the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law and as in accordance with N.C.G.S. §64-25 et seq. In addition, to the best of Contractor's knowledge, any subcontractor employed by Contractor as a part of this contract shall be in compliance with the requirements of E-Verify and N.C.G.S. §64-25 et seq.

18. Iran Divestment Act Certification

Contractor certifies that, as of the date listed below, it is not on the Final Divestment List as created by the State Treasurer pursuant to N.C.G.S. § 147-86.55, *et seq*. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. § 147-86.59, Contractor shall not utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List.

19. Companies Boycotting Israel Divestment Act Certification

Contractor certifies that it has not been designated by the North Carolina State Treasurer as a company engaged in the boycott of Israel pursuant to N.C.G.S. 147-86.81.

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APPENDIX V
EXCEPTIONS TO RFP

Check one: ☐NO EXCEPTIONS, PROPOSER COMPLIES WITH ALL DOCUMENTS IN RFP. ☐EXCEPTIONS ARE LISTED BELOW:

#	RFP Page #, Section #, Appendix #	Exceptions [Describe nature of Exception]	Explain why this is an issue	Proposed Alternative	Indicate if exception is negotiable (N) or non-negotiable (NN)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

FAILURE TO IDENTIFY ANY EXCEPTIONS WILL INDICATE ACCEPTANCE OF ALL TERMS AND CONDITIONS, AND REQUIREMENTS OF THE RFP AND ANY CORRESPONDING ADDENDUM ISSUED. THE CITY, AT ITS SOLE DISCRETION, MAY MODIFY OR REJECT ANY EXCEPTION OR PROPOSED CHANGE.

Firm:	Authorized Signature	Title:
Printed Name of Signer		Date:

APPENDIX VI
RCPAC Functional Specifications Requirements

Available in digital, editable format following Pre-Proposal Conference registration.

Includes project locations: RCC, MMPAC, RHA, Green St.

SECTION 281300 – ACCESS CONTROL SYSTEM

PART 1 - GENERAL

1.1. Summary

A. This document covers the specifications that include all materials and labor for the provision and installation of a complete and integrated enterprise Access Control System for the City of Raleigh Convention Center and Red Hat Amphitheater (RCC-RHA) project. Included in the documents are all major systems, subsystems, and components as required by this specification.

B. The requirements of this specification shall be understood to be the City of Raleigh minimum. The requirements shall be expanded as necessary to ensure quality. However, unless City of Raleigh approval is obtained, the requirement herein shall not be deleted or revised.

C. The City of Raleigh shall be hereinafter referred to in this document as the Owner and the bid respondents shall be referred to as the Contractor. The term Owner includes direct employees and other appointed Owner agents such as architects or consultants. These agents may be requested by the Owner to represent the Owner in undertaking certain project tasks.

D. If any statement in this specification is in conflict with any provision of the General Terms and Conditions of the contract, the provision stated in the General Terms and Conditions shall take precedence. Any questions that require additional interpretation and guidance shall be immediately brought to the Owner's attention.

1.2. System Description

A. The manufacturer of the proposed system(s) shall require resellers to pass a formal training program prior to being certified as authorized to sell and install the system(s). Such certifications shall require annual re-qualification. The system Contractor proposing the system(s) shall be in possession of such a certification.

B. The SMS shall seamlessly integrate the functions of access control, alarms monitoring and response, digital video imaging and badge design/creation, and visitor management. All SMS components shall run in an integrated application environment as part of a single application.

C. Currently the Owner uses Vykon for access control and Milestone for video management. These systems are completely integrated into a complete Security Management system.

D. The security systems described in this document are capable of integrating, interfacing and/or operating with other systems. If any such functions are required, they should be described either in this specification or separately in other sections.

E. This RFP for RCC and RHA is in conjunction with the Martin Marietta Center for the Performing Arts (MMCPA) RFP. Contractors may choose to bid for

only the Base Bid, a single alternate, or all four options, but the option chosen must be the same for both RFPs.

F. The contractor shall provide and install an integrated security management system that shall provide a simple and easy-to-use graphical user interface. The system shall provide local operational control of all access points and alarm sensors, and video management. **For the Base Bid as well as the Alternates, components shall be capable of integrating, interfacing, and/or operating as a fully integrated SMS.**
   1. The Base Bid will require a new access control system and a new video management system.
   2. Alternate 1 will require an expansion of the Owner's existing Vykon access control system and a new video management system.
   3. Alternate 2 will require a new access control system and an expansion of the Owner's existing Milestone video management system.
   4. Alternate 3 will require an expansion of the Owner's existing Vykon access control system and an expansion of the Owner's existing Milestone video management system.

G. This section covers the provision of the access control systems including items and subsystems as required by this specification.
   1. Communication Panels and field interface control panels for access control and alarm management.
   2. Card readers and other security input/output devices for access control and alarm monitoring of secured areas.

1.3. Related Sections

A. This section references related installation methods, guidelines, and basic infrastructure. If any such references are required, they should be described either in this specification or separately in other sections.
   1. Conduit, Raceways, and Cable Trays
   2. Fire Stopping Penetration Through Rated Construction
   3. Electrical, Cabling, and Wiring
   4. Door Hardware
   5. Data Communications Circuits

1.4. Reference Standards

A. Reference standards or recommended practices referred to herein shall be the latest edition or revision of the item referenced.

B. Equipment and materials for which there are Underwriters Laboratories (UL) standard testing requirements or listings shall have the appropriate UL label indicating compliance with the UL requirements.

C. All equipment and materials shall be American made and shall meet the requirements stated in the Buy American Act.

D. Equipment and materials for which there are American National Standards Institute (ANSI) standard testing requirements or listings shall have the appropriate ANSI label indicating compliance with the ANSI requirements.

E. Systems shall be designed, manufactured, tested and installed in accordance with NFPA 70 (National Electrical Code / NEC), state codes, local codes, requirements of Authorities Having Jurisdiction (AHJ), and in particular:

1. North Carolina Building Code
2. ADA (Americans with Disabilities Act, Public Law 101-336) requirements
3. NFPA (National Fire Protection Association) 101 (Life Safety Code) requirements
4. NBFAA (National Burglar & Fire Alarm Association) standards
5. Manufacturer's requirements
6. Standard industry practices

F. In the event that any codes disagree with one another, or are in conflict, the Contractor shall use the more restrictive code.

1.5. Scope of Work

A. Base Bids and Alternates

1. Base Bid: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a completely new access control system and a completely new video management system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Base Bid)
2. Alternate 1: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Vykon access control system that will be capable of integrating, interfacing, and operating with a new video management system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, video monitoring workstations as indicated on the drawings. (Alternate 1)
3. Alternate 2: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a new access control system that is capable of integrating, interfacing, and operating with an expansion of the Owner's existing Milestone video management system. Components may include, but are not limited to video archivers, cameras, access control servers,

controllers, card readers, door contacts, video monitoring workstations as indicated on the drawings. (Alternate 2)

4. Alternate 3: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Vykon access control system and an expansion of the Owner's existing Milestone video management system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, video monitoring workstations as indicated on the drawings. (Alternate 3)

B. The following shall be covered as part of this Bid:
   1. The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete and operational card access system on any doors indicated on the drawings.
   2. New electronic door hardware, door position sensors, card readers, new Field Interface Panels and power supplies for the access-controlled doors shall be provided and installed by the Contractor.
   3. Each card reader shall be multiclass with the ability to read existing prox cards and smart cards. It is the Contractor's responsibility to obtain the access card requirements for compatibility.
   4. The Contractor shall provide an on-premises server to connect the Communication Panels and/or FIPs. The Contractor shall coordinate with the Owner for specific network standards and local area network (LAN) connections.
   5. The Security Management System (SMS) client and server software shall be used in conjunction with intelligent controllers to provide a distributed access control and alarms monitoring system. In the event of a communications failure between the host server and the field controllers, the controllers shall continue to make local access control decisions and save all transactions in memory until communications are restored. At that time the controller shall upload all stored transactions to the server.
   6. The Contractor shall provide three (3) access control workstations to monitor all card access transactions and alarms. This shall be configurable upon permissions-based privileges.
   7. All programming of all communications panels and/or FIP's shall be the responsibility of the Contractor unless notified otherwise by the Owner.
   8. The security system shall provide management, control, and monitoring of card access and alarms.
   9. The extent of security systems work is defined to include but not limited to the following:

a. Installation of new card readers, FIPs, door control modules, input/output modules, electronic door hardware, door position switches, remote release devices, integrated RX devices, intrusion detection panels, intrusion zone expanders, keypads, and other equipment as needed.

10. Installing the security systems and bringing them to operational status for acceptance shall include but not be limited to the following:
    a. Determine hardware, software, on-site servers, and operations requirements for implementation.
    b. Install security systems hardware and programming software to include proper security device and integration licenses.
    c. Set up and configure communications between the host server and control panels.
    d. Set up and configure security systems application.
    e. Test security systems operations based on a point-by-point physical walkthrough inspection and specification per section line-item testing using owner and Security Contractor's inspection documents.
    f. Perform end-user training.
11. The Contractor shall provide onsite professional services to assist in the initial setup and programming of all systems specified within this specification.
12. All low-voltage cabling shall be provided by the Contractor.

1.6. Submittals

A. Submittals shall be as follow:

1. The Contractor shall submit shop drawings for the project. Shop drawings shall include point-to-point wiring diagrams for entire system. Point-to-point diagrams shall detail each device location and all associated wire runs. Include with the shop drawings a separate layout drawing for each equipment panel, rack, cabinet, and control unit on the project. The panel layout drawings shall show each component and shall detail the wiring for all devices connected to all components within the rack or panel. They shall show the labeling of each terminal strip connection point, each wire connected to the connection point, and each cable leaving the rack or panel. The layout drawings shall indicate in detail the labeling of each component within the panel including power supplies, terminal strips, switches, card cages and plug-in modules.
2. The Contractor shall submit manufacturer's technical data sheets on each product proposed.
3. The Contractor shall submit documentation that proves that all equipment meets the Buy American Act.
4. The Contractor shall submit detailed description of all equipment locations and mounting particulars. The Contractor shall describe

coordination efforts that have been made or need to be made by the Contractor and the Owner for the installation to proceed on schedule in the manner described.

5. The Contractor shall provide a detailed project schedule with tasks and dates that includes at a minimum the Initial Preparation and Coordination Phase, Procurement Phase, Installation and Construction Phase, Testing and Commissioning Phase, and Closeout Phase. The use of Microsoft Project or similar is required.
6. The Contractor shall submit complete and detailed programming parameters of all card access and security monitoring points to the owner 30 days prior to the development and implementation of the programming.
7. Where AC or DC power supplies are used for Class 1, 2, or 3 Power-Limited Circuits, the Contractor shall provide evidence that the power capacity is sufficient for the proper operation of the powered devices under maximum load. Detailed calculations of the power requirements shall be acceptable for this purpose.
8. The Contractor shall submit manufacturers' user's manuals for operations, administration, installation, and maintenance.

B. Contract Close-Out Submittals:

1. Training Course Materials: See section 3.15 for details.
2. Commissioning Test Plan and Check-Off List. See section 3.14 for details.
3. As-Built Drawings: During system installation, the Contractor shall maintain a separate hard copy set of drawings, elementary diagrams, and wiring diagrams of the security systems to be used for record drawings. This set shall be kept up to date, reflecting all changes and additions made to the security systems. Copies of the final as-built drawings shall be provided to the Owner in .DWG or .DXF format using the latest version of AutoCAD and .PDF format using the latest version of Adobe.

1.7. Warranty and Maintenance

A. The card access system software, hardware, and installation shall be warranted against defects and workmanship for a minimum of 12 months, covering all parts and labor. Warranty period will begin upon acceptance by Owner.

B. The Contractor shall guarantee that the systems application software remains current at all times with the latest enhancements, supported by the manufacturer with unlimited remote dial-in diagnostics capability and technical phone support. (Coordinate with the Owner for any IT support requirements necessary to engage the manufacturer.)

C. The Contractor shall perform manufacturers' recommended preventative maintenance on all applicable components and/or devices.

D. The Contractor shall be the primary contact and respondent for all service and support, officially recognized and backed by the security systems manufacturer.

E. Extended and/or out of warranty terms at reasonable and customary rates shall be available from the Contractor.

F. Failure by the Contractor to coordinate their work will result in the Contractor being held liable for any and all deficiencies of the existing equipment that is relevant to the installation of the new security equipment.

1.8. Pricing and Bidding

A. The Contractor shall provide an Executive Summary System Description. This is a statement of the system function and single-line block diagram to show how all related equipment shall interface and operate as a complete electronic control system.

B. **Bid pricing shall be submitted in the following forms**:

1. The Bidder shall be required as a part of this bid to complete the attached spreadsheet. This is a list of major components and **NOT** a complete equipment list. Bidders should use this as a **starting point and add to the list to provide pricing for the complete and fully functional systems** they propose as well as a lump sum. This submitted spreadsheet shall identify line-item pricing per unit and extended pricing based on quantity and shall include, if applicable, state and local taxes in addition to the equipment.
2. Bidder shall supply on a separate line, the cost of labor to install each unit.

C. The Bidder shall provide an Add/Alternate 4 price to provide and install additional card readers, FIPs and any other associated equipment at door locations marked as future in the security drawings. The card access equipment shall match that of which is being provided as a part of the Base Bid or Alternates.

D. The Bidder shall provide an Add/Alternate 5 price to provide HID iClass multi-technology readers in the place of the HID proximity specified in section 2.6.

1. The iClass multi-technology readers shall meet the same requirements stated in section 2.6

1.9. Contractor Qualifications

A. Provide an architecture of all system components to include devices and network communication devices. Provide the manufacturer specifications for each system component to include any applicable software applications required.

B. Due to the nature of the work involved, Contractors desiring to bid on the work herein described shall have been regularly engaged in the installation

and maintenance of card access and security management systems similar in size and scope to that outlined herein for a period of no less than five years.

C. The Contractor represents that it is fully experienced and properly qualified and certified by the manufacturer(s) to perform the type of work described in this document. The Owner realizes that the Contractor is the expert in the installation of security and card access systems; therefore, it is the responsibility of the Contractor to deliver a properly functioning and safe system. This responsibility includes any items that may or may not be specifically noted in this document.
   1. If the Contractor is not properly qualified and certified in a particular system stated in this specification or shown in the drawing, the Contractor is allowed to sub-contract the work performed on the particular system to a properly qualified and certified Subcontractor. This Subcontractor shall meet the same requirements as the Contractor as stated in this section.

D. The Contractor shall supply information attesting to the fact that their firm is an authorized product dealer for the systems and equipment proposed.

E. The Contractor shall supply information attesting to the fact that their installation and service technicians are competent factory-trained personnel capable of maintaining the system and providing reasonable service time.

F. The Contractor shall provide a minimum of three references whose systems are of similar complexity and have been installed and maintained by the security system integrator in the last five years.

G. There shall be a local representative and factory authorized local service organization that shall carry a complete stock of parts and provide maintenance for these systems. Local shall be defined as an area in a 100-mile radius of the installed location.

H. The Contractor shall:
   1. Act as an independent Contractor and not as an agent or employee of the Owner.
   2. Be solely responsible for compliance with all applicable laws governing the employment of its employees and for Contractor's own acts and those of Contractor's employees, agents and subcontractors during the performance of Contractor's obligations hereunder.
   3. Be responsible for all taxes, permits or other fees imposed due to the work of the Contractor.
   4. Be regularly engaged in installing enterprise level access control components and shall have been engaged in such work for a period of not less than five years prior to bid submittal.
   5. At the time of the bid be licensed by all appropriate authorities (state, municipal, and local) for the type of work to be performed. Contractors who have licenses or permits pending, relevant to this project, shall not be considered acceptable for bidding on this project.

6. Include with the bid a copy of the Contractor's current Alarm System License from the North Carolina Private Protective Services Board.
7. Include with the bid a copy of the Contractor's current Electrical Contractor license with a minimum of an SP-LV classification as issued by the North Carolina Electrical Board.
8. Have all personnel employed by the Security Contractor registered with the appropriate state or municipal Licensing Board as provided for by current state or local statutes.
9. Include with the bid submittal a copy of the Contractor's current business license as issued by the state in which the work is to be performed.
10. Contractor shall immediately notify the Owner, in writing, of any Judgment, Disqualification, Permit Revocation or any other similar action taken against the Contractor by any legitimate Regulating Authority or Licensing Agency that may occur during the course of the work that the Contractor performs for the Owner

1.10. Document Preparation and Control

A. All design guides, design development documents, construction drawings and record drawings are extremely confidential. Access to these documents shall be restricted to authorized personnel and the Contractor. Parties receiving these documents shall take every reasonable precaution to protect these documents from unauthorized access.

B. Drawings and documents relating to this project which are no longer required shall be disposed of by complete destruction.

C. Distribution of any section of these guidelines to other persons or companies shall not be made without prior written approval of the Owner and/or the Security Consultant for the project.

PART 2 - PRODUCTS

2.1. Buy American Act

A. All equipment shall meet the requirements stated in the Buy American Act. Any manufacturer that is not included in these specifications that meet the requirements of the Buy American Act or meet exceptions of the Buy American Act must be submitted for approval by the Owner.

2.2. Quality Assurance

A. Materials and equipment shall be new and conform to grade, quality, and standards specified. Materials, equipment, and software shall be of the most recent version or production design available at the time of installation.

2.3. Approved Manufacturers

A. The following manufacturers produce equipment or components which are included in this specification, or which are approved for use by the City of Raleigh.

1. Altronix

   140 58th Street
   Brooklyn, NY 11220
2. HID

   14311 Chambers Road
   Tustin, CA 92780
3. Honeywell

   2 Corporate Drive, Suite 100
   Melville, NY 11747
4. AXIS Communication Inc.

   300 Apollo Drive
   Chelmsford, MA 01824
5. Dell Inc.

   1 Dell Way
   Round Rock, TX 78682
6. HP Inc.

   1501 Page Mill Road
   Palo Alto, CA 94304
7. Life Safety Power

   750 Tower Road, Unit B
   Mundelein, IL 60060
8. Milestone Systems Inc

   8905 SW Nimbus Avenue Suite 400
   Beaverton, OR 97008
9. Tridium Inc. 3951

   Westerre Parkway, Suite 350
   Richmond, VA 23233

B. Inclusion of a manufacturer on the above list does not imply that all products produced by the manufacturer are acceptable for use in the system(s) herein described.

2.4. Security Devices

A. The Contractor shall provide and install recessed ¾" magnetic door contacts (GRI 180 or equivalent) on single doors and both leaves of double doors at all of the new card access locations as shown on the drawing (CA#). Where building structure makes it impossible to install conduit within the wall or door frame, the Contractor shall notify the Owner and request a substitution to install a GRI 4460 surface-mount contact with armored cable for the door contacts specified above. Failure of the Contractor to notify the Owner ahead of time shall not be sufficient reason to substitute the surface-mount contacts for the preferred recessed contacts. Color shall match door frame finish.

B. The Contractor shall provide and install recessed ¾" magnetic door contacts (GRI 180 or equivalent) on single doors and both leaves of double doors at all of the door locations as shown on the drawing (DC#). Where building structure makes it impossible to install conduit within the wall or door frame, the Contractor shall notify the Owner and request a substitution to install a GRI 4460 surface-mount contact with armored cable for the door contacts specified above. Failure of the Contractor to notify the Owner ahead of time shall not be sufficient reason to substitute the surface-mount contacts for the preferred recessed contacts. Color shall match door frame finish.

2.5. Card Access Systems

A. System Overview

1. The Contractor shall provide, install and program all new electronic access control field hardware (FIP) and devices as outlined in these specifications and drawings.
2. The systems shall carry the UL mark and shall meet the requirements of UL-294.
3. The manufacturer of the proposed system shall require resellers to pass a formal training program prior to being certified as authorized to sell and install the system. Such certification shall require annual re-qualification. The contractor proposing the system shall be in possession of such a certification.
4. The access control client and server software shall be used in conjunction with intelligent controllers to provide a distributed access control and alarm monitoring system. In the event of a communications failure between the host server and the field controllers, the controllers shall continue to make local access control decisions and save all transactions in memory until communications are restored. At that time the controller shall upload all stored transactions to the server.
5. The access control system shall seamlessly integrate the functions of access control, alarms monitoring and response, digital video imaging

and badge design/creation, and visitor management. All access control components shall run in an integrated application environment as part of a single application.

6. The SMS hardware shall be capable of expansion via 2-door reader module. The reader module shall support up to 2 Wiegand and/or OSDP capable card readers and shall have inputs for door position and request-to-exit as well as outputs for door strikes.
7. The SMS and associated devices shall be powered by a factory-approved power supply and shall be mounted inside a factory-approved hinged enclosure. Each enclosure shall be installed in the DROP locations as shown in the security drawings.
    a. The power supply shall alarm upon an AC power fail and report to the Owner's monitoring station.
8. Communication Requirements
    a. The Local Area Network minimum physical and media access requirements shall be:
        i. Ethernet IEEE Standard 802.3
        ii. CAT6, UTP-8 wire, 100 Base-T
        iii. RS485 cable to comply with OSDP Standards
        iv. Minimum Throughput of 100 Megabits/sec
9. The SMS hardware shall support all of the following options for supervision of the monitored input points:
    a. 2-state supervision – in which only secured and alarm state are indicated.
    b. 3-state supervision – in which the input state can be secure, alarm or open circuit.
    c. 4-state supervision – supports secure, alarm, short circuit and open circuit states. **Note: As part of this project all inputs shall utilize 4-state supervision.**
    d. 6-state supervision – supports secure, alarm, short or open circuit for the sensor in addition to tamper alarm and tamper short circuit states.
10. Field Interface Panels (FIP)
    a. Field hardware shall include but not be limited to all card reader interface modules, access control communication panels, card readers, input and output modules, power supplies, enclosures and enclosure for transformer with tamper switches and battery back-up and all other equipment as required for a complete and operational system for each of the card access and security related points indicated on the drawings. The system shall provide local operational control of all access points and alarm sensors.

b. The Contractor shall be responsible for the connectivity of the network connection to each of the panels. It shall be the responsibility of this Contractor to provide and install an enclosure suitable for the power transformer required to power the access control equipment. The enclosure shall be mounted prior to the electrical outlet designated for this equipment. This Contractor shall also coordinate the mounting of the electrical outlet that will be provided and installed by the Owner inside of this enclosure.

c. Provide battery backup for all system controller panels sufficient to power each panel for 4 hours of continuous service.

2.6. Card Readers

A. Provide and install 125Khz access control readers that support the City of Raleigh card formats. Readers shall be ProxProII or ThinLineII series manufactured by HID.

B. The reader shall be powered by the local door controller's internal regulated power supply.

C. Access control doors will be equipped with electronic locking hardware as described elsewhere in these specifications specific to the project. All access doors shall be programmed for 5 second "Open Time" and a 20-second "Forgive Time" before going into alarm or supervisory status.

D. Performance Requirements:

1. Reader shall provide an operating distance of between one to eight inches depending on the reader model, card model and mounting environment.
2. Reader shall operate at 125Khz
3. Reader shall be capable of transmitting the card data in Wiegand and OSDP protocol.
4. Reader shall include a tamper detection mechanism as a standard feature. Tamper switches shall be connected and programmed to inputs on the controller FIP.
5. Reader shall operate across a voltage range of five volts direct current (5VDC) to sixteen volts direct current (16VDC).
6. Reader shall operate at an average current not to exceed one hundred twenty-five milliamps direct current (125mA DC).
7. Reader shall have a tri-color light emitting diode (LED) and audible annunciator.
   a. Red LED for locked state
   b. Green LED for unlocked state and valid card read
   c. Amber or yellow for trouble state
   d. Reader shall flash the LED green momentarily and emit a short beep to indicate that a valid card was read.

8. Reader shall have a lifetime warranty against manufacturer defects and workmanship.
9. Reader shall have the capability to perform secure transactions protecting data transmission between the card and reader utilizing cryptographic methods of mutual authentication and message authentication coding.

E. The Contractor shall notify the Owner of all card reader color options available.

2.7. Door Hardware

A. Refer to the Door and Hardware Schedule for all electronic hardware.

B. The Contractor shall engage a Door Hardware Contractor to evaluate, verify, provide, and support the installation of each fully functional electronic door opening.

C. The Contractor shall provide and install at each card access location (CA#) 24VDC electric panic hardware lock(s) with an integrated RX monitor switch that monitors the protected side of the panic device. This switch should be activated by the pressing of the panic device and shall be connected to the door controller as an input for valid egress. The panic hardware lock shall be fail-secure and each door should be prepped for the raceway. Provide and install additional hardware as necessary to affect an operating system. The Contractor shall provide and install an EPT type device on each door. This device shall be used to transfer power to the panic device lock and also for connection of the RX switch(es). The Contractor is also responsible for connecting any automatic door operators that are installed at existing doors.

D. The Contractor shall provide and install at each electric lock location (EL#) 24VDC electric panic hardware lock(s) with the RX monitor switch option(s) that monitors the protected side of the panic device. This switch should be activated by the pressing of the panic device and shall be connected to the door controller as an input for valid egress. The panic hardware lock shall be fail-secure and each door should be prepped for the raceway. Any EL# door shall connect to one of the ports on the new access controller. The operation of this door will need to be addressed with the Owner prior to programming. Provide and install additional hardware as necessary to affect an operating system. The Contractor shall provide and install an EPT type device on each door. This device shall be used to transfer power to the panic device lock and also for connection of the RX switch(es).

E. The Door Hardware Contractor shall provide and install at each card access location (CA#) a 24VDC electric mortise lock with the RX monitor switch option that monitors the protected side of the locking device. This switch should be activated by depressing the door hardware lever and shall be connected to the door controller as an input for valid egress. The mortise hardware lock shall be fail-secure. The door should be prepped for the raceway. Provide and install additional hardware as necessary to affect an

operating system. The Contractor shall provide and install an 8-wire electric transfer hinge on each door. This hinge shall be used to transfer power to the mortise lock and also for connection of the RX switch. The Contractor bidding this work shall be responsible for connecting the locking hardware to the security system.

F. All door hardware shall have the RX function that will be connected and programmed into the card access system to allow for free egress without generation of an alarm.

2.8. Power Supply

A. The Contractor shall provide and install UL listed conditioned filtered power supplies as required for the low voltage equipment. A separate power supply shall be supplied for the Lock Power and Auxiliary Device Power. The power supply for the locks shall be sized for the load intended plus 20%. Terminal strips shall be used as a bus-bar to distribute the power to the devices. All power feeds shall be labeled as power and describe the designated equipment. Power supplies shall be Altronix or approved equal with fail-safe/fail-secure outputs or approved equal and shall be UL listed for the intended application. Provide battery back for four hours of continuous service.

B. All door hardware shall have the RX function that will be connected and programmed into the card access system to allow for free egress without generation of an alarm.

PART 3 - EXECUTION

3.1. Purpose

A. This section provides for the Access Control Systems for the City of Raleigh RCC-RHA. Detailed design, construction documents, scope of work, or other supplementary data may be attached to this document to provide the Security Contractor with additional information pertinent to a specific site or project.

B. The requirements noted in this document shall be understood to be the minimum City of Raleigh requirements. These requirements shall be expanded by the Contractor as necessary to ensure quality; however, written approval from the City of Raleigh or their representative must be obtained prior to deleting or revising a requirement contained herein.

C. It shall be the responsibility of the Contractor to verify the system design with the local AHJ.

D. The City of Raleigh shall make final approval of the security systems design and its suitability for the application. The Contractor should seek design input and comments from the City of Raleigh or their representative at all design stages.

E. The security systems are designed to control access to and provide an audit trail of personnel entering a building or a specific area of a building and to also monitor all alarm devices. One of the primary goals is to prevent or deter unauthorized entry while allowing freedom of movement for employees and other authorized visitors.

F. The specifications contained in this document and the drawings submitted with the specification represent an outline of the desired system. Ensuring the compatibility of the equipment described is the responsibility of the Contractor submitting the proposal. Neither this document, nor any attached supplementary information, is intended to list all parts, interfaces, and miscellaneous equipment that may be needed, rather, it is the responsibility of the Contractor submitting the proposal to provide the equipment necessary to provide a properly functioning system.

3.2. Installation

A. All work shall be completed in a neat, organized, and professional workman-like manner.

B. The Contractor shall be aware and shall anticipate that due to the nature of this project, most of the work will have to be completed after hours and on weekends. In addition, due to the nature of some of the secure areas of this building, additional time may be necessary to gain access to certain areas. Any additional time that the Contractor deems necessary shall be included in this proposal. This access will need to be coordinated with the City of Raleigh.

C. All contractors will have to attend, if required, contractor safety training and shall display a safety training completion sticker, badge or letter while working on site.

D. The Contractor shall provide all conduit, boxes, enclosures, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

E. The Contractor shall provide all wiring, connectors, power supplies, interfaces, and other hardware as necessary to effect a normally operating system.

F. The Contractor shall be responsible for all materials and labor necessary to replace any components that have been improperly installed or damaged during installation.

G. Any holes or visible damage created while retrofitting hardware will be properly corrected and patched to the Owner's satisfaction.

H. Connections of all equipment and devices shall be made in the manner recommended by the manufacturer and must meet the approval of the City of Raleigh as a condition of the acceptance of this project.

I. All equipment shall only be used for the purpose intended by the manufacturer and shall be installed per the manufacturer's specifications.

J. Materials and equipment shall be new, unused and conform to grade, quality and standards specified.

K. Materials and equipment shall be of the most recent version or production design available at the time of installation.

L. Substitution of other Manufacturers / Vendors products for those specified shall not be permitted without prior review and written approval by the City of Raleigh.

M. The Contractor shall provide at least two tools to the City of Raleigh to remove tamperproof screws for service. Tamper resistant fasteners shall be such that they cannot be removed without special computer-designed wrenches provided for that specific purpose by the manufacturer. Allen head, Phillips head, torque, and other similar fasteners shall not be acceptable.

N. Compression type terminal strips shall be used whenever terminations are made at points other than on the components. There shall be no splices in any cable except where necessary to interface with pre-wired devices. Repair to damaged cables or extending cables by splicing will not be permitted. The Contractor shall be responsible for all materials and labor necessary to replace cables that have been installed improperly or damaged in installation. The use of "wire nuts" or "beans" inside the Field Interface Panels will not be acceptable.

O. System components and control devices shall be wired to the appropriate FIP as homeruns.

P. Programming of any new system components necessary to provide a fully operational system shall be included in the scope of this work.

Q. Each alarm initiating device shall be on its own zone and all zones shall report separately in a format which permits distinguishing individual zones and their conditions.

R. Supervised inputs shall be supervised by installing the end-of-line device as close to the input device as possible. End-of-line devices shall not be located at the controller inputs or inside the control enclosure(s).

S. All alarm inputs shall be configured as normally closed loops utilizing 4-state supervision.

T. End-of-line devices shall be located at the initiating device as described in the manufacturer's installation instructions.

U. Electronic Access Control, Video, or Intrusion system wiring shall not be run in the same conduit with Class 1, power, or lighting circuits.

V. Controllers, power supplies, and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling, and other similar locations).

W. When installed such that components are exposed to environmental effects such as rain, snow, or other inclement weather conditions, all fixtures and other equipment should be protected from a deterioration of the system due to weather related causes.

X. Lightning and surge protection shall be provided as required by industry standards and the manufacturer's recommendation on all appropriate elements of the security system.

Y. A separate suitable ground wire shall be connected to all lightning protection devices installed.

Z. Any firewall penetrations must be sealed with 2-hour intumescent UL approved firestop material. UL Penetration Detail Diagrams shall be available on site for review by the Building Inspector. In all cases the seal must meet the applicable fire code.

3.3. Cable and Conductors

A. The Contractor shall provide and install all cables and conductors in support of this project. It is the Contractor's responsibility to coordinate cabling raceway.

B. Alarm point wiring and RX wiring shall be minimum 22 AWG shielded twisted-pair or as specified by manufacturer's published installation procedures, whichever is the more stringent specification.

C. The cabling from each card access location shall be as recommended by the manufacturer and shall be a minimum of 18 AWG. New card reader locations shall require RS485 Cable from Drop location to each reader location and comply with OSDP Standards.

D. Low voltage power wiring for the electrified door hardware shall be a minimum of 16 AWG non-shielded.
E. All jacket material used shall be suitable for the application in which it is to be used.
F. All wiring shall be installed as specified by the manufacturer's published procedures.
G. Color-coding shall be used on all wiring and cabling and shall be used in a consistent manner.
H. When mechanical means of connecting wires do not otherwise exist (e.g. pre-wired devices), the connection may be made by twisting, "hot" soldering, and covering the connection with listed electrical tape or secured with either a crimp or solder type spade lug. Solderless crimp connectors shall be crimped only with a tool recommended by the manufacturer.

3.4. Pulling Cable

A. Swivel type pulling grips shall be used for all cable pulls to avoid cable twisting.
B. The manufacturer's recommended maximum pulling tension shall not be exceeded during any cable pull. A tensiometer shall be used during installation to monitor pulling tension.
C. Pulling winches with a calibrated maximum tension setting may be used in lieu of a tensiometer. Hand pulls do not require tension monitoring.
D. Equal pulling tension shall be applied to all cables pulled during one cable pull.
E. The manufacturer's rated minimum cable bend radius requirements shall be followed both while the cable is under pulling tension and while the cable is in a non-tension (operating) condition.
F. No residual tension shall remain on any cable after installation except the weight of the cable in a vertical rise.
G. Care shall be taken when dressing cables such that manufacturer's tension and minimum bend radius requirements are maintained.

3.5. Hardware

A. Miscellaneous hardware required for installation shall be suitable for the purpose for which it is used. Hardware includes such items as nuts, bolts, screws, washers, miscellaneous fasteners, terminals, terminal strips, tie wraps, and other related parts.
B. Manufacturer's specific requirements on hardware or other components shall be adhered to.
C. The finish on all hardware and fasteners shall be suitable for the environment in which it will be used and shall be selected to minimize corrosion or deterioration due to moisture, sunlight, temperature extremes, and other similar environmental concerns.

3.6. Painting and Finish

A. All surfaces to be painted shall be prepared and cleaned in compliance with the paint manufacturer's instructions for surface conditions and as herein specified. Do not apply paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to a durable and uniform finish. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any component identification, performance rating, name, or nomenclature plates.

B. Where the surface has been prime coated by the manufacturer, recoat the primed surface where there is evidence of suction spots or other unsealed areas due to insufficient sealing. Equipment primed by the manufacturer which exhibits evidence of having been improperly stored or exposed to the effects of weather shall have the primer coat removed and be prepared and painted as if it had not been primed.

C. Where the surface is ferrous metal, the minimum acceptable degree of surface preparation shall be as indicated in the schedule by the applicable SSPC specification number. The bottom coat shall be rust penetrating or encapsulating oil-based primer. If the surface is galvanized, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

D. Where the surface is aluminum or other nonferrous metal, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

E. Where the surface is non-metallic and has not been primed by the fabricator, the bottom coat shall be a latex acrylic primer and shall be selected for maximum adhesion to the substrate. The primer selected shall contain no oils or solvents that will damage the substrate and shall be an appropriate base for the finish coats.

F. The second and third coats shall be quick-drying enamel with a satin finish. A minimum of two separate coats shall be applied over the bottom coat, allowing sufficient time between coats for uniform curing of the paint. Additional coats shall be applied as required to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

3.7. Cabinets and Boxes

A. Tamperproof screws shall be used on all cabinets, boxes and other similar enclosures that are easily accessible by employees or the general public.

B. All enclosures containing electronic equipment or bypass switches shall have a permanent label affixed to the front of each enclosure to show which device, point or area it controls.

C. Cabinets and enclosures containing access control components shall be provided with tamper switches. The tamper switches shall report an alarm condition to the security system if the enclosure is opened. Cabinets and enclosures that contain only cable do not require tamper switches if attempts to damage or compromise the cables would generate an alarm or trouble condition.

D. Cabinets, boxes, and other similar enclosures containing control components or cabling and which are easily accessible to employees or the general public shall also be provided with an integral lock or a hasp for a padlock. The Contractor shall provide any required padlocks and keys.

E. Any cabinet, box, or other enclosure that is mounted above a ceiling, or is mounted more than ten feet above the floor in an interior location, may be deemed as being inaccessible to employees or the general public.

3.8. Labeling

A. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls (e.g. Computer Room, Door #7, Side Door).

B. The Contractor shall provide labeling and numbering consistent with the City of Raleigh's labeling scheme for all components and wiring for the project.

C. Each terminal strip and screw terminal in each cabinet, rack, or panel shall be individually labeled.

D. Wiring conductors connected to terminal strips shall be individually numbered. Each cable or wiring group being extended from a panel or cabinet to a building mounted device shall be identified with the name and number of the particular device as shown.

E. Each wire connected to building mounted devices shall not be required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

F. Cable must be labeled at both ends as well as in junction boxes.

G. Handwritten labels are not acceptable. All wire labels shall be machine printed directly to the label and fixed to the individual wire. Acceptable labeling types are heat shrinkable sleeves, self-laminating wraparound labels or approved equal. Acceptable labeling systems include those produced by Dymo, Panduit, 3M, Tyco, or equal.

3.9. Power Supplies

A. All power supply equipment (batteries, battery chargers, rectifiers, switching facilities, transformers, voltage regulators, emergency generating equipment, and other similar devices) shall be installed in accordance with the requirements of NFPA 70 (National Electrical Code / NEC) for such equipment.

B. All low-voltage power supply equipment, wiring, and installation shall be listed as a Class II Power Limited Device in accordance with the specific requirements of Article 725 of the NEC, except where otherwise noted in this document. Power supplies shall bear a current load not to exceed 60% of rated power.

C. Where multiple devices are powered from a single low-voltage AC or DC power supply, each leg of the supply circuit to each device shall be provided with overcurrent protection. The intent of this design is to reduce the

likelihood that damage to a single device could render other devices inoperative by damaging the common power supply. Permanently mounted fuse-blocks are preferred for overcurrent protection.

D. The use of low-voltage power transformers or open frame transformers will not be allowed. All power supplies as described in Section 2.8 shall be hardwired directly to a dedicated 20-amp electrical circuit. Using SJ or other flexible cord to connect to a standard receptacle or plug receptacle will not be allowed.

E. Where batteries are used as the secondary power supply, the batteries should be sealed lead-acid or gelled electrolyte construction. Batteries should have a minimum estimated operating life of not less than five years under normal operating conditions. The manufacturer, type, size, capacity, model number, and recommended schedule of replacement shall be included in the required system O&M manuals described elsewhere in this document. Each battery shall be permanently marked with the date of installation.

F. Where system design permits, low-voltage power supplies shall be remotely monitored for AC and battery status. The failure of a low-voltage power supply shall create a supervisory or trouble condition on at least one system device, which will immediately generate a response to determine the source of the problem.

G. Low-voltage power supply wiring to standard alarm devices, and electronic door locks shall be minimum 18 AWG twisted-pair or as specified by manufacturer's published installation procedures. Power over Ethernet applications shall conform to the procedures required for that application.

H. Controllers, power supplies and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling and other similar locations).

I. Wiring between any battery and/or power supply to an audible signal shall be of sufficient gauge to keep the voltage drop below 15%. The voltage measured at the device shall not drop below the manufacturer's specifications including when operating on standby power.

J. The standby power supply shall cause a local annunciation when standby power falls below the manufacturer's recommended specifications.

3.10. Conduit

A. All major wiring and cabling shall be in conduit or raceway.

B. The Contractor shall provide all incidental conduit, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

C. The fill rate of conduit for the cables associated with the video systems shall not exceed 40%. Even though this requirement is below the NEC requirements, there may be future expansions that will utilize parts of this same conduit system.

D. Bushings must be used where cabling runs over conduit edges.

3.11. Communications

A. The City of Raleigh uses an Ethernet communications network to interconnect operator workstations, controllers, and file servers. All network devices are capable of real-time communications with all other devices and all devices are fully supervised. Alarm processing and dispatch takes place at workstations located in the security console.

B. The Contractor must initiate and coordinate requests for network services through the City of Raleigh.

C. All devices placed on the LAN will require approval of the City of Raleigh.

3.12. System Programming

A. The Contractor shall provide the development, loading, and checking of the programming for the complete and proper operation of the systems involved.

B. Where appropriate, the Contractor shall establish a Source Code Escrow to protect the Owner's interests.

C. The Contractor shall program each system to allow alarm monitoring at the City of Raleigh's alarm monitoring station, Raleigh Convention Center Security Command Center.

D. Prior to performing any programming on the system, the Security Contractor shall coordinate with the City of Raleigh and shall obtain specific programming requirements. Complete programming parameters shall be submitted to the City of Raleigh as per section 1.5 of this specification. The Contractor shall advise the Owner in writing of the scheduled date for commencement of programming.

E. System software development shall include all items necessary to provide proper system operation and shall include, but not be limited to, the following:

1. Assignment of new inputs and outputs to the system.
2. Necessary time and day interval programming.
3. All control by event sequences to assure system operation is as specified.
4. Selective logging and report programming.
5. Access interval and access group programming for the card access system.
6. Alarm message generation programming.
7. Assignment of new card readers into the system.
8. Assignment of basic (default) access levels to initial cardholder population.
9. Importation of floor plans in electronic file format.
10. Placement of system devices on floor plans and graphical maps. Maps shall have a hierarchy of building, floor, area, specific area/device.

F. The Contractor will offer technical support from the manufacturer that address 24/7 help, service patches and trouble-shooting, integration failure.

3.13. Documentation

A. Drawings of Record

1. The Contractor shall maintain at the installation site one record copy of all contract drawings, specifications, addenda, change orders, and other modifications, in good order and marked up-to-date with a record of all changes made during construction.
2. Upon completion of work, the Contractor shall deliver three copies of the shop drawings, system testing, mechanical and electrical equipment schematics, and diagrams to the City of Raleigh.
3. All record drawings shall reflect the work as it was actually installed. Any equipment changes made during the project shall be clearly noted.
4. Record drawings shall be in a format and contain sufficient detail to permit the rapid and accurate troubleshooting of the system by a skilled technician with no previous knowledge of the specific installation. Providing record drawings on electronic media in AutoCAD format shall be acceptable.

B. Operation and Maintenance Manuals

1. After completion of work, Contractor shall deliver three system Operation and Maintenance (O&M) manuals.
2. O&M manuals shall include operating instructions specific to the installation and step-by-step directions for routine system operation.
3. O&M manuals shall include service and maintenance instructions for each major component installed. Equipment requiring periodic maintenance shall be clearly noted.
4. The manufacturer's standard catalog cut sheets shall not be acceptable for use as O&M manuals.

3.14. Testing

A. Site tests shall be performed with a representative of the Owner, in attendance.

B. The Contractor shall coordinate the scheduled time of testing and access to the site.

C. The Contractor shall provide all test equipment, tools, recorders, connectors, cables, and other devices required for the completion of systems tests.

D. The Contractor shall provide or coordinate the availability of ladders, lifts, scaffolding, or other equipment required to provide safe and ready access to all installed devices for the use of Owner's representative.

E. The Contractor shall provide two-way radios, telephones, cellular telephones, or other communications devices necessary to communicate with any remote facility monitoring the security systems during the testing.

F. The Contractor shall demonstrate to Owner's representative that all sequences operate correctly and that all products, devices and system software operate as designed and specified.

G. Tests shall be performed on each major component of the Card Access system.

H. The output of each low-voltage AC or DC power supply and transformer shall be measured under maximum system operating conditions to verify that the actual loads do not exceed those previously calculated by the Contractor. If the actual loads exceed those previously calculated, the Contractor shall submit new calculations demonstrating that the system as installed meets the requirements of the appropriate specifications.

I. Detection loops using end-of-line devices shall be removed from the control unit and measured for total circuit resistance in normal, alarm and trouble modes. Detection loops using end-of-line devices shall also be measured for loop voltage while connected to the control unit. The measured values for both tests shall be within manufacturer's recommendations and shall be recorded with a written copy provided in the O&M manuals.

J. Systems and devices with remote download and upload capabilities shall be thoroughly tested in all modes.

K. Sufficient replacement parts shall be available to allow for timely replacement of any parts that are found to be unsatisfactory in performance.

L. Alarm Inputs

1. All alarm points shall be tested back to the monitoring facility by activating the alarm devices to which they are attached. Activating or simulating an alarm condition at the control panel is not acceptable.
2. The proper programming of alarm points shall be verified and a hard copy of the signals provided by the monitoring facility (if monitored).
3. Magnetic switches and other similar alarm initiating devices shall be tested in the manner and method recommended by the manufacturer.

M. Card Access

1. All card readers shall be tested with cards previously loaded into the local controller database and with cards that have only been loaded into the system server files. Cards previously loaded into the local database should be validated and access granted within three seconds of presentation. Cards that have not been loaded into the local database should require no more than fifteen seconds from presentation to be validated through the server.
2. Card access doors shall be checked for proper operation of the electronic locking devices, including the internal monitor switch operation.
3. All associated tamper switches and trouble relays shall be tested back to the security console.

4. The proper programming of card readers shall be verified at the Security Console. Programming items to be verified for each reader shall include, but not be limited to, the following:
    a. Assignment of new inputs and outputs to the system.
    b. Necessary time and day interval programming.
    c. All control by event sequences to assure system operation is as specified.
    d. Selective logging and report programming.
    e. Access interval and access group programming for the card access system.
    f. Alarm message generation programming.
    g. Assignment of new card readers into the system.

N. Electronic Locking and Gate Hardware
1. Locks shall be checked for proper alignment and bolt operation and full engagement of the strike plate.
2. Doors equipped with electric locks shall be checked for the proper operation of an automatic door closing device. When released, the doors shall close completely and re-latch automatically within the "door open time" programmed in the local controller.
3. Testing and verification of integral Request-to-exit switch of the lock shall be performed.
4. All gates and gate systems shall be tested with complete vehicle operations for open, close and safety functions.

3.15. Training

A. The Contractor shall hold a training session at the job site at times mutually agreed upon between the Owner and the Contractor.
B. The Contractor shall submit for approval a syllabus that includes a detailed outline of the training sessions that will take place.
C. The Contractor shall provide a minimum of 8 hours of training.
D. The Contractor shall provide all training material required. The use of the approved O&M manual will be accepted as part of the training material. In addition to the O&M manual, the Contactor shall provide any other documentation/training tools required.
E. Time spent on field set-up, start-up and testing shall not be considered as training time.
F. Users of the Security Management System shall be thoroughly instructed verbally and in writing of the proper operation of all equipment and the procedures to be followed.

3.16. Acceptance and Performance Requirements

A. This system shall not be considered accepted until all punch list items have been corrected. Beneficial use of part or all of the system shall not be considered as acceptance.
B. The Owner reserves the right to evaluate the installed system for a period of 30 days, subsequent to the completion of the system acceptance tests, before final payment shall be made.
C. The Contractor shall complete the installation of all equipment in a reasonable and timely manner consistent with the Owner's construction schedule.
D. The Contractor shall provide properly skilled and factory trained personnel, the proper materials, and perform in a good workmanlike and timely manner satisfactory to the Owner.
E. The Contractor shall not hire any subcontractors for installation, maintenance, or service of the system without prior written approval by the Owner of such subcontractor for this work.

3.17. Warranty and Service

A. The Contractor shall guarantee all equipment, wiring, labor, and other components of this system to be free of defects in workmanship and material for one year or the manufacturer's warranty period, whichever is longer, from the date of acceptance by the Owner's representative.
B. Warranty service by the Contractor shall include four-hour emergency response service during normal Contractor working hours and twelve-hour emergency response service after normal working hours, on weekends, and on holidays. Response time shall be measured from the time of Contractor notification to the arrival of service personnel at the affected site to initiate repairs. The Contractor shall provide a method of requesting emergency service after normal working hours, on weekends, and on holidays appropriate to the required response times.
C. Service requests are requests for work to repair or replace a system component or software application which has malfunctioned or been damaged. Service requests shall not include routine system additions, equipment relocations, or system upgrades.

END OF SECTION 281300

SECTION 282300 – VIDEO MANAGEMENT SYSTEM

PART 1 - GENERAL

1.1. Summary

A. This document covers the specifications that include all materials and labor for the provision and installation, and expansion of a complete and integrated enterprise digital Video Management System for the City of Raleigh Convention Center and Red Hat Amphitheater (RCC-RHA) project. Included in the documents are all major systems, subsystems and components as required by this specification.

B. The requirements of this specification shall be understood to be the City of Raleigh minimum. The requirements shall be expanded as necessary to ensure quality. However, unless City of Raleigh approval is obtained, the requirement herein shall not be deleted or revised.

C. The City of Raleigh shall be hereinafter referred to in this document as the Owner and the bid respondents shall be referred to as the Contractor. The term Owner includes direct employees and other appointed Owner agents such as architects or consultants. These agents may be requested by the Owner to represent the Owner in undertaking certain project tasks.

D. If any statement in this specification is in conflict with any provision of the General Terms and Conditions of the contract, the provision stated in the General Terms and Conditions shall take precedence. Any questions that require additional interpretation and guidance shall be immediately brought to the Owner's attention.

1.2. System Description

A. The manufacturer of the proposed system(s) shall require resellers to pass a formal training program prior to being certified as authorized to sell and install the system(s). Such certifications shall require annual re-qualification. The system Contractor proposing the system(s) shall be in possession of such a certification.

B. The SMS shall seamlessly integrate the functions of digital video imaging and badge design/creation, access control, alarms monitoring and response, and visitor management. All SMS components shall run in an integrated application environment as part of a single application.

C. Currently the Owner uses Milestone for video management and Vykon for access control. These systems are completely integrated into a complete security management system.

D. The security systems described in this document are capable of integrating, interfacing and/or operating with other systems. If any such functions are required, they should be described either in this specification or separately in other sections.

E. This RFP for RCC and RHA is in conjunction with the Martin Marietta Center for the Performing Arts (MMCPA) RFP. Contractors may choose to bid for

only the Base Bid, a single alternate, or all four options, but the option chosen must be the same for both RFPs.

F. The contractor shall provide and install an integrated security management system that shall provide a simple and easy-to-use graphical user interface. The system shall provide local operational control of all access points and alarm sensors, and video management. **For the Base Bid as well as the Alternates, components shall be capable of integrating, interfacing, and/or operating as a fully integrated SMS.**
   1. The Base Bid will require a completely new video management system and a completely new access control system.
   2. Alternate 1 will require a completely new video management system and an expansion of the Owner's existing Vykon access control system.
   3. Alternate 2 will require an expansion of the Owner's existing Milestone video management system and completely new access control system.
   4. Alternate 3 will require an expansion of the Owner's existing Milestone video management system and an expansion of the Owner's existing Vykon access control system.

G. This section covers the provision of the security systems including all items and subsystems shown on drawings or otherwise required by this specification.
   1. Camera system server/archiver, hardware, software, and associated equipment.

1.3. Related Sections

A. This section references related installation methods, guidelines, and basic infrastructure. If any such references are required, they should be described either in this specification or separately in other sections.
   1. Conduit, Raceways, and Cable Trays
   2. Fire Stopping Penetration Through Rated Construction
   3. Electrical, Cabling, and Wiring
   4. Door Hardware
   5. Data Communications Circuits

1.4. Reference Standards

A. Reference standards or recommended practices referred to herein shall be the latest edition or revision of the item referenced.

B. Equipment and materials for which there are Underwriters Laboratories (UL) standard testing requirements or listings shall have the appropriate UL label indicating compliance with the UL requirements.

C. All equipment and materials shall be American made and shall meet the requirements stated in the Buy American Act.

D. Equipment and materials for which there are American National Standards Institute (ANSI) standard testing requirements or listings shall have the appropriate ANSI label indicating compliance with the ANSI requirements.

E. Systems shall be designed, manufactured, tested and installed in accordance with NFPA 70 (National Electrical Code / NEC), state codes, local codes, requirements of Authorities Having Jurisdiction (AHJ), and in particular:

1. North Carolina Building Code
2. ADA (Americans with Disabilities Act, Public Law 101-336) requirements
3. NFPA (National Fire Protection Association) 101 (Life Safety Code) requirements
4. NBFAA (National Burglar & Fire Alarm Association) standards
5. Manufacturer's requirements
6. Standard industry practices

F. In the event that any codes disagree with one another, or are in conflict, the Contractor shall use the more restrictive code.

1.5. Scope of Work

A. Base Bid and Alternates

1. Base Bid: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a completely new video management system and a completely new access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Base Bid)
2. Alternate 1: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a completely new video management system that will be capable of integrating, interfacing, and operating with an expansion of the Owner's existing Vykon access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Alternate 1)
3. Alternate 2: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Milestone video management system and a completely new access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Alternate 2)

4. Alternate 3: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Milestone video management system and an expansion of the Owner's existing Vykon access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Alternate 3)

B. The following shall be covered as part of this Bid:
   1. Cameras and, if required, associated power supplies and media converters for the cameras shall be provided and installed by the Contractor.
   2. The Contractor shall connect the video archiver(s), video monitoring workstations, and cameras to the Owner's security network.
   3. The Contractor shall coordinate with the Owner for specific network standards and for local area network (LAN) connections.
   4. All cameras, both existing and new, shall be connected to the video archiver(s) for local monitoring and recording.
   5. The Contractor shall be responsible for connecting all cameras to the Owner's network and coordinating and configuring the cameras to be viewable through the video monitoring workstations.
   6. The Contractor shall provide all camera integration licenses necessary to integrate the VMS and the access control system.
   7. It is the Contractor's responsibility to coordinate any network, software and hardware requirement needed to connect any device or server to the Owner's network. If any device or server does not meet the Owner's network requirement specification, the Contractor shall be responsible for bringing the delinquent device up to the Owner's required specification before connecting the device to the Owner's network.
   8. Installation of new digital video management system cameras, media converters, video archivers, workstations and associated equipment and hardware.
   9. Miscellaneous terminations, programming, and licenses.
   10. The video archivers shall provide management, control, recording and monitoring of all video management system cameras.
   11. The Contractor shall not have a password to access the Enterprise server. The Contractor shall only have local restricted access.
   12. Installing the cameras and bringing them to operational status for acceptance shall include but not be limited to the following:
   13. Determine hardware, software, and operations requirements for implementation.

14. Set up and configure parameters on each camera for recording on the Video Archivers
15. Set-up optimum recording parameters on each Video Archiver.
16. Test video systems operations based on a camera-by-camera walkthrough.
17. Perform end-user training.
18. The Contractor shall provide onsite professional services to assist in the initial setup and programming of all systems specified within this specification.
19. All cabling shall be provided by the Contractor.

1.6. Submittals

A. Submittals shall be as follows:

1. The Contractor shall submit shop drawings for the project. Shop drawings shall include point-to-point wiring diagrams for the entire system. Point-to-point diagrams shall detail each device location and all associated wire runs. Include with the shop drawings a separate layout drawing for each equipment room/Drop location. The equipment room layout drawings shall show each component and shall detail the wiring for all devices connected to all components within the equipment rack. They shall show the labeling of each cable connection point, each wire connected to the connection point, and each cable leaving the rack or panel. The layout drawings shall indicate in detail the labeling of each component within the rack or associated equipment panel including but not limited to power supplies, terminal strips, switches, and video archivers.
2. The Contractor shall submit manufacturer's technical data sheets on each product proposed.
3. The Contractor shall submit documentation that proves that all equipment meets the Buy American Act.
4. The Contractor shall submit detailed description of all equipment locations and mounting particulars. The Contractor shall describe coordination efforts that have been made or need to be made by the Contractor and the Owner for the installation to proceed on schedule in the manner described.
5. The Contractor shall provide a detailed project schedule with tasks and dates that includes at a minimum the Initial Preparation and Coordination Phase, Procurement Phase, Installation and Construction Phase, Testing and Commissioning Phase, and Closeout Phase. The use of Microsoft Project or similar is required.
6. The Contractor shall submit complete and detailed programming parameters of all card access and security monitoring points to the owner 30 days prior to the development and implementation of the programming.

7. Where AC or DC power supplies are used for Class 1, 2, or 3 Power-Limited Circuits, the Contractor shall provide evidence that the power capacity is sufficient for the proper operation of the powered devices under maximum load. Detailed calculations of the power requirements shall be acceptable for this purpose.
8. The Contractor shall submit manufacturers' user's manuals for operations, administration, installation, and maintenance.

B. Contract Close-Out Submittals:
1. Training Course Materials: See section 3.15 for details.
2. Commissioning Test Plan and Check-Off List: See section 3.14 for details.
3. As-Built Drawings: During system installation, the Contractor shall maintain a separate hard copy set of drawings, elementary diagrams, and wiring diagrams of the security systems to be used for record drawings. This set shall be kept up to date, reflecting all changes and additions made to the security systems. Copies of the final as-built drawings shall be provided to the Owner in .DWG or .DXF format using the latest version of AutoCAD and also .PDF format using the latest version of Adobe.

1.7. Warranty and Maintenance

A. The card access system software, hardware, and installation shall be warranted against defects and workmanship for a minimum of 12 months, covering all parts and labor. Warranty period will begin upon acceptance by Owner.

B. The Contractor shall guarantee that the systems application software remains current at all times with the latest enhancements, supported by the manufacturer with unlimited remote dial-in diagnostics capability and technical phone support. (Coordinate with the Owner for any IT support requirements necessary to engage the manufacturer.)

C. The Contractor shall perform manufacturers' recommended preventative maintenance on all applicable components and/or devices.

D. The Contractor shall be the primary contact and respondent for all service and support, officially recognized and backed by the security systems manufacturer.

E. Extended and/or out of warranty terms at reasonable and customary rates shall be available from the Contractor.

F. Failure by the Contractor to coordinate their work will result in the Contractor being held liable for any and all deficiencies of the existing equipment that is relevant to the installation of the new security equipment.

1.8. Pricing and Bidding

A. The Contractor shall provide an Executive Summary System Description. This is a statement of the system function and single-line block diagram to show how all related equipment shall interface and operate as a complete electronic control system.

B. **Bid pricing shall be submitted in the following forms**:
   1. The Bidder shall be required as a part of this bid to complete the attached spreadsheet. This is a list of major components and **NOT** a complete equipment list. Bidders should use this as a **starting point and add to the list to provide pricing for the complete and fully functional systems** they propose as well as a lump sum. This submitted spreadsheet shall identify line-item pricing per unit and extended pricing based on quantity and shall include, if applicable, state and local taxes in addition to the equipment.
   2. Bidder shall supply on a separate line, the cost of labor to install each unit.

1.9. Contractor Qualifications

A. Provide an architecture of all system components to include devices and network communication devices. Provide the manufacturer specifications for each system component to include any applicable software applications required.

B. Due to the nature of the work involved, Contractors desiring to bid on the work herein described shall have been regularly engaged in the installation and maintenance of security video management (CCTV) and video systems similar in size and scope to that outlined herein for a period of no less than five years.

C. The Contractor represents that it is fully experienced and properly qualified and certified by the manufacturer(s) to perform the type of work described in this document. The Owner realizes that the Contractor is the expert in the installation of security and card access systems; therefore, it is the responsibility of the Contractor to deliver a properly functioning and safe system. This responsibility includes any items that may or may not be specifically noted in this document.
   1. If the Contractor is not properly qualified and certified in a particular system stated in this specification or shown in the drawing, the Contractor is allowed to sub-contract the work performed on the particular system to a properly qualified and certified Subcontractor. This Subcontractor shall meet the same requirements as the Contractor as stated in this section.

D. The Contractor shall supply information attesting to the fact that their firm is an authorized product dealer for the systems and equipment proposed.

E. The Contractor shall supply information attesting to the fact that their installation and service technicians are competent factory-trained personnel capable of maintaining the system and providing reasonable service time.

F. The Contractor shall provide a minimum of three references whose systems are of similar complexity and have been installed and maintained by the security system integrator in the last five years.

G. There shall be a local representative and factory authorized local service organization that shall carry a complete stock of parts and provide maintenance for these systems. Local shall be defined as an area in a 100-mile radius of the installed location.

H. The Contractor shall:

1. Act as an independent Contractor and not as an agent or employee of the Owner.
2. Be solely responsible for compliance with all applicable laws governing the employment of its employees and for Contractor's own acts and those of Contractor's employees, agents and subcontractors during the performance of Contractor's obligations hereunder.
3. Be responsible for all taxes, permits or other fees imposed due to the work of the Contractor.
4. Be regularly engaged in installing analog and IP-based video systems and shall have been engaged in such work for a period of not less than five years prior to bid submittal.
5. At the time of the bid be licensed by all appropriate authorities (state, municipal, and local) for the type of work to be performed. Contractors who have licenses or permits pending, relevant to this project, shall not be considered acceptable for bidding on this project.
6. Include with the bid a copy of the Contractor's current Alarm System License from the North Carolina Private Protective Services Board.
7. Include with the bid a copy of the Contractor's current Electrical Contractor license with a minimum of an SP-LV classification as issued by the North Carolina Electrical Board.
8. Have all personnel employed by the Security Contractor registered with the appropriate state or municipal Licensing Board as provided for by current state or local statutes.
9. Include with the bid submittal a copy of the Contractor's current business license as issued by the state in which the work is to be performed.
10. Contractor shall immediately notify the Owner, in writing, of any Judgment, Disqualification, Permit Revocation or any other similar action taken against the Contractor by any legitimate Regulating Authority or Licensing Agency that may occur during the course of the work that the Contractor performs for the Owner.

1.10. Document Preparation and Control

A. All design guides, design development documents, construction drawings and record drawings are extremely confidential. Access to these documents shall be restricted to authorized personnel and the Contractor. Parties receiving these documents shall take every reasonable precaution to protect these documents from unauthorized access.

B. Drawings and documents relating to this project which are no longer required shall be disposed of by complete destruction.

C. Distribution of any section of these guidelines to other persons or companies shall not be made without prior written approval of The Owner and/or the Security Consultant for the project.

PART 2 - PRODUCTS

2.1. Buy American Act

A. All equipment shall meet the requirements stated in the Buy American Act. Any manufacturer that is not included in these specifications that meet the requirements of the Buy American Act or meet exceptions of the Buy American Act must be submitted for approval by the Owner.

2.2. Quality Assurance

A. Materials and equipment shall be new and conform to grade, quality, and standards specified. Materials, equipment, and software shall be of the most recent version or production design available at the time of installation.

2.3. Approved Manufacturers

A. The following manufacturers produce equipment or components which are included in this specification, or which are approved for use by the City of Raleigh.

1. Altronix

   140 58th Street
   Brooklyn, NY 11220
2. HID

   14311 Chambers Road
   Tustin, CA 92780
3. Honeywell

   2 Corporate Drive, Suite 100
   Melville, NY 11747
4. AXIS Communication Inc.

   300 Apollo Drive
   Chelmsford, MA 01824
5. Dell Inc.

   1 Dell Way
   Round Rock, TX 78682
6. HP Inc.

   1501 Page Mill Road
   Palo Alto, CA 94304
7. Life Safety Power

   750 Tower Road, Unit B
   Mundelein, IL 60060
8. Milestone Systems Inc

   8905 SW Nimbus Avenue Suite 400
   Beaverton, OR 97008
9. Tridium Inc.

   3951 Westerre Parkway, Suite 350
   Richmond, VA 23233

B. Inclusion of a manufacturer on the above list does not imply that all products produced by the manufacturer are acceptable for use in the system(s) herein described.

2.4. Cameras and Accessories

A. The approved camera manufactures are as follows:
   1. AXIS Communication
   2. Pelco

B. The Contractor shall provide and install new recessed vandal-resistant fixed dome 5-megapixel IP video cameras at locations designated in the drawings as V1, V2 and V3. Camera shall be an integrated color camera dome, with Wide Dynamic Range, manual vari-focal 3-8mm auto-iris lens with backlight compensation and have multiple video streams for simultaneous viewing. Provide additional mounting equipment as necessary.
   1. Provide flush mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for a plenum ceiling and shall have knock-outs for conduit connectivity. There shall be no exposed wiring.
   2. For all exterior cameras, the Contractor shall provide an environmental dome option.

C. Provide and install a new surface-mounted vandal-resistant fixed dome IP video camera at each location designated in the drawings as V4 and V5. Camera shall be an integrated color camera dome, with Wide Dynamic Range, manual vari-focal 3-8mm auto-iris lens with backlight compensation and have multiple video streams for simultaneous viewing. Provide additional mounting equipment as necessary.
   1. Provide surface mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for the mounting application and shall have threaded inserts for conduit connectivity. There shall be no exposed wiring.
   2. For all exterior cameras, the Contractor shall provide an environmental dome option.

D. Provide and install a new vandal-resistant 180 degree dome 15 megapixel IP video camera at each location designated in the drawings as V7. Camera shall be an IP-based vandal-resistant dome camera with Wide Dynamic Range, Day/Night capability with multiple lens option and shall be rated for outdoor use. Provide additional mounting equipment as necessary.
   1. Provide flush mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for a plenum ceiling and shall have knock-outs for conduit connectivity. There shall be no exposed wiring.

E. Provide and install a new vandal-resistant 360 degree dome 12 megapixel IP video camera at each location designated in the drawings as V8. Camera shall

be an IP-based vandal-resistant dome camera with Wide Dynamic Range, Day/Night capability with multiple lens option and shall be rated for outdoor use. Provide additional mounting equipment as necessary.

1. Provide flush, surface or pole mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for a plenum ceiling and shall have knock-outs for conduit connectivity. There shall be no exposed wiring.
2. Each camera shall be compatible with the chosen video management system.

F. Contractor shall provide and install a pole to match existing poles. This requirement applies only to the locations where cameras are shown on the Contract Documents where exterior lighting poles are not available.

1. The Contractor shall provide a NEMA 4 enclosure with backplane at the base of the pole which shall be painted to match the color of the pole.
2. The Contractor shall also provide and install a pole with a NEMA 4 enclosure with backplane at the base of the pole at the locations shown as "Future" within the Contract Documents.
3. The Contractor shall refer to the Electrical Specification for the exact make, model and color of the lighting poles.

G. The Contractor shall provide and install an enclosed media converter at each exterior camera location. The media converter shall be pre-installed inside a lockable vandal-resistant enclosure, have separation of 120VAC and 12VDC power, and be fitted with a 4 Amp circuit breaker.

H. The Contractor shall provide all miscellaneous power supplies, terminal strips, and conduit to provide a fully functional system.

2.5. Video Console and Workstations

A. The contractor shall provide and install a Winsted 96" E-SOC – Console Station with four (4) 15" adjustable monitor mounts in the Security Command Center as identified in the drawings.

B. The contractor shall provide and install six (6) new wall-mounted monitors and part of the video display solution.

C. The Contractor shall provide, configure and install four (4) video monitoring workstations at the location indicated as WS on drawings in the console.

D. The contractor must create a temporary monitoring station during the demolition of the existing console and wall monitors to maintain security operations. All exiting security equipment must be conveyed to the owner for disposal.

E. Workstations shall consist of the following.

1. The workstations shall be the latest approved configuration PC computer with Microsoft Windows 64-bit operating system by the factory and with a 64 bit processor. The workstations shall require an external monitor, keyboard and mouse for operation.

2. Provide and install the latest version of the chosen VMS software on the workstations located in the Security Office.
3. As a minimum, the workstations shall have at a minimum 500 watt power supply using an 4th Generation Intel i7-4770 processor. Each workstation shall have 16 GB of RAM memory, a 16x DVD +/- RW drive, 6 USB 2.0 ports, a LAN connection 10/100/1000 MB Ethernet card., an onboard VGA Adapter with 128 MB of RAM and additional case fan cooling. The workstations shall be equipped with a PS-2 or USB wheel mouse and 101-key keyboard or shall meet the manufacturers minimum standard.
4. The workstations shall be housed in a mid-height tower. It shall be constructed of steel and plastic materials. It shall also be operated indoors in a temperature range not to exceed 32 to 104° F (0 to 40° C) and a humidity range not to exceed 0 to 95% relative, in a non-condensing atmosphere. The workstations shall employ a Universal Voltage Power Supply requiring 105 - 240 VAC @ 50 - 60 Hz.
5. The workstations shall have a minimum of internal solid-state hard-drive storage of 1TB.
6. The workstation shall have Dual (2) NVIDIA GTX 970 PCI Express 3.0 graphics cards. These graphic cards shall have 4 GB of on board memory and shall support Microsoft Direct X Level 12_1
7. Environmental Specifications
   a. Operating Temperature Range: 32 to 104ºF (0 to 40ºC).
   b. Operating Humidity Range: 0 to 95%, non-condensing.
8. Certifications
   a. CE
   b. UL Listed

F. Monitors
1. Provide two (2) Dell Ultrasharp 27” 4K USB-c Hub monitor (U2723QE) or equivalent for two workstation on the console.
2. Provide six (6) Sharp 49" Wide Color Gamut Ultra High-Definition Professional Display or equivalent mounted on the wall in the Security Command Center.

2.6. Video Archiver

A. The Contractor shall provide and install two (2) Manufacturer recommended Video Archivers inside an Owner provided network rack located in the Drop 1 location. Recorder shall support up to 64 IP cameras and record H.264, MJPEG and MPEG-4 IP streams.

B. The Video Archiver shall have a Quad Core Intel Xeon E5640 2.66 GHz or better processor, with 16 GB or Ram, 64 Bit operating system, 80 GB SATA II hard drive or better for the OS and 2 Gbs NIC cards and a standard SVGA graphics card.

C. The Video Archiver shall be configured with the latest version the chosen manufacturer's software.

D. Video storage capacity shall be calculated by using the recording parameters for no less than 45 days FIFO (first in, first out).

E. Contractor shall connect this unit directly to the Owner-supplied secure network. All IP information for the unit shall be obtained from the Owner prior to installation.

F. The Contractor shall provide all camera and integration licenses required for programming the cameras to the Video Archiver. In addition, the Contractor shall provide all integration licenses required to accomplish call-up upon access control alarm from the Owners Security access control system.

G. Contractor shall coordinate with the Owner the connection of the equipment into the Owners system for remote monitoring and management.

H. This unit shall be installed, configured, programmed and attached to the network by the Contractor.

2.7. Programming

A. Programming for the new cameras shall be provided by the Contactor. The Contractor shall obtain all programming parameters from the Owner prior to the commencement of the programming. This programming shall include but not be limited to camera configuration, camera parameters, recording parameters for each camera, camera naming, camera groups, camera permission levels, set-up and verification of live and recorded viewing of cameras at each workstation and at the main viewing station located in the City of Raleigh's Security Monitoring Center.

B. Contractor shall submit the intended camera views to the Owner prior to installation. Once the cameras have been installed and monitored, the Owner at their discretion may ask to re-adjust some of the camera angles and view. The Contractor shall be prepared to comply with any requests for readjustment.

PART 3 - EXECUTION

3.1. Purpose

A. This section provides for video management systems for the City of Raleigh RCC-RHA. Detailed design, construction documents, scope of work, or other supplementary data may be attached to this document to provide the Contractor with additional information pertinent to a specific site or project.

B. The requirements noted in this document shall be understood to be the minimum City of Raleigh requirements. These requirements shall be expanded by the Contractor as necessary to ensure quality; however, written approval from the City of Raleigh or their representative must be obtained prior to deleting or revising a requirement contained herein.

C. It shall be the responsibility of the Contractor to verify the system design with the local AHJ.

D. The City of Raleigh shall make final approval of the video design and its suitability for the application. The Contractor should seek design input and comments from the City of Raleigh or their representative at all design stages. At the Owner's request, the Contractor shall be prepared to conduct a pre-installation walk-through and visual verification of any and all cameras.

E. The video management systems are designed to monitor, record and review activity at certain locations throughout the building and outlying areas.

F. The specifications contained in this document and the drawings submitted with the specification represent an outline of the desired system. Ensuring the compatibility of the equipment described is the responsibility of the Contractor submitting the proposal. Neither this document, nor any attached supplementary information, is intended to list all parts, interfaces, and miscellaneous equipment that may be needed, rather, it is the responsibility of the Contractor submitting the proposal to provide the equipment necessary to provide a properly functioning system.

3.2. Installation

A. All work shall be completed in a neat, organized, and professional workman-like manner.

B. The Contractor shall be aware and shall anticipate that due to the nature of this project, most of the work will have to be completed after hours and on weekends. In addition, due to the nature of some of the secure areas of this building, additional time may be necessary to gain access to certain areas. Any additional time that the Contractor deems necessary shall be included in this proposal. This access will need to be coordinated with the City of Raleigh.

C. All contractors will have to attend, if required, contractor safety training and shall display a safety training completion sticker, badge or letter while working on site.

D. The Contractor shall provide all conduit, boxes, enclosures, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

E. The Contractor shall provide all wiring, connectors, power supplies, interfaces, and other hardware as necessary to affect a normally operating system.

F. The Contractor shall be responsible for all materials and labor necessary to replace any components that have been improperly installed or damaged during installation.

G. Any holes or visible damage created while retrofitting hardware will be properly corrected and patched to the Owner's satisfaction.

H. Connections of all equipment and devices shall be made in the manner recommended by the manufacturer and must meet the approval of the City of Raleigh as a condition of the acceptance of this project.

I. All equipment shall only be used for the purpose intended by the manufacturer and shall be installed per the manufacturer's specifications.

J. Materials and equipment shall be new, unused and conform to grade, quality and standards specified.

K. Materials and equipment shall be of the most recent version or production design available at the time of installation.

L. Substitution of other Manufacturers / Vendors products for those specified shall not be permitted without prior review and written approval by the City of Raleigh.

M. The Contractor shall provide at least two tools to the City of Raleigh to remove tamperproof screws for service. Tamper resistant fasteners shall be such that they cannot be removed without special computer designed wrenches provided for that specific purpose by the manufacturer. Allen head, Phillips head, torque, and other similar fasteners shall not be acceptable.

N. Compression type terminal strips shall be used whenever terminations are made at points other than on the components. There shall be no splices in any cable except where necessary to interface with pre-wired devices. Repair to damaged cables or extending cables by splicing will not be permitted. The Contractor shall be responsible for all materials and labor necessary to replace cables that have been installed improperly or damaged in installation. The use of "wire nuts" or "beans" inside the Field Interface Panels will not be acceptable.

O. System components and control devices shall be wired to the appropriate FIP as homeruns.

P. Programming of any new system components necessary to provide a fully operational system shall be included in the scope of this work.

Q. Each alarm initiating device shall be on its own zone and all zones shall report separately in a format which permits distinguishing individual zones and their conditions.

R. Supervised inputs shall be supervised by installing the end-of-line device as close to the input device as possible. End-of-line devices shall not be located at the controller inputs or inside the control enclosure(s).

S. All alarm inputs shall be configured as normally closed loops utilizing 4-state supervision.

T. End-of-line devices shall be located at the initiating device as described in the manufacturer's installation instructions.

U. Electronic Access Control, Video, or Intrusion system wiring shall not be run in the same conduit with Class 1, power, or lighting circuits.

V. Controllers, power supplies, and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling, and other similar locations).

W. When installed such that components are exposed to environmental effects such as rain, snow, or other inclement weather conditions, all fixtures and other equipment should be protected from a deterioration of the system due to weather related causes.

X. Lightning and surge protection shall be provided as required by industry standards and the manufacturer's recommendation on all appropriate elements of the security system.

Y. A separate suitable ground wire shall be connected to all lightning protection devices installed.

Z. Any firewall penetrations must be sealed with 2-hour intumescent UL approved firestop material. UL Penetration Detail Diagrams shall be available on site for review by the Building Inspector. In all cases the seal must meet the applicable fire code.

3.3. Cable and Conductors

A. The Contractor shall provide and install all cables and conductors in support of this project. It is the Contractor's responsibility to coordinate cabling raceway.

B. Alarm point wiring and REX wiring shall be minimum 22 AWG shielded twisted-pair or as specified by manufacturer's published installation procedures, whichever is the more stringent specification.

C. The cabling from each card access location shall be as recommended by the manufacturer and shall be a minimum of 18 AWG.

D. Low voltage power wiring for the electrified door hardware shall be a minimum of 16 AWG non-shielded.

E. All jacket material used shall be suitable for the application in which it is to be used.

F. All wiring shall be installed as specified by the manufacturer's published procedures.

G. Color-coding shall be used on all wiring and cabling and shall be used in a consistent manner.

H. When mechanical means of connecting wires do not otherwise exist (e.g. pre-wired devices), the connection may be made by twisting, "hot" soldering, and covering the connection with listed electrical tape or secured with either a crimp or solder type spade lug. Solderless crimp connectors shall be crimped only with a tool recommended by the manufacturer.

3.4. Pulling Cable

A. Swivel type pulling grips shall be used for all cable pulls to avoid cable twisting.

B. The manufacturer's recommended maximum pulling tension shall not be exceeded during any cable pull. A tensiometer shall be used during installation to monitor pulling tension.

C. Pulling winches with a calibrated maximum tension setting may be used in lieu of a tensiometer. Hand pulls do not require tension monitoring.

D. Equal pulling tension shall be applied to all cables pulled during one cable pull.

E. The manufacturer's rated minimum cable bend radius requirements shall be followed both while the cable is under pulling tension and while the cable is in a non-tension (operating) condition.

F. No residual tension shall remain on any cable after installation except the weight of the cable in a vertical rise.

G. Care shall be taken when dressing cables such that manufacturer's tension and minimum bend radius requirements are maintained.

3.5. Hardware

A. Miscellaneous hardware required for installation shall be suitable for the purpose for which it is used. Hardware includes such items as nuts, bolts, screws, washers, miscellaneous fasteners, terminals, terminal strips, tie wraps, and other related parts.

B. Manufacturer's specific requirements on hardware or other components shall be adhered to.

C. The finish on all hardware and fasteners shall be suitable for the environment in which it will be used and shall be selected to minimize corrosion or deterioration due to moisture, sunlight, temperature extremes, and other similar environmental concerns.

3.6. Painting and Finish

A. All surfaces to be painted shall be prepared and cleaned in compliance with the paint manufacturer's instructions for surface conditions and as herein specified. Do not apply paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to a durable and uniform finish.

Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any component identification, performance rating, name, or nomenclature plates.

B. Where the surface has been prime coated by the manufacturer, recoat the primed surface where there is evidence of suction spots or other unsealed areas due to insufficient sealing. Equipment primed by the manufacturer which exhibits evidence of having been improperly stored or exposed to the effects of weather shall have the primer coat removed and be prepared and painted as if it had not been primed.

C. Where the surface is ferrous metal, the minimum acceptable degree of surface preparation shall be as indicated in the schedule by the applicable SSPC specification number. The bottom coat shall be rust penetrating or encapsulating oil-based primer. If the surface is galvanized, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

D. Where the surface is aluminum or other nonferrous metal, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

E. Where the surface is non-metallic and has not been primed by the fabricator, the bottom coat shall be a latex acrylic primer and shall be selected for maximum adhesion to the substrate. The primer selected shall contain no oils or solvents that will damage the substrate and shall be an appropriate base for the finish coats.

F. The second and third coats shall be quick-drying enamel with a satin finish. A minimum of two separate coats shall be applied over the bottom coat, allowing sufficient time between coats for uniform curing of the paint. Additional coats shall be applied as required to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

3.7. Cabinets and Boxes

A. Tamperproof screws shall be used on all cabinets, boxes and other similar enclosures that are easily accessible by employees or the general public.

B. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls.

C. Cabinets and enclosures containing access control components shall be provided with tamper switches. The tamper switches shall report an alarm condition to the security system if the enclosure is opened. Cabinets and enclosures that contain only cable do not require tamper switches if attempts to damage or compromise the cables would generate an alarm or trouble condition.

D. Cabinets, boxes, and other similar enclosures containing control components or cabling and which are easily accessible to employees or the general public shall also be provided with an integral lock or a hasp for a padlock. The Contractor shall provide any required padlocks and keys.

E. Any cabinet, box, or other enclosure that is mounted above a ceiling, or is mounted more than ten feet above the floor in an interior location, may be deemed as being inaccessible to employees or the general public.

3.8. Labeling

A. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls (e.g. Computer Room, Door #7, Side Door).

B. The Contractor shall provide labeling and numbering consistent with the City of Raleigh's labeling schema for all components and wiring for the project.

C. Each terminal strip and screw terminal in each cabinet, rack, or panel shall be individually labeled.

D. Wiring conductors connected to terminal strips shall be individually numbered. Each cable or wiring group being extended from a panel or cabinet to a building mounted device shall be identified with the name and number of the particular device as shown.

E. Each wire connected to building mounted devices shall not be required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

F. Cable must be labeled at both ends as well as in junction boxes.

G. Handwritten labels are not acceptable. All wire labels shall be machine printed directly to the label and fixed to the individual wire. Acceptable labeling types are heat shrinkable sleeves, self-laminating wraparound labels or approved equal. Acceptable labeling systems include those produced by Dymo, Panduit, 3M, Tyco, or equal.

3.9. Power Supplies

A. All power supply equipment (batteries, battery chargers, rectifiers, switching facilities, transformers, voltage regulators, emergency generating equipment, and other similar devices) shall be installed in accordance with the requirements of NFPA 70 (National Electrical Code / NEC) for such equipment.

B. Video Management servers should be installed where secondary power supply is available and automatically switching upon any power failure.

C. Where batteries are used as the secondary power supply, the batteries should be sealed lead-acid or gelled electrolyte construction. Batteries should have a minimum estimated operating life of not less than five years under normal operating conditions. The manufacturer, type, size, capacity, model number, and recommended schedule of replacement shall be included in the required system O&M manuals described elsewhere in this document. Each battery shall be permanently marked with the date of installation.

D. Where cameras are powered by Network switches using PoE (or PoE +/++) the network switch itself should also have a secondary power supply.

E. The standby power supply shall cause a local annunciation when standby power falls below the manufacturer's recommended specifications.

3.10. Conduit

A. All major wiring and cabling shall be in conduit or raceway.

B. The Contractor shall provide all incidental conduit, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

C. The fill rate of conduit for the cables associated with the video systems shall not exceed 40%. Even though this requirement is below the NEC requirements, there may be future expansions that will utilize parts of this same conduit system.

D. Bushings must be used where cabling runs over conduit edges.

3.11. Communications

A. The City of Raleigh uses an Ethernet communications network to interconnect operator workstations, controllers, and file servers. All network devices are capable of real-time communications with all other devices and all devices are fully supervised. Alarm processing and dispatch takes place at workstations located in the security console.

B. The Contractor must initiate and coordinate requests for network services through the City of Raleigh.

C. All devices placed on the LAN will require approval of the City of Raleigh.

3.12. System Programming

A. The Contractor shall provide the development, loading, and checking of the software and/or databases for the complete and proper operation of the systems involved.

B. Where appropriate, the Contractor shall establish a Source Code Escrow to protect the Owner's interests.

C. The Owner's personnel shall perform routine Video Management System database updates and access level assignments for the viewing and playback of the digitally stored video.

D. Prior to performing any programming on the system, the Contractor shall coordinate with the Owner and shall obtain the Owner's specific programming requirements. The Contractor shall advise the Owner in writing of the scheduled date for commencement of programming.

E. System software development shall include all items necessary to provide proper system operation and shall include, but not be limited to, the following:

1. Assignment of new cameras to the existing VMS.
2. Set up camera configuration, camera naming, camera groups, based on owners standards.

3. Set up and configure recording parameters of cameras on the new and existing NVR.
4. Optimize recording parameters of new cameras.
5. Set up of user groups for pre-defined video monitored views.
6. All control by event sequences to assure system operation is as specified.
7. Programming of the camera pop-up views upon alarm conditions generated from motion detection or the access control system.
8. Set-up and verification of live and recorded viewing of cameras at each workstation.

3.13. Documentation

A. Drawings of Record

1. The Contractor shall maintain at the installation site one record copy of all contract drawings, specifications, addenda, change orders, and other modifications, in good order and marked up-to-date with a record of all changes made during construction.
2. Upon completion of work, the Contractor shall deliver three copies of the shop drawings, system testing, mechanical and electrical equipment schematics, and diagrams to the City of Raleigh.
3. All record drawings shall reflect the work as it was actually installed. Any equipment changes made during the project shall be clearly noted.
4. Record drawings shall be in a format and contain sufficient detail to permit the rapid and accurate troubleshooting of the system by a skilled technician with no previous knowledge of the specific installation. Providing record drawings on electronic media in AutoCAD format shall be acceptable.

B. Operation and Maintenance Manuals

1. After completion of work, Contractor shall deliver three system Operation and Maintenance (O&M) manuals.
2. O&M manuals shall include operating instructions specific to the installation and step-by-step directions for routine system operation.
3. O&M manuals shall include service and maintenance instructions for each major component installed. Equipment requiring periodic maintenance shall be clearly noted.
4. The manufacturer's standard catalog cut sheets shall not be acceptable for use as O&M manuals.

3.14. Testing

A. Site tests shall be performed with a representative of the Owner in attendance.

B. The Contractor shall coordinate the scheduled time of testing and access to the site.

C. The Contractor shall provide all test equipment, tools, recorders, connectors, cables, and other devices required for the completion of systems tests.

D. The Contractor shall provide or coordinate the availability of ladders, lifts, scaffolding, or other equipment required to provide safe and ready access to all installed devices for the use of Owner's representative.

E. The Contractor shall provide two-way radios, telephones, cellular telephones, or other communications devices necessary to communicate with any remote facility monitoring the security systems during the testing.

F. The Contractor shall demonstrate to Owner's representative that all sequences operate correctly and that all products, devices and system software operate as designed and specified.

G. Tests shall be performed on each major component of the Video Management System.

H. The output of each low-voltage AC or DC power supply and transformer shall be measured under maximum system operating conditions to verify that the actual loads do not exceed those previously calculated by the Contractor. If the actual loads exceed those previously calculated, the Contractor shall submit new calculations demonstrating that the system as installed meets the requirements of the appropriate specifications.

I. Systems and devices with remote download and upload capabilities shall be thoroughly tested in all modes.

J. Sufficient replacement parts shall be available to allow for timely replacement of any parts that are found to be unsatisfactory in performance.

K. VMS –Security Video management System (CCTV)

1. Cameras shall be tested under varying light levels to verify proper operation at all times of day and night. Digital images transmitted by the camera shall be checked visually at the VMS workstations for video level, contrast, and clarity. The pictures shall be checked for noise, tearing, "hum bars" caused by AC interference or ground loops, RF interference, crosstalk, rolling picture, blooming, and other undesirable effects.
2. Camera command functions shall be tested to their extremes at the VMS workstations. These include electronic zoom, auto-iris operation and other features as included in the specifications. An observer shall be posted at the camera location during these tests to verify that camera operation and movement does not cause unacceptable strain or stress on the mounting hardware or the flexible cables serving the camera.
3. Network video recorders shall be set to record their video input(s) for a period of not less than 24 hours immediately prior to system testing. The archive shall then be reviewed for picture quality and the ability to retrieve information as described in the system specifications.
4. If applicable camera call-up shall be tested for each camera(s) associated with an emergency communication device. Cameras shall automatically zoom and focus to the associated communication device.

5. If applicable camera call-up shall be tested for each camera(s) associated with any access control reader device. Cameras shall automatically zoom and focus to the associated access control device

3.15. Training

A. The Contractor shall hold a training session at the job site at times mutually agreed upon between the Owner and the Contractor.

B. The Contractor shall submit for approval a syllabus that includes a detailed outline of the training sessions that will take place.

C. The Contractor shall provide a minimum 8 hours of training.

D. The Contractor shall provide all training material required. The use of the approved O&M manual will be accepted as part of the training material. In addition to the O&M manual, the Contactor shall provide any other documentation/training tools required.

E. Time spent on field set-up, start-up and testing shall not be considered as training time

F. Users of the VMS system shall be thoroughly instructed verbally and in writing of the proper operation of all equipment and the procedures to be followed.

3.16. Acceptance and Performance Requirements

A. This system shall not be considered accepted until all punch list items have been corrected. Beneficial use of part or all of the system shall not be considered as acceptance.

B. The Owner reserves the right to evaluate the installed system for a period of 30 days, subsequent to the completion of the system acceptance tests, before final payment shall be made.

C. The Contractor shall complete the installation of all equipment in a reasonable and timely manner consistent with the Owner's construction schedule.

D. The Contractor shall provide properly skilled and factory trained personnel, the proper materials, and perform in a good workmanlike and timely manner satisfactory to the Owner.

E. The Contractor shall not hire any subcontractors for installation, maintenance, or service of the system without prior written approval by the Owner of such subcontractors for this work.

3.17. Warranty and Service

A. The Contractor shall guarantee all equipment, wiring, labor, and other components of this system to be free of defects in workmanship and material for one year or the manufacturer's warranty period, whichever is longer, from the date of acceptance by the Owner's representative.

B. Warranty service by the Contractor shall include four-hour emergency response service during normal Contractor working hours and twelve-hour emergency response service after normal working hours, on weekends, and

on holidays. Response time shall be measured from the time of Contractor notification to the arrival of service personnel at the affected site to initiate repairs. The Contractor shall provide a method of requesting emergency service after normal working hours, on weekends, and on holidays appropriate to the required response times.

C. Service requests are requests for work to repair or replace a system component or software application which has malfunctioned or been damaged. Service requests shall not include routine system additions, equipment relocations, or system upgrades.

END OF SECTION 282300

SECTION 285200 – SECURITY TELECOMMUNICATION SYSTEM

PART 1 - GENERAL

1.1. Summary

A. This document covers the specifications that include all materials and labor for the provision and installation of the Security Telecommunication Systems Components for the City of Raleigh Convention Center and Red Hat Amphitheater project (RCC-RHA). Included in the documents are all major systems, subsystems and components as required by this specification.

B. The requirements of this specification shall be understood to be the City of Raleigh minimum. The requirements shall be expanded as necessary to ensure quality. However, unless City of Raleigh approval is obtained, the requirement herein shall not be deleted or revised.

C. City of Raleigh shall be hereinafter referred to in this document as the Owner and the bid respondents shall be referred to as the Contractor. The term Owner includes direct employees and other appointed Owner agents such as architects or consultants. These agents may be requested by the Owner to represent the Owner in undertaking certain project tasks

D. If any statement in this specification is in conflict with any provision of the General Terms and Conditions of the contract, the provision stated in the General Terms and Conditions shall take precedence. Any questions that require additional interpretation and guidance shall be immediately brought to the Owner's attention.

1.2. System Description

A. The new security telecommunication system components shall be capable of integrating, interfacing, and/or operating with other systems as described in these and related specifications.

B. This section covers the provision of the security telecommunications systems including all items and subsystems as required by this specification.

1. Door Intercom Stations for communicating to Desktop Master Stations located throughout the facility.

1.3. Related Sections

A. This section references related installation methods, guidelines, and basic infrastructure. If any such references are required, they should be described either in this specification or separately in other sections.

1. Conduit, Raceways, and Cable Trays
2. Fire Stopping Penetration Through Rated Construction
3. Electrical, Cabling, and Wiring
4. Door Hardware
5. Data Communications Circuits

1.4. Reference Standards

A. Reference standards or recommended practices referred to herein shall be the latest edition or revision of the item referenced.
B. Equipment and materials for which there are Underwriters Laboratories (UL) standard testing requirements or listings shall have the appropriate UL label indicating compliance with the UL requirements.
C. All equipment and materials shall be American made and shall meet the requirements stated in the Buy American Act.
D. Equipment and materials for which there are American National Standards Institute (ANSI) standard testing requirements or listings shall have the appropriate ANSI label indicating compliance with the ANSI requirements.
E. Systems shall be designed, manufactured, tested and installed in accordance with NFPA 70 (National Electrical Code / NEC), state codes, local codes, requirements of Authorities Having Jurisdiction (AHJ), and in particular:
    1. North Carolina Building Code
    2. ADA (Americans with Disabilities Act, Public Law 101-336) requirements
    3. NFPA (National Fire Protection Association) 101 (Life Safety Code) requirements
    4. NBFAA (National Burglar & Fire Alarm Association) standards
    5. Manufacturer's requirements
    6. Standard industry practices
F. In the event that any codes disagree with one another, or are in conflict, the Contractor shall use the more restrictive code.

1.5. Scope of Work

A. The Contractor shall include all necessary wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install complete and operational communication devices indicated on the drawings.
B. Requirements are indicated elsewhere in this specification for work including, but not limited to:
    1. Provide and install of new audio/visual communication devices at the entrance locations as indicated on the drawings. (audio/video intercom system)
C. The door audio/video intercom system shall provide a means of communication between the door station and desktop master stations.
D. Installing the communication systems and bringing them to operational status for acceptance shall include but not be limited to the following:
    1. Determine hardware and operations requirements for implementation.
    2. Install devices.
    3. Set up and configure communications for all devices.
    4. Set up and configure communication systems application.

5. Test communication system devices operations based on a point-by-point physical walkthrough inspection and specification per section line-item testing using owner and Contractor's inspection documents.
6. If applicable, camera call-up shall be tested for each camera(s) associated with any emergency communication devices. Cameras shall automatically zoom and focus to the associated communication device.
7. Perform end-user training.

E. The Contractor shall provide onsite professional services to assist in the initial setup and programming of all systems specified within this specification.

F. All low-voltage cabling shall be provided by the Contractor.

1.6. Submittals

A. Submittals shall be as follows:

1. The Contractor shall submit shop drawings for the project. Shop drawings shall include point-to-point wiring diagrams for each building. Point-to-point diagrams shall detail each device location and all associated wire runs. Provide with the shop drawings a separate layout drawing for each equipment panel, rack, cabinet, and control unit on the project. The panel layout drawings shall show each component and shall detail the wiring for all devices connected to all components within the rack or panel. They shall show the labeling of each terminal strip connection point, each wire connected to the connection point, and each cable leaving the rack or panel. The layout drawings shall indicate in detail the labeling of each component within the panel including power supplies, terminal strips, switches, card cages and plug-in modules.
2. The Contractor shall submit manufacturer's technical data sheets on each product proposed.
3. The Contractor shall submit documentation that proves that all equipment meets the Buy American Act.
4. The Contractor shall submit detailed description of all equipment locations and mounting particulars. The Contractor shall describe coordination efforts that have been made or need to be made by the Contractor and the Owner for the installation to proceed on schedule in the manner described.
5. The Contractor shall provide a detailed project schedule with tasks and dates that includes at a minimum the Initial Preparation and Coordination Phase, Procurement Phase, Installation and Construction Phase, Testing and Commissioning Phase, and Closeout Phase. The use of Microsoft Project or similar is required.
6. Where AC or DC power supplies are used for Class 1, 2, or 3 Power-Limited Circuits, the Contractor shall provide evidence that the power capacity is sufficient for the proper operation of the powered devices

under maximum load. Detailed calculations of the power requirements shall be acceptable for this purpose.

7. The Contractor shall submit manufacturers' user's manuals for operations, administration, installation, and maintenance.

B. Contract Close-Out Submittals:

1. Training Course Materials: See section 3.15 for details.
2. Commissioning Test Plan and Check-Off List. See section 3.14 for details.
3. As-Built Drawings: During system installation, the Contractor shall maintain a separate hard copy set of drawings, elementary diagrams, and wiring diagrams of the security systems to be used for record drawings. This set shall be kept up to date, reflecting all changes and additions made to the security systems. Copies of the final as-built drawings shall be provided to the Owner in .DWG or .DXF format using the latest version of AutoCAD and also .PDF format using the latest version of Adobe.

1.7. Warranty and Maintenance

A. The card access system software, hardware, and installation shall be warranted against defects and workmanship for a minimum of 12 months, covering all parts and labor. Warranty period will begin upon acceptance by Owner.

B. The Contractor shall guarantee that the systems application software remains current at all times with the latest enhancements, supported by the manufacturer with unlimited remote dial-in diagnostics capability and technical phone support. (Coordinate with the Owner for any IT support requirements necessary to engage the manufacturer.)

C. The Contractor shall perform manufacturers' recommended preventative maintenance on all applicable components and/or devices.

D. The Contractor shall be the primary contact and respondent for all service and support, officially recognized and backed by the security systems manufacturer.

E. Extended and/or out of warranty terms at reasonable and customary rates shall be available from the Contractor.

F. Failure by the Contractor to coordinate their work will result in the Contractor being held liable for any and all deficiencies of the existing equipment that is relevant to the installation of the new security equipment.

1.8. Pricing and Bidding

A. The Contractor shall provide an Executive Summary System Description. This is a statement of the system function and single-line block diagram to show how all related equipment shall interface and operate as a complete electronic control system.

B. **Bid pricing shall be submitted in the following forms**:

1. The Bidder shall be required as a part of this bid to complete the attached spreadsheet. This is a list of major components and **NOT** a complete

equipment list. Bidders should use this as a **starting point and add to the list to provide pricing for the complete and fully functional systems** they propose as well as a lump sum. This spreadsheet shall identify line-item pricing per unit and extended pricing based on quantity and shall include, if applicable, state and local taxes. In addition to the equipment.

2. Bidder shall supply on a separate line, the cost of labor to install each unit.

1.9. Contractor Qualifications

A. Provide an architecture of all system components to include devices and network communication devices. Provide the manufacturer specifications for each system component to include any applicable software applications required.

B. Descriptive statement shall be submitted identifying that the Contractor has participated in a prequalification process by the Owner and has been deemed qualified to perform work on any City of Raleigh owned property at the time of bidding.

C. Due to the nature of the work involved, Contractors desiring to bid on the work herein described shall have been regularly engaged in the installation and maintenance of card access and security management systems similar in size and scope to that outlined herein for a period of no less than five years.

D. The Contractor represents that it is fully experienced and properly qualified and certified by the Manufacturer(s) to perform the type of work described in this document. The Owner realizes that the Contractor is the expert in the installation of security systems; therefore, it is the responsibility of the Contractor to deliver a properly functioning and safe system. This responsibility includes any items that may or may not be specifically noted in this document.

1. If the Contractor is not properly qualified and certified in a particular system stated in this specification or shown in the drawing, the Contractor is allowed to sub-contract the work performed on the particular system to a properly qualified and certified Subcontractor. This Subcontractor shall meet the same requirements as the Contractor as stated in this section.

E. Contractor shall supply information attesting to the fact that their firm is an authorized product dealer for the systems and equipment proposed.

F. Contractor shall supply information attesting to the fact that their installation and service technicians are competent factory-trained personnel capable of maintaining the system and providing reasonable service time.

G. Contractor shall provide a minimum of three references whose systems are of similar complexity and have been installed and maintained by the security system integrator in the last five years.

H. There shall be a local representative and factory authorized local service organization that shall carry a complete stock of parts and provide maintenance for these systems. Local shall be defined as an area in a 100-mile radius of the installed location.

I. The Contractor shall:

1. Act as an independent Contractor and not as an agent or employee of the Owner.
2. Be solely responsible for compliance with all applicable laws governing the employment of its employees and for Contractor's own acts and those of Contractor's employees, agents and subcontractors during the performance of Contractor's obligations hereunder.
3. Be responsible for all taxes, permits or other fees imposed due to the work of the Contractor.
4. Be regularly engaged in installing enterprise level audio/visual intercom components and shall have been engaged in such work for a period of not less than five years prior to bid submittal.
5. At the time of the bid be licensed by all appropriate authorities (state, municipal, and local) for the type of work to be performed. Contractors who have licenses or permits pending, relevant to this project, shall not be considered acceptable for bidding on this project.
6. Include with the bid a copy of the Contractor's current Alarm System License from the North Carolina Private Protective Services Board.
7. Include with the bid a copy of the Contractor's current Electrical Contractor license with a minimum of an SP-LV classification as issued by the North Carolina Electrical Board.
8. Have all personnel employed by the Security Contractor registered with the appropriate state or municipal Licensing Board as provided for by current state or local statutes.
9. Include with the bid submittal a copy of the Contractor's current business license as issued by the state in which the work is to be performed.
10. Contractor shall immediately notify the Owner, in writing, of any Judgment, Disqualification, Permit Revocation or any other similar action taken against the Contractor by any legitimate Regulating Authority or Licensing Agency that may occur during the course of the work that the Contractor performs for the Owner

1.10. Document Preparation and Control

A. All design guides, design development documents, construction drawings and record drawings are extremely confidential. Access to these documents shall be restricted to authorized personnel and the Contractor. Parties receiving these documents shall take every reasonable precaution to protect these documents from unauthorized access.

B. Drawings and documents relating to this project which are no longer required shall be disposed of by complete destruction.

C. Distribution of any section of these guidelines to other persons or companies shall not be made without prior written approval of the Owner and/or the Security Consultant for the project.

PART 2 - PRODUCTS

2.1. Buy American Act

A. All equipment shall meet the requirements stated in the Buy American Act. Any manufacturer that is not included in these specifications that meet the requirements of the Buy American Act or meet exceptions of the Buy American Act must be submitted for approval by the Owner.

2.2. Quality Assurance

A. Materials and equipment shall be new and conform to grade, quality, and standards specified. Materials, equipment, and software shall be of the most recent version or production design available at the time of installation.

2.3. Approved Manufacturers

A. The following manufacturers produce equipment or components which are included in this specification or which are approved for use by the City of Raleigh.

1. Aiphone Corporation

   6670 185th Avenue NE
   Redmond, WA 98052

B. Inclusion of a manufacturer on the above list does not imply that all products produced by the manufacturer are acceptable for use in the system(s) herein described.

2.4. Door Intercom System

A. System Overview

1. The Contractor shall provide and install new wall mounted video door communication device as indicated as IC on the drawings. The Contractor shall provide and install all communication and low voltage power wiring required from the units to the desktop video master stations as indicated as ICM on the drawings. It shall be the responsibility of the Contractor to coordinate the termination of the wiring within the building structures.
2. IP Network Compatible Video Intercom System: A network-based communication and security system featuring video entry security, internal communication, emergency stations, and paging. All units and app in the systems shall be able to unlock doors remotely on a network, assist onsite visitors from an offsite location, broadcast emergency announcements, and communicate using a PoE network.
   a. Power Source: Power over Ethernet (802.3af).
   b. Network Interface: 10 BASE-T / 100 BASE-TX Ethernet (RJ-45).
   c. Network Protocols: IPv4, IPv6, TCP, UDP, SIP, HTTP, HTTPS, MJPEG, RTSP, RTP, RTCP, IGMP, MLD, SMTP, DHCP, NTP, DNS.
   d. Bandwidth Usage:
      i. G.711: 64Kbps x 2 per video call.
      ii. 64Kbps per monitor.

iii. H.264: 24Kbps ~ 2,048Kbps.

e. Communication: Hands-free (VOX), push-to-talk (simplex), or handset (full-duplex).

f. Video Display: 7-inch color LCD.

g. Camera: Type: IX-DV, IX-DVF, IX-DVF-(2)RA, IX-DVF-L, IX-DVF-P, IX-DVF-HWCB

i. 1/3-inch color CMOS. 1.23 Megapixels.

ii. View Area at 0-degree camera angle mounted at 4 feet 11 inches (1500 mm) AFF: 2 feet 3 inches (700 mm) vertical x 3 feet 9 inch (1150 mm) horizontal at 19 inches (500 mm).

h. Camera: IX-DVM Type:

i. 1/3-inch 8-type color CMOS. 720p HD, wide dynamic range

ii. View Area mounted at 4 feet 11 inches (1500 mm) AFF: 4 feet 3 inches (1300 mm) vertical and a range of 170 degrees in a 19 inch (500 mm) horizontal radius.

i. Video Stream: ONVIF Profile S.

j. Door Release: Programmable Form C dry contact, 24V AC/ DC, 1A (use RY-1824L for larger contact rating, which requires a 24V DC power supply) or use IXW-MA with 10 multipurpose relays.

k. Wire Type: CAT-5e or CAT-6.

l. Distance: Any station to Network Node: 330 feet (100 meters).

B. System Design

1. Master Stations:
   a. Model IX-MV7-HB (Black chassis - Handset)
   b. Model IX-MV7-B (Black chassis - Hands Free)
2. Audio Video Door Stations:
   a. Model IX-DV (Video Door Station - Surface Mount - Vandal Resistant)
   b. Model IX-DVF (Video Door Station - Flush Mount - Vandal Resistant)
3. Provide Selective Door/Gate Release.
4. Provide Audio/video streaming via ONVIF Profile S.
5. Provide ONVIF Profile S camera input (max 500).
6. Provide Overhead paging.
7. Provide Contact input at door station.

C. Functional Components: As indicated on the drawings or as required to complete system.

1. Video Master Station Series IX-MV7:
   a. Model IX-MV7-HB (Master Station - Black w/Handset).
   b. Model IX-MV7-B (Master Station - Black, Hands Free).

c. An IP addressable video master station with a 7-inch color LCD monitor. It can be wall or desk mounted (desk stand included). The IX-MV7 offers handset (duplex) and hands-free (VOX/PTT) communication and call up to 500 other IX stations. It connects directly to a network using CAT-5e/6 cable. This station requires an 802.3af compliant Power-over-Ethernet network.

2. 30 Degree Angle Box Model SBX-IXDV30:
   a. Designed for use with IX-DV video door station.
3. Stainless Steel Enclosure Model SBX-IDVF:
   a. 18-Gauge Stainless Steel Surface Mount Box for IX-SSA and IX-DVF.
   b. Size: 10-7/16 inches x 5-15/16 inches x 3-5/16 inches (top); 2-5/16 inches (bottom) (265 mm x 151 mm x 84 mm (top); 59 mm (bottom).
   c. Weather resistant.
   d. Vandal resistant.
   e. Inside space for cabling.
   f. Mounts to flat wall surface.
   g. Opening at bottom for drainage.

PART 3 - EXECUTION

3.1. Purpose

A. This section provides for the Security Telecommunication Systems for the City of Raleigh RCC-RHA project. Detailed design, construction documents, scope of work, or other supplementary data may be attached to this document to provide the Contractor with additional information pertinent to a specific site or project.

B. The requirements noted in this document shall be understood to be the minimum City of Raleigh requirements. These requirements shall be expanded by the Contractor as necessary to ensure quality; however, written approval from the City of Raleigh or their representative must be obtained prior to deleting or revising a requirement contained herein.

C. It shall be the responsibility of the Contractor to verify the system design with the local AHJ.

D. The City of Raleigh shall make final approval of the security systems design and its suitability for the application. The Contractor should seek design input and comments from the City of Raleigh or their representative at all design stages.

E. The security systems for this project are designed to control access to and provide an audit trail of personnel entering a building or a specific area of a building and to also monitor all alarm devices. One of the primary goals is to prevent or deter unauthorized entry while allowing freedom of movement for employees and other authorized visitors.

F. The specifications contained in this document and the drawings submitted with the specification represent an outline of the desired system. Ensuring the compatibility of the equipment described is the responsibility of the Contractor submitting the proposal. Neither this document, nor any attached supplementary information, is intended to list all parts, interfaces, and miscellaneous equipment that may be needed, rather, it is the responsibility of the Contractor submitting the proposal to provide the equipment necessary to provide a properly functioning system.

3.2. Installation

A. All work shall be completed in a neat, organized, and professional workman-like manner.

B. The Contractor shall be aware and shall anticipate that due to the nature of this project, most of the work will have to be completed after hours and on weekends. In addition, due to the nature of some of the secure areas of this building, additional time may be necessary to gain access to certain areas. Any additional time that the Contractor deems necessary shall be included in this proposal. This access will need to be coordinated with the City of Raleigh.

C. All contractors will have to attend, if required, contractor safety training and shall display a safety training completion sticker, badge or letter while working on site.

D. The Contractor shall provide all conduit, boxes, enclosures, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

E. The Contractor shall provide all wiring, connectors, power supplies, interfaces, and other hardware as necessary to effect a normally operating system.

F. The Contractor shall be responsible for all materials and labor necessary to replace any components that have been improperly installed or damaged during installation.

G. Any holes or visible damage created while retrofitting hardware will be properly corrected and patched to the Owner's satisfaction.

H. Connections of all equipment and devices shall be made in the manner recommended by the manufacturer and must meet the approval of the City of Raleigh as a condition of the acceptance of this project.

I. All equipment shall only be used for the purpose intended by the manufacturer and shall be installed per the manufacturer's specifications.

J. Materials and equipment shall be new, unused and conform to grade, quality and standards specified.

K. Materials and equipment shall be of the most recent version or production design available at the time of installation.

L. Substitution of other Manufacturers / Vendors products for those specified shall not be permitted without prior review and written approval by the City of Raleigh.

M. The Contractor shall provide at least two tools to the City of Raleigh to remove tamperproof screws for service. Tamper resistant fasteners shall be such that they cannot be removed without special computer designed wrenches provided for that specific purpose by the manufacturer. Allen head, Phillips head, torque, and other similar fasteners shall not be acceptable.

N. Compression type terminal strips shall be used whenever terminations are made at points other than on the components. There shall be no splices in any cable except where necessary to interface with pre-wired devices. Repair to damaged cables or extending cables by splicing will not be permitted. The Contractor shall be responsible for all materials and labor necessary to replace cables that have been installed improperly or damaged in installation. The use of "wire nuts" or "beans" inside the Field Interface Panels will not be acceptable.

O. System components and control devices shall be wired to the appropriate FIP as homeruns.

P. Programming of any new system components necessary to provide a fully operational system shall be included in the scope of this work.

Q. Each alarm initiating device shall be on its own zone and all zones shall report separately in a format which permits distinguishing individual zones and their conditions.

R. Supervised inputs shall be supervised by installing the end-of-line device as close to the input device as possible. End-of-line devices shall not be located at the controller inputs or inside the control enclosure(s).

S. All alarm inputs shall be configured as normally closed loops utilizing 4-state supervision.

T. End-of-line devices shall be located at the initiating device as described in the manufacturer's installation instructions.

U. Electronic Access Control, Video, or Intrusion system wiring shall not be run in the same conduit with Class 1, power, or lighting circuits.

V. Controllers, power supplies, and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling, and other similar locations).

W. When installed such that components are exposed to environmental effects such as rain, snow, or other inclement weather conditions, all fixtures and other equipment should be protected from a deterioration of the system due to weather related causes.

X. Lightning and surge protection shall be provided as required by industry standards and the manufacturer's recommendation on all appropriate elements of the security system.

Y. A separate suitable ground wire shall be connected to all lightning protection devices installed.

Z. Any firewall penetrations must be sealed with 2-hour intumescent UL approved firestop material. UL Penetration Detail Diagrams shall be available on site for review by the Building Inspector. In all cases the seal must meet the applicable fire code.

3.3. Cable and Conductors

A. The Contractor shall provide and install all cables and conductors in support of this project. It is the Contractors responsibility to coordinate cabling raceway.

B. Alarm point wiring and REX wiring shall be minimum 22 AWG shielded twisted-pair or as specified by manufacturer's published installation procedures, whichever is the more stringent specification.

C. The cabling from each card access location shall be as recommended by the manufacturer and shall be a minimum of 18 AWG.

D. Low voltage power wiring for the electrified door hardware shall be a minimum of 16 AWG non-shielded.

E. All jacket material used shall be suitable for the application in which it is to be used.

F. All wiring shall be installed as specified by the manufacturer's published procedures.

G. Color-coding shall be used on all wiring and cabling and shall be used in a consistent manner.

H. When mechanical means of connecting wires do not otherwise exist (e.g. pre-wired devices), the connection may be made by twisting, "hot" soldering, and covering the connection with listed electrical tape or secured with either a crimp or solder type spade lug. Solderless crimp connectors shall be crimped only with a tool recommended by the manufacturer.

3.4. Pulling Cable

A. Swivel type pulling grips shall be used for all cable pulls to avoid cable twisting.

B. The manufacturer's recommended maximum pulling tension shall not be exceeded during any cable pull. A tensiometer shall be used during installation to monitor pulling tension.

C. Pulling winches with a calibrated maximum tension setting may be used in lieu of a tensiometer. Hand pulls do not require tension monitoring.

D. Equal pulling tension shall be applied to all cables pulled during one cable pull.

E. The manufacturer's rated minimum cable bend radius requirements shall be followed both while the cable is under pulling tension and while the cable is in a non-tension (operating) condition.

F. No residual tension shall remain on any cable after installation except the weight of the cable in a vertical rise.

G. Care shall be taken when dressing cables such that manufacturer's tension and minimum bend radius requirements are maintained.

3.5. Hardware

A. Miscellaneous hardware required for installation shall be suitable for the purpose for which it is used. Hardware includes such items as nuts, bolts, screws, washers, miscellaneous fasteners, terminals, terminal strips, tie wraps, and other related parts.

B. Manufacturer's specific requirements on hardware or other components shall be adhered to.

C. The finish on all hardware and fasteners shall be suitable for the environment in which it will be used and shall be selected to minimize corrosion or deterioration due to moisture, sunlight, temperature extremes, and other similar environmental concerns.

3.6. Painting and Finish

A. All surfaces to be painted shall be prepared and cleaned in compliance with the paint manufacturer's instructions for surface conditions and as herein specified. Do not apply paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to a durable and uniform finish. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any component identification, performance rating, name, or nomenclature plates.

B. Where the surface has been prime coated by the manufacturer, recoat the primed surface where there is evidence of suction spots or other unsealed areas due to insufficient sealing. Equipment primed by the manufacturer which exhibits evidence of having been improperly stored or exposed to the effects of weather shall have the primer coat removed and be prepared and painted as if it had not been primed.

C. Where the surface is ferrous metal, the minimum acceptable degree of surface preparation shall be as indicated in the schedule by the applicable SSPC specification number. The bottom coat shall be rust penetrating or encapsulating oil-based primer. If the surface is galvanized, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

D. Where the surface is aluminum or other nonferrous metal, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

E. Where the surface is non-metallic and has not been primed by the fabricator, the bottom coat shall be a latex acrylic primer and shall be selected for maximum adhesion to the substrate. The primer selected shall contain no oils or solvents that will damage the substrate and shall be an appropriate base for the finish coats.

F. The second and third coats shall be quick-drying enamel with a satin finish. A minimum of two separate coats shall be applied over the bottom coat, allowing sufficient time between coats for uniform curing of the paint. Additional coats shall be applied as required to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

3.7. Cabinets and Boxes

A. Tamperproof screws shall be used on all cabinets, boxes and other similar enclosures that are easily accessible by employees or the general public.

B. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls.

C. Cabinets and enclosures containing access control components shall be provided with tamper switches. The tamper switches shall report an alarm condition to the security system if the enclosure is opened. Cabinets and enclosures that contain only cable do not require tamper switches if attempts to damage or compromise the cables would generate an alarm or trouble condition.

D. Cabinets, boxes, and other similar enclosures containing control components or cabling and which are easily accessible to employees or the general public shall also be provided with an integral lock or a hasp for a padlock. The Contractor shall provide any required padlocks and keys.

E. Any cabinet, box, or other enclosure that is mounted above a ceiling, or is mounted more than ten feet above the floor in an interior location, may be deemed as being inaccessible to employees or the general public.

3.8. Labeling

A. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls (e.g. Computer Room, Door #7, Side Door).

B. The Contractor shall provide labeling and numbering consistent with the City of Raleigh's labeling schema for all components and wiring for the project.

C. Each terminal strip and screw terminal in each cabinet, rack, or panel shall be individually labeled.

D. Wiring conductors connected to terminal strips shall be individually numbered. Each cable or wiring group being extended from a panel or cabinet to a building mounted device shall be identified with the name and number of the particular device as shown.

E. Each wire connected to building mounted devices shall not be required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

F. Cable must be labeled at both ends as well as in junction boxes.

G. Handwritten labels are not acceptable. All wire labels shall be machine printed directly to the label and fixed to the individual wire. Acceptable labeling types are heat shrinkable sleeves, self-laminating wraparound labels or approved equal. Acceptable labeling systems include those produced by Dymo, Panduit, 3M, Tyco, or equal.

3.9. Power Supplies

A. All power supply equipment (batteries, battery chargers, rectifiers, switching facilities, transformers, voltage regulators, emergency generating equipment, and other similar devices) shall be installed in accordance with the requirements of NFPA 70 (National Electrical Code / NEC) for such equipment.

B. Video Management servers should be installed where secondary power supply is available and automatically switching upon any power failure.

C. Where batteries are used as the secondary power supply, the batteries should be sealed lead-acid or gelled electrolyte construction. Batteries should have a minimum estimated operating life of not less than five years under normal operating conditions. The manufacturer, type, size, capacity, model number, and recommended schedule of replacement shall be included in the

required system O&M manuals described elsewhere in this document. Each battery shall be permanently marked with the date of installation.

D. Where cameras are powered by Network switches using PoE (or PoE +/++) the network switch itself should also have a secondary power supply.

E. The standby power supply shall cause a local annunciation when standby power falls below the manufacturer's recommended specifications.

3.10. Conduit

A. All major wiring and cabling shall be in conduit or raceway.

B. The Contractor shall provide all incidental conduit, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

C. The fill rate of conduit for the cables associated with the video systems shall not exceed 40%. Even though this requirement is below the NEC requirements, there may be future expansions that will utilize parts of this same conduit system.

D. Bushings must be used where cabling runs over conduit edges.

3.11. Communications

A. The City of Raleigh uses an Ethernet communications network to interconnect operator workstations, controllers, and file servers. All network devices are capable of real-time communications with all other devices and all devices are fully supervised. Alarm processing and dispatch takes place at workstations located in the security console.

B. The Contractor must initiate and coordinate requests for network services through the City of Raleigh.

C. All devices placed on the LAN will require approval of the City of Raleigh.

3.12. System Programming

A. The Contractor shall provide the development, loading, and checking of the programming for the complete and proper operation of the systems involved.

B. Prior to performing any programming on the system, the Contractor shall coordinate with Owner and shall obtain the Owner's specific programming requirements.

C. System software development shall include all items necessary to provide proper system operation.

D. The Contractor will offer technical support from the manufacturer that address 24/7 support, service patches and trouble-shooting, integration failure, assistance with 3rd party software and hardware installation or configurations.

3.13. Documentation

A. Drawings of Record

1. The Contractor shall maintain at the installation site one record copy of all contract drawings, specifications, addenda, change orders, and other

modifications, in good order and marked up-to-date with a record of all changes made during construction.

2. Upon completion of work, the Contractor shall deliver three copies of the shop drawings, system testing, mechanical and electrical equipment schematics, and diagrams to the City of Raleigh.
3. All record drawings shall reflect the work as it was actually installed. Any equipment changes made during the project shall be clearly noted.
4. Record drawings shall be in a format and contain sufficient detail to permit the rapid and accurate troubleshooting of the system by a skilled technician with no previous knowledge of the specific installation. Providing record drawings on electronic media in AutoCAD format shall be acceptable.

B. Operation and Maintenance Manuals

1. After completion of work, Contractor shall deliver three system Operation and Maintenance (O&M) manuals.
2. O&M manuals shall include operating instructions specific to the installation and step-by-step directions for routine system operation.
3. O&M manuals shall include service and maintenance instructions for each major component installed. Equipment requiring periodic maintenance shall be clearly noted.
4. The manufacturer's standard catalog cut sheets shall not be acceptable for use as O&M manuals.

3.14. Testing

A. Site tests shall be performed with a representative of the Owner in attendance.

B. The Contractor shall coordinate the scheduled time of testing and access to the site.

C. The Contractor shall provide all test equipment, tools, recorders, connectors, cables, and other devices required for the completion of systems tests.

D. The Contractor shall provide or coordinate the availability of ladders, lifts, scaffolding, or other equipment required to provide safe and ready access to all installed devices for the use of Owner's representative.

E. The Contractor shall provide two-way radios, cellular telephones, or other communications devices necessary to communicate with any remote facility monitoring the security systems during the testing.

F. The Contractor shall demonstrate to Owner's representative that all sequences operate correctly and that all products, devices and system software operate as designed and specified.

G. Tests shall be performed on each component of the intercom system.

H. The output of each low-voltage AC or DC power supply and transformer shall be measured under maximum system operating conditions to verify that the

actual loads do not exceed those previously calculated by the Contractor. If the actual loads exceed those previously calculated, the Contractor shall submit new calculations demonstrating that the system as installed meets the requirements of the appropriate specifications.

I. Detection loops using end-of-line devices shall be removed from the control unit and measured for total circuit resistance in normal, alarm and trouble modes. Detection loops using end-of-line devices shall also be measured for loop voltage while connected to the control unit. The measured values for both tests shall be within manufacturer's recommendations and shall be recorded with a written copy provided in the O&M manuals.

J. Systems and devices with remote download and upload capabilities shall be thoroughly tested in all modes.

K. Sufficient replacement parts shall be available to allow for timely replacement of any parts that are found to be unsatisfactory in performance.

L. Door Video Intercom System

1. All Door Video Intercom wall and master stations shall be tested to verify that they are working properly and that the audio is intelligible and video is clear. Once the call is made verify that the unit communicates properly with the associate master station and that it is a hands-free operation.
2. Verify that the camera populates on the master stations screens until reset.
3. Verify call forwarding of the calls from one desktop master station to another.
4. Verify that all other aspects of the system are working properly.

3.15. Training

A. The Contractor shall hold a training session at the job site at times mutually agreed upon between the Owner and the Contractor.

B. The Contractor shall submit for approval a syllabus that includes a detailed outline of the training sessions that will take place.

C. The Contractor shall provide a minimum 4 hours of training.

D. The Contractor shall provide all training material required. The use of the approved O&M manual will be accepted as part of the training material. In addition to the O&M manual, the Contactor shall provide any other documentation/training tools required.

E. Time spent on field set-up, start-up and testing shall not be considered as training time

F. Users of the Intercom System shall be thoroughly instructed verbally and in writing of the proper operation of all equipment and the procedures to be followed.

3.16. Acceptance and Performance Requirements

A. This system shall not be considered accepted until all punch list items have been corrected. Beneficial use of part or all of the system shall not be considered as acceptance.
B. The Owner reserves the right to evaluate the installed system for a period of 30 days, subsequent to the completion of the system acceptance tests, before final payment shall be made.
C. The Contractor shall complete the installation of all equipment in a reasonable and timely manner consistent with the Owner's construction schedule.
D. The Contractor shall provide properly skilled and factory trained personnel, the proper materials, and perform in a good workmanlike and timely manner satisfactory to the Owner.
E. The Contractor shall not hire any subcontractors for installation, maintenance, or service of the system without prior written approval by the Owner of such subcontractors for this work.

3.17. Warranty and Service

A. The Contractor shall guarantee all equipment, wiring, labor, and other components of this system to be free of defects in workmanship and material for one year or the manufacturer's warranty period, whichever is longer, from the date of acceptance by the Owner's representative.
B. Warranty service by the Contractor shall include four-hour emergency response service during normal Contractor working hours and twelve-hour emergency response service after normal working hours, on weekends, and on holidays. Response time shall be measured from the time of Contractor notification to the arrival of service personnel at the affected site to initiate repairs. The Contractor shall provide a method of requesting emergency service after normal working hours, on weekends, and on holidays appropriate to the required response times.
C. Service requests are requests for work to repair or replace a system component or software application which has malfunctioned or been damaged. Service requests shall not include routine system additions, equipment relocations, or system upgrades.

END OF SECTION 285200

SECTION 281300 – ACCESS CONTROL SYSTEM

PART 1 - GENERAL

1.1. Summary

A. This document covers the specifications that include all materials and labor for the provision and installation of the Access Control Components for the City of Raleigh Martin Marietta Center for the Performing Arts (MMCPA) project. Included in the documents are all major systems, subsystems and components as required by this specification.

B. The requirements of this specification shall be understood to be the City of Raleigh minimum. The requirements shall be expanded as necessary to ensure quality. However, unless City of Raleigh approval is obtained, the requirement herein shall not be deleted or revised.

C. The City of Raleigh shall be hereinafter referred to in this document as the Owner and the bid respondents shall be referred to as the Contractor. The term Owner includes direct employees and other appointed Owner agents such as architects or consultants. These agents may be requested by the Owner to represent the Owner in undertaking certain project tasks.

D. If any statement in this specification is in conflict with any provision of the General Terms and Conditions of the contract, the provision stated in the General Terms and Conditions shall take precedence. Any questions that require additional interpretation and guidance shall be immediately brought to the Owner's attention.

1.2. System Description

A. The manufacturer of the proposed system(s) shall require resellers to pass a formal training program prior to being certified as authorized to sell and install the system(s). Such certifications shall require annual re-qualification. The system Contractor proposing the system(s) shall be in possession of such a certification.

B. The SMS shall seamlessly integrate the functions of access control, alarms monitoring and response, digital video imaging and badge design/creation, and visitor management. All SMS components shall run in an integrated application environment as part of a single application.

C. Currently the Owner uses Vykon for access control and Milestone for video management in other locations. These systems are completely integrated into a complete Security Management system.

D. The security systems described in this document are capable of integrating, interfacing and/or operating with other systems. If any such functions are required, they should be described either in this specification or separately in other sections.

E. This RFP for Martin Marietta Center for the Performing Arts (MMCPA) is in conjunction with the RFP for the City of Raleigh Convention Center and Red Hat Amphitheater (RCC-RHA). Contractors may choose to bid for only the

Base Bid, a single alternate, or all four options, but the option chosen must be the same for both RFPs.

F. The contractor shall provide and install an integrated security management system that shall provide a simple and easy-to-use graphical user interface. The system shall provide local operational control of all access points and alarm sensors, and video management. **For the Base Bid as well as the Alternates, components shall be capable of integrating, interfacing, and/or operating as a fully integrated SMS.**
   1. The Base Bid will require a new access control system and a new video management system.
   2. Alternate 1 will require an expansion of the Owner's existing Vykon access control system and a new video management system.
   3. Alternate 2 will require a new access control system and an expansion of the Owner's existing Milestone video management system.
   4. Alternate 3 will require an expansion of the Owner's existing Vykon access control system and an expansion of the Owner's existing Milestone video management system.

G. This section covers the provision of the access control systems including items and subsystems as required by this specification.
   1. Communication Panels and field interface control panels for access control and alarm management.
   2. Card readers and other security input/output devices for access control and alarm monitoring of secured areas.

1.3. Related Sections

A. This section references related installation methods, guidelines, and basic infrastructure. If any such references are required, they should be described either in this specification or separately in other sections.
   1. Conduit, Raceways, and Cable Trays
   2. Fire Stopping Penetration Through Rated Construction
   3. Electrical, Cabling, and Wiring
   4. Door Hardware
   5. Data Communications Circuits

1.4. Reference Standards

A. Reference standards or recommended practices referred to herein shall be the latest edition or revision of the item referenced.

B. Equipment and materials for which there are Underwriters Laboratories (UL) standard testing requirements or listings shall have the appropriate UL label indicating compliance with the UL requirements.

C. All equipment and materials shall be American made and shall meet the requirements stated in the Buy American Act.

D. Equipment and materials for which there are American National Standards Institute (ANSI) standard testing requirements or listings shall have the appropriate ANSI label indicating compliance with the ANSI requirements.

E. Systems shall be designed, manufactured, tested and installed in accordance with NFPA 70 (National Electrical Code / NEC), state codes, local codes, requirements of Authorities Having Jurisdiction (AHJ), and in particular:
   1. North Carolina Building Code
   2. ADA (Americans with Disabilities Act, Public Law 101-336) requirements
   3. NFPA (National Fire Protection Association) 101 (Life Safety Code) requirements
   4. NBFAA (National Burglar & Fire Alarm Association) standards
   5. Manufacturer's requirements
   6. Standard industry practices

F. In the event that any codes disagree with one another, or are in conflict, the Contractor shall use the more restrictive code.

1.5. Scope of Work

A. Base Bids and Alternates
   1. Base Bid: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a completely new access control system and a completely new video management system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Base Bid)
   2. Alternate 1: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Vykon access control system that will be capable of integrating, interfacing, and operating with a new video management system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, video monitoring workstations as indicated on the drawings. (Alternate 1)
   3. Alternate 2: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a new access control system that is capable of integrating, interfacing, and operating with an expansion of the Owner's existing Milestone video management system. Components may include, but are not limited to video archivers, cameras, access control servers,

controllers, card readers, door contacts, video monitoring workstations as indicated on the drawings. (Alternate 2)

4. Alternate 3: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Vykon access control system and an expansion of the Owner's existing Milestone video management system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, video monitoring workstations as indicated on the drawings. (Alternate 3)

B. The following shall be covered as part of this Bid:
   1. The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete and operational card access system on any doors indicated on the drawings.
   2. New electronic door hardware, door position sensors, card readers, new Field Interface Panels and power supplies for the access-controlled doors shall be provided and installed by the Contractor.
   3. Each card reader shall be multiclass with the ability to read existing prox cards and smart cards. It is the Contractor's responsibility to obtain the access card requirements for compatibility.
   4. The Contractor shall provide an on-premises server to connect the Communication Panels and/or FIPs. The Contractor shall coordinate with the Owner for specific network standards and local area network (LAN) connections.
   5. The Security Management System (SMS) client and server software shall be used in conjunction with intelligent controllers to provide a distributed access control and alarms monitoring system. In the event of a communications failure between the host server and the field controllers, the controllers shall continue to make local access control decisions and save all transactions in memory until communications are restored. At that time the controller shall upload all stored transactions to the server.
   6. The Contractor shall provide three (3) access control workstations to monitor all card access transactions and alarms. This shall be configurable upon permissions-based privileges.
   7. All programming of all communications panels and/or FIP's shall be the responsibility of the Contractor unless notified otherwise by the Owner.
   8. The security system shall provide management, control, and monitoring of card access and alarms.
   9. The extent of security systems work is defined to include but not limited to the following:

a. Installation of new card readers, FIPs, door control modules, input/output modules, electronic door hardware, door position switches, remote release devices, integrated RX devices, intrusion detection panels, intrusion zone expanders, keypads, and other equipment as needed.

10. Installing the security systems and bringing them to operational status for acceptance shall include but not be limited to the following:
    a. Determine hardware, software, on-site servers, and operations requirements for implementation.
    b. Install security systems hardware and programming software to include proper security device and integration licenses.
    c. Set up and configure communications between the host server and control panels.
    d. Set up and configure security systems application.
    e. Test security systems operations based on a point-by-point physical walkthrough inspection and specification per section line-item testing using owner and Security Contractor's inspection documents.
    f. Perform end-user training.
11. The Contractor shall provide onsite professional services to assist in the initial setup and programming of all systems specified within this specification.
12. All low-voltage cabling shall be provided by the Contractor.

1.6. Submittals

A. Submittals shall be as follow:

1. The Contractor shall submit shop drawings for the project. Shop drawings shall include point-to-point wiring diagrams for entire system. Point-to-point diagrams shall detail each device location and all associated wire runs. Include with the shop drawings a separate layout drawing for each equipment panel, rack, cabinet, and control unit on the project. The panel layout drawings shall show each component and shall detail the wiring for all devices connected to all components within the rack or panel. They shall show the labeling of each terminal strip connection point, each wire connected to the connection point, and each cable leaving the rack or panel. The layout drawings shall indicate in detail the labeling of each component within the panel including power supplies, terminal strips, switches, card cages and plug-in modules.
2. The Contractor shall submit manufacturer's technical data sheets on each product proposed.
3. The Contractor shall submit documentation that proves that all equipment meets the Buy American Act.
4. The Contractor shall submit detailed description of all equipment locations and mounting particulars. The Contractor shall describe

coordination efforts that have been made or need to be made by the Contractor and the Owner for the installation to proceed on schedule in the manner described.

5. The Contractor shall provide a detailed project schedule with tasks and dates that includes at a minimum the Initial Preparation and Coordination Phase, Procurement Phase, Installation and Construction Phase, Testing and Commissioning Phase, and Closeout Phase. The use of Microsoft Project or similar is required.
6. The Contractor shall submit complete and detailed programming parameters of all card access and security monitoring points to the owner 30 days prior to the development and implementation of the programming.
7. Where AC or DC power supplies are used for Class 1, 2, or 3 Power-Limited Circuits, the Contractor shall provide evidence that the power capacity is sufficient for the proper operation of the powered devices under maximum load. Detailed calculations of the power requirements shall be acceptable for this purpose.
8. The Contractor shall submit manufacturers' user's manuals for operations, administration, installation, and maintenance.

B. Contract Close-Out Submittals:

1. Training Course Materials: See section 3.15 for details.
2. Commissioning Test Plan and Check-Off List. See section 3.14 for details.
3. As-Built Drawings: During system installation, the Contractor shall maintain a separate hard copy set of drawings, elementary diagrams, and wiring diagrams of the security systems to be used for record drawings. This set shall be kept up to date, reflecting all changes and additions made to the security systems. Copies of the final as-built drawings shall be provided to the Owner in .DWG or .DXF format using the latest version of AutoCAD and .PDF format using the latest version of Adobe.

1.7. Warranty and Maintenance

A. The card access system software, hardware, and installation shall be warranted against defects and workmanship for a minimum of 12 months, covering all parts and labor. Warranty period will begin upon acceptance by Owner.

B. The Contractor shall guarantee that the systems application software remains current at all times with the latest enhancements, supported by the manufacturer with unlimited remote dial-in diagnostics capability and technical phone support. (Coordinate with the Owner for any IT support requirements necessary to engage the manufacturer.)

C. The Contractor shall perform manufacturers' recommended preventative maintenance on all applicable components and/or devices.

D. The Contractor shall be the primary contact and respondent for all service and support, officially recognized and backed by the security systems manufacturer.

E. Extended and/or out of warranty terms at reasonable and customary rates shall be available from the Contractor.

F. Failure by the Contractor to coordinate their work will result in the Contractor being held liable for any and all deficiencies of the existing equipment that is relevant to the installation of the new security equipment.

1.8. Pricing and Bidding

A. The Contractor shall provide an Executive Summary System Description. This is a statement of the system function and single-line block diagram to show how all related equipment shall interface and operate as a complete electronic control system.

B. **Bid pricing shall be submitted in the following forms**:

1. The Bidder shall be required as a part of this bid to complete the attached spreadsheet. This is a list of major components and **NOT** a complete equipment list. Bidders should use this as a **starting point and add to the list to provide pricing for the complete and fully functional systems** they propose as well as a lump sum. This submitted spreadsheet shall identify line-item pricing per unit and extended pricing based on quantity and shall include, if applicable, state and local taxes in addition to the equipment.
2. Bidder shall supply on a separate line, the cost of labor to install each unit.

C. The Bidder shall provide an Add/Alternate 4 price to provide and install additional card readers, FIPs and any other associated equipment at door locations marked as future in the security drawings. The card access equipment shall match that of which is being provided as a part of the Base Bid or Alternates.

D. The Bidder shall provide an Add/Alternate 5 price to provide HID iClass multi-technology readers in the place of the HID proximity specified in section 2.6.

1. The iClass multi-technology readers shall meet the same requirements stated in section 2.6

E. The Bidder shall provide an Add/Alternate 6 price to provide and install an additional sliding gate system at the Green Street Lot. See section 2.9 for gate details.

1. The card access equipment shall match that of which is being provided as a part of the Base Bid or Alternates.

1.9. Contractor Qualifications

A. Provide an architecture of all system components to include devices and network communication devices. Provide the manufacturer specifications for

each system component to include any applicable software applications required.

B. Due to the nature of the work involved, Contractors desiring to bid on the work herein described shall have been regularly engaged in the installation and maintenance of card access and security management systems similar in size and scope to that outlined herein for a period of no less than five years.

C. The Contractor represents that it is fully experienced and properly qualified and certified by the manufacturer(s) to perform the type of work described in this document. The Owner realizes that the Contractor is the expert in the installation of security and card access systems; therefore, it is the responsibility of the Contractor to deliver a properly functioning and safe system. This responsibility includes any items that may or may not be specifically noted in this document.

1. If the Contractor is not properly qualified and certified in a particular system stated in this specification or shown in the drawing, the Contractor is allowed to sub-contract the work performed on the particular system to a properly qualified and certified Subcontractor. This Subcontractor shall meet the same requirements as the Contractor as stated in this section.

D. The Contractor shall supply information attesting to the fact that their firm is an authorized product dealer for the systems and equipment proposed.

E. The Contractor shall supply information attesting to the fact that their installation and service technicians are competent factory-trained personnel capable of maintaining the system and providing reasonable service time.

F. The Contractor shall provide a minimum of three references whose systems are of similar complexity and have been installed and maintained by the security system integrator in the last five years.

G. There shall be a local representative and factory authorized local service organization that shall carry a complete stock of parts and provide maintenance for these systems. Local shall be defined as an area in a 100-mile radius of the installed location.

H. The Contractor shall:

1. Act as an independent Contractor and not as an agent or employee of the Owner.
2. Be solely responsible for compliance with all applicable laws governing the employment of its employees and for Contractor’s own acts and those of Contractor’s employees, agents and subcontractors during the performance of Contractor’s obligations hereunder.
3. Be responsible for all taxes, permits or other fees imposed due to the work of the Contractor.
4. Be regularly engaged in installing enterprise level access control components and shall have been engaged in such work for a period of not less than five years prior to bid submittal.

5. At the time of the bid be licensed by all appropriate authorities (state, municipal, and local) for the type of work to be performed. Contractors who have licenses or permits pending, relevant to this project, shall not be considered acceptable for bidding on this project.
6. Include with the bid a copy of the Contractor's current Alarm System License from the North Carolina Private Protective Services Board.
7. Include with the bid a copy of the Contractor's current Electrical Contractor license with a minimum of an SP-LV classification as issued by the North Carolina Electrical Board.
8. Have all personnel employed by the Security Contractor registered with the appropriate state or municipal Licensing Board as provided for by current state or local statutes.
9. Include with the bid submittal a copy of the Contractor's current business license as issued by the state in which the work is to be performed.
10. Contractor shall immediately notify the Owner, in writing, of any Judgment, Disqualification, Permit Revocation or any other similar action taken against the Contractor by any legitimate Regulating Authority or Licensing Agency that may occur during the course of the work that the Contractor performs for the Owner

1.10. Document Preparation and Control

A. All design guides, design development documents, construction drawings and record drawings are extremely confidential. Access to these documents shall be restricted to authorized personnel and the Contractor. Parties receiving these documents shall take every reasonable precaution to protect these documents from unauthorized access.

B. Drawings and documents relating to this project which are no longer required shall be disposed of by complete destruction.

C. Distribution of any section of these guidelines to other persons or companies shall not be made without prior written approval of the Owner and/or the Security Consultant for the project.

PART 2 - PRODUCTS

2.1. Buy American Act

A. All equipment shall meet the requirements stated in the Buy American Act. Any manufacturer that is not included in these specifications that meet the requirements of the Buy American Act or meet exceptions of the Buy American Act must be submitted for approval by the Owner.

2.2. Quality Assurance

A. Materials and equipment shall be new and conform to grade, quality, and standards specified. Materials, equipment, and software shall be of the most recent version or production design available at the time of installation.

2.3. Approved Manufacturers

A. The following manufacturers produce equipment or components which are included in this specification, or which are approved for use by the City of Raleigh.

1. Altronix

   140 58th Street
   Brooklyn, NY 11220
2. HID

   14311 Chambers Road
   Tustin, CA 92780
3. Honeywell

   2 Corporate Drive, Suite 100
   Melville, NY 11747
4. AXIS Communication Inc.

   300 Apollo Drive
   Chelmsford, MA 01824
5. Dell Inc.

   1 Dell Way
   Round Rock, TX 78682
6. HP Inc.

   1501 Page Mill Road
   Palo Alto, CA 94304
7. Life Safety Power

   750 Tower Road, Unit B
   Mundelein, IL 60060
8. Milestone Systems Inc

   8905 SW Nimbus Avenue Suite 400
   Beaverton, OR 97008
9. Tridium Inc. 3951

   Westerre Parkway, Suite 350
   Richmond, VA 23233

B. Inclusion of a manufacturer on the above list does not imply that all products produced by the manufacturer are acceptable for use in the system(s) herein described.

2.4. Security Devices

A. The Contractor shall provide and install recessed ¾" magnetic door contacts (GRI 180 or equivalent) on single doors and both leaves of double doors at all of the new card access locations as shown on the drawing (CA#). Where building structure makes it impossible to install conduit within the wall or door frame, the Contractor shall notify the Owner and request a substitution to install a GRI 4460 surface-mount contact with armored cable for the door contacts specified above. Failure of the Contractor to notify the Owner ahead of time shall not be sufficient reason to substitute the surface-mount contacts for the preferred recessed contacts. Color shall match door frame finish.

B. The Contractor shall provide and install recessed ¾" magnetic door contacts (GRI 180 or equivalent) on single doors and both leaves of double doors at all of the door locations as shown on the drawing (DC#). Where building structure makes it impossible to install conduit within the wall or door frame, the Contractor shall notify the Owner and request a substitution to install a GRI 4460 surface-mount contact with armored cable for the door contacts specified above. Failure of the Contractor to notify the Owner ahead of time shall not be sufficient reason to substitute the surface-mount contacts for the preferred recessed contacts. Color shall match door frame finish.

C. Additionally, the contractor shall provide and install a DSI model ES4300A local alarm with removable core option at locations identified in the drawings.

D. Provide and install hard wired duress buttons at the locations shown in the drawings (D1). Duress panic buttons shall be Potter/Amseco model HUSK 20 and shall be connected to the field controller as a separate input.

2.5. Card Access Systems

A. System Overview

1. The Contractor shall provide, install and program all new electronic access control field hardware (FIP) and devices as outlined in these specifications and drawings.
2. The systems shall carry the UL mark and shall meet the requirements of UL-294.
3. The manufacturer of the proposed system shall require resellers to pass a formal training program prior to being certified as authorized to sell and install the system. Such certification shall require annual re-qualification. The contractor proposing the system shall be in possession of such a certification.
4. The access control client and server software shall be used in conjunction with intelligent controllers to provide a distributed access control and alarm monitoring system. In the event of a communications failure

between the host server and the field controllers, the controllers shall continue to make local access control decisions and save all transactions in memory until communications are restored. At that time the controller shall upload all stored transactions to the server.

5. The access control system shall seamlessly integrate the functions of access control, alarms monitoring and response, digital video imaging and badge design/creation, and visitor management. All access control components shall run in an integrated application environment as part of a single application.
6. The SMS hardware shall be capable of expansion via 2-door reader module. The reader module shall support up to 2 Wiegand and/or OSDP capable card readers and shall have inputs for door position and request-to-exit as well as outputs for door strikes.
7. The SMS and associated devices shall be powered by a factory-approved power supply and shall be mounted inside a factory-approved hinged enclosure. Each enclosure shall be installed in the DROP locations as shown in the security drawings.
    a. The power supply shall alarm upon an AC power fail and report to the Owner's monitoring station.
8. Communication Requirements
    a. The Local Area Network minimum physical and media access requirements shall be:
        i. Ethernet IEEE Standard 802.3
        ii. CAT6, UTP-8 wire, 100 Base-T
        iii. RS485 cable to comply with OSDP Standards
        iv. Minimum Throughput of 100 Megabits/sec
9. The SMS hardware shall support all of the following options for supervision of the monitored input points:
    a. 2-state supervision – in which only secured and alarm state are indicated.
    b. 3-state supervision – in which the input state can be secure, alarm or open circuit.
    c. 4-state supervision – supports secure, alarm, short circuit and open circuit states. **Note: As part of this project all inputs shall utilize 4-state supervision.**
    d. 6-state supervision – supports secure, alarm, short or open circuit for the sensor in addition to tamper alarm and tamper short circuit states.
10. Field Interface Panels (FIP)
    a. Field hardware shall include but not be limited to all card reader interface modules, access control communication panels, card readers, input and output modules, power supplies, enclosures and

enclosure for transformer with tamper switches and battery back-up and all other equipment as required for a complete and operational system for each of the card access and security related points indicated on the drawings. The system shall provide local operational control of all access points and alarm sensors.

b. The Contractor shall be responsible for the connectivity of the network connection to each of the panels. It shall be the responsibility of this Contractor to provide and install an enclosure suitable for the power transformer required to power the access control equipment. The enclosure shall be mounted prior to the electrical outlet designated for this equipment. This Contractor shall also coordinate the mounting of the electrical outlet that will be provided and installed by the Owner inside of this enclosure.

c. Provide battery backup for all system controller panels sufficient to power each panel for 4 hours of continuous service.

2.6. Card Readers

A. Provide and install 125Khz access control readers that support the City of Raleigh card formats. Readers shall be ProxProII or ThinLineII series manufactured by HID.

B. The reader shall be powered by the local door controller's internal regulated power supply.

C. Access control doors will be equipped with electronic locking hardware as described elsewhere in these specifications specific to the project. All access doors shall be programmed for 5 second "Open Time" and a 20-second "Forgive Time" before going into alarm or supervisory status.

D. Performance Requirements:

1. Reader shall provide an operating distance of between one to eight inches depending on the reader model, card model and mounting environment.
2. Reader shall operate at 125Khz
3. Reader shall be capable of transmitting the card data in Wiegand and OSDP protocol.
4. Reader shall include a tamper detection mechanism as a standard feature. Tamper switches shall be connected and programmed to inputs on the controller FIP.
5. Reader shall operate across a voltage range of five volts direct current (5VDC) to sixteen volts direct current (16VDC).
6. Reader shall operate at an average current not to exceed one hundred twenty-five milliamps direct current (125mA DC).
7. Reader shall have a tri-color light emitting diode (LED) and audible annunciator.
   a. Red LED for locked state
   b. Green LED for unlocked state and valid card read

c. Amber or yellow for trouble state
d. Reader shall flash the LED green momentarily and emit a short beep to indicate that a valid card was read.

8. Reader shall have a lifetime warranty against manufacturer defects and workmanship.
9. Reader shall have the capability to perform secure transactions protecting data transmission between the card and reader utilizing cryptographic methods of mutual authentication and message authentication coding.

E. The Contractor shall notify the Owner of all card reader color options available.

2.7. Door Hardware

A. Refer to the Door and Hardware Schedule for all electronic hardware.

B. The Contractor shall engage a Door Hardware Contractor to evaluate, verify, provide, and support the installation of each fully functional electronic door opening.

C. The Contractor shall provide and install at each card access location (CA#) 24VDC electric panic hardware lock(s) with the RX monitor switch option(s) that monitors the protected side of the panic device. This switch should be activated by the pressing of the panic device and shall be connected to the door controller as an input for valid egress. The panic hardware lock shall be fail-secure and each door should be prepped for the raceway. Provide and install additional hardware as necessary to affect an operating system. The Contractor shall provide and install an EPT type device on each door. This device shall be used to transfer power to the Panic Device lock and also for connection of the RX switch(es). The Contractor is also responsible for connecting any automatic door operators that are installed at existing doors.

D. The Contractor shall provide and install at each card access location (CA#) a Dormakaba GP 1000 Series top latching bolt with 24VDC RCI VR165 / VR166 Vertical Rod electric strikes (fail safe or fail secure) and RX monitor switch option(s) that monitors the protected side of the door. This switch should be activated by the pressing of the panic device and shall be connected to the door controller as an input for valid egress. The panic hardware lock shall be fail-secure and each door should be prepped for the raceway. Any CA# door shall connect to one of the ports on the new access controller. The operation of this door will need to be addressed with the Owner prior to programming. Provide and install additional hardware as necessary to affect an operating system.

E. The Contractor shall provide and install at each electric lock location (EL#) 24VDC electric panic hardware lock(s) with the RX monitor switch option(s) that monitors the protected side of the panic device. This switch should be activated by the pressing of the panic device and shall be connected to the door controller as an input for valid egress. The panic hardware lock shall be

fail-secure and each door should be prepped for the raceway. Any EL# door shall connect to one of the ports on the new access controller. The operation of this door will need to be addressed with the Owner prior to programming. Provide and install additional hardware as necessary to affect an operating system. The Contractor shall provide and install an EPT type device on each door. This device shall be used to transfer power to the Panic Device lock and also for connection of the RX switch(es).

F. The Contractor shall provide and install at each electric lock location (EL#) a Dormakaba GP 1000 Series top latching bolt with 24VDC RCI VR165 / VR166 Vertical Rod electric strikes (fail safe or fail secure) and RX monitor switch option(s) that monitors the protected side of the door. This switch should be activated by the pressing of the panic device and shall be connected to the door controller as an input for valid egress. The panic hardware lock shall be fail-secure and each door should be prepped for the raceway. Any EL# door shall connect to one of the ports on the new access controller. The operation of this door will need to be addressed with the Owner prior to programming. Provide and install additional hardware as necessary to affect an operating system.

G. The Door Hardware Contractor shall provide and install at each card access location (CA#) a 24VDC electric mortise lock with the RX monitor switch option that monitors the protected side of the locking device. This switch should be activated by depressing the door hardware lever and shall be connected to the door controller as an input for valid egress. The mortise hardware lock shall be fail-secure. The door should be prepped for the raceway. Provide and install additional hardware as necessary to affect an operating system. The Contractor shall provide and install an 8-wire electric transfer hinge on each door. This hinge shall be used to transfer power to the mortise lock and also for connection of the RX switch. The Contractor bidding this work shall be responsible for connecting the locking hardware to the security system.

H. The Contractor shall provide and install UL listed conditioned filtered power supplies as required for the low voltage equipment. A separate power supply shall be supplied for the Lock Power and Auxiliary Device Power. The power supply for the locks shall be sized for the load intended plus 20%. Terminal strips shall be used as a bus-bar to distribute the power to the devices. All power feeds shall be labeled as power and describe the designated equipment. Power supplies shall be Altronix with fail-safe/fail-secure outputs or approved equal and shall be UL listed for the intended application. Provide battery back for 4 hours of continuous service.

I. All door hardware shall have the RX function that will be connected and programmed into the card access system to allow for free egress without generation of an alarm

2.8. Power Supply

A. The Contractor shall provide and install UL listed conditioned filtered power supplies as required for the low voltage equipment. A separate power supply shall be supplied for the Lock Power and Auxiliary Device Power. The power supply for the locks shall be sized for the load intended plus 20%. Terminal strips shall be used as a bus-bar to distribute the power to the devices. All power feeds shall be labeled as power and describe the designated equipment. Power supplies shall be Altronix or approved equal with fail-safe/fail-secure outputs or approved equal and shall be UL listed for the intended application. Provide battery back for four hours of continuous service.

B. All door hardware shall have the RX function that will be connected and programmed into the card access system to allow for free egress without generation of an alarm.

2.9. Gate Systems and Controllers

A. The Contractor shall provide and install a fully functional and operational fence and gate system at each location identified in the drawings. This includes all equipment, controllers, safety systems, loops, accessories, security system interfaces, and infrastructure.

B. Sliding Gate System

1. Provide and install a Hy-Security SlideDriver II 40 gate controller and gates at the locations identified in the drawings.
2. Gate Operation
   a. The gate will be equipped with a single sliding gate. The gate shall be integrated into the security systems. The gate shall be capable of being opened remotely or scheduled to remain open during scheduled event times. A voice and video intercom shall be mounted in a manner that it is accessible from typical vehicles approaching the gate from the exterior. The gate area shall be covered by multiple cameras providing views of the operating area, vehicle approach/departure, and occupants.
   b. The gate shall be equipped with an access control reader to allow authorized access when the gate is closed. The gate shall utilize multiple loops and sensors for safe operation. The gate shall open for Emergency Services via the requested Siren Operation “YELP” Sensor.
   c. The gate shall allow free egress through the use of an exit loop. The gates shall utilize multiple loops and sensors for safe operation.
3. Gate Conditions
   a. When gate is open – The gate shall allow free entry and egress when the gate is positioned in the open position. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.
   b. Credentialed entry when gate is closed – A networked access control system card reader will be mounted on a pedestal positioned at the

driver's side of the gate. This card reader shall be accessible. When the gate is in the closed position the gate shall allow entry upon presentation of valid credentials. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

c. Uncredentialed entry when gate is closed – A networked intercom will be mounted on a pedestal positioned at the driver's side of the gate. This intercom shall be accessible. When the gate is in the closed position, uncredentialed users shall use the intercom to request entry from Security Operations. Security Operations shall be able to remotely open the gate for approved guests via a remote release. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

d. Denied entry when gate is closed – When a vehicle in the entry is denied entry, they shall be advised to safely back up and exit the lane.

e. Egress when gate is closed – The exit lane gate shall allow free egress for all vehicles when the gate is in the closed position. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

f. Emergency Services entry when gate is closed – The gate shall open upon activation of the Siren Operation "YELP" Sensor. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

g. Manual entry when gate is closed – The gate shall have provisions for manual operation upon system or power disruption. Tools or keys required for manual operation shall be securely stored in an enclosure at the gate. If requested, a secured key or other means of gaining entry to the secured enclosure will be provided to local Emergency Services.

C. Swing Gate Systems

1. Provide and install a Hy-Security SwingRiser HRG-222- Twin gate controller and gates at the locations identified in the drawings.

2. Gate Operation

a. The Gates will be equipped with dual swing gates. Each gate will operate independently allowing for independent operation of both the inbound and outbound lanes. The gates shall be integrated into the security systems. They shall be capable of being opened remotely or scheduled to remain open during scheduled event times. A voice and video intercom shall be mounted in a manner that it is accessible from typical vehicles approaching the gate from the exterior. The gate area shall be covered by multiple cameras providing views of the operating area, vehicle approach/departure, and occupants.

b. The inbound gates shall be equipped with an access control reader to allow authorized access when the gate is closed. The inbound gate shall utilize multiple loops and sensors for safe operation. The inbound gate shall open for Emergency Services via the requested Siren Operation "YELP" Sensor.

c. The outbound gates shall allow free egress through the use of an exit loop. The outbound gates shall utilize multiple loops and sensors for safe operation.

3. Gate Conditions

a. Ingress when gate is open – The entry gate shall allow free entry when the gate is positioned in the open position. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

b. Egress when gate is open – The exit gate shall allow free exit when the gate is positioned in the open position. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

c. Credentialed entry when gate is closed – A networked access control system card reader will be mounted on a pedestal positioned at the driver's side of the gate. This card reader shall be accessible. When the gate is in the closed position the entry gate shall allow entry upon presentation of valid credentials. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

d. Uncredentialed entry when gate is closed – A networked intercom will be mounted on a pedestal positioned at the driver's side of the gate. This intercom shall be accessible. When the gate is in the closed position uncredentialed users shall use the intercom to request entry from Security Operations. Security Operations shall be able to remotely open the entry gate for approved guests via a remote release. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

e. Denied entry when gate is closed – When a vehicle in the entry lane is denied entry, they shall be advised to safely back up and exit the lane.

f. Egress when gate is closed – The exit lane gate shall allow free egress for all vehicles when the gate is in the closed position. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

g. Emergency Services entry when gate is closed – The entry and exit gates shall open upon activation of the Siren Operation "YELP" Sensor. The combination of a presence loop, safety beam, and closing loop will be used to prevent damage or injury through inadvertent movement.

h. Manual entry when gate is closed – Each gate shall have provisions for manual operation upon system or power disruption. Tools or keys required for manual operation shall be securely stored in an enclosure at the gate. If requested, a secured key or other means of gaining entry to the secured enclosure will be provided to local Emergency Services.

D. Pedestrian Gate System

1. The Contractor shall provide and install a fence pedestrian gate and 24VDC electric panic hardware lock(s) at each location shown in the drawings as CAF. The locking mechanism will include a RX monitor switch option(s) that monitors the protected side of the panic device. This switch should be activated by the pressing of the panic device and shall be connected to the door controller as an input for valid egress. The panic hardware lock shall be fail-secure and each gate should be prepped for the raceway. Provide and install additional hardware as necessary to affect an operating system. The Contractor shall provide and install an EPT type device on each gate. This device shall be used to transfer power to the panic device lock and also for connection of the RX switch(es).

PART 3 - EXECUTION

3.1. Purpose

A. This section provides for the Access Control Systems for the City of Raleigh MMCPA. Detailed design, construction documents, scope of work, or other supplementary data may be attached to this document to provide the Security Contractor with additional information pertinent to a specific site or project.

B. The requirements noted in this document shall be understood to be the minimum City of Raleigh requirements. These requirements shall be expanded by the Contractor as necessary to ensure quality; however, written approval from the City of Raleigh or their representative must be obtained prior to deleting or revising a requirement contained herein.

C. It shall be the responsibility of the Contractor to verify the system design with the local AHJ.

D. The City of Raleigh shall make final approval of the security systems design and its suitability for the application. The Contractor should seek design input and comments from the City of Raleigh or their representative at all design stages.

E. The security systems are designed to control access to and provide an audit trail of personnel entering a building or a specific area of a building and to also monitor all alarm devices. One of the primary goals is to prevent or deter unauthorized entry while allowing freedom of movement for employees and other authorized visitors.

F. The specifications contained in this document and the drawings submitted with the specification represent an outline of the desired system. Ensuring the compatibility of the equipment described is the responsibility of the Contractor submitting the proposal. Neither this document, nor any attached supplementary information, is intended to list all parts, interfaces, and miscellaneous equipment that may be needed, rather, it is the responsibility of the Contractor submitting the proposal to provide the equipment necessary to provide a properly functioning system.

3.2. Installation

A. All work shall be completed in a neat, organized, and professional workman-like manner.

B. The Contractor shall be aware and shall anticipate that due to the nature of this project, most of the work will have to be completed after hours and on weekends. In addition, due to the nature of some of the secure areas of this building, additional time may be necessary to gain access to certain areas. Any additional time that the Contractor deems necessary shall be included in this proposal. This access will need to be coordinated with the City of Raleigh.

C. All contractors will have to attend, if required, contractor safety training and shall display a safety training completion sticker, badge or letter while working on site.
D. The Contractor shall provide all conduit, boxes, enclosures, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.
E. The Contractor shall provide all wiring, connectors, power supplies, interfaces, and other hardware as necessary to effect a normally operating system.
F. The Contractor shall be responsible for all materials and labor necessary to replace any components that have been improperly installed or damaged during installation.
G. Any holes or visible damage created while retrofitting hardware will be properly corrected and patched to the Owner's satisfaction.
H. Connections of all equipment and devices shall be made in the manner recommended by the manufacturer and must meet the approval of the City of Raleigh as a condition of the acceptance of this project.
I. All equipment shall only be used for the purpose intended by the manufacturer and shall be installed per the manufacturer's specifications.
J. Materials and equipment shall be new, unused and conform to grade, quality and standards specified.
K. Materials and equipment shall be of the most recent version or production design available at the time of installation.
L. Substitution of other Manufacturers / Vendors products for those specified shall not be permitted without prior review and written approval by the City of Raleigh.
M. The Contractor shall provide at least two tools to the City of Raleigh to remove tamperproof screws for service. Tamper resistant fasteners shall be such that they cannot be removed without special computer-designed wrenches provided for that specific purpose by the manufacturer. Allen head, Phillips head, torque, and other similar fasteners shall not be acceptable.
N. Compression type terminal strips shall be used whenever terminations are made at points other than on the components. There shall be no splices in any cable except where necessary to interface with pre-wired devices. Repair to damaged cables or extending cables by splicing will not be permitted. The Contractor shall be responsible for all materials and labor necessary to replace cables that have been installed improperly or damaged in installation. The use of "wire nuts" or "beans" inside the Field Interface Panels will not be acceptable.
O. System components and control devices shall be wired to the appropriate FIP as homeruns.

P. Programming of any new system components necessary to provide a fully operational system shall be included in the scope of this work.

Q. Each alarm initiating device shall be on its own zone and all zones shall report separately in a format which permits distinguishing individual zones and their conditions.

R. Supervised inputs shall be supervised by installing the end-of-line device as close to the input device as possible. End-of-line devices shall not be located at the controller inputs or inside the control enclosure(s).

S. All alarm inputs shall be configured as normally closed loops utilizing 4-state supervision.

T. End-of-line devices shall be located at the initiating device as described in the manufacturer's installation instructions.

U. Electronic Access Control, Video, or Intrusion system wiring shall not be run in the same conduit with Class 1, power, or lighting circuits.

V. Controllers, power supplies, and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling, and other similar locations).

W. When installed such that components are exposed to environmental effects such as rain, snow, or other inclement weather conditions, all fixtures and other equipment should be protected from a deterioration of the system due to weather related causes.

X. Lightning and surge protection shall be provided as required by industry standards and the manufacturer's recommendation on all appropriate elements of the security system.

Y. A separate suitable ground wire shall be connected to all lightning protection devices installed.

Z. Any firewall penetrations must be sealed with 2-hour intumescent UL approved firestop material. UL Penetration Detail Diagrams shall be available on site for review by the Building Inspector. In all cases the seal must meet the applicable fire code.

3.3. Cable and Conductors

A. The Contractor shall provide and install all cables and conductors in support of this project. It is the Contractor's responsibility to coordinate cabling raceway.

B. Alarm point wiring and RX wiring shall be minimum 22 AWG shielded twisted-pair or as specified by manufacturer's published installation procedures, whichever is the more stringent specification.

C. The cabling from each card access location shall be as recommended by the manufacturer and shall be a minimum of 18 AWG. New card reader locations shall require RS485 Cable from Drop location to each reader location and comply with OSDP Standards.

D. Low voltage power wiring for the electrified door hardware shall be a minimum of 16 AWG non-shielded.
E. All jacket material used shall be suitable for the application in which it is to be used.
F. All wiring shall be installed as specified by the manufacturer's published procedures.
G. Color-coding shall be used on all wiring and cabling and shall be used in a consistent manner.
H. When mechanical means of connecting wires do not otherwise exist (e.g. pre-wired devices), the connection may be made by twisting, "hot" soldering, and covering the connection with listed electrical tape or secured with either a crimp or solder type spade lug. Solderless crimp connectors shall be crimped only with a tool recommended by the manufacturer.

3.4. Pulling Cable

A. Swivel type pulling grips shall be used for all cable pulls to avoid cable twisting.
B. The manufacturer's recommended maximum pulling tension shall not be exceeded during any cable pull. A tensiometer shall be used during installation to monitor pulling tension.
C. Pulling winches with a calibrated maximum tension setting may be used in lieu of a tensiometer. Hand pulls do not require tension monitoring.
D. Equal pulling tension shall be applied to all cables pulled during one cable pull.
E. The manufacturer's rated minimum cable bend radius requirements shall be followed both while the cable is under pulling tension and while the cable is in a non-tension (operating) condition.
F. No residual tension shall remain on any cable after installation except the weight of the cable in a vertical rise.
G. Care shall be taken when dressing cables such that manufacturer's tension and minimum bend radius requirements are maintained.

3.5. Hardware

A. Miscellaneous hardware required for installation shall be suitable for the purpose for which it is used. Hardware includes such items as nuts, bolts, screws, washers, miscellaneous fasteners, terminals, terminal strips, tie wraps, and other related parts.
B. Manufacturer's specific requirements on hardware or other components shall be adhered to.
C. The finish on all hardware and fasteners shall be suitable for the environment in which it will be used and shall be selected to minimize corrosion or deterioration due to moisture, sunlight, temperature extremes, and other similar environmental concerns.

3.6. Painting and Finish

A. All surfaces to be painted shall be prepared and cleaned in compliance with the paint manufacturer's instructions for surface conditions and as herein specified. Do not apply paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to a durable and uniform finish. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any component identification, performance rating, name, or nomenclature plates.

B. Where the surface has been prime coated by the manufacturer, recoat the primed surface where there is evidence of suction spots or other unsealed areas due to insufficient sealing. Equipment primed by the manufacturer which exhibits evidence of having been improperly stored or exposed to the effects of weather shall have the primer coat removed and be prepared and painted as if it had not been primed.

C. Where the surface is ferrous metal, the minimum acceptable degree of surface preparation shall be as indicated in the schedule by the applicable SSPC specification number. The bottom coat shall be rust penetrating or encapsulating oil-based primer. If the surface is galvanized, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

D. Where the surface is aluminum or other nonferrous metal, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

E. Where the surface is non-metallic and has not been primed by the fabricator, the bottom coat shall be a latex acrylic primer and shall be selected for maximum adhesion to the substrate. The primer selected shall contain no oils or solvents that will damage the substrate and shall be an appropriate base for the finish coats.

F. The second and third coats shall be quick-drying enamel with a satin finish. A minimum of two separate coats shall be applied over the bottom coat, allowing sufficient time between coats for uniform curing of the paint. Additional coats shall be applied as required to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

3.7. Cabinets and Boxes

A. Tamperproof screws shall be used on all cabinets, boxes and other similar enclosures that are easily accessible by employees or the general public.

B. All enclosures containing electronic equipment or bypass switches shall have a permanent label affixed to the front of each enclosure to show which device, point or area it controls.

C. Cabinets and enclosures containing access control components shall be provided with tamper switches. The tamper switches shall report an alarm condition to the security system if the enclosure is opened. Cabinets and enclosures that contain only cable do not require tamper switches if attempts to damage or compromise the cables would generate an alarm or trouble condition.

D. Cabinets, boxes, and other similar enclosures containing control components or cabling and which are easily accessible to employees or the general public shall also be provided with an integral lock or a hasp for a padlock. The Contractor shall provide any required padlocks and keys.

E. Any cabinet, box, or other enclosure that is mounted above a ceiling, or is mounted more than ten feet above the floor in an interior location, may be deemed as being inaccessible to employees or the general public.

3.8. Labeling

A. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls (e.g. Computer Room, Door #7, Side Door).

B. The Contractor shall provide labeling and numbering consistent with the City of Raleigh's labeling scheme for all components and wiring for the project.

C. Each terminal strip and screw terminal in each cabinet, rack, or panel shall be individually labeled.

D. Wiring conductors connected to terminal strips shall be individually numbered. Each cable or wiring group being extended from a panel or cabinet to a building mounted device shall be identified with the name and number of the particular device as shown.

E. Each wire connected to building mounted devices shall not be required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

F. Cable must be labeled at both ends as well as in junction boxes.

G. Handwritten labels are not acceptable. All wire labels shall be machine printed directly to the label and fixed to the individual wire. Acceptable labeling types are heat shrinkable sleeves, self-laminating wraparound labels or approved equal. Acceptable labeling systems include those produced by Dymo, Panduit, 3M, Tyco, or equal.

3.9. Power Supplies

A. All power supply equipment (batteries, battery chargers, rectifiers, switching facilities, transformers, voltage regulators, emergency generating equipment, and other similar devices) shall be installed in accordance with the requirements of NFPA 70 (National Electrical Code / NEC) for such equipment.

B. All low-voltage power supply equipment, wiring, and installation shall be listed as a Class II Power Limited Device in accordance with the specific requirements of Article 725 of the NEC, except where otherwise noted in this document. Power supplies shall bear a current load not to exceed 60% of rated power.

C. Where multiple devices are powered from a single low-voltage AC or DC power supply, each leg of the supply circuit to each device shall be provided with overcurrent protection. The intent of this design is to reduce the

likelihood that damage to a single device could render other devices inoperative by damaging the common power supply. Permanently mounted fuse-blocks are preferred for overcurrent protection.

D. The use of low-voltage power transformers or open frame transformers will not be allowed. All power supplies as described in Section 2.8 shall be hardwired directly to a dedicated 20-amp electrical circuit. Using SJ or other flexible cord to connect to a standard receptacle or plug receptacle will not be allowed.

E. Where batteries are used as the secondary power supply, the batteries should be sealed lead-acid or gelled electrolyte construction. Batteries should have a minimum estimated operating life of not less than five years under normal operating conditions. The manufacturer, type, size, capacity, model number, and recommended schedule of replacement shall be included in the required system O&M manuals described elsewhere in this document. Each battery shall be permanently marked with the date of installation.

F. Where system design permits, low-voltage power supplies shall be remotely monitored for AC and battery status. The failure of a low-voltage power supply shall create a supervisory or trouble condition on at least one system device, which will immediately generate a response to determine the source of the problem.

G. Low-voltage power supply wiring to standard alarm devices, and electronic door locks shall be minimum 18 AWG twisted-pair or as specified by manufacturer's published installation procedures. Power over Ethernet applications shall conform to the procedures required for that application.

H. Controllers, power supplies and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling and other similar locations).

I. Wiring between any battery and/or power supply to an audible signal shall be of sufficient gauge to keep the voltage drop below 15%. The voltage measured at the device shall not drop below the manufacturer's specifications including when operating on standby power.

J. The standby power supply shall cause a local annunciation when standby power falls below the manufacturer's recommended specifications.

3.10. Conduit

A. All major wiring and cabling shall be in conduit or raceway.

B. The Contractor shall provide all incidental conduit, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

C. The fill rate of conduit for the cables associated with the video systems shall not exceed 40%. Even though this requirement is below the NEC requirements, there may be future expansions that will utilize parts of this same conduit system.

D. Bushings must be used where cabling runs over conduit edges.

3.11. Communications

A. The City of Raleigh uses an Ethernet communications network to interconnect operator workstations, controllers, and file servers. All network devices are capable of real-time communications with all other devices and all devices are fully supervised. Alarm processing and dispatch takes place at workstations located in the security console.

B. The Contractor must initiate and coordinate requests for network services through the City of Raleigh.

C. All devices placed on the LAN will require approval of the City of Raleigh.

3.12. System Programming

A. The Contractor shall provide the development, loading, and checking of the programming for the complete and proper operation of the systems involved.

B. Where appropriate, the Contractor shall establish a Source Code Escrow to protect the Owner's interests.

C. The Contractor shall program each system to allow alarm monitoring at the City of Raleigh's alarm monitoring station, Raleigh Convention Center Security Command Center.

D. Prior to performing any programming on the system, the Security Contractor shall coordinate with the City of Raleigh and shall obtain specific programming requirements. Complete programming parameters shall be submitted to the City of Raleigh as per section 1.5 of this specification. The Contractor shall advise the Owner in writing of the scheduled date for commencement of programming.

E. System software development shall include all items necessary to provide proper system operation and shall include, but not be limited to, the following:

1. Assignment of new inputs and outputs to the system.
2. Necessary time and day interval programming.
3. All control by event sequences to assure system operation is as specified.
4. Selective logging and report programming.
5. Access interval and access group programming for the card access system.
6. Alarm message generation programming.
7. Assignment of new card readers into the system.
8. Assignment of basic (default) access levels to initial cardholder population.
9. Importation of floor plans in electronic file format.
10. Placement of system devices on floor plans and graphical maps. Maps shall have a hierarchy of building, floor, area, specific area/device.

F. The Contractor will offer technical support from the manufacturer that address 24/7 help, service patches and trouble-shooting, integration failure.

3.13. Documentation

A. Drawings of Record

1. The Contractor shall maintain at the installation site one record copy of all contract drawings, specifications, addenda, change orders, and other modifications, in good order and marked up-to-date with a record of all changes made during construction.
2. Upon completion of work, the Contractor shall deliver three copies of the shop drawings, system testing, mechanical and electrical equipment schematics, and diagrams to the City of Raleigh.
3. All record drawings shall reflect the work as it was actually installed. Any equipment changes made during the project shall be clearly noted.
4. Record drawings shall be in a format and contain sufficient detail to permit the rapid and accurate troubleshooting of the system by a skilled technician with no previous knowledge of the specific installation. Providing record drawings on electronic media in AutoCAD format shall be acceptable.

B. Operation and Maintenance Manuals

1. After completion of work, Contractor shall deliver three system Operation and Maintenance (O&M) manuals.
2. O&M manuals shall include operating instructions specific to the installation and step-by-step directions for routine system operation.
3. O&M manuals shall include service and maintenance instructions for each major component installed. Equipment requiring periodic maintenance shall be clearly noted.
4. The manufacturer's standard catalog cut sheets shall not be acceptable for use as O&M manuals.

3.14. Testing

A. Site tests shall be performed with a representative of the Owner, in attendance.

B. The Contractor shall coordinate the scheduled time of testing and access to the site.

C. The Contractor shall provide all test equipment, tools, recorders, connectors, cables, and other devices required for the completion of systems tests.

D. The Contractor shall provide or coordinate the availability of ladders, lifts, scaffolding, or other equipment required to provide safe and ready access to all installed devices for the use of Owner's representative.

E. The Contractor shall provide two-way radios, telephones, cellular telephones, or other communications devices necessary to communicate with any remote facility monitoring the security systems during the testing.

F. The Contractor shall demonstrate to Owner's representative that all sequences operate correctly and that all products, devices and system software operate as designed and specified.

G. Tests shall be performed on each major component of the Card Access system.

H. The output of each low-voltage AC or DC power supply and transformer shall be measured under maximum system operating conditions to verify that the actual loads do not exceed those previously calculated by the Contractor. If the actual loads exceed those previously calculated, the Contractor shall submit new calculations demonstrating that the system as installed meets the requirements of the appropriate specifications.

I. Detection loops using end-of-line devices shall be removed from the control unit and measured for total circuit resistance in normal, alarm and trouble modes. Detection loops using end-of-line devices shall also be measured for loop voltage while connected to the control unit. The measured values for both tests shall be within manufacturer's recommendations and shall be recorded with a written copy provided in the O&M manuals.

J. Systems and devices with remote download and upload capabilities shall be thoroughly tested in all modes.

K. Sufficient replacement parts shall be available to allow for timely replacement of any parts that are found to be unsatisfactory in performance.

L. Alarm Inputs

1. All alarm points shall be tested back to the monitoring facility by activating the alarm devices to which they are attached. Activating or simulating an alarm condition at the control panel is not acceptable.
2. The proper programming of alarm points shall be verified and a hard copy of the signals provided by the monitoring facility (if monitored).
3. Magnetic switches and other similar alarm initiating devices shall be tested in the manner and method recommended by the manufacturer.

M. Card Access

1. All card readers shall be tested with cards previously loaded into the local controller database and with cards that have only been loaded into the system server files. Cards previously loaded into the local database should be validated and access granted within three seconds of presentation. Cards that have not been loaded into the local database should require no more than fifteen seconds from presentation to be validated through the server.
2. Card access doors shall be checked for proper operation of the electronic locking devices, including the internal monitor switch operation.
3. All associated tamper switches and trouble relays shall be tested back to the security console.

4. The proper programming of card readers shall be verified at the Security Console. Programming items to be verified for each reader shall include, but not be limited to, the following:
    a. Assignment of new inputs and outputs to the system.
    b. Necessary time and day interval programming.
    c. All control by event sequences to assure system operation is as specified.
    d. Selective logging and report programming.
    e. Access interval and access group programming for the card access system.
    f. Alarm message generation programming.
    g. Assignment of new card readers into the system.

N. Electronic Locking and Gate Hardware
1. Locks shall be checked for proper alignment and bolt operation and full engagement of the strike plate.
2. Doors equipped with electric locks shall be checked for the proper operation of an automatic door closing device. When released, the doors shall close completely and re-latch automatically within the "door open time" programmed in the local controller.
3. Testing and verification of integral Request-to-exit switch of the lock shall be performed.
4. All gates and gate systems shall be tested with complete vehicle operations for open, close and safety functions.

3.15. Training

A. The Contractor shall hold a training session at the job site at times mutually agreed upon between the Owner and the Contractor.
B. The Contractor shall submit for approval a syllabus that includes a detailed outline of the training sessions that will take place.
C. The Contractor shall provide a minimum of 8 hours of training.
D. The Contractor shall provide all training material required. The use of the approved O&M manual will be accepted as part of the training material. In addition to the O&M manual, the Contactor shall provide any other documentation/training tools required.
E. Time spent on field set-up, start-up and testing shall not be considered as training time.
F. Users of the Security Management System shall be thoroughly instructed verbally and in writing of the proper operation of all equipment and the procedures to be followed.

3.16. Acceptance and Performance Requirements

A. This system shall not be considered accepted until all punch list items have been corrected. Beneficial use of part or all of the system shall not be considered as acceptance.
B. The Owner reserves the right to evaluate the installed system for a period of 30 days, subsequent to the completion of the system acceptance tests, before final payment shall be made.
C. The Contractor shall complete the installation of all equipment in a reasonable and timely manner consistent with the Owner's construction schedule.
D. The Contractor shall provide properly skilled and factory trained personnel, the proper materials, and perform in a good workmanlike and timely manner satisfactory to the Owner.
E. The Contractor shall not hire any subcontractors for installation, maintenance, or service of the system without prior written approval by the Owner of such subcontractor for this work.

3.17. Warranty and Service

A. The Contractor shall guarantee all equipment, wiring, labor, and other components of this system to be free of defects in workmanship and material for one year or the manufacturer's warranty period, whichever is longer, from the date of acceptance by the Owner's representative.
B. Warranty service by the Contractor shall include four-hour emergency response service during normal Contractor working hours and twelve-hour emergency response service after normal working hours, on weekends, and on holidays. Response time shall be measured from the time of Contractor notification to the arrival of service personnel at the affected site to initiate repairs. The Contractor shall provide a method of requesting emergency service after normal working hours, on weekends, and on holidays appropriate to the required response times.
C. Service requests are requests for work to repair or replace a system component or software application which has malfunctioned or been damaged. Service requests shall not include routine system additions, equipment relocations, or system upgrades.

END OF SECTION 281300

SECTION 282300 – VIDEO MANAGEMENT SYSTEM

PART 1 - GENERAL

1.1. Summary

A. This document covers the specifications that include all materials and labor for the provision and installation, and expansion of a complete and integrated enterprise digital Video Management System for the City of Raleigh Martin Marietta Center for the Performing Arts (MMCPA) project. Included in the documents are all major systems, subsystems and components as required by this specification.

B. The requirements of this specification shall be understood to be the City of Raleigh minimum. The requirements shall be expanded as necessary to ensure quality. However, unless City of Raleigh approval is obtained, the requirement herein shall not be deleted or revised.

C. The City of Raleigh shall be hereinafter referred to in this document as the Owner and the bid respondents shall be referred to as the Contractor. The term Owner includes direct employees and other appointed Owner agents such as architects or consultants. These agents may be requested by the Owner to represent the Owner in undertaking certain project tasks.

D. If any statement in this specification is in conflict with any provision of the General Terms and Conditions of the contract, the provision stated in the General Terms and Conditions shall take precedence. Any questions that require additional interpretation and guidance shall be immediately brought to the Owner's attention.

1.2. System Description

A. The manufacturer of the proposed system(s) shall require resellers to pass a formal training program prior to being certified as authorized to sell and install the system(s). Such certifications shall require annual re-qualification. The system Contractor proposing the system(s) shall be in possession of such a certification.

B. The SMS shall seamlessly integrate the functions of digital video imaging and badge design/creation, access control, alarms monitoring and response, and visitor management. All SMS components shall run in an integrated application environment as part of a single application.

C. Currently the Owner uses Milestone for video management and Vykon for access control in other locationsh. These systems are completely integrated into a complete security management system.

D. The security systems described in this document are capable of integrating, interfacing and/or operating with other systems. If any such functions are required, they should be described either in this specification or separately in other sections.

E. This RFP for MMCPA is in conjunction with the RFP for the City of Raleigh Convention Center and Red Hat Amphitheater (RCC-RHA). Contractors may

choose to bid for only the Base Bid, a single alternate, or all four options, but the option chosen must be the same for both RFPs.

F. The contractor shall provide and install an integrated security management system that shall provide a simple and easy-to-use graphical user interface. The system shall provide local operational control of all access points and alarm sensors, and video management. **For the Base Bid as well as the Alternates, components shall be capable of integrating, interfacing, and/or operating as a fully integrated SMS.**
   1. The Base Bid will require a completely new video management system and a completely new access control system.
   2. Alternate 1 will require a completely new video management system and an expansion of the Owner's existing Vykon access control system.
   3. Alternate 2 will require an expansion of the Owner's existing Milestone video management system and completely new access control system.
   4. Alternate 3 will require an expansion of the Owner's existing Milestone video management system and an expansion of the Owner's existing Vykon access control system.

G. This section covers the provision of the security systems including all items and subsystems shown on drawings or otherwise required by this specification.
   1. Camera system server/archiver, hardware, software, and associated equipment.

1.3. Related Sections

A. This section references related installation methods, guidelines, and basic infrastructure. If any such references are required, they should be described either in this specification or separately in other sections.
   1. Conduit, Raceways, and Cable Trays
   2. Fire Stopping Penetration Through Rated Construction
   3. Electrical, Cabling, and Wiring
   4. Door Hardware
   5. Data Communications Circuits

1.4. Reference Standards

A. Reference standards or recommended practices referred to herein shall be the latest edition or revision of the item referenced.

B. Equipment and materials for which there are Underwriters Laboratories (UL) standard testing requirements or listings shall have the appropriate UL label indicating compliance with the UL requirements.

C. All equipment and materials shall be American made and shall meet the requirements stated in the Buy American Act.

D. Equipment and materials for which there are American National Standards Institute (ANSI) standard testing requirements or listings shall have the appropriate ANSI label indicating compliance with the ANSI requirements.

E. Systems shall be designed, manufactured, tested and installed in accordance with NFPA 70 (National Electrical Code / NEC), state codes, local codes, requirements of Authorities Having Jurisdiction (AHJ), and in particular:

1. North Carolina Building Code
2. ADA (Americans with Disabilities Act, Public Law 101-336) requirements
3. NFPA (National Fire Protection Association) 101 (Life Safety Code) requirements
4. NBFAA (National Burglar & Fire Alarm Association) standards
5. Manufacturer's requirements
6. Standard industry practices

F. In the event that any codes disagree with one another, or are in conflict, the Contractor shall use the more restrictive code.

1.5. Scope of Work

A. Base Bid and Alternates

1. Base Bid: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a completely new video management system and a completely new access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Base Bid)
2. Alternate 1: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require a completely new video management system that will be capable of integrating, interfacing, and operating with an expansion of the Owner's existing Vykon access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Alternate 1)
3. Alternate 2: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Milestone video management system and a completely new access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Alternate 2)

4. Alternate 3: The Contractor shall include all necessary licenses, conduit, wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install a complete, integrated, and operational SMS. This will require an expansion of the Owner's existing Milestone video management system and an expansion of the Owner's existing Vykon access control system. Components may include, but are not limited to video archivers, cameras, access control servers, controllers, card readers, door contacts, and video monitoring workstations as indicated on the drawings. (Alternate 3)

B. The following shall be covered as part of this Bid:
   1. Cameras and, if required, associated power supplies and media converters for the cameras shall be provided and installed by the Contractor.
   2. The Contractor shall connect the video archiver(s), video monitoring workstations, and cameras to the Owner's security network.
   3. The Contractor shall coordinate with the Owner for specific network standards and for local area network (LAN) connections.
   4. All cameras, both existing and new, shall be connected to the video archiver(s) for local monitoring and recording.
   5. The Contractor shall be responsible for connecting all cameras to the Owner's network and coordinating and configuring the cameras to be viewable through the video monitoring workstations.
   6. The Contractor shall provide all camera integration licenses necessary to integrate the VMS and the access control system.
   7. It is the Contractor's responsibility to coordinate any network, software and hardware requirement needed to connect any device or server to the Owner's network. If any device or server does not meet the Owner's network requirement specification, the Contractor shall be responsible for bringing the delinquent device up to the Owner's required specification before connecting the device to the Owner's network.
   8. Installation of new digital video management system cameras, media converters, video archivers, workstations and associated equipment and hardware.
   9. Miscellaneous terminations, programming, and licenses.
   10. The video archivers shall provide management, control, recording and monitoring of all video management system cameras.
   11. The Contractor shall not have a password to access the Enterprise server. The Contractor shall only have local restricted access.
   12. Installing the cameras and bringing them to operational status for acceptance shall include but not be limited to the following:
   13. Determine hardware, software, and operations requirements for implementation.

14. Set up and configure parameters on each camera for recording on the Video Archivers
15. Set-up optimum recording parameters on each Video Archiver.
16. Test video systems operations based on a camera-by-camera walkthrough.
17. Perform end-user training.
18. The Contractor shall provide onsite professional services to assist in the initial setup and programming of all systems specified within this specification.
19. All cabling shall be provided by the Contractor.

1.6. Submittals

A. Submittals shall be as follows:

1. The Contractor shall submit shop drawings for the project. Shop drawings shall include point-to-point wiring diagrams for the entire system. Point-to-point diagrams shall detail each device location and all associated wire runs. Include with the shop drawings a separate layout drawing for each equipment room/Drop location. The equipment room layout drawings shall show each component and shall detail the wiring for all devices connected to all components within the equipment rack. They shall show the labeling of each cable connection point, each wire connected to the connection point, and each cable leaving the rack or panel. The layout drawings shall indicate in detail the labeling of each component within the rack or associated equipment panel including but not limited to power supplies, terminal strips, switches, and video archivers.
2. The Contractor shall submit manufacturer's technical data sheets on each product proposed.
3. The Contractor shall submit documentation that proves that all equipment meets the Buy American Act.
4. The Contractor shall submit detailed description of all equipment locations and mounting particulars. The Contractor shall describe coordination efforts that have been made or need to be made by the Contractor and the Owner for the installation to proceed on schedule in the manner described.
5. The Contractor shall provide a detailed project schedule with tasks and dates that includes at a minimum the Initial Preparation and Coordination Phase, Procurement Phase, Installation and Construction Phase, Testing and Commissioning Phase, and Closeout Phase. The use of Microsoft Project or similar is required.
6. The Contractor shall submit complete and detailed programming parameters of all card access and security monitoring points to the owner 30 days prior to the development and implementation of the programming.

7. Where AC or DC power supplies are used for Class 1, 2, or 3 Power-Limited Circuits, the Contractor shall provide evidence that the power capacity is sufficient for the proper operation of the powered devices under maximum load. Detailed calculations of the power requirements shall be acceptable for this purpose.
8. The Contractor shall submit manufacturers' user's manuals for operations, administration, installation, and maintenance.

B. Contract Close-Out Submittals:
1. Training Course Materials: See section 3.15 for details.
2. Commissioning Test Plan and Check-Off List: See section 3.14 for details.
3. As-Built Drawings: During system installation, the Contractor shall maintain a separate hard copy set of drawings, elementary diagrams, and wiring diagrams of the security systems to be used for record drawings. This set shall be kept up to date, reflecting all changes and additions made to the security systems. Copies of the final as-built drawings shall be provided to the Owner in .DWG or .DXF format using the latest version of AutoCAD and also .PDF format using the latest version of Adobe.

1.7. Warranty and Maintenance

A. The card access system software, hardware, and installation shall be warranted against defects and workmanship for a minimum of 12 months, covering all parts and labor. Warranty period will begin upon acceptance by Owner.
B. The Contractor shall guarantee that the systems application software remains current at all times with the latest enhancements, supported by the manufacturer with unlimited remote dial-in diagnostics capability and technical phone support. (Coordinate with the Owner for any IT support requirements necessary to engage the manufacturer.)
C. The Contractor shall perform manufacturers' recommended preventative maintenance on all applicable components and/or devices.
D. The Contractor shall be the primary contact and respondent for all service and support, officially recognized and backed by the security systems manufacturer.
E. Extended and/or out of warranty terms at reasonable and customary rates shall be available from the Contractor.
F. Failure by the Contractor to coordinate their work will result in the Contractor being held liable for any and all deficiencies of the existing equipment that is relevant to the installation of the new security equipment.

1.8. Pricing and Bidding

A. The Contractor shall provide an Executive Summary System Description. This is a statement of the system function and single-line block diagram to show how all related equipment shall interface and operate as a complete electronic control system.

B. **Bid pricing shall be submitted in the following forms**:
   1. The Bidder shall be required as a part of this bid to complete the attached spreadsheet. This is a list of major components and **NOT** a complete equipment list. Bidders should use this as a **starting point and add to the list to provide pricing for the complete and fully functional systems** they propose as well as a lump sum. This submitted spreadsheet shall identify line-item pricing per unit and extended pricing based on quantity and shall include, if applicable, state and local taxes in addition to the equipment.
   2. Bidder shall supply on a separate line, the cost of labor to install each unit.

1.9. Contractor Qualifications

A. Provide an architecture of all system components to include devices and network communication devices. Provide the manufacturer specifications for each system component to include any applicable software applications required.

B. Due to the nature of the work involved, Contractors desiring to bid on the work herein described shall have been regularly engaged in the installation and maintenance of security video management (CCTV) and video systems similar in size and scope to that outlined herein for a period of no less than five years.

C. The Contractor represents that it is fully experienced and properly qualified and certified by the manufacturer(s) to perform the type of work described in this document. The Owner realizes that the Contractor is the expert in the installation of security and card access systems; therefore, it is the responsibility of the Contractor to deliver a properly functioning and safe system. This responsibility includes any items that may or may not be specifically noted in this document.
   1. If the Contractor is not properly qualified and certified in a particular system stated in this specification or shown in the drawing, the Contractor is allowed to sub-contract the work performed on the particular system to a properly qualified and certified Subcontractor. This Subcontractor shall meet the same requirements as the Contractor as stated in this section.

D. The Contractor shall supply information attesting to the fact that their firm is an authorized product dealer for the systems and equipment proposed.

E. The Contractor shall supply information attesting to the fact that their installation and service technicians are competent factory-trained personnel capable of maintaining the system and providing reasonable service time.

F. The Contractor shall provide a minimum of three references whose systems are of similar complexity and have been installed and maintained by the security system integrator in the last five years.

G. There shall be a local representative and factory authorized local service organization that shall carry a complete stock of parts and provide maintenance for these systems. Local shall be defined as an area in a 100-mile radius of the installed location.

H. The Contractor shall:

1. Act as an independent Contractor and not as an agent or employee of the Owner.
2. Be solely responsible for compliance with all applicable laws governing the employment of its employees and for Contractor's own acts and those of Contractor's employees, agents and subcontractors during the performance of Contractor's obligations hereunder.
3. Be responsible for all taxes, permits or other fees imposed due to the work of the Contractor.
4. Be regularly engaged in installing analog and IP-based video systems and shall have been engaged in such work for a period of not less than five years prior to bid submittal.
5. At the time of the bid be licensed by all appropriate authorities (state, municipal, and local) for the type of work to be performed. Contractors who have licenses or permits pending, relevant to this project, shall not be considered acceptable for bidding on this project.
6. Include with the bid a copy of the Contractor's current Alarm System License from the North Carolina Private Protective Services Board.
7. Include with the bid a copy of the Contractor's current Electrical Contractor license with a minimum of an SP-LV classification as issued by the North Carolina Electrical Board.
8. Have all personnel employed by the Security Contractor registered with the appropriate state or municipal Licensing Board as provided for by current state or local statutes.
9. Include with the bid submittal a copy of the Contractor's current business license as issued by the state in which the work is to be performed.
10. Contractor shall immediately notify the Owner, in writing, of any Judgment, Disqualification, Permit Revocation or any other similar action taken against the Contractor by any legitimate Regulating Authority or Licensing Agency that may occur during the course of the work that the Contractor performs for the Owner.

1.10. Document Preparation and Control

A. All design guides, design development documents, construction drawings and record drawings are extremely confidential. Access to these documents shall be restricted to authorized personnel and the Contractor. Parties receiving these documents shall take every reasonable precaution to protect these documents from unauthorized access.

B. Drawings and documents relating to this project which are no longer required shall be disposed of by complete destruction.
C. Distribution of any section of these guidelines to other persons or companies shall not be made without prior written approval of The Owner and/or the Security Consultant for the project.

PART 2 - PRODUCTS

2.1. Buy American Act

A. All equipment shall meet the requirements stated in the Buy American Act. Any manufacturer that is not included in these specifications that meet the requirements of the Buy American Act or meet exceptions of the Buy American Act must be submitted for approval by the Owner.

2.2. Quality Assurance

A. Materials and equipment shall be new and conform to grade, quality, and standards specified. Materials, equipment, and software shall be of the most recent version or production design available at the time of installation.

2.3. Approved Manufacturers

A. The following manufacturers produce equipment or components which are included in this specification, or which are approved for use by the City of Raleigh.

1. Altronix

   140 58th Street
   Brooklyn, NY 11220
2. HID

   14311 Chambers Road
   Tustin, CA 92780
3. Honeywell

   2 Corporate Drive, Suite 100
   Melville, NY 11747
4. AXIS Communication Inc.

   300 Apollo Drive
   Chelmsford, MA 01824
5. Dell Inc.

   1 Dell Way
   Round Rock, TX 78682
6. HP Inc.

   1501 Page Mill Road
   Palo Alto, CA 94304
7. Life Safety Power

   750 Tower Road, Unit B
   Mundelein, IL 60060
8. Milestone Systems Inc

   8905 SW Nimbus Avenue Suite 400
   Beaverton, OR 97008
9. Tridium Inc.

   3951 Westerre Parkway, Suite 350
   Richmond, VA 23233

B. Inclusion of a manufacturer on the above list does not imply that all products produced by the manufacturer are acceptable for use in the system(s) herein described.

2.4. Cameras and Accessories

A. The approved camera manufactures are as follows:
   1. AXIS Communication
   2. Pelco

B. The Contractor shall provide and install new recessed vandal-resistant fixed dome 5-megapixel IP video cameras at locations designated in the drawings as V1, V2 and V3. Camera shall be an integrated color camera dome, with Wide Dynamic Range, manual vari-focal 3-8mm auto-iris lens with backlight compensation and have multiple video streams for simultaneous viewing. Provide additional mounting equipment as necessary.
   1. Provide flush mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for a plenum ceiling and shall have knock-outs for conduit connectivity. There shall be no exposed wiring.
   2. For all exterior cameras, the Contractor shall provide an environmental dome option.

C. Provide and install a new surface-mounted vandal-resistant fixed dome IP video camera at each location designated in the drawings as V4 and V5. Camera shall be an integrated color camera dome, with Wide Dynamic Range, manual vari-focal 3-8mm auto-iris lens with backlight compensation and have multiple video streams for simultaneous viewing. Provide additional mounting equipment as necessary.
   1. Provide surface mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for the mounting application and shall have threaded inserts for conduit connectivity. There shall be no exposed wiring.
   2. For all exterior cameras, the Contractor shall provide an environmental dome option.

D. Provide and install a new vandal-resistant 180 degree dome 15 megapixel IP video camera at each location designated in the drawings as V7. Camera shall be an IP-based vandal-resistant dome camera with Wide Dynamic Range, Day/Night capability with multiple lens option and shall be rated for outdoor use. Provide additional mounting equipment as necessary.
   1. Provide flush mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for a plenum ceiling and shall have knock-outs for conduit connectivity. There shall be no exposed wiring.

E. Provide and install a new vandal-resistant 360 degree dome 12 megapixel IP video camera at each location designated in the drawings as V8. Camera shall

be an IP-based vandal-resistant dome camera with Wide Dynamic Range, Day/Night capability with multiple lens option and shall be rated for outdoor use. Provide additional mounting equipment as necessary.

1. Provide flush, surface or pole mount kit and any additional mounting hardware as required for each camera. Mounting hardware/enclosure shall be approved for a plenum ceiling and shall have knock-outs for conduit connectivity. There shall be no exposed wiring.
2. Each camera shall be compatible with the chosen video management system.

F. Contractor shall provide and install a pole to match existing poles. This requirement applies only to the locations where cameras are shown on the Contract Documents where exterior lighting poles are not available.

1. The Contractor shall provide a NEMA 4 enclosure with backplane at the base of the pole which shall be painted to match the color of the pole.
2. The Contractor shall also provide and install a pole with a NEMA 4 enclosure with backplane at the base of the pole at the locations shown as “Future” within the Contract Documents.
3. The Contractor shall refer to the Electrical Specification for the exact make, model and color of the lighting poles.

G. The Contractor shall provide and install an enclosed media converter at each exterior camera location. The media converter shall be pre-installed inside a lockable vandal-resistant enclosure, have separation of 120VAC and 12VDC power, and be fitted with a 4 Amp circuit breaker.

H. The Contractor shall provide all miscellaneous power supplies, terminal strips, and conduit to provide a fully functional system.

2.5. Video Console and Workstations

A. The contractor shall provide and install a Winsted Vue-C 75” Closed Base Single Surface Stationary Console in the Security Office 109. The console should include a solid surface countertop surface.

B. The Contractor shall provide, configure and install four (4) video monitoring workstations at the location indicated as WS on drawings. Two (2) video workstations shall be located within the Security Office 109A, one (1) video workstation located within the DROP 2 location and one (1) video workstation located within the Office C122.

C. Workstations shall consist of the following.

1. The workstations shall be the latest approved configuration PC computer with Microsoft Windows 64-bit operating system by the factory and with a 64 bit processor. The workstations shall require an external monitor, keyboard and mouse for operation.
2. Provide and install the latest version of the chosen VMS software on the workstation located in the Security Office.

3. As a minimum, the workstations shall have at a minimum 500 watt power supply using a 4th Generation Intel i7-4770 processor. Each workstation shall have 16 GB of RAM memory, a 16x DVD +/- RW drive, 6 USB 2.0 ports, a LAN connection 10/100/1000 MB Ethernet card., an onboard VGA Adapter with 128 MB of RAM and additional case fan cooling. The workstations shall be equipped with a PS-2 or USB wheel mouse and 101-key keyboard or shall meet the manufacturer's minimum standard.
4. The workstations shall be housed in a mid-height tower. It shall be constructed of steel and plastic materials. It shall also be operated indoors in a temperature range not to exceed 32 to 104° F (0 to 40° C) and a humidity range not to exceed 0 to 95% relative, in a non-condensing atmosphere. The workstations shall employ a Universal Voltage Power Supply requiring 105 - 240 VAC @ 50 - 60 Hz.
5. The workstations shall have a minimum of internal solid-state hard-drive storage of 1TB.
6. The workstation shall have Dual (2) NVIDIA GTX 970 PCI Express 3.0 graphics cards. These graphic cards shall have 4 GB of on board memory and shall support Microsoft Direct X Level 12_1
7. Environmental Specifications
    a. Operating Temperature Range: 32 to 104ºF (0 to 40ºC).
    b. Operating Humidity Range: 0 to 95%, non-condensing.
8. Certifications
    a. CE
    b. UL Listed
9. Monitors
    a. Provide two (2) Dell Ultrasharp 27" 4K USB-c Hub monitor (U2723QE) or equivalent in the Security Office 109.
    b. Provide two (2) Sharp 49" Wide Color Gamut Ultra High-Definition Professional Display or equivalent mounted on the wall in the Security Office 109.
    c. Provide one (1) Dell Ultrasharp 27" 4K USB-c Hub monitor (U2723QE) or equivalent in the Drop 2 and C122 locations.

D. The Contractor shall provide all camera and integration licenses required for programming the cameras to the Video Archiver. In addition, the Contractor shall provide all integration licenses required to accomplish call-up upon access control alarm from the chosen access control system.

E. Contractor shall coordinate with the Owner the connection of the chosen VMS equipment into the chosen ACS for remote monitoring and management.

F. This unit shall be installed, configured, programmed and attached to the network by the Contractor.

2.6. Programming

A. Programming for the new cameras shall be provided by the Contactor. The Contractor shall obtain all programming parameters from the Owner prior to the commencement of the programming. This programming shall include but not be limited to camera configuration, camera parameters, recording parameters for each camera, camera naming, camera groups, camera permission levels, set-up and verification of live and recorded viewing of cameras at each workstation and at the main viewing station located in the City of Raleigh's Security Monitoring Center.

B. Contractor shall submit the intended camera views to the Owner prior to installation. Once the cameras have been installed and monitored, the Owner at their discretion may ask to re-adjust some of the camera angles and view. The Contractor shall be prepared to comply with any requests for readjustment.

PART 3 - EXECUTION

3.1. Purpose

A. This section provides for video management systems for the City of Raleigh RCC-RHA. Detailed design, construction documents, scope of work, or other supplementary data may be attached to this document to provide the Contractor with additional information pertinent to a specific site or project.

B. The requirements noted in this document shall be understood to be the minimum City of Raleigh requirements. These requirements shall be expanded by the Contractor as necessary to ensure quality; however, written approval from the City of Raleigh or their representative must be obtained prior to deleting or revising a requirement contained herein.

C. It shall be the responsibility of the Contractor to verify the system design with the local AHJ.

D. The City of Raleigh shall make final approval of the video design and its suitability for the application. The Contractor should seek design input and comments from the City of Raleigh or their representative at all design stages. At the Owner's request, the Contractor shall be prepared to conduct a pre-installation walk-through and visual verification of any and all cameras.

E. The video management systems are designed to monitor, record and review activity at certain locations throughout the building and outlying areas.

F. The specifications contained in this document and the drawings submitted with the specification represent an outline of the desired system. Ensuring the compatibility of the equipment described is the responsibility of the Contractor submitting the proposal. Neither this document, nor any attached supplementary information, is intended to list all parts, interfaces, and miscellaneous equipment that may be needed, rather, it is the responsibility of the Contractor submitting the proposal to provide the equipment necessary to provide a properly functioning system.

3.2. Installation

A. All work shall be completed in a neat, organized, and professional workman-like manner.

B. The Contractor shall be aware and shall anticipate that due to the nature of this project, most of the work will have to be completed after hours and on weekends. In addition, due to the nature of some of the secure areas of this building, additional time may be necessary to gain access to certain areas. Any additional time that the Contractor deems necessary shall be included in this proposal. This access will need to be coordinated with the City of Raleigh.

C. All contractors will have to attend, if required, contractor safety training and shall display a safety training completion sticker, badge or letter while working on site.

D. The Contractor shall provide all conduit, boxes, enclosures, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.
E. The Contractor shall provide all wiring, connectors, power supplies, interfaces, and other hardware as necessary to affect a normally operating system.
F. The Contractor shall be responsible for all materials and labor necessary to replace any components that have been improperly installed or damaged during installation.
G. Any holes or visible damage created while retrofitting hardware will be properly corrected and patched to the Owner's satisfaction.
H. Connections of all equipment and devices shall be made in the manner recommended by the manufacturer and must meet the approval of the City of Raleigh as a condition of the acceptance of this project.
I. All equipment shall only be used for the purpose intended by the manufacturer and shall be installed per the manufacturer's specifications.
J. Materials and equipment shall be new, unused and conform to grade, quality and standards specified.
K. Materials and equipment shall be of the most recent version or production design available at the time of installation.
L. Substitution of other Manufacturers / Vendors products for those specified shall not be permitted without prior review and written approval by the City of Raleigh.
M. The Contractor shall provide at least two tools to the City of Raleigh to remove tamperproof screws for service. Tamper resistant fasteners shall be such that they cannot be removed without special computer designed wrenches provided for that specific purpose by the manufacturer. Allen head, Phillips head, torque, and other similar fasteners shall not be acceptable.
N. Compression type terminal strips shall be used whenever terminations are made at points other than on the components. There shall be no splices in any cable except where necessary to interface with pre-wired devices. Repair to damaged cables or extending cables by splicing will not be permitted. The Contractor shall be responsible for all materials and labor necessary to replace cables that have been installed improperly or damaged in installation. The use of "wire nuts" or "beans" inside the Field Interface Panels will not be acceptable.
O. System components and control devices shall be wired to the appropriate FIP as homeruns.
P. Programming of any new system components necessary to provide a fully operational system shall be included in the scope of this work.

Q. Each alarm initiating device shall be on its own zone and all zones shall report separately in a format which permits distinguishing individual zones and their conditions.

R. Supervised inputs shall be supervised by installing the end-of-line device as close to the input device as possible. End-of-line devices shall not be located at the controller inputs or inside the control enclosure(s).

S. All alarm inputs shall be configured as normally closed loops utilizing 4-state supervision.

T. End-of-line devices shall be located at the initiating device as described in the manufacturer's installation instructions.

U. Electronic Access Control, Video, or Intrusion system wiring shall not be run in the same conduit with Class 1, power, or lighting circuits.

V. Controllers, power supplies, and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling, and other similar locations).

W. When installed such that components are exposed to environmental effects such as rain, snow, or other inclement weather conditions, all fixtures and other equipment should be protected from a deterioration of the system due to weather related causes.

X. Lightning and surge protection shall be provided as required by industry standards and the manufacturer's recommendation on all appropriate elements of the security system.

Y. A separate suitable ground wire shall be connected to all lightning protection devices installed.

Z. Any firewall penetrations must be sealed with 2-hour intumescent UL approved firestop material. UL Penetration Detail Diagrams shall be available on site for review by the Building Inspector. In all cases the seal must meet the applicable fire code.

3.3. Cable and Conductors

A. The Contractor shall provide and install all cables and conductors in support of this project. It is the Contractor's responsibility to coordinate cabling raceway.

B. Alarm point wiring and REX wiring shall be minimum 22 AWG shielded twisted-pair or as specified by manufacturer's published installation procedures, whichever is the more stringent specification.

C. The cabling from each card access location shall be as recommended by the manufacturer and shall be a minimum of 18 AWG.

D. Low voltage power wiring for the electrified door hardware shall be a minimum of 16 AWG non-shielded.

E. All jacket material used shall be suitable for the application in which it is to be used.

F. All wiring shall be installed as specified by the manufacturer's published procedures.

G. Color-coding shall be used on all wiring and cabling and shall be used in a consistent manner.

H. When mechanical means of connecting wires do not otherwise exist (e.g. pre-wired devices), the connection may be made by twisting, "hot" soldering, and covering the connection with listed electrical tape or secured with either a crimp or solder type spade lug. Solderless crimp connectors shall be crimped only with a tool recommended by the manufacturer.

3.4. Pulling Cable

A. Swivel type pulling grips shall be used for all cable pulls to avoid cable twisting.

B. The manufacturer's recommended maximum pulling tension shall not be exceeded during any cable pull. A tensiometer shall be used during installation to monitor pulling tension.

C. Pulling winches with a calibrated maximum tension setting may be used in lieu of a tensiometer. Hand pulls do not require tension monitoring.

D. Equal pulling tension shall be applied to all cables pulled during one cable pull.

E. The manufacturer's rated minimum cable bend radius requirements shall be followed both while the cable is under pulling tension and while the cable is in a non-tension (operating) condition.

F. No residual tension shall remain on any cable after installation except the weight of the cable in a vertical rise.

G. Care shall be taken when dressing cables such that manufacturer's tension and minimum bend radius requirements are maintained.

3.5. Hardware

A. Miscellaneous hardware required for installation shall be suitable for the purpose for which it is used. Hardware includes such items as nuts, bolts, screws, washers, miscellaneous fasteners, terminals, terminal strips, tie wraps, and other related parts.

B. Manufacturer's specific requirements on hardware or other components shall be adhered to.

C. The finish on all hardware and fasteners shall be suitable for the environment in which it will be used and shall be selected to minimize corrosion or deterioration due to moisture, sunlight, temperature extremes, and other similar environmental concerns.

3.6. Painting and Finish

A. All surfaces to be painted shall be prepared and cleaned in compliance with the paint manufacturer's instructions for surface conditions and as herein specified. Do not apply paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to a durable and uniform finish.

Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any component identification, performance rating, name, or nomenclature plates.

B. Where the surface has been prime coated by the manufacturer, recoat the primed surface where there is evidence of suction spots or other unsealed areas due to insufficient sealing. Equipment primed by the manufacturer which exhibits evidence of having been improperly stored or exposed to the effects of weather shall have the primer coat removed and be prepared and painted as if it had not been primed.

C. Where the surface is ferrous metal, the minimum acceptable degree of surface preparation shall be as indicated in the schedule by the applicable SSPC specification number. The bottom coat shall be rust penetrating or encapsulating oil-based primer. If the surface is galvanized, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

D. Where the surface is aluminum or other nonferrous metal, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

E. Where the surface is non-metallic and has not been primed by the fabricator, the bottom coat shall be a latex acrylic primer and shall be selected for maximum adhesion to the substrate. The primer selected shall contain no oils or solvents that will damage the substrate and shall be an appropriate base for the finish coats.

F. The second and third coats shall be quick-drying enamel with a satin finish. A minimum of two separate coats shall be applied over the bottom coat, allowing sufficient time between coats for uniform curing of the paint. Additional coats shall be applied as required to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

3.7. Cabinets and Boxes

A. Tamperproof screws shall be used on all cabinets, boxes and other similar enclosures that are easily accessible by employees or the general public.

B. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls.

C. Cabinets and enclosures containing access control components shall be provided with tamper switches. The tamper switches shall report an alarm condition to the security system if the enclosure is opened. Cabinets and enclosures that contain only cable do not require tamper switches if attempts to damage or compromise the cables would generate an alarm or trouble condition.

D. Cabinets, boxes, and other similar enclosures containing control components or cabling and which are easily accessible to employees or the general public shall also be provided with an integral lock or a hasp for a padlock. The Contractor shall provide any required padlocks and keys.

E. Any cabinet, box, or other enclosure that is mounted above a ceiling, or is mounted more than ten feet above the floor in an interior location, may be deemed as being inaccessible to employees or the general public.

3.8. Labeling

A. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls (e.g. Computer Room, Door #7, Side Door).

B. The Contractor shall provide labeling and numbering consistent with the City of Raleigh's labeling schema for all components and wiring for the project.

C. Each terminal strip and screw terminal in each cabinet, rack, or panel shall be individually labeled.

D. Wiring conductors connected to terminal strips shall be individually numbered. Each cable or wiring group being extended from a panel or cabinet to a building mounted device shall be identified with the name and number of the particular device as shown.

E. Each wire connected to building mounted devices shall not be required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

F. Cable must be labeled at both ends as well as in junction boxes.

G. Handwritten labels are not acceptable. All wire labels shall be machine printed directly to the label and fixed to the individual wire. Acceptable labeling types are heat shrinkable sleeves, self-laminating wraparound labels or approved equal. Acceptable labeling systems include those produced by Dymo, Panduit, 3M, Tyco, or equal.

3.9. Power Supplies

A. All power supply equipment (batteries, battery chargers, rectifiers, switching facilities, transformers, voltage regulators, emergency generating equipment, and other similar devices) shall be installed in accordance with the requirements of NFPA 70 (National Electrical Code / NEC) for such equipment.

B. Video Management servers should be installed where secondary power supply is available and automatically switching upon any power failure.

C. Where batteries are used as the secondary power supply, the batteries should be sealed lead-acid or gelled electrolyte construction. Batteries should have a minimum estimated operating life of not less than five years under normal operating conditions. The manufacturer, type, size, capacity, model number, and recommended schedule of replacement shall be included in the required system O&M manuals described elsewhere in this document. Each battery shall be permanently marked with the date of installation.

D. Where cameras are powered by Network switches using PoE (or PoE +/++) the network switch itself should also have a secondary power supply.

E. The standby power supply shall cause a local annunciation when standby power falls below the manufacturer's recommended specifications.

3.10. Conduit

A. All major wiring and cabling shall be in conduit or raceway.

B. The Contractor shall provide all incidental conduit, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

C. The fill rate of conduit for the cables associated with the video systems shall not exceed 40%. Even though this requirement is below the NEC requirements, there may be future expansions that will utilize parts of this same conduit system.

D. Bushings must be used where cabling runs over conduit edges.

3.11. Communications

A. The City of Raleigh uses an Ethernet communications network to interconnect operator workstations, controllers, and file servers. All network devices are capable of real-time communications with all other devices and all devices are fully supervised. Alarm processing and dispatch takes place at workstations located in the security console.

B. The Contractor must initiate and coordinate requests for network services through the City of Raleigh.

C. All devices placed on the LAN will require approval of the City of Raleigh.

3.12. System Programming

A. The Contractor shall provide the development, loading, and checking of the software and/or databases for the complete and proper operation of the systems involved.

B. Where appropriate, the Contractor shall establish a Source Code Escrow to protect the Owner's interests.

C. The Owner's personnel shall perform routine Video Management System database updates and access level assignments for the viewing and playback of the digitally stored video.

D. Prior to performing any programming on the system, the Contractor shall coordinate with the Owner and shall obtain the Owner's specific programming requirements. The Contractor shall advise the Owner in writing of the scheduled date for commencement of programming.

E. System software development shall include all items necessary to provide proper system operation and shall include, but not be limited to, the following:

1. Assignment of new cameras to the existing VMS.
2. Set up camera configuration, camera naming, camera groups, based on owners standards.

3. Set up and configure recording parameters of cameras on the new and existing NVR.
4. Optimize recording parameters of new cameras.
5. Set up of user groups for pre-defined video monitored views.
6. All control by event sequences to assure system operation is as specified.
7. Programming of the camera pop-up views upon alarm conditions generated from motion detection or the access control system.
8. Set-up and verification of live and recorded viewing of cameras at each workstation.

3.13. Documentation

A. Drawings of Record

1. The Contractor shall maintain at the installation site one record copy of all contract drawings, specifications, addenda, change orders, and other modifications, in good order and marked up-to-date with a record of all changes made during construction.
2. Upon completion of work, the Contractor shall deliver three copies of the shop drawings, system testing, mechanical and electrical equipment schematics, and diagrams to the City of Raleigh.
3. All record drawings shall reflect the work as it was actually installed. Any equipment changes made during the project shall be clearly noted.
4. Record drawings shall be in a format and contain sufficient detail to permit the rapid and accurate troubleshooting of the system by a skilled technician with no previous knowledge of the specific installation. Providing record drawings on electronic media in AutoCAD format shall be acceptable.

B. Operation and Maintenance Manuals

1. After completion of work, Contractor shall deliver three system Operation and Maintenance (O&M) manuals.
2. O&M manuals shall include operating instructions specific to the installation and step-by-step directions for routine system operation.
3. O&M manuals shall include service and maintenance instructions for each major component installed. Equipment requiring periodic maintenance shall be clearly noted.
4. The manufacturer's standard catalog cut sheets shall not be acceptable for use as O&M manuals.

3.14. Testing

A. Site tests shall be performed with a representative of the Owner in attendance.

B. The Contractor shall coordinate the scheduled time of testing and access to the site.

C. The Contractor shall provide all test equipment, tools, recorders, connectors, cables, and other devices required for the completion of systems tests.

D. The Contractor shall provide or coordinate the availability of ladders, lifts, scaffolding, or other equipment required to provide safe and ready access to all installed devices for the use of Owner's representative.

E. The Contractor shall provide two-way radios, telephones, cellular telephones, or other communications devices necessary to communicate with any remote facility monitoring the security systems during the testing.

F. The Contractor shall demonstrate to Owner's representative that all sequences operate correctly and that all products, devices and system software operate as designed and specified.

G. Tests shall be performed on each major component of the Video Management System.

H. The output of each low-voltage AC or DC power supply and transformer shall be measured under maximum system operating conditions to verify that the actual loads do not exceed those previously calculated by the Contractor. If the actual loads exceed those previously calculated, the Contractor shall submit new calculations demonstrating that the system as installed meets the requirements of the appropriate specifications.

I. Systems and devices with remote download and upload capabilities shall be thoroughly tested in all modes.

J. Sufficient replacement parts shall be available to allow for timely replacement of any parts that are found to be unsatisfactory in performance.

K. VMS –Security Video management System (CCTV)

1. Cameras shall be tested under varying light levels to verify proper operation at all times of day and night. Digital images transmitted by the camera shall be checked visually at the VMS workstations for video level, contrast, and clarity. The pictures shall be checked for noise, tearing, "hum bars" caused by AC interference or ground loops, RF interference, crosstalk, rolling picture, blooming, and other undesirable effects.
2. Camera command functions shall be tested to their extremes at the VMS workstations. These include electronic zoom, auto-iris operation and other features as included in the specifications. An observer shall be posted at the camera location during these tests to verify that camera operation and movement does not cause unacceptable strain or stress on the mounting hardware or the flexible cables serving the camera.
3. Network video recorders shall be set to record their video input(s) for a period of not less than 24 hours immediately prior to system testing. The archive shall then be reviewed for picture quality and the ability to retrieve information as described in the system specifications.
4. If applicable camera call-up shall be tested for each camera(s) associated with an emergency communication device. Cameras shall automatically zoom and focus to the associated communication device.

5. If applicable camera call-up shall be tested for each camera(s) associated with any access control reader device. Cameras shall automatically zoom and focus to the associated access control device

3.15. Training

A. The Contractor shall hold a training session at the job site at times mutually agreed upon between the Owner and the Contractor.

B. The Contractor shall submit for approval a syllabus that includes a detailed outline of the training sessions that will take place.

C. The Contractor shall provide a minimum 8 hours of training.

D. The Contractor shall provide all training material required. The use of the approved O&M manual will be accepted as part of the training material. In addition to the O&M manual, the Contactor shall provide any other documentation/training tools required.

E. Time spent on field set-up, start-up and testing shall not be considered as training time

F. Users of the VMS system shall be thoroughly instructed verbally and in writing of the proper operation of all equipment and the procedures to be followed.

3.16. Acceptance and Performance Requirements

A. This system shall not be considered accepted until all punch list items have been corrected. Beneficial use of part or all of the system shall not be considered as acceptance.

B. The Owner reserves the right to evaluate the installed system for a period of 30 days, subsequent to the completion of the system acceptance tests, before final payment shall be made.

C. The Contractor shall complete the installation of all equipment in a reasonable and timely manner consistent with the Owner's construction schedule.

D. The Contractor shall provide properly skilled and factory trained personnel, the proper materials, and perform in a good workmanlike and timely manner satisfactory to the Owner.

E. The Contractor shall not hire any subcontractors for installation, maintenance, or service of the system without prior written approval by the Owner of such subcontractors for this work.

3.17. Warranty and Service

A. The Contractor shall guarantee all equipment, wiring, labor, and other components of this system to be free of defects in workmanship and material for one year or the manufacturer's warranty period, whichever is longer, from the date of acceptance by the Owner's representative.

B. Warranty service by the Contractor shall include four-hour emergency response service during normal Contractor working hours and twelve-hour emergency response service after normal working hours, on weekends, and

on holidays. Response time shall be measured from the time of Contractor notification to the arrival of service personnel at the affected site to initiate repairs. The Contractor shall provide a method of requesting emergency service after normal working hours, on weekends, and on holidays appropriate to the required response times.

C. Service requests are requests for work to repair or replace a system component or software application which has malfunctioned or been damaged. Service requests shall not include routine system additions, equipment relocations, or system upgrades.

END OF SECTION 282300

SECTION 285200 – SECURITY TELECOMMUNICATION SYSTEM

PART 1 - GENERAL

1.1. Summary

A. This document covers the specifications that include all materials and labor for the provision and installation of the Security Telecommunication Systems Components for the City of Raleigh Martin Marietta Center for the Performing Arts (MMCPA) project. Included in the documents are all major systems, subsystems and components as required by this specification.

B. The requirements of this specification shall be understood to be the City of Raleigh minimum. The requirements shall be expanded as necessary to ensure quality. However, unless City of Raleigh approval is obtained, the requirement herein shall not be deleted or revised.

C. City of Raleigh shall be hereinafter referred to in this document as the Owner and the bid respondents shall be referred to as the Contractor. The term Owner includes direct employees and other appointed Owner agents such as architects or consultants. These agents may be requested by the Owner to represent the Owner in undertaking certain project tasks

D. If any statement in this specification is in conflict with any provision of the General Terms and Conditions of the contract, the provision stated in the General Terms and Conditions shall take precedence. Any questions that require additional interpretation and guidance shall be immediately brought to the Owner's attention.

1.2. System Description

A. The new security telecommunication system components shall be capable of integrating, interfacing, and/or operating with other systems as described in these and related specifications.

B. This section covers the provision of the security telecommunications systems including all items and subsystems as required by this specification.

1. Door Intercom Stations for communicating to Desktop Master Stations located throughout the facility.

1.3. Related Sections

A. This section references related installation methods, guidelines, and basic infrastructure. If any such references are required, they should be described either in this specification or separately in other sections.

1. Conduit, Raceways, and Cable Trays
2. Fire Stopping Penetration Through Rated Construction
3. Electrical, Cabling, and Wiring
4. Door Hardware
5. Data Communications Circuits

1.4. Reference Standards

A. Reference standards or recommended practices referred to herein shall be the latest edition or revision of the item referenced.
B. Equipment and materials for which there are Underwriters Laboratories (UL) standard testing requirements or listings shall have the appropriate UL label indicating compliance with the UL requirements.
C. All equipment and materials shall be American made and shall meet the requirements stated in the Buy American Act.
D. Equipment and materials for which there are American National Standards Institute (ANSI) standard testing requirements or listings shall have the appropriate ANSI label indicating compliance with the ANSI requirements.
E. Systems shall be designed, manufactured, tested and installed in accordance with NFPA 70 (National Electrical Code / NEC), state codes, local codes, requirements of Authorities Having Jurisdiction (AHJ), and in particular:
    1. North Carolina Building Code
    2. ADA (Americans with Disabilities Act, Public Law 101-336) requirements
    3. NFPA (National Fire Protection Association) 101 (Life Safety Code) requirements
    4. NBFAA (National Burglar & Fire Alarm Association) standards
    5. Manufacturer's requirements
    6. Standard industry practices
F. In the event that any codes disagree with one another, or are in conflict, the Contractor shall use the more restrictive code.

1.5. Scope of Work

A. The Contractor shall include all necessary wiring, cabling, labor, tools, equipment, and ancillary materials required to furnish and install complete and operational communication devices indicated on the drawings.
B. Requirements are indicated elsewhere in this specification for work including, but not limited to:
    1. Provide and install of new audio/visual communication devices at the entrance locations as indicated on the drawings. (audio/video intercom system)
C. The door audio/video intercom system shall provide a means of communication between the door station and desktop master stations.
D. Installing the communication systems and bringing them to operational status for acceptance shall include but not be limited to the following:
    1. Determine hardware and operations requirements for implementation.
    2. Install devices.
    3. Set up and configure communications for all devices.
    4. Set up and configure communication systems application.

5. Test communication system devices operations based on a point-by-point physical walkthrough inspection and specification per section line-item testing using owner and Contractor's inspection documents.
6. If applicable, camera call-up shall be tested for each camera(s) associated with any emergency communication devices. Cameras shall automatically zoom and focus to the associated communication device.
7. Perform end-user training.

E. The Contractor shall provide onsite professional services to assist in the initial setup and programming of all systems specified within this specification.

F. All low-voltage cabling shall be provided by the Contractor.

1.6. Submittals

A. Submittals shall be as follows:

1. The Contractor shall submit shop drawings for the project. Shop drawings shall include point-to-point wiring diagrams for each building. Point-to-point diagrams shall detail each device location and all associated wire runs. Provide with the shop drawings a separate layout drawing for each equipment panel, rack, cabinet, and control unit on the project. The panel layout drawings shall show each component and shall detail the wiring for all devices connected to all components within the rack or panel. They shall show the labeling of each terminal strip connection point, each wire connected to the connection point, and each cable leaving the rack or panel. The layout drawings shall indicate in detail the labeling of each component within the panel including power supplies, terminal strips, switches, card cages and plug-in modules.
2. The Contractor shall submit manufacturer's technical data sheets on each product proposed.
3. The Contractor shall submit documentation that proves that all equipment meets the Buy American Act.
4. The Contractor shall submit detailed description of all equipment locations and mounting particulars. The Contractor shall describe coordination efforts that have been made or need to be made by the Contractor and the Owner for the installation to proceed on schedule in the manner described.
5. The Contractor shall provide a detailed project schedule with tasks and dates that includes at a minimum the Initial Preparation and Coordination Phase, Procurement Phase, Installation and Construction Phase, Testing and Commissioning Phase, and Closeout Phase. The use of Microsoft Project or similar is required.
6. Where AC or DC power supplies are used for Class 1, 2, or 3 Power-Limited Circuits, the Contractor shall provide evidence that the power capacity is sufficient for the proper operation of the powered devices

under maximum load. Detailed calculations of the power requirements shall be acceptable for this purpose.

7. The Contractor shall submit manufacturers' user's manuals for operations, administration, installation, and maintenance.

B. Contract Close-Out Submittals:

1. Training Course Materials: See section 3.15 for details.
2. Commissioning Test Plan and Check-Off List. See section 3.14 for details.
3. As-Built Drawings: During system installation, the Contractor shall maintain a separate hard copy set of drawings, elementary diagrams, and wiring diagrams of the security systems to be used for record drawings. This set shall be kept up to date, reflecting all changes and additions made to the security systems. Copies of the final as-built drawings shall be provided to the Owner in .DWG or .DXF format using the latest version of AutoCAD and also .PDF format using the latest version of Adobe.

1.7. Warranty and Maintenance

A. The card access system software, hardware, and installation shall be warranted against defects and workmanship for a minimum of 12 months, covering all parts and labor. Warranty period will begin upon acceptance by Owner.

B. The Contractor shall guarantee that the systems application software remains current at all times with the latest enhancements, supported by the manufacturer with unlimited remote dial-in diagnostics capability and technical phone support. (Coordinate with the Owner for any IT support requirements necessary to engage the manufacturer.)

C. The Contractor shall perform manufacturers' recommended preventative maintenance on all applicable components and/or devices.

D. The Contractor shall be the primary contact and respondent for all service and support, officially recognized and backed by the security systems manufacturer.

E. Extended and/or out of warranty terms at reasonable and customary rates shall be available from the Contractor.

F. Failure by the Contractor to coordinate their work will result in the Contractor being held liable for any and all deficiencies of the existing equipment that is relevant to the installation of the new security equipment.

1.8. Pricing and Bidding

A. The Contractor shall provide an Executive Summary System Description. This is a statement of the system function and single-line block diagram to show how all related equipment shall interface and operate as a complete electronic control system.

B. **Bid pricing shall be submitted in the following forms**:

1. The Bidder shall be required as a part of this bid to complete the attached spreadsheet. This is a list of major components and **NOT** a complete

equipment list. Bidders should use this as a **starting point and add to the list to provide pricing for the complete and fully functional systems** they propose as well as a lump sum. This spreadsheet shall identify line-item pricing per unit and extended pricing based on quantity and shall include, if applicable, state and local taxes. In addition to the equipment.

2. Bidder shall supply on a separate line, the cost of labor to install each unit.

1.9. Contractor Qualifications

A. Provide an architecture of all system components to include devices and network communication devices. Provide the manufacturer specifications for each system component to include any applicable software applications required.

B. Due to the nature of the work involved, Contractors desiring to bid on the work herein described shall have been regularly engaged in the installation and maintenance of card access and security management systems similar in size and scope to that outlined herein for a period of no less than five years.

C. The Contractor represents that it is fully experienced and properly qualified and certified by the Manufacturer(s) to perform the type of work described in this document. The Owner realizes that the Contractor is the expert in the installation of security systems; therefore, it is the responsibility of the Contractor to deliver a properly functioning and safe system. This responsibility includes any items that may or may not be specifically noted in this document.

1. If the Contractor is not properly qualified and certified in a particular system stated in this specification or shown in the drawing, the Contractor is allowed to sub-contract the work performed on the particular system to a properly qualified and certified Subcontractor. This Subcontractor shall meet the same requirements as the Contractor as stated in this section.

D. Contractor shall supply information attesting to the fact that their firm is an authorized product dealer for the systems and equipment proposed.

E. Contractor shall supply information attesting to the fact that their installation and service technicians are competent factory-trained personnel capable of maintaining the system and providing reasonable service time.

F. Contractor shall provide a minimum of three references whose systems are of similar complexity and have been installed and maintained by the security system integrator in the last five years.

G. There shall be a local representative and factory authorized local service organization that shall carry a complete stock of parts and provide maintenance for these systems. Local shall be defined as an area in a 100-mile radius of the installed location.

H. The Contractor shall:

1. Act as an independent Contractor and not as an agent or employee of the Owner.
2. Be solely responsible for compliance with all applicable laws governing the employment of its employees and for Contractor's own acts and those of Contractor's employees, agents and subcontractors during the performance of Contractor's obligations hereunder.
3. Be responsible for all taxes, permits or other fees imposed due to the work of the Contractor.
4. Be regularly engaged in installing enterprise level audio/visual intercom components and shall have been engaged in such work for a period of not less than five years prior to bid submittal.
5. At the time of the bid be licensed by all appropriate authorities (state, municipal, and local) for the type of work to be performed. Contractors who have licenses or permits pending, relevant to this project, shall not be considered acceptable for bidding on this project.
6. Include with the bid a copy of the Contractor's current Alarm System License from the North Carolina Private Protective Services Board.
7. Include with the bid a copy of the Contractor's current Electrical Contractor license with a minimum of an SP-LV classification as issued by the North Carolina Electrical Board.
8. Have all personnel employed by the Security Contractor registered with the appropriate state or municipal Licensing Board as provided for by current state or local statutes.
9. Include with the bid submittal a copy of the Contractor's current business license as issued by the state in which the work is to be performed.
10. Contractor shall immediately notify the Owner, in writing, of any Judgment, Disqualification, Permit Revocation or any other similar action taken against the Contractor by any legitimate Regulating Authority or Licensing Agency that may occur during the course of the work that the Contractor performs for the Owner

1.10. Document Preparation and Control

A. All design guides, design development documents, construction drawings and record drawings are extremely confidential. Access to these documents shall be restricted to authorized personnel and the Contractor. Parties receiving these documents shall take every reasonable precaution to protect these documents from unauthorized access.

B. Drawings and documents relating to this project which are no longer required shall be disposed of by complete destruction.

C. Distribution of any section of these guidelines to other persons or companies shall not be made without prior written approval of the Owner and/or the Security Consultant for the project.

PART 2 - PRODUCTS

2.1. Buy American Act

A. All equipment shall meet the requirements stated in the Buy American Act. Any manufacturer that is not included in these specifications that meet the requirements of the Buy American Act or meet exceptions of the Buy American Act must be submitted for approval by the Owner.

2.2. Quality Assurance

A. Materials and equipment shall be new and conform to grade, quality, and standards specified. Materials, equipment, and software shall be of the most recent version or production design available at the time of installation.

2.3. Approved Manufacturers

A. The following manufacturers produce equipment or components which are included in this specification or which are approved for use by the City of Raleigh.

1. Aiphone Corporation

   6670 185th Avenue NE
   Redmond, WA 98052

B. Inclusion of a manufacturer on the above list does not imply that all products produced by the manufacturer are acceptable for use in the system(s) herein described.

2.4. Door Intercom System

A. System Overview

1. The Contractor shall provide and install new wall mounted video door communication device as indicated as IC on the drawings. The Contractor shall provide and install all communication and low voltage power wiring required from the units to the desktop video master stations as indicated as ICM on the drawings. It shall be the responsibility of the Contractor to coordinate the termination of the wiring within the building structures.
2. IP Network Compatible Video Intercom System: A network-based communication and security system featuring video entry security, internal communication, emergency stations, and paging. All units and app in the systems shall be able to unlock doors remotely on a network, assist onsite visitors from an offsite location, broadcast emergency announcements, and communicate using a PoE network.
   a. Power Source: Power over Ethernet (802.3af).
   b. Network Interface: 10 BASE-T / 100 BASE-TX Ethernet (RJ-45).
   c. Network Protocols: IPv4, IPv6, TCP, UDP, SIP, HTTP, HTTPS, MJPEG, RTSP, RTP, RTCP, IGMP, MLD, SMTP, DHCP, NTP, DNS.
   d. Bandwidth Usage:
      i. G.711: 64Kbps x 2 per video call.
      ii. 64Kbps per monitor.

iii. H.264: 24Kbps ~ 2,048Kbps.

e. Communication: Hands-free (VOX), push-to-talk (simplex), or handset (full-duplex).

f. Video Display: 7-inch color LCD.

g. Camera: Type: IX-DV, IX-DVF, IX-DVF-(2)RA, IX-DVF-L, IX-DVF-P, IX-DVF-HWCB

i. 1/3-inch color CMOS. 1.23 Megapixels.

ii. View Area at 0-degree camera angle mounted at 4 feet 11 inches (1500 mm) AFF: 2 feet 3 inches (700 mm) vertical x 3 feet 9 inch (1150 mm) horizontal at 19 inches (500 mm).

h. Camera: IX-DVM Type:

i. 1/3-inch 8-type color CMOS. 720p HD, wide dynamic range

ii. View Area mounted at 4 feet 11 inches (1500 mm) AFF: 4 feet 3 inches (1300 mm) vertical and a range of 170 degrees in a 19 inch (500 mm) horizontal radius.

i. Video Stream: ONVIF Profile S.

j. Door Release: Programmable Form C dry contact, 24V AC/ DC, 1A (use RY-1824L for larger contact rating, which requires a 24V DC power supply) or use IXW-MA with 10 multipurpose relays.

k. Wire Type: CAT-5e or CAT-6.

l. Distance: Any station to Network Node: 330 feet (100 meters).

B. System Design

1. Master Stations:
   a. Model IX-MV7-HB (Black chassis - Handset)
   b. Model IX-MV7-B (Black chassis - Hands Free)
2. Audio Video Door Stations:
   a. Model IX-DV (Video Door Station - Surface Mount - Vandal Resistant)
   b. Model IX-DVF (Video Door Station - Flush Mount - Vandal Resistant)
3. Provide Selective Door/Gate Release.
4. Provide Audio/video streaming via ONVIF Profile S.
5. Provide ONVIF Profile S camera input (max 500).
6. Provide Overhead paging.
7. Provide Contact input at door station.

C. Functional Components: As indicated on the drawings or as required to complete system.

1. Video Master Station Series IX-MV7:
   a. Model IX-MV7-HB (Master Station - Black w/Handset).
   b. Model IX-MV7-B (Master Station - Black, Hands Free).

c. An IP addressable video master station with a 7-inch color LCD monitor. It can be wall or desk mounted (desk stand included). The IX-MV7 offers handset (duplex) and hands-free (VOX/PTT) communication and call up to 500 other IX stations. It connects directly to a network using CAT-5e/6 cable. This station requires an 802.3af compliant Power-over-Ethernet network.

2. 30 Degree Angle Box Model SBX-IXDV30:
   a. Designed for use with IX-DV video door station.
3. Stainless Steel Enclosure Model SBX-IDVF:
   a. 18-Gauge Stainless Steel Surface Mount Box for IX-SSA and IX-DVF.
   b. Size: 10-7/16 inches x 5-15/16 inches x 3-5/16 inches (top); 2-5/16 inches (bottom) (265 mm x 151 mm x 84 mm (top); 59 mm (bottom).
   c. Weather resistant.
   d. Vandal resistant.
   e. Inside space for cabling.
   f. Mounts to flat wall surface.
   g. Opening at bottom for drainage.

PART 3 - EXECUTION

3.1. Purpose

A. This section provides for the Security Telecommunication Systems for the City of Raleigh RCC-RHA project. Detailed design, construction documents, scope of work, or other supplementary data may be attached to this document to provide the Contractor with additional information pertinent to a specific site or project.

B. The requirements noted in this document shall be understood to be the minimum City of Raleigh requirements. These requirements shall be expanded by the Contractor as necessary to ensure quality; however, written approval from the City of Raleigh or their representative must be obtained prior to deleting or revising a requirement contained herein.

C. It shall be the responsibility of the Contractor to verify the system design with the local AHJ.

D. The City of Raleigh shall make final approval of the security systems design and its suitability for the application. The Contractor should seek design input and comments from the City of Raleigh or their representative at all design stages.

E. The security systems for this project are designed to control access to and provide an audit trail of personnel entering a building or a specific area of a building and to also monitor all alarm devices. One of the primary goals is to prevent or deter unauthorized entry while allowing freedom of movement for employees and other authorized visitors.

F. The specifications contained in this document and the drawings submitted with the specification represent an outline of the desired system. Ensuring the compatibility of the equipment described is the responsibility of the Contractor submitting the proposal. Neither this document, nor any attached supplementary information, is intended to list all parts, interfaces, and miscellaneous equipment that may be needed, rather, it is the responsibility of the Contractor submitting the proposal to provide the equipment necessary to provide a properly functioning system.

3.2. Installation

A. All work shall be completed in a neat, organized, and professional workman-like manner.

B. The Contractor shall be aware and shall anticipate that due to the nature of this project, most of the work will have to be completed after hours and on weekends. In addition, due to the nature of some of the secure areas of this building, additional time may be necessary to gain access to certain areas. Any additional time that the Contractor deems necessary shall be included in this proposal. This access will need to be coordinated with the City of Raleigh.

C. All contractors will have to attend, if required, contractor safety training and shall display a safety training completion sticker, badge or letter while working on site.
D. The Contractor shall provide all conduit, boxes, enclosures, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.
E. The Contractor shall provide all wiring, connectors, power supplies, interfaces, and other hardware as necessary to effect a normally operating system.
F. The Contractor shall be responsible for all materials and labor necessary to replace any components that have been improperly installed or damaged during installation.
G. Any holes or visible damage created while retrofitting hardware will be properly corrected and patched to the Owner's satisfaction.
H. Connections of all equipment and devices shall be made in the manner recommended by the manufacturer and must meet the approval of the City of Raleigh as a condition of the acceptance of this project.
I. All equipment shall only be used for the purpose intended by the manufacturer and shall be installed per the manufacturer's specifications.
J. Materials and equipment shall be new, unused and conform to grade, quality and standards specified.
K. Materials and equipment shall be of the most recent version or production design available at the time of installation.
L. Substitution of other Manufacturers / Vendors products for those specified shall not be permitted without prior review and written approval by the City of Raleigh.
M. The Contractor shall provide at least two tools to the City of Raleigh to remove tamperproof screws for service. Tamper resistant fasteners shall be such that they cannot be removed without special computer designed wrenches provided for that specific purpose by the manufacturer. Allen head, Phillips head, torque, and other similar fasteners shall not be acceptable.
N. Compression type terminal strips shall be used whenever terminations are made at points other than on the components. There shall be no splices in any cable except where necessary to interface with pre-wired devices. Repair to damaged cables or extending cables by splicing will not be permitted. The Contractor shall be responsible for all materials and labor necessary to replace cables that have been installed improperly or damaged in installation. The use of "wire nuts" or "beans" inside the Field Interface Panels will not be acceptable.
O. System components and control devices shall be wired to the appropriate FIP as homeruns.

P. Programming of any new system components necessary to provide a fully operational system shall be included in the scope of this work.

Q. Each alarm initiating device shall be on its own zone and all zones shall report separately in a format which permits distinguishing individual zones and their conditions.

R. Supervised inputs shall be supervised by installing the end-of-line device as close to the input device as possible. End-of-line devices shall not be located at the controller inputs or inside the control enclosure(s).

S. All alarm inputs shall be configured as normally closed loops utilizing 4-state supervision.

T. End-of-line devices shall be located at the initiating device as described in the manufacturer's installation instructions.

U. Electronic Access Control, Video, or Intrusion system wiring shall not be run in the same conduit with Class 1, power, or lighting circuits.

V. Controllers, power supplies, and similar components shall always be installed in a secure room or area (phone or electrical closet, above ceiling, and other similar locations).

W. When installed such that components are exposed to environmental effects such as rain, snow, or other inclement weather conditions, all fixtures and other equipment should be protected from a deterioration of the system due to weather related causes.

X. Lightning and surge protection shall be provided as required by industry standards and the manufacturer's recommendation on all appropriate elements of the security system.

Y. A separate suitable ground wire shall be connected to all lightning protection devices installed.

Z. Any firewall penetrations must be sealed with 2-hour intumescent UL approved firestop material. UL Penetration Detail Diagrams shall be available on site for review by the Building Inspector. In all cases the seal must meet the applicable fire code.

3.3. Cable and Conductors

A. The Contractor shall provide and install all cables and conductors in support of this project. It is the Contractors responsibility to coordinate cabling raceway.

B. Alarm point wiring and REX wiring shall be minimum 22 AWG shielded twisted-pair or as specified by manufacturer's published installation procedures, whichever is the more stringent specification.

C. The cabling from each card access location shall be as recommended by the manufacturer and shall be a minimum of 18 AWG.

D. Low voltage power wiring for the electrified door hardware shall be a minimum of 16 AWG non-shielded.

E. All jacket material used shall be suitable for the application in which it is to be used.

F. All wiring shall be installed as specified by the manufacturer's published procedures.

G. Color-coding shall be used on all wiring and cabling and shall be used in a consistent manner.

H. When mechanical means of connecting wires do not otherwise exist (e.g. pre-wired devices), the connection may be made by twisting, "hot" soldering, and covering the connection with listed electrical tape or secured with either a crimp or solder type spade lug. Solderless crimp connectors shall be crimped only with a tool recommended by the manufacturer.

3.4. Pulling Cable

A. Swivel type pulling grips shall be used for all cable pulls to avoid cable twisting.

B. The manufacturer's recommended maximum pulling tension shall not be exceeded during any cable pull. A tensiometer shall be used during installation to monitor pulling tension.

C. Pulling winches with a calibrated maximum tension setting may be used in lieu of a tensiometer. Hand pulls do not require tension monitoring.

D. Equal pulling tension shall be applied to all cables pulled during one cable pull.

E. The manufacturer's rated minimum cable bend radius requirements shall be followed both while the cable is under pulling tension and while the cable is in a non-tension (operating) condition.

F. No residual tension shall remain on any cable after installation except the weight of the cable in a vertical rise.

G. Care shall be taken when dressing cables such that manufacturer's tension and minimum bend radius requirements are maintained.

3.5. Hardware

A. Miscellaneous hardware required for installation shall be suitable for the purpose for which it is used. Hardware includes such items as nuts, bolts, screws, washers, miscellaneous fasteners, terminals, terminal strips, tie wraps, and other related parts.

B. Manufacturer's specific requirements on hardware or other components shall be adhered to.

C. The finish on all hardware and fasteners shall be suitable for the environment in which it will be used and shall be selected to minimize corrosion or deterioration due to moisture, sunlight, temperature extremes, and other similar environmental concerns.

3.6. Painting and Finish

A. All surfaces to be painted shall be prepared and cleaned in compliance with the paint manufacturer's instructions for surface conditions and as herein specified. Do not apply paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to a durable and uniform finish. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any component identification, performance rating, name, or nomenclature plates.

B. Where the surface has been prime coated by the manufacturer, recoat the primed surface where there is evidence of suction spots or other unsealed areas due to insufficient sealing. Equipment primed by the manufacturer which exhibits evidence of having been improperly stored or exposed to the effects of weather shall have the primer coat removed and be prepared and painted as if it had not been primed.

C. Where the surface is ferrous metal, the minimum acceptable degree of surface preparation shall be as indicated in the schedule by the applicable SSPC specification number. The bottom coat shall be rust penetrating or encapsulating oil-based primer. If the surface is galvanized, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

D. Where the surface is aluminum or other nonferrous metal, the surface shall be solvent cleaned and the bottom coat shall be an oil-based primer.

E. Where the surface is non-metallic and has not been primed by the fabricator, the bottom coat shall be a latex acrylic primer and shall be selected for maximum adhesion to the substrate. The primer selected shall contain no oils or solvents that will damage the substrate and shall be an appropriate base for the finish coats.

F. The second and third coats shall be quick-drying enamel with a satin finish. A minimum of two separate coats shall be applied over the bottom coat, allowing sufficient time between coats for uniform curing of the paint. Additional coats shall be applied as required to provide an opaque, smooth surface of uniform finish, color, appearance and coverage.

3.7. Cabinets and Boxes

A. Tamperproof screws shall be used on all cabinets, boxes and other similar enclosures that are easily accessible by employees or the general public.

B. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls.

C. Cabinets and enclosures containing access control components shall be provided with tamper switches. The tamper switches shall report an alarm condition to the security system if the enclosure is opened. Cabinets and enclosures that contain only cable do not require tamper switches if attempts to damage or compromise the cables would generate an alarm or trouble condition.

D. Cabinets, boxes, and other similar enclosures containing control components or cabling and which are easily accessible to employees or the general public shall also be provided with an integral lock or a hasp for a padlock. The Contractor shall provide any required padlocks and keys.

E. Any cabinet, box, or other enclosure that is mounted above a ceiling, or is mounted more than ten feet above the floor in an interior location, may be deemed as being inaccessible to employees or the general public.

3.8. Labeling

A. All enclosures containing electronic equipment or bypass switches shall have a permanent, label affixed to the front of each enclosure to show which device, point or area it controls (e.g. Computer Room, Door #7, Side Door).

B. The Contractor shall provide labeling and numbering consistent with the City of Raleigh's labeling schema for all components and wiring for the project.

C. Each terminal strip and screw terminal in each cabinet, rack, or panel shall be individually labeled.

D. Wiring conductors connected to terminal strips shall be individually numbered. Each cable or wiring group being extended from a panel or cabinet to a building mounted device shall be identified with the name and number of the particular device as shown.

E. Each wire connected to building mounted devices shall not be required to be numbered at the device if the color of the wire is consistent with the associated wire connected and numbered within the panel or cabinet.

F. Cable must be labeled at both ends as well as in junction boxes.

G. Handwritten labels are not acceptable. All wire labels shall be machine printed directly to the label and fixed to the individual wire. Acceptable labeling types are heat shrinkable sleeves, self-laminating wraparound labels or approved equal. Acceptable labeling systems include those produced by Dymo, Panduit, 3M, Tyco, or equal.

3.9. Power Supplies

A. All power supply equipment (batteries, battery chargers, rectifiers, switching facilities, transformers, voltage regulators, emergency generating equipment, and other similar devices) shall be installed in accordance with the requirements of NFPA 70 (National Electrical Code / NEC) for such equipment.

B. Video Management servers should be installed where secondary power supply is available and automatically switching upon any power failure.

C. Where batteries are used as the secondary power supply, the batteries should be sealed lead-acid or gelled electrolyte construction. Batteries should have a minimum estimated operating life of not less than five years under normal operating conditions. The manufacturer, type, size, capacity, model number, and recommended schedule of replacement shall be included in the

required system O&M manuals described elsewhere in this document. Each battery shall be permanently marked with the date of installation.

D. Where cameras are powered by Network switches using PoE (or PoE +/++) the network switch itself should also have a secondary power supply.

E. The standby power supply shall cause a local annunciation when standby power falls below the manufacturer's recommended specifications.

3.10. Conduit

A. All major wiring and cabling shall be in conduit or raceway.

B. The Contractor shall provide all incidental conduit, wiring, 120 VAC power extensions, terminations, materials, and connections to all equipment unless specified as being provided by others.

C. The fill rate of conduit for the cables associated with the video systems shall not exceed 40%. Even though this requirement is below the NEC requirements, there may be future expansions that will utilize parts of this same conduit system.

D. Bushings must be used where cabling runs over conduit edges.

3.11. Communications

A. The City of Raleigh uses an Ethernet communications network to interconnect operator workstations, controllers, and file servers. All network devices are capable of real-time communications with all other devices and all devices are fully supervised. Alarm processing and dispatch takes place at workstations located in the security console.

B. The Contractor must initiate and coordinate requests for network services through the City of Raleigh.

C. All devices placed on the LAN will require approval of the City of Raleigh.

3.12. System Programming

A. The Contractor shall provide the development, loading, and checking of the programming for the complete and proper operation of the systems involved.

B. Where appropriate, the Contractor shall establish a Source Code Escrow to protect the Owner's interests.

C. Prior to performing any programming on the system, the Contractor shall coordinate with Owner and shall obtain the Owner's specific programming requirements.

D. System software development shall include all items necessary to provide proper system operation.

E. The Contractor will offer technical support from the manufacturer that address 24/7 support, service patches and trouble-shooting, integration failure, assistance with 3rd party software and hardware installation or configurations.

3.13. Documentation

A. Drawings of Record

1. The Contractor shall maintain at the installation site one record copy of all contract drawings, specifications, addenda, change orders, and other modifications, in good order and marked up-to-date with a record of all changes made during construction.
2. Upon completion of work, the Contractor shall deliver three copies of the shop drawings, system testing, mechanical and electrical equipment schematics, and diagrams to the City of Raleigh.
3. All record drawings shall reflect the work as it was actually installed. Any equipment changes made during the project shall be clearly noted.
4. Record drawings shall be in a format and contain sufficient detail to permit the rapid and accurate troubleshooting of the system by a skilled technician with no previous knowledge of the specific installation. Providing record drawings on electronic media in AutoCAD format shall be acceptable.

B. Operation and Maintenance Manuals
1. After completion of work, Contractor shall deliver three system Operation and Maintenance (O&M) manuals.
2. O&M manuals shall include operating instructions specific to the installation and step-by-step directions for routine system operation.
3. O&M manuals shall include service and maintenance instructions for each major component installed. Equipment requiring periodic maintenance shall be clearly noted.
4. The manufacturer's standard catalog cut sheets shall not be acceptable for use as O&M manuals.

3.14. Testing

A. Site tests shall be performed with a representative of the Owner in attendance.
B. The Contractor shall coordinate the scheduled time of testing and access to the site.
C. The Contractor shall provide all test equipment, tools, recorders, connectors, cables, and other devices required for the completion of systems tests.
D. The Contractor shall provide or coordinate the availability of ladders, lifts, scaffolding, or other equipment required to provide safe and ready access to all installed devices for the use of Owner's representative.
E. The Contractor shall provide two-way radios, cellular telephones, or other communications devices necessary to communicate with any remote facility monitoring the security systems during the testing.
F. The Contractor shall demonstrate to Owner's representative that all sequences operate correctly and that all products, devices and system software operate as designed and specified.
G. Tests shall be performed on each component of the intercom system.

H. The output of each low-voltage AC or DC power supply and transformer shall be measured under maximum system operating conditions to verify that the actual loads do not exceed those previously calculated by the Contractor. If the actual loads exceed those previously calculated, the Contractor shall submit new calculations demonstrating that the system as installed meets the requirements of the appropriate specifications.

I. Detection loops using end-of-line devices shall be removed from the control unit and measured for total circuit resistance in normal, alarm and trouble modes. Detection loops using end-of-line devices shall also be measured for loop voltage while connected to the control unit. The measured values for both tests shall be within manufacturer's recommendations and shall be recorded with a written copy provided in the O&M manuals.

J. Systems and devices with remote download and upload capabilities shall be thoroughly tested in all modes.

K. Sufficient replacement parts shall be available to allow for timely replacement of any parts that are found to be unsatisfactory in performance.

L. Door Video Intercom System

1. All Door Video Intercom wall and master stations shall be tested to verify that they are working properly and that the audio is intelligible and video is clear. Once the call is made verify that the unit communicates properly with the associate master station and that it is a hands-free operation.
2. Verify that the camera populates on the master stations screens until reset.
3. Verify call forwarding of the calls from one desktop master station to another.
4. Verify that all other aspects of the system are working properly.

3.15. Training

A. The Contractor shall hold a training session at the job site at times mutually agreed upon between the Owner and the Contractor.

B. The Contractor shall submit for approval a syllabus that includes a detailed outline of the training sessions that will take place.

C. The Contractor shall provide a minimum 4 hours of training.

D. The Contractor shall provide all training material required. The use of the approved O&M manual will be accepted as part of the training material. In addition to the O&M manual, the Contactor shall provide any other documentation/training tools required.

E. Time spent on field set-up, start-up and testing shall not be considered as training time

F. Users of the Intercom System shall be thoroughly instructed verbally and in writing of the proper operation of all equipment and the procedures to be followed.

3.16. Acceptance and Performance Requirements

A. This system shall not be considered accepted until all punch list items have been corrected. Beneficial use of part or all of the system shall not be considered as acceptance.
B. The Owner reserves the right to evaluate the installed system for a period of 30 days, subsequent to the completion of the system acceptance tests, before final payment shall be made.
C. The Contractor shall complete the installation of all equipment in a reasonable and timely manner consistent with the Owner's construction schedule.
D. The Contractor shall provide properly skilled and factory trained personnel, the proper materials, and perform in a good workmanlike and timely manner satisfactory to the Owner.
E. The Contractor shall not hire any subcontractors for installation, maintenance, or service of the system without prior written approval by the Owner of such subcontractors for this work.

3.17. Warranty and Service

A. The Contractor shall guarantee all equipment, wiring, labor, and other components of this system to be free of defects in workmanship and material for one year or the manufacturer's warranty period, whichever is longer, from the date of acceptance by the Owner's representative.
B. Warranty service by the Contractor shall include four-hour emergency response service during normal Contractor working hours and twelve-hour emergency response service after normal working hours, on weekends, and on holidays. Response time shall be measured from the time of Contractor notification to the arrival of service personnel at the affected site to initiate repairs. The Contractor shall provide a method of requesting emergency service after normal working hours, on weekends, and on holidays appropriate to the required response times.
C. Service requests are requests for work to repair or replace a system component or software application which has malfunctioned or been damaged. Service requests shall not include routine system additions, equipment relocations, or system upgrades.

END OF SECTION 285200

APPENDIX VII
RCPAC Functional Drawings

Available following Pre-Proposal Conference registration.

Includes project locations: RCC, MMPAC, RHA, Green St.