

**SOLANO COMMUNITY COLLEGE DISTRICT
CAPITAL IMPROVEMENT PROGRAM
DISTRICT WIDE NETWORK INFRASTRUCTURE PROJECT
REQUEST FOR QUALIFICATIONS AND PROPOSALS (RFQ/P #15-015)
A "GREEN" PROJECT**

INTRODUCTION:

In November 2012 the Solano Community College District ("District") successfully passed the Measure Q Bond in an effort to be responsive to the needs of students and the community as we move well into the 21st century. The funding approved by this bond is intended to be used for new building construction, modernization and repairs to existing classrooms and college buildings to bring them up to current seismic and safety standards. One of the main goals of the Measure Q Bond is to provide additional classrooms and science labs for the District to provide enhanced educational programs including job training, and workforce development courses to their students. In addition Measure Q recognized the importance of technology to support the teaching and learning mission.

Partner or Client Vendor Relationship: The District wishes to enter into a long term Business/Education partnership with the selected vendor. Throughout this RFQ/P the vendor is interchangeably referred to as: Master Prime Contractor, Partner, and Consultant. These references shall be considered the same entity responsible for the scope of work in this RFQ/P and potential future work. This RFQ/P addresses upgrades to the District Network Infrastructure. Vendors shall design and install all work, equipment, materials, components, and apparatus for a complete and fully operational Network Infrastructure system as defined in this RFQ/P. The traditional adversarial Client/Vendor relationship is the antipathy of the districts wishes. The selected Partner will be granted a 5 year (extendible to 10 years) contract to ensure the standardization of systems in the longer term. The selected partner should have a comprehensive understanding of the organization, structure, mission and objectives of the District as a whole, and the IT department in particular.

Begin with the end in mind: A key component of the success of Measure Q is to bring the Information Technology Infrastructure (in its entirety) up to date to fully support 21st century learning, including distance education, shared learning, "any time - any place – any how" learning and a BYOD (bring your own device) capability.

This infrastructure project has two equally important underlying long term goals:

- **Enabling state of the art 21st century teaching and learning.**
- **Sustainability. This is a green project in every sense.**
(All next generation systems, sub-systems and components will use considerably less power, and have a significantly reduced carbon footprints as compared with prior generations of equipment. The completion of this Network Infrastructure project is critical to being able to move the college to Virtual Desktop Infrastructure (VDI) systems which based on today's system count should save the district approximately 500,000KWh per year, and assuming deployed systems continue to increases in number at a rate similar

to past deployment should save 1,500,000Kwh per year in 7 to 10 years. In addition, ubiquitous access and BYOD also simply cannot happen without this project's completion.)

SCCD takes a "holistic" and systems level approach to the design, deployment, support and maintenance of its Information Technology Infrastructure. For the purposes of this RFP, SCCD's five core IT sub-systems are defined as

1. The Data Center (SAN & processing power upgraded in April 2014)
2. **MAN/WAN/LAN Network (switches, routers, fiber optics and copper cabling)**
3. **WiFi**
4. VOIP
5. End user devices

This RFP seeks to address items 2 and 3 from the list above, and intends that the full range of data transport, switching and routing subsystems that are owned by the district be replaced using a single education partner, who will in turn engage an appropriate number of sub-contractors to deliver a turn-key solution to the District.

LIMITATIONS

The District reserves the right to contract with any entity responding to this RFQ/P. The District makes no representation that participation in the RFQ/P process will lead to an award of contract or any consideration whatsoever. The District shall in no event be responsible for the cost of preparing any proposal in response to this RFQ/P. The awarding of contracts for specific design services, if at all, is at the sole discretion of the District.

The District reserves the right to reject any or all proposals, to waive any irregularities or informalities not affected by law, to evaluate the proposals submitted, and to include, or not include, entities in a short list of qualified firms or award a contract, if any, in a manner which best serves the interests of the District at a reasonable cost to the District.

In the event that a full formal contract arises from this proposal, the details in that contract will be the final determination of the binding scope of work; regardless of the content of this Request for Proposal and/or response thereto.

- Project Purpose and Goals:
 - This projects purpose is to build a next generation network that is: Secure, scalable, replicable, affordable, manageable and reliable. One that will provide the full spectrum of communications needs for the college for the next ten plus years.
- This project is for a complete replacement of all district switches and WIFI systems, and upgrade of fiber and copper, with dual path, as described in the technical detail sections of this document.
- Schedule (RFQ/P, BOT Approval, NTP, Installation of Equipment and Apparatus start and completion dates

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- Roles and Responsibilities: Selected partner has total responsibility for all aspects of this project, in close coordination with the CTO, Director of Facilities and assigned Project Manager.
- Sub-consultant: The District MUST approve all sub-consultants, and may deny the use of any sub-consultant proposed by a vendor, at the districts sole discretion.
- Insurance requirements – As per District Contract (to be issued by addendum).
- Performance of Services
 - Standard of Care: All industry specific standards of care must be observed at all times.
 - Submittal of Design Documents. Once selected, and during final negotiations the partnering vendor will submit all design documents to College CTO for final approval, before any work is undertaken.
 - Meetings. Will be scheduled by the selected partner and CTO to meet the needs of project rollout.
 - District Approvals. CTO will manage all required district approvals.
 - Limitations of District Liability - As per District Contract (to be issued by addendum).
 - Codes and Laws: Selected Vendor, as District partner, will be solely responsible for compliance with all relevant Federal, State and Local codes, and Laws, as further described below under the “Scope of Work”

RESTRICTIONS ON LOBBYING AND CONTACTS

For the period beginning on the date of the issuance of this RFQ/P and ending on the date of the notification of the firm(s) selected to be offered a contract to perform FF&E consulting services, no person or entity submitting in response to this RFQ/P, nor any officer, employee, representative, agent, or consultant representing such a person or entity, shall contact through any means or engage in any discussion regarding this RFQ/P, the evaluation or selection process/or the award of the contract(s) with any member of the District’s Governing Board, selection members, or any member of the Citizens’ Oversight Committee, or with any employee of the District except for clarifications and questions as described herein. Any such contact shall be grounds for the disqualification of the person or entity submitting a proposal.

SCOPE OF WORK

Vendors are solely responsible for all design and installation work, including commissioning, testing, training, and close-out/warranty work as outlined in this RFQ/P. Vendor’s design work shall comply with all Federal, state, and local laws and codes, and adhere to District Standards, including but not limited to the Solano Community College District 2013 Facilities Master Plan, Book 2: District Standards and the District Technology Services & Support Telecommunications Cabling Material List. The detailed scope of work is explained in Exhibit A:

Exhibit A includes:

1. Technical Overview
2. Section 27 13 23 - Optical Fiber Backbone

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3. Section 27 21 00 - Network Equipment
4. Section 27 21 26 - Network and Security Management
5. Section 27 21 33 - Wireless Sub System

SUBMITTAL FORMAT

In the spirit of remaining green and minimizing the carbon footprint associated with developing RFQ/P responses only electronic submissions will be accepted as outlined in Paragraph D below for submittal guidelines. The response should include a cover letter and a full RFP response, addressing as a minimum the items in the guide below.

The district is looking for education partners who are fully engaged with and understand all aspects of technology in support of education at SCC, hence this RFQ/P is minimally prescriptive, to give you, the vendor, the opportunity to show exactly how well suited you are to a partnership with SCCD.

COVER LETTER

- Identify the name of the entity proposing and the type of organization
- Provide a brief description and background of your Company's profile, Company size, office location(s), and your Company's capability to perform the scope of work.
- The cover letter must be in the name of and signed by the legal entity that will execute the VENDOR contract.
- Firm is required to acknowledge the contract indemnification (to be issued by addendum):
 - Acknowledge and understand that the successful firm(s) will sign a contract (to be issued by addendum), which contains the following indemnity provisions:
 - To the furthest extent permitted by California law, Contractor shall defend, indemnify, and hold harmless the District, its Governing Board, agents, representatives, officers, consultants, employees, trustees, and volunteers (the "indemnified parties") from any and all claims arising out of, pertaining to, or relating to the negligence, recklessness, or willful misconduct of the Contractor. The District shall have the right to accept or reject any legal representation that Contractor proposes to defend the indemnified parties.

The following statement must be included in the letter:

"(Firm's name) received a copy of Solano Community College District, indemnity provisions and professional liability insurance provisions contained therein. If given the opportunity to contract with the District, (firm's name) agrees to these conditions."

RFQ/P RESPONSE

- 1. RELEVANT FIRM QUALIFICATIONS**
- 2. EXPERIENCE ON HIGHER EDUCATION PROJECTS OF SIMILAR SCOPE**
- 3. IMPLEMENTATION PLAN**
- 4. EQUIPMENT LISTS AND PRODUCT SPECIFICATIONS**
- 5. WARRANTY MAINTENANCE AND SUPPORT**
- 6. FIVE AND TEN YEAR TCO PROJECTIONS**
- 7. PROJECT TEAM SUMMARY**
- 8. REFERENCES (MINIMUM OF 3)**
- 9. PRICING FORMAT:**
 - Provide breakout of pricing for each main category in Exhibit A, including a separate cost line item for underground pathways and any interior conduit, if required as part of your design.

For information available to vendors, Campus site utility maps and building floor plans may be viewed and downloaded at the following link:
www.blueprintexpress.com/sccdmeasureq.

SELECTION CRITERIA

A. EVALUATION

A Selection Committee headed by the CTO will evaluate all proposals to determine which vendor best meets the long term needs of the college in regard to this RFQ/P. Evaluation criteria may include, but is not limited to the following criteria: Quality and Reliability, Vendor Service and Responsiveness, Company Longevity, and Overall Design Approach and Innovation.

Price:

While price will be the single most important factor, price alone will not determine the outcome of this RFP. The college is seeking the best long term

solution, which will include many factors. Pricing to be broken down as noted above in item 9. Pricing Format.

Interviews:

Upon review of the received proposals the District may interview respondents for final determination of fit within the District's needs. If a firm is requested for interview, the key proposed Project staff will be expected to attend.

B. DISTRICT INVESTIGATIONS

The District may perform investigations of responding parties that extend beyond contacting the references identified in the proposal. The District may request an entity submitting a proposal to submit additional information pertinent to the review process. The District also reserves the right to investigate and rely upon information from other available sources in addition to any documents or information submitted.

C. FINAL DETERMINATION AND AWARD

The District reserves the right to contract with any entity responding to this RFQ/P for all or any portion of the work described herein and/or in an Agreement offered to the entity; to reject any proposal, and/or not to contract with any firm submitting a proposal for the services described herein. The District makes no representation that participation in the RFQ/P process will lead to an award of contract or any consideration whatsoever. The District reserves the right to contract with any Company not participating in this process. The District shall in no event be responsible for the cost of preparing any proposal in response to this RFQ/P, including any supporting materials. There is no guarantee that the Company selected to be interviewed will receive any work.

The awarding of a contract(s) is at the sole discretion of the District. The District may, at its option, determine to award contract(s) only for portions of the scope of work identified herein. In such case, the successful proposing Company will be given the option not to agree to enter into the Agreement and the District will retain the right to negotiate with any other proposing Company.

The Respondent's proposal package, and any other supporting materials submitted to the District in response to this RFQ/P will not be returned and will become the property of the District unless portions of the materials are designated as proprietary at the time of submittal, and are specifically requested to be returned.

D. SUBMISSION GUIDELINES

Electronic submission only will be accepted in response to this RFP/Q. All responses should be in standard PDF format, with the body in standard letter size. Attachments may larger as necessary, but should still be in standard PDF format

ALL RESPONSES ARE DUE BY 5:00 P.M., ON Friday March 13, 2015.

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If you have any questions regarding this RFQ/P please submit them in writing via email to: Mike Dossa on or before March 2, 2015 at michael.dossa@solano.edu

Each Submittal must conform and be responsive to the requirements set forth in this RFQ/P. Incomplete statements will be considered nonresponsive and grounds for disqualification. The District retains the sole discretion to determine issues of compliance and to determine whether a firm is responsive, responsible, and qualified.

The District reserves the right to reject any or all proposals, to waive any informalities or irregularities not affected by law, to evaluate the proposals submitted and to award contract(s) according to the proposal, which best serves the interests of the District.

The District hereby notifies all respondents that it will affirmatively ensure that, in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit its response to this RFQ/P and no respondent will be discriminated against on the grounds of race, color, sex, age, ancestry, religion, marital status, national origin, medical condition or physical disability on consideration for the award.

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RFQ/P RESPONSE SCHEDULE SUMMARY:

The District reserves the right to change the dates on the schedule without prior notice.

DATE	EVENT	TIME DEADLINE
February 11, 2015	Release and advertisement of RFQ/P #15-015.	
February 18, 2015	Confirmation of Attendees to Pre-Proposal Conference, Initial Questions, and specific site requests	5:00 p.m.
February 23, 2014	Mandatory Pre-Proposal Conference at 360 Campus Lane, Fairfield, CA, first floor Board Room	9:00 a.m.
February 23 - 25	Vendor site and building investigations beginning at 1:00 on 2/23/15 and continuing through Wednesday 2/25/15	
March 2, 2015	Deadline for submission of written questions to District concerning RFQ/P #15-015.	2:00 p.m.
March 4, 2015	Answers to written questions will be posted on the District website.	5:00 p.m.
March 13, 2015	Deadline for all submissions in response to RFQ/P #15-015.	5:00 p.m.
March 16, 2015	Selection of Companies to be interviewed interview.	5:00 p.m.
March 18, 2015	Interviews if required.	TBD
March 25, 2014	Notification to firm selected	5:00 p.m.

WE THANK YOU FOR YOUR INTEREST IN THIS EXCITING PROGRAM!

Overview

The Solano Community College District (SCCD) is part way through a systemic overhaul of its entire IT infrastructure. This RFP address the second phase of this process – with a focus of upgrading to “a next generation network and data communications infrastructure”. The goal is to ultimately provide excellent both Five Nines service levels in fully scalable (to meet future growth needs) yet affordable manner. The core objectives are:

- Five Nines Service Level
- Distributed Core switching
- Dual building level data path
- Failover capability
- Graceful system degradation
- Future integration with cloud based disaster recovery and hosting
- Procedural Documentation to support SCC IT staff in maintaining Five Nines level of service

Outcomes from this project include:

- Upgrade fiber backbones to support 10 gigabit connectivity today, with expansion to 40 gigabit or more in the future. FSO or Microwave may be used if it meets data/reliability and other requirements.
- Core and Edge to be interconnected at 10Gb, with 40Gb connectivity within the core and datacenter
- 802.11ac WiFi or better
- Ability to support 1000 concurrent users now, progressively scalable to 10,000 in ten years
- Integrated Network Management System to include: intrusion detection, security auditing, historical reporting real time analysis/fault finding/trouble shooting, training and support. Executive dashboards highly desirable.
- Comprehensive Network Admissions Control (NAC) solution to support wired and wireless clients for remediation, security, and on-boarding of personal devices
- Sole source standardization district-wide
- Comprehensive, accurate documentation of the new infrastructure

Deployment requirements:

- Near zero operational and educational impact; this includes interoperability with all existing systems during any phased implementation.
- Student and Staff safety are to be a paramount consideration throughout the deployment.
- The selected vendor is expected to deliver a full “turnkey solution” at cutover

For the purposes of this RFP the communications infrastructure is broken down into four communications sub-categories, each with a specific set of technical and performance specifications:

- LAN
 - Dual path 10Gb inter-building connectivity
 - Campus wide WiFi
 - Network Management and security
1. SCCD RFP intends this RFP to be as non-prescriptive as possible, preferring that the vendor offer creative, best of breed solutions for the District.
 2. SCCD is seeking a single "Master Prime Contractor" (MPC) to respond to RFP and contract with SCCD. It will be the responsibility of MPC to sub out work not performed directly by the MPC. However, SCCD reserves the right to deny the use of sub-contractors whom we feel do not best serve the needs of the college.
 3. It is strongly recommended that all equipment be installed, configured and tested at in a vendor lab prior to deployment.
 4. For inter-building connectivity, SCCD will consider appropriately sized Free Space Optical (FSO) solutions for alternate paths or other comparable solutions.
 5. As stipulated in the Fiber Optics technical specifications, there is a concern on the part of SCCD that the inter-building pathways may not be adequate to support additional fiber optic cable. It will be the responsibility of the vendor to attend a pre-bid site survey (3-5 days) to:
 - a. Validate that the existing inter-building pathways are adequate to support vendor design. In the event vendors design cannot be supported by the existing pathways, vendor shall prepare a design to install new underground pathways and conduits capable of supporting current and future requirements. Design documentation and pricing must be included in the proposal. The pricing shall be broken out as a separate item in the event SCCD elects to perform the work in house.
 - b. Based upon the site surveys, proposals shall include design documentation detailing placement of WiFi access points, and any additional cabling requirements necessary to support WiFi access points.
 6. SCCD cannot guarantee the total accuracy of existing documentation. A link will be provided to available documentation. This documentation should be considered as "best effort" by SCCD to illustrate the current environment. It will be the responsibility of the vendor to determine the accuracy of the documentation based upon the site surveys. Where applicable vendor shall provide updated documentation to describe proposed solutions.

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PART 1 GENERAL

1.01 SUMMARY

- A. Summary of Work: The work of this section includes the design, construction, test, documentation, and warranty of a District-wide zoned-distributed single mode fiber optic network in accordance with the specifications.
- B. The system shall operate as a zoned fiber optic (FSO/Microwave) network consisting of large count outside plant feeder fiber cables tapering to smaller count distribution cables to provide fiber connectivity to each College Telecommunication Room (TR).
- C. Section Includes but is not limited to:
 - 1) Design of a District-wide distributed single mode fiber optic network
 - 2) Installation of associated outside plant vaults, cabling pathways and support mechanisms
 - 3) Installation of single mode fiber optic cable (or suitable alternative high bandwidth communications), and associated termination and mounting hardware
 - 4) Termination of single mode fiber optic cables
 - 5) Fusion splicing of single mode fiber optic cables
 - 6) Labeling of fiber cables and termination devices
 - 7) Testing and production of electronic test results
 - 8) Creation of comprehensive as-built AutoCAD record drawings
 - 9) Demolition of decommissioned fiber cabling and supporting hardware
 - 10) General contract and installation requirements

1.02 REFERENCES

- A. ANSI/TIA-568-C.1 – Commercial Building Telecommunications Cabling Standard, including addenda.
- B. ANSI/TIA-569-C – Standard for Communications Pathways and Spaces.
- C. ANSI/TIA-758-B - Customer-owned Outside Plant Telecommunications Infrastructure Standard
- D. ANSI/TIA-568-C.3-1 – Optical Fiber Cabling Components Standards

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- E. ANSI Z136.2, ANS for Safe Use of Optical Fiber Communication Systems Utilizing Laser Diode and LED Sources
- F. ANSI/EIA/TIA 455-50B, Light Launch Conditions For Long-Length Graded-Index Optical Fiber Spectral Attenuation Measurements
- G. ANSI/TIA/EIA-455-59A, Measurement of Fiber Point Discontinuities Using an OTDR.
- H. ANSI/TIA/EIA 455-60A, Measurement of Fiber or Cable Length Using an OTDR.
- I. ANSI/TIA/EIA 455-61A, Measurement of Fiber or Cable Attenuation Using an OTDR.
- J. ANSI/TIA/EIA 526-7, Optical Power Loss Measurements of Installed Singlemode Fiber Cable Plant.
- K. TIA/EIA TSB-140, Additional Guidelines for Field-Testing Length, Loss and Polarity of Optical Fiber Cabling Systems.
- L. ANSI/TIA-606-B, Administration Standard for Commercial Telecommunications Infrastructure
- M. ANSI/TIA-598-A – Optical Fiber Cable Color Coding
- N. National Fire Protection Association (NFPA)
- O. NFPA 70
- P. National Electrical Code (NEC)
- Q. UL 910 – Test Method for Fire and Smoke Characteristics of Electrical and Optical Fiber Cables Used in Air-Handling Spaces.
- R. UL 2043, Combustible Materials for Use In Air Handling Spaces (Plenums).
- S. Underwriters Laboratories 651-95- Schedule 40 and Schedule 80 Rigid PVC Conduits.
- T. Underwriters Laboratories 651A-95- Type EB and A Rigid PVC Conduit and HDPE Conduit.
- U. Underwriters Laboratories 797-93- Electrical Metallic Tubing.
- V. ASTM D 3350 - Specification for Polyethylene Plastic Pipe and Fittings Material.
- W. ASTM F 2160 - Specification for Solid Wall HDPE Conduit.
- X. NEMA TC 7 - Smooth-Wall Coilable Polyethylene Conduit.

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- Y. NEMA TC 6 and 8 - PVC Plastic Utilities Duct for Underground Installations.
- Z. ANSI C80.2 - Standard for Rigid Steel Conduit.
- AA. BICSI - Customer Owned Outside Plant Design Manual.
- BB. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Vendor has the responsibility to determine and adhere to the most recent release.
- CC. This document does not replace any code, either partially or wholly. The Vendor must be aware of local codes that may impact this project.

1.01 RELATED SECTIONS

- A. Section 27 21 00 – Data Communications Network Equipment
- B. Section 27 21 33 – Data Communications Wireless Access Points

1.02 DRAWINGS

- A. The College has made site and building drawings viewable (refer online at the link: www.blueprintexpress.com/sccdmeasureq) for assistance and guidance, but exact routing, locations, and distances will be governed by actual field conditions. The Vendor shall make field surveys as part of their work.
- B. Where conduits or cabling penetrates fire or structural walls, Vendor drawing sets shall contain details of how such penetrations are made, in order to maintain the integrity of the barrier and ensure compliance with Solano Community College District (SCCD) fire zone penetration standards.

1.03 SUBMITTALS

- A. Provide submittals in accordance with Section 01 33 00 - Submittals, in addition to other submittals specified herein.
- B. Submit with bid response, resumes and certification of technicians for this project.
- C. Submit with bid response, past project experience including any projects similar in scope and client type.
- D. Submit with bid response, a proposed organization and work load chart for the project team that will be committed to this project for its entirety. This should include the employee names and assigned roles and involvement if any, with other projects during this projects duration.

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- E. Submit with bid response, company insurance information, financial information, bonding, etc.
- F. Submit with bid response, a proposed site safety plan detailing suitable barriers and other safety precautions required to protect students, staff, contract employees and the general public.
- G. Submit with bid response, a proposed project schedule in accordance with the SCCD master project schedule.
- H. Submit with bid response product cut sheets for the selected and approved cabling and components. Cut sheets shall be submitted within a separate binder. The binder shall be tabbed by device/component. Note: Vendor shall be an approved/certified installer of the products submitted. Documentation confirming this shall be provided.
- I. Submit prior to start of installation, product cut sheets for the proposed fire stopping solutions indicating where each solution will be utilized. Cut sheets to be included in the above mentioned binder.
- J. Submit prior to start of installation, shop drawings for review prior to commencement of work.
- K. Submit prior to start of installation a list of test equipment to be used on this project with identification numbers and calibration certification. All certifications must be within the last (6) months.
- L. The Vendor shall notify the College and the telecommunications system designer of change requests and inspections. Final approval for change requests must be obtained prior to commencement of work. Scheduling and coordinating inspections between the Vendor, the telecommunication designer and the College is critical.
- M. Vendor shall schedule a pre-installation conference with SCCD at a minimum of (15) calendar days prior to beginning work.
- N. Layout Drawings: Submit a composite wiring and/or schematic diagram of the complete system as proposed to be installed (standard diagrams will not be accepted).
- O. Submittal Drawings: Submit drawings of typical cable tray and accessories including clamps, brackets, hanger rods, splice plate connectors, expansion joint assemblies, and fittings, showing accurately scaled components.

1.04 QUALITY ASSURANCE

- A. The SCCD guidelines for design compliance, documentation, labeling, neatness, economy and cooperation with other Vendors exceed generally accepted practices. The Vendor shall cooperate with SCCD or its representatives in achieving its installation objectives and shall perform work to high technical and

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cosmetic standards. The Vendor shall provide all necessary technical and administrative resources for installation, job management and reporting.

- B. The installation and termination of vaults, pathways, cable, and hardware shall comply with the applicable design rules developed by the manufacturers of the components, the applicable industry standards, state and local code and SCCD.
- C. All telecommunications services, equipment, cables, electronics power supplies, or systems in operation at the start of the project shall remain in service and may not be disconnected, removed or in any way impaired by the activities of the Vendor unless those changes are part of the project, coordinated and scheduled with the clients project management team and the project telecommunications consultant. Vendor shall be responsible for all coordination, costs and materials associated with restoration of services for any damaged systems.
- D. Vendor is not authorized to remove any jumpers or patch cables. Removal of all jumpers and patch cables shall be done by or at the direction of the client's management team or Information Services department representative.
- E. Unless specifically excluded in writing elsewhere, Vendor shall be responsible to obtain all necessary telecommunications installation permits, and shall be responsible for all inspection costs, coordination and inspector approval.
- F. Unless specifically excluded in writing elsewhere, Vendor shall be responsible to provide and maintain all necessary safety devices components and safety supervision to protect the safety of pedestrians, building occupants, bystanders and Vendors employees.
- G. Vendor shall call underground utility location service at least 48 hours prior to any excavation
- H. Nothing in this document shall be construed or understood to authorize or direct Vendor to deviate from any telecommunications industry standard, federal, state, or local safety law, standard, code or SCCD requirement.

1.05 RECORD DRAWINGS

- A. Vendor shall maintain a hard copy working set of documents at the project site throughout the course of the project. This working set shall be continually updated throughout the duration of the project for development of record drawings.
- B. Vendor shall be responsible to provide a final set of project record drawings. These drawings shall include the following;
 - 1) Documentation of all work as constructed including vault "Butterfly" drawings of all vaults where construction took place
 - 2) Documentation of all owner requested changes

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- 3) Documentation of all Vendor change orders
 - 4) Documentation of field required changes due to conflicts with actual conditions
 - 5) Documentation of all device actual locations
 - 6) Documentation of project design variances of all horizontal and vertical pathways from original project design
 - 7) End-to-end insertion loss data
 - 8) Individual splice loss data
 - 9) As-built vault drawings in AutoCAD format
 - 10) As-built fiber cable one line drawings in AutoCAD format depicting fiber splices, fiber counts and distribution fibers
 - 11) As-built fiber strand matrix in Microsoft Excel[®] reflecting to/from fiber identifying cable sheath number/building/room/row/rack/shelf/tray/fiber
 - 12) OTDR Traces
 - 13) Connector insertion loss data
 - 14) The Vendor shall provide the College with one hard copy and one electronic copy of final test results.
- C. Prior to final payment, Vendor shall provide (2) hard copies of drafted project drawings and specifications reflecting all changes, revisions and modifications to the original project plan as indicated above. This shall include all information transferred from the Vendors working set. Deliver in both electronic and hard copy form.
- D. Vendor shall provide (1) hard copy and (1) electronic copy of the summary report for all infrastructure test results.
- E. Submit all drawings in electronic format (latest version of AutoCAD) and hard copy format.
- F. Submit three (3) complete sets of Operation and Maintenance Manuals.

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- G. Warranty: The MPC will provide a system level warranty for a period of 5 years, for which period the MPC will be the sole source for district network infrastructure projects. Additionally, MPC will provide two copies of a warranty binder containing all warranty information for all components and Vendors labor. Provide two copies of signed and dated warranty documentation from the manufacturer for all extended component warranties. Provide two copies of a letter, on Vendor firm's letterhead, signed and dated by a corporate officer or the regional manager, and additionally signed by the project manager. The letter shall state that the materials utilized are as specified in the contract, that installation complies with all applicable manufacturers' specifications and telecommunications industry standards, and that the Vendor performed all required cable and link tests.
- H. Provide a warranty on all labor such that any installation or documentation found within 5 years to be out of compliance with these specifications will be promptly repaired or replaced at no charge.
- I. All project record documents shall be provided to the owner. All hard copies shall be provided in a single, complete correlated package. All electronic copies shall be provided on CD in the most current release of the associated software program.

1.06 MANAGEMENT OF MATERIALS

- A. Vendor shall purchase all cable, components and consumables needed to complete the communications installation. All material handling fees, taxes, shipping, etc. shall be borne by the Vendor.
- B. Vendor shall furnish and maintain lockable storage containers, in locations designated by the owner, for the on-site secure storage of materials.
- C. Vendor shall be present to receive and sign for materials upon arrival of each shipment at the job site.
- D. The Vendor is responsible for the removal of all their trash and debris from the site at the end of each working day.

1.07 SUPPORT SERVICES

- A. Liaison: Notify the SCCD Facilities or its representative of any discrepancy regarding construction-related items provided by others.
- B. Training: Provide instruction to SCCD and its designated representatives eight (8) hours of training in the proper operation, maintenance, and troubleshooting of the completed system. These sessions shall be broken into segments that will

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facilitate the training of individuals in the operation of this system. All costs and arrangements associated with this training shall be borne by the Vendor.

PART 2 PRODUCTS

2.01 GENERAL

- A. Vendor shall provide all necessary tools and materials, including consumables, (cable supports, hook and loop wraps, d-rings, screws, consumables, hardware, etc.) and equipment, (ladders, hydraulic lifts, cable tuggers, storage containers, etc.) necessary to provide a complete and operating system.
- B. Vendor shall furnish and install all components or supplies necessary to comply with local codes, including life safety, any necessary fire stopping of openings through which cable is installed under this specification, whether cabling is installed in conduit, trays, raceways, or bare penetrations.

2.02 ACCEPTABLE PRODUCTS

- A. Single Mode fiber optic cable:
 - 1) Shall be OS2 Classification
 - 2) Glass type shall be 8.2µm for Single mode
 - 3) Shall meet Industry standard fiber used to support campus and building backbone cabling systems comprising local area networks (LANs).
 - 4) The cabled fiber shall support laser-based 10 Gigabit Ethernet (10GbE) operation according to the 10GBASE-LX4 (1300 nm region), 10GBASE-L (1310 nm) and 10GBASE-E (1550 nm) specifications for distances of 10 km, 10 km and 40 km, respectively.
 - 5) Cable shall be all-dielectric, stranded loose-tube design with dry water blocking for outdoor duct installations in fiber counts from 12 to 144
 - 6) Shall meet applicable sheath type ratings for entrance cable exceeding the NEC 50 foot requirement
 - 7) The cabled optical fiber shall support industry-standard multi-gigabit Fibre Channel physical interface specifications
- B. Telecommunication Room Singlemode Termination Hardware:
 - 1) Singlemode termination and splice housing panels shall consist of the following;

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- a) Shall match existing product and configuration, where applicable.
- b) Shall be fully loaded with (12) LC duplex adapters
- 2) Singlemode termination housing shall consist of the following:
 - a) Shall be 19" rack mount
 - b) Sized to meet new fiber quantities
 - c) Shall have a fiber allocation labeling scheme that complies with ANSI/TIA/EIA-606.
- C. Outside plant splice closures
 - 1) Shall be sized to accommodate fiber counts and sheath quantities
 - 2) Shall be constructed for the underground vault environment
 - 3) Include splice trays, hardware and seals
 - 4) Shall allow for butt or in-line splicing
- D. Data Center fiber optic racks
 - 1) Shall match existing product and configuration
- E. Fiber optic innerduct - HDPE
 - 1) Shall be 1" single wall
 - 2) Shall be provided a pull string of at least 300# test in each Inner duct
 - 3) Installed with (4) 1" innerducts per 4" conduit
- F. Fiber optic innerduct – Fabric
 - 1) Shall be MaxCell®
 - 2) Installed with (2) 3-cell innerducts per 4" conduit

PART 3 EXECUTION

3.01 PRE-INSTALLATION TESTING

- A. General: The Vendor shall perform pre-installation tests on all fiber optic cables prior to installations. The Vendor shall accept only materials that pass the test. Test data shall include cable reel serial number and cable product number for identification. Report defective cables immediately to the Construction Manager.

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Repeat pre-installation tests if necessary when cable reels are stored unprotected on the job site or are mishandled. Do not install defective cables.

- B. Records: Cable reel serial number and cable product number shall be recorded and included in the test results for each reel. Printouts of the traces and test parameters shall be submitted to the Construction Manager within 5 working days of completing the test.
- C. Tests: The Vendor shall perform tests on 100% of fiber strands with an optical time-domain reflectometer (OTDR) at 850 nanometers and 1300 nanometers for multimode fibers, and 1310 nanometers and 1550 nanometers for singlemode fibers. The OTDR shall have a loss resolution of 0.01 dB or less, and a distance resolution of one (1) foot or less. Submit images of the OTDR traces for review and approval.
- D. Test Criteria: A cable shall pass the test only if all strands have an attenuation no greater than the maximum attenuation stated in the manufacturer's published specifications, and if no strands have point discontinuities greater than 0.1 dB maximum for singlemode (1310 nm and 1550 nm windows) or 0.2 dB maximum for multimode (850 nm and 1300 nm windows).

3.02 SURVEY AND PREPARATION

- A. The Vendor shall survey existing cable trays, conduit paths and routes, and report discrepancies and issues with the use of these for cable installation. Failure to perform this inspection and submit the report holds the Vendor at cost risk for corrective actions and schedule impacts later in the work.

3.03 SCHEDULING AND EXECUTION

- A. Scheduling of work shall be coordinated with Campus representatives to minimize impact on operations and the public.
- B. Scheduling of cable installation shall be coordinated with other trades within the Contract and through the Engineer with trades working other projects.

3.04 GENERAL CABLE INSTALLATION

- A. The system shall be installed to comply with all applicable standards, codes, and regulations. In general, where the specifications, drawings, standards, regulations, and codes conflict, the most stringent requirement shall apply; however, the Vendor shall notify the Construction Manager immediately of conflicts for determination of a resolution.
- B. Cables shall be installed in innerducts that are installed in conduits, raceways, pull boxes, cable trays, or cable runways. No unsupported cables are permitted unless specifically approved by the College.

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- C. Install one (1) 1” protective Inner-duct for each fiber-optic cable placed in indoor conduits. Where possible install Inner-duct along with copper cables to max out conduit. If conduit is used for fiber optic cables only, four (4) 1” Inner-ducts, or (2) 3-pack MaxCell fabric innerduct shall be installed in the conduit.
- D. The Vendor shall inspect and clean as necessary existing and new cable trays and conduits to ensure that they are clean and free of obstructions prior to installing pull strings, innerduct or pulling cable.
- E. The Vendor shall not install damaged or defective cables or components. The Vendor shall carefully inspect cable jacket for defects as cable is pulled off the reel.
- F. Cable Pulling:
 - 1) Pull cable in accordance with manufacturer’s recommendations and industry-accepted practices, and within the limits of cable bend radius and pulling tension specifications.
 - 2) Use of pulling lubricants to be compatible with the cable and per manufacturer’s recommendations. Petroleum products shall not be used as cable pulling lubricant.
 - 3) Cables shall be hand pulled when possible or when required by manufacture. The Vendor shall use a recording tensiometer on pulls that may exceed 100 pounds pulling tension and always when a winch is used for pulling. Tensiometer printouts shall be identified by cable and submitted to the Construction Manager for each pull requiring use of a tensiometer.
 - 4) Pulling fixtures shall be attached to cable strength members. If indirect attachments are used, the grip diameter and length shall be matched to the cable diameter and characteristics, and the pulling forces shall be reduced to ensure that the fibers are not damaged from forces being transmitted to the strength member.
 - 5) Hand feed and guide cable through each 90-degree corner, through pull boxes, and as otherwise required for a free-flowing cable pull.

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- 6) Cable installation methods shall not exceed the cable manufacturer's specified pull tension for the specific cable.
 - 7) The mechanical stress placed upon a cable during installation shall be such that the cable is not twisted or stretched, nor shall the process kink or crush the cable.
 - 8) A cable feeder guide shall be used between the cable reel and the face of the cable tray or conduit to protect the cable and guide it into the cable tray or conduit as it is played off the reel.
 - 9) The Vendor shall hand feed and guide cable through each cable tray 90-degree corner and as required for a proper, free-flowing cable pull.
 - 10) The Vendor shall follow the manufacturer's installation instructions and its specifications for minimum bend radius; the bend radius shall not exceed the manufacturer's minimum bend radius.
 - 11) Service loops of at least 25 feet in length shall be provided, neatly coiled, secured and labeled in each vault appearance.
 - 12) Cable fill shall not exceed NEC standard.
- G. Communication room entry
- 1) Backbone cable runs shall be routed on the upper tier of overhead ladder racking where there are multiple tiers. Contactor shall confirm these locations prior to installing cable.
 - 2) Optical fiber cable shall be routed from the conduit or cable tray entry point in communication rooms or equivalent spaces in the room tray system without innerduct (when transitioning into room from installed in conduit/tray), but in combed and tied bundles to the termination locations. Service loops of at least 25 feet in length shall be provided, neatly coiled, secured, labeled and stored in ceiling or slack box.
 - 3) Cable being routed through communications rooms shall be installed in innerduct or conduit.

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- H. All strands of fiber optic cables shall be spliced and terminated to patch panels unless approved in advance by the college.
- I. Fiber optic cable shall be 100% usable after installation, splicing, termination, and testing. Replace defective or damaged cables and terminations with new at no additional cost to the College. Repair splicing of damaged cables is not permitted.
- J. Cable Preparation and Breakout: Cables shall be dressed and routed at termination points. Cables shall be combed and each strand shall run parallel with the other strands. After combing and straightening strands, Vendor shall separate strands into bundles according to routing requirements and termination points. Bundles shall be secured with hook-and-loop cable strap material specified in Part 2 – Products of this section. Cable ties of hard polymer material shall not be used.
- K. Cables run in cable runways in communications rooms shall be fastened with nylon cable ties at intervals of 3 feet. Do not pinch cables or use mechanical cable tie "guns".
- L. Provide vertical and horizontal fiber cable managers

3.05 OPTICAL FIBER CABLE TERMINATION

- A. Optical fiber terminations shall be made by personnel trained and certified by the manufacturer of the fiber and connectors and shall be installed using the appropriate tool kit and equipment approved by manufacture.
- B. Optical fiber shall be terminated in duplex LC connectors.
- C. Optical fiber connectors shall not exceed manufacturer's acceptable loss budget.

3.06 FINAL TESTING (POST-INSTALLATION)

- A. All backbone and horizontal cabling, which is terminated by the Vendor, shall be tested to applicable EIA/TIA Standards.
- B. The insertion loss for each mated fiber optic connector pair shall be 0.75 dB. Reflectance for single-mode single fiber UPC cable assemblies shall be -55 dB. Mated connector pair loss testing shall be based on one unidirectional OTDR inspection in accordance with the OTDR operating manual for systems greater than 100 meters.
- C. In addition to connector insertion loss for each mated pair, the Vendor shall perform end-to-end insertion loss testing for each single-mode fiber at 1310 nm and 1550 nm from one direction for each terminated fiber span in accordance with TIA/EIA-526-7 (OFSTP 7). For spans greater than 90 meters, each tested span must test to a value less than or equal to the value determined by

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calculating a link loss budget. For horizontal spans less than or equal to 90 meters, each tested span must be < 2.0 dB.

- D. Inspect each terminated single-mode fiber span for continuity and anomalies with an OTDR at 1550 nm from one direction in accordance with OTDR operating manual for systems greater than 100 meters.

3.07 COMMISSIONING

- A. Vendor shall meet all requirements set forth by the project requirements.
- B. Performance specifications should follow all manufacturers' recommendations for each product component.
- C. Provide appropriate levels of on-site repair service and coordinate with SCCD or other designated Vendors to identify and remedy cabling problems during initial activation. Repair service shall be available 24hr/day, 7 day/wk and response shall be within two hours of notification. If the Vendor does not respond within two hours, SCCD may contract with others and the cable Vendor shall reimburse SCCD its actual cost for the remedy.

END OF SECTION

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PART 1 GENERAL

1.01 **SUMMARY**

- A. ***SCCD is seeking proposals from qualified vendors for a suite of products and services to meet the network refreshment requirements of the College. The selected vendor will also be, at the College’s discretion, the sole sourcing for the directly related device support for the next 5 years.***
- B. ***The network “refresh” is an aggressive project to replace and augment the existing network infrastructure (core, aggregate, edge switches and network management system) in support of the academic, research, and administrative goals of the College.***
- C. ***Summary of Work: The work of this section includes the design, provide, configure, test, document, and transition of a District-wide network infrastructure in accordance with the specifications.***

1.02 **BUSINESS DRIVERS**

- A. ***Ubiquitous deployment of VDI, including high bandwidth streamed media.***
- B. ***Increased enrollment, new and renovated academic buildings. SCCD’s concurrent user base is expected to grow from 1000 to 5000 in 5 years and to 10,000 in 10 years.***
- C. ***Rapid advances in the wireless space. Density in class rooms and more Wi-Fi enabled devices on campus drive the demand for more robust and higher capacity wired network infrastructure.***
- D. ***Increase growth in time sensitive application such as VoIP and video applications: Video places great demands on the network infrastructure. Video and multimedia applications require uninterrupted, high bandwidth connections with very low latency to provide a favorable experience for the end user.***
- E. ***Online education resources and increase capability in online education management by student, faculty and supporting staff***
- F. ***Expansion of cloud-based services: There will be a greater need to adopt cloud based services in the next five years. Data center services will***

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gradually move from on premise to off-premise. Connectivity to these services will be critical to support the mission of the College.

- G. A shift toward collaborative learning, research, and education demands a secure, robust, and reliable network infrastructure supporting wired and wireless connections. Improving the student experience in learning common areas and academic classrooms is a necessity for the next five years.***
- H. Distance Learning is a large portion of the educational experience at SCCD. The ability to deliver, store and access this content in a timely manner is a critical success factor.***
- I. Students have established expectations and requirements for social computing and online interactive communication tools and web-based administrative activities, which must be supported and integrated into the College’s information technology infrastructure.***
- J. Faculty, staff, and students must be able to collaborate “anytime, anywhere” effectively within on and off campus environments.***

1.03 **CURRENT ENVIRONMENT**

- A. The current network equipment includes a single core switch with Cisco 4507R. The edge/distribution switches are provided by combinations of Cisco 3750, HP 4108 and Dell 3048 switches. The buildings on the main campus are connected via either single mode or OM1 Multimode fiber cables. Number of switch ports supported by each IDF is listed in the port inventory matrix (refer online at the link: www.blueprintexpress.com/sccdmeasureq)***
- B. Current Wi-Fi system is Trapeze Network’s. The Wi-Fi infrastructure is part of this RFP to be replaced. Details is specified in Section 272133 – Wireless Access Points.***
- C. Main campus connects to other campus via ATT Opt-E-MAN that will be upgraded to ASE services. The WAN circuits and MAN/WAN routers are not in the scope of this RFP.***

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1.04 **RELATED SECTIONS**

- A. **Section 271323 – Optical Fiber Backbone Cabling**
- B. **Section 272126 – Network Management**
- C. **Section 272133 – Wireless Access Points**

1.05 **DRAWINGS**

- A. **Specifications and drawings are for assistance and guidance.**

1.06 **SUBMITTALS**

- A. **A response sheet clearly indicating either “Comply without exception”, “Comply with clarification” or “Take exceptions” for requirements listed in 2.02.**
- B. **A response sheet answers RFP Request Questions listed in 2.03.**
- C. **A detailed materials list and materials cost estimate for the proposed network solution.**
- D. **Equipment power consumption specification listed by IDF**
- E. **Equipment specification information for the materials used in the proposed network upgrade solution.**
- F. **A price quote and timeframe for designing, installing, configuring, and implementing the network upgrade according to the Statement of work**
- G. **Sample Statement of Work for implementation of Network Infrastructure solution**
- H. **Price quote for on-going T&E support rates**

PART 2 PRODUCTS

2.01 **GENERAL**

- A. **Overview**

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- 1) ***Solano Community College District (SCCD) seeks proposals for products or a suite of products to meet the network requirements for Core, Aggregate and Edge Switch Gear for a complete infrastructure upgrades to the SCCD Network.***

- 2) ***The reference design is shown in figure 1 – reference network design. Specifically, the design requirement includes but not limited to the followings:***
 - a) ***Dual 10G network core with clear growth path to 40G***

 - b) ***Dual 10G uplink support from Campus buildings to core***

 - c) ***10/100/1000 to the desktop***

 - d) ***POE+ support for edge switches***

 - e) ***Dual 10G uplink from IDF to MDF***

 - f) ***Dual 1GB uplink support for WAP***

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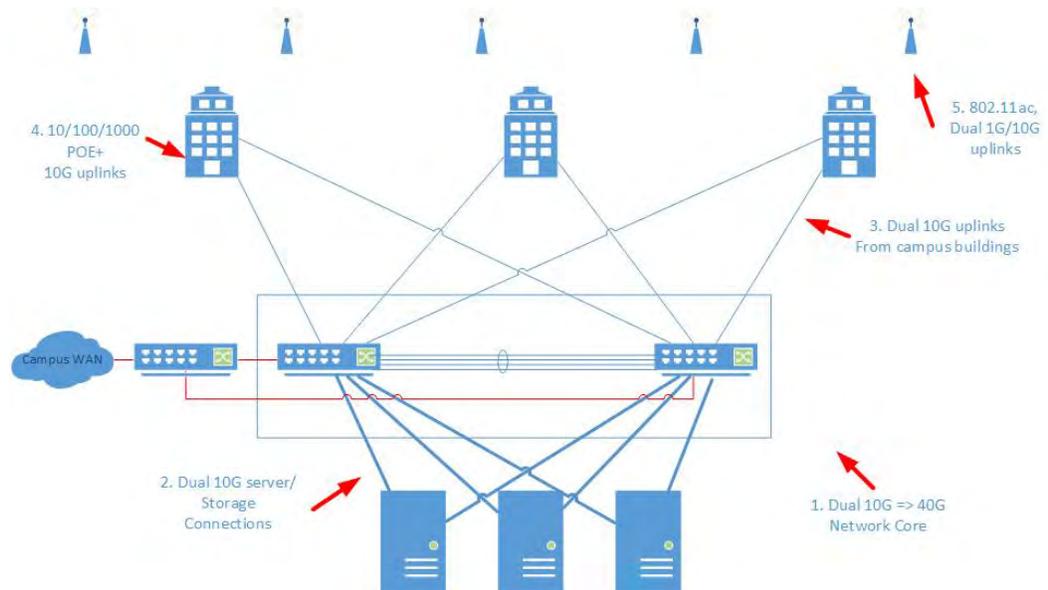


Figure 1- Reference Network Design

- 3) ***SCCD reserves the right to award this bid in part or in whole to the vendor(s) who the College deems provides the best value for products or a suite of products capable of meeting the network requirements listed in this RFP.***
- 4) ***The Network Infrastructure upgrades to the SCCD network will be implemented and completed by Dec 31 2015.***
- 5) ***The proposed vendor must be able to provide an end to end solution including Core, Aggregate, Edge equipment and Network Management systems***
- 6) ***The proposed vendor must be able to provide configuration and implementation services***

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2.02 **SCOPE OF SERVICES**

- A. ***The Vendor must provide a guarantee that the system will operate and perform as advertised***
- B. ***Vendor is responsible for all project management during the design phase, and project management during the district-wide implementation.***
- C. ***Vendor shall supply training to SCCD staff regarding specification of network security parameters, VLAN definition, and installation of any needed services on SCCD-owned equipment.***
- D. ***The vendor is responsible for supplying documentation on all devices needed to implement the new network infrastructure.***
- E. ***Minimum Switch Requirements***
 - 1) ***Core Switches***
 - a) ***Operating temperatures of up to 100 degrees F***
 - b) ***Standard 19" inch rack mountable***
 - c) ***10/100/1000BASE-T support***
 - d) ***10 GB SFP+ support***
 - e) ***Option or Upgrade path to 40GB support***
 - f) ***POE+ Support options for copper ports***
 - g) ***One or more Dynamic Interior routing protocols***
 - 1) ***OSPF V2***
 - 2) ***IS-IS***
 - 3) ***IBGP***

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- 4) **RIP V2**
- 5) **EIGRP**
- h) **PIM-SM/PIM-DM or DVMRP/PIM-SSM**
- i) **IGMP v2**
- j) **IGMP v3**
- k) **Automatic port speed and duplex negotiation**
- l) **Automatic MDI / MDIX negotiation**
- m) **Rapid Spanning Tree support**
- n) **QoS support of 802.1p, TOS and DiffServ**
- o) **802.1Q VLAN support**
- p) **LLDP, LLDP-MED**
- q) **SNMP v3 support**
- r) **RFC 2819 RMON support**
- s) **RFP 4502 RMON II support**
- t) **One or more following flow support**
 - 1) **Netflow**
 - 2) **sflow**
 - 3) **jflow**

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- 4) **others – please specify**
 - u) **Remote SYSLOG support**
 - v) **On-device memory for configuration storage and backup**
 - w) **Must support SSH on login**
 - x) **LDAP or Radius admin authentication**
 - y) **802.1x based security**
 - z) **802.1x with MAC based authentication**
 - aa) **DHCP and BOOTP relay**
 - bb) **Non-blocking wire speed architecture**
 - cc) **Power supply sufficient to support all active POE ports (fully populated switch)**
 - dd) **Hot swappable Power supply supports both 110V and 240V input**
 - ee) **Stacking capability (if non-modular switches)**
 - ff) **Ability to turn-off unnecessary features**
- 2) **Edge/Aggregate Switches**
 - a) **Operating temperatures of up to 100 degrees F**
 - b) **Standard 19” inch rack mountable**
 - c) **10/100/1000BASE-T support**

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- d) **Minimum two 10 GB SFP+ uplink support**
- e) **POE+ Support for all copper ports**
- f) **IGMP v2**
- g) **IGMP v3**
- h) **Automatic port speed and duplex negotiation**
- i) **Automatic MDI / MDIX negotiation**
- j) **Rapid Spanning Tree support**
- k) **QoS support of 802.1p, TOS and DiffServ**
- l) **802.1Q VLAN support**
- m) **LLDP, LLDP-MED**
- n) **SNMP v3 support**
- o) **RFC 2819 RMON support**
- p) **RFP 4502 RMON II support**
- q) **One or more following flow support**
 - 1) **Netflow**
 - 2) **sflow**
 - 3) **jflow**
 - 4) **others – please specify**

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- r) **Remote SYSLOG support**
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- x) **DHCP and BOOTP relay**
- y) **Power supply sufficient to support all active POE ports (fully populated switch)**
- z) **Power supply supports both 110V and 240V input**
- aa) **Stacking capability (if non-modular switches)**
- bb) **Ability to turn-off unnecessary features**

F. **Training:**

- 1) **Vendor will include the necessary hours or credits to complete the training and certifications for SCCD staffs to be proficient in managing the proposed solutions. Vendor will provide full course descriptions, target audience, requirements for each certification.**
- 2) **These hours or credits will be available to SCCD for a period of two (2) years.**
- 3) **Vendor will provide access to online training, all courses, for a period of two (2) years.**

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- 4) **Vendor will additionally include their discounted pricing menu for certified instructor-led training, certifications, and access to online training in years three and four.**

2.03 **RFP RESPONSE QUESTIONS**

- A. **Network Design: A significant aspect of this RFP is a representative network design of a SCCD network upgrade project, all buildings at the SCCD Fairfield campus connect back to the main MDF in 100; at the Vacaville and Vallejo Centers, IDFs in the building connect back to an MDF in the same building. The remaining smaller sites contain only one IDF/MDF room for each location.**

Complete the parts list that will satisfy the requirements of the drawing.

Vendor will supply an itemized list of equipment for a typical IDF and Core design, including:

- 1) **Model #**
 - 2) **Model Name**
 - 3) **Description**
 - 4) **Required software; this must meet your proposed design. Itemization by license options is required.**
- B. **Specific Core Solutions: As stated above, the College desires a dual core solution. The proposed solution must provide a flexible solution that meets the requirements provided below. Your response should describe how your offering would meet these requirements. Vendors must provide clear and concise responses, illustrations may be provided where appropriate. Any additional feature descriptions for your offering can be provided, if applicable.**
 - 1) **College prefers the proposed solutions are in their early product life cycle. Provide technical specifications for how the product is**

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- designed today and how the architecture is projected to change over the next three to five years. Please describe the date when products was first shipped. What is the expected EOL roadmap?***
- 2) ***Core solutions must support various switch I/O options. Please describe the available options and date when product was first shipped. What is the expected EOL roadmap?***
 - 3) ***Describe how the product can provide 40 Gigabit Ethernet ports or the ability to upgrade to 40 Gigabit in the future.***
 - 4) ***A distributed flow-based switching architecture is preferred to provide maximum visibility. Please describe the architecture of the proposed switch model that you would install at SCCD. Is this done via software or hardware?***
 - 5) ***Please describe the capability of your switch to accept SFP/SFP+ transceivers from other manufacturers. The College has a significant investment in SFP/SFP+ optics, and we will repurpose these existing assets. Is there a cost to add any features to use other manufactures transceivers? Is support altered in any fashion by using other vendor's transceivers?***
 - 6) ***It is preferred that there is support allowing one end of the link aggregated port group to be dual-homed into two different non-stacked Ethernet switches to provide device-level fail safe and load sharing. The other end of the group is still single homed into a single device. Please describe support in this area.***

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- 7) ***Please describe your system's ability to provide continuous operation in the event of a component failure. What impact does restarting a service have on other part of the system to pass traffic?***
 - 8) ***Must support hot-swappable power supplies. Describe any known scenarios of your product having any issues with hot-swappable power supplies.***
 - 9) ***Please describe your system's ability to provide support for virtual machine operation environment***
 - 10) ***Power consumptions must be submitted for all proposed switch models.***
- C. ***Specific Aggregate/Edge Solutions: Your response must provide an edge solution that meets the requirements stated below. The response should describe how your offering would meet these requirements. Vendors must provide clear and concise responses, illustrations can be provided where appropriate. Any additional feature descriptions for your offering can be provided, if applicable.***
- 1) ***Provide descriptions of your form factors including 10/100/1000 GbE and 10GbE models. Please describe any limitations, in terms of ports density, when 10G capability are incorporated into the stacked solution.***
 - 2) ***Please describe stacking interface speed and options for stackable switches.***
 - 3) ***It is preferred that there is support to allow stackable switch of different form factors be able to stack with each other. For example***

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a 24 port stackable 10/100/1000 GbE switch should be able to stack with a 10G base switch and be managed across a single IP address.

- 4) ***Please describe your stackable's operating systems ability to provide continuous operation in the event of an operating system issue.***
- 5) ***For the product that you are recommending, when was the first ship date? What is the expected EOL roadmap?***
- 6) ***It is preferred that the Gigabit Ethernet modules will also be able to accept standard SFP/SFP+ transceivers from other manufacturers. Please describe the capability of your switch to accept SFP/SFP+ transceivers from other manufacturers. The College has a significant investment in SFP/SFP+ optics, and we will repurpose these existing assets. Is there a cost to add any features to use other manufactures transceivers? Is support altered in any fashion by using other vendor's transceivers?***
- 7) ***It is preferred that there is support allowing one end of the link aggregated port group to be dual-homed into two different non-stacked Ethernet switches to provide device-level redundancy. The other end of the group is still single homed into a single device. Please describe support in this area.***
- 8) ***It is preferred that there is support to operate in role based security architecture. Providing continuous identity management with role-based authentication, authorization, QoS, and bandwidth rate limiting. Please describe your role-based architecture and its advantages.***

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- 9) **All copper ports in the chassis specified must be PoE capable**
- 10) **Power consumptions must be submitted for all proposed switch models.**

D. Interoperability and Proof of Concept:

- 1) **Describe any known issues with your products and their interoperability with the network equipment identified above in Section 1.03, Current Environment.**
- 2) **Describe your transition plan that minimize (close to zero) down time of current SCCD network infrastructure**
- 3) **Your response must provide Proof of Concept for your design and will be subject to evaluation on-site at SCCD.**

E. Warranty, Maintenance and Technical Support: Your response must provide information to the requirements below.

- 1)
- 2) **Provide a standard warranty package that includes the following items:**
 - a) **Next business day SLA**
 - b) **Advanced Replacement Program**
 - c) **Escalation process available to an Escalation/Duty Manager, including a continuous contact policy (i.e. support stays on the phone until we indicate that the call can be terminated)**

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- 3) ***All equipment will include a three (3) year software license agreement covering software upgrades and applicable licenses. The vendor must provide a copy of the software license agreement specifying all terms and conditions for the referenced equipment.***
- 4) ***Explain your tiers of support and their respective cost. SCCD is not receptive to ongoing “maintenance costs”. All equipment should have very high MTBFs and should be warrantied for at least 5 years manufacturer. If you offer lifetime warranty for your products, how is lifetime warranty defined by your company?***
- 5) ***Do you offer a support model where by SCCD would have a dedicated TAC resource that knows our environment? Explain in detail the services this person provides. Specifically, the dedicated technician will have familiarity with our configuration and overall design. The technician will spend one (1) week on campus within the first year and two (2) days in each subsequent year. Should the technician change during the term of the contract, the new technician will spend one (1) week on campus within the first year and two (2) days in each subsequent year.***
- 6) ***If appropriate, a dedicated TAC Agent with 5 years of unlimited access should be included in the purchase cost of your proposal.. The Agent will serve as both tech support and advocate for SCCD Tickets.***
- 7) ***Provide a proposed SLA by tier for accessible during College defined business hours.***

F. **Services:**

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- 1) ***As part of this RFP, SCCD will engage the vendor for configuration services as described in Part 3 Execution, Sample State of Work.***
- 2) ***Additionally, provide menu pricing for all other levels of support services provided and whether on a fixed or time and materials (T&M) basis.***

PART 3 EXECUTION

3.02 **GENERAL**

- A. ***The College will use a phased deployment approach that considers the needs of the business as well as the success of each previous project phase before approval is issued to proceed. Events that affect the availability of project resources, as well as other factors, may cause the schedule to be adjusted at any time during the anticipated deployment.***
- B. ***The following sample SOW is supplied as a general guideline for the proposing Vendors to create a suggested SOW for this project. It is intended to demonstrate the minimum requirements and the desired level of project detail to be included in the Vendor's submission.***
- C. ***Use this template to write the SOW and provide appropriate Professional Services pricing, or provide a standard SOW that includes all listed items, customized as necessary to ensure it is a suitable SOW for the delivery of all services. The Vendor's SOW response, including any modifications agreed to by the parties, will become the core element of any subsequent contract.***

3.03 **IMPLEMENTATION TEMPLATE**

- A. ***The vendor is responsible for comprehensive project management services that include the ability to define and offer what are considered industry best practices for an implementation of this scope, and that address the expectations of both the Vendor and the College. The vendor implementation process shall include project controls and processes that will ensure a smooth implementation. Proposals should clearly outline the Vendor's methodology and address the following items.***

- 1) ***Project Planning Process/Methodology/Project Plan***

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- 2) ***Project Risk Management/Mitigation***
 - 3) ***Testing and Acceptance Procedures***
 - 4) ***Training***
 - 5) ***Documentation***
 - 6) ***Implementation Support***
- B. ***Except as otherwise specifically provided in this SOW, Vendor will design, develop, deliver and implement a fully operable, comprehensive, integrated network core and edge solution which meets all of the requirements set forth in the RFP and this SOW, for the Fixed Line Item Pricing set forth in the Contract Documents, and will demonstrate such solution for acceptance by the College as more fully set forth in this SOW. Costs associated must include all supervision, labor, materials, equipment, and testing instrumentation required for the work associated with the project, as well as any overtime for pre-installation, installation, and cutover work that may occur.***
- C. ***Vendor will provide the following resources:***
- 1) ***Vendor will provide a Project Manager experienced with the proposed solution to serve as the College's single point of contact in all aspects of this engagement including but not limited to scheduling, defining requirements, change control, risk mitigation, escalation, implementation planning, and acceptance.***
 - 2) ***Vendor will provide a Project Manager who shall work in accordance with, and under the direction of the College Project Manager to verify design specifications and end user requirements.***
 - 3) ***Vendor will provide guidance on best practices; however it is understood that the unique design requirements of the College will be the determining factor.***

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- 4) ***Vendor will provide a Project Engineer to be the primary technical resource for delivery of the services proposed herein.***
- 5) ***Where specialized products or third party products are used, the project engineer must be fully versed in those components or additional qualified engineers must be available to the project team as required to support the complete solution.***
- 6) ***Vendor will provide a resource for integration purposes and any custom configuration that may be required to meet specific needs of the College, including co-existence with the existing network infrastructure during all phases of the implementation.***
- 7) ***Vendor will provide a recommendation for an appropriate staffing level/skill beyond what is called for in this section if the Vendor considers those resources critical to the success of the project.***

D. College Resource

- 1) ***The College will provide an internal Project Manager to work closely with the Vendor project team. This internal Project Manager's responsibilities will be to facilitate all communication and meetings between Vendor Project Manager and the College project team, and to ensure that the College is meeting the deadlines for accomplishing any College tasks set forth in the project schedule. The Vendor must understand that the College and its designated Project Manager will provide overall project direction.***
- 2) ***The College will provide one or more resources to assist the vendor Project Engineer with design specifications, and data gathering. However, the Vendor must clearly identify those tasks suggested for***

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assignment to College personnel and quantify the work hours anticipated for completion.

- 3) ***The College will provide one or more technical resources to assist the vendor Project Engineer with implementation of hardware and software components, network configuration, and other technical requirements. However, the Vendor must clearly identify those tasks suggested for assignment to College personnel and quantify the work hours anticipated for completion.***

3.04 **SCHEDULING AND PROJECT PLAN**

- A. ***Vendor Project Manager shall provide a detailed Project Plan/Schedule, subject to approval by the College, which documents all activities and timelines associated with the project including, but not limited to:***
 - 1) ***Equipment ordered***
 - 2) ***Equipment received***
 - 3) ***Design and configuration***
 - 4) ***Equipment configuration and testing***
 - 5) ***On-site installation***
 - 6) ***Testing and acceptance***
 - 7) ***Post installation support***
- B. ***Scheduling of work shall be coordinated with Campus representatives to minimize impact on operations and the public.***

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3.05 PROJECT MANAGEMENT

A. The Vendor must address the following (Project Management Approach)

- 1) **Risk management**
- 2) **Issues management**
- 3) **Financial management**
- 4) **Change Control**

B. Vendor Project Manager shall:

- 1) **Participate in planning meetings, weekly status meetings, weekly conference calls and e-mail communications with the College to discuss the project and coordinate activities.**
- 2) **Maintain the Project Plan/Schedule, track dependencies between Vendor and College tasks, identify and manage vendor initiated project risks, and alert both project teams of any timeline slips and their effect on the project's target end date.**
- 3) **Work in partnership with College's Project Manager to coordinate Vendor tasks with College tasks throughout all phases of the project.**
- 4) **Provide project management throughout the project. The Vendor Project Manager will collaborate and participate in Steering Committee briefings.**

C. The College Project Manager shall:

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- 1) ***Participate in planning meetings, weekly status meetings, weekly conference calls and e-mail communications with the Vendor to discuss the project and coordinate activities.***
- 2) ***Identify College initiated project risks and manage resolution.***
- 3) ***Monitor project budgets, approve billings.***
- 4) ***Manage project communications with governance bodies.***
- 5) ***Work in partnership with Vendor Project Manager to coordinate College resources and tasks throughout for all aspects of the project.***

3.06 ***VENDOR RESPONSIBILITIES - PRE-INSTALLATION:***

A. ***Network design workshop***

- 1) ***Vendor will work with designated College resource to conduct a network design workshop to discover and document IP addressing, naming, routing, vlan, and other network design requirement specific to SCCD. Vendor will document the outcome for subsequent configuration sessions.***
- 2) ***Vendor will support and train designated College resources with implementation and testing of required configuration settings. The vendor shall also provide documented configuration settings.***

B. ***Training***

- 1) ***The Vendor shall perform knowledge transfer on all elements of the proposed solution for the College's implementation team***

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- 2) **Vendor will work with College Project Manager to determine training curriculum and schedules.**
- 3) **Trainers must be certified on the proposed equipment with at least one year of field training experience**

3.07 **INSTALLATION COORDINATION**

- A. **Vendor shall work with College Project Manager to determine site installation, deployment schedule, cutover plan, and coordination of equipment delivery. Cutover work will need to be carefully scheduled and performed with minimal disruption to College operations. This includes the potential for the project to be disrupted due to adverse weather conditions and public service emergencies.**
- B. **The Vendor shall assume all responsibility for delivery, installation, and testing of all vendor-supplied equipment, software and support services proposed.**
- C. **Vendor shall install, configure, and test all core equipment.**
- D. **Vendor shall test and verify dual core failover and recovery.**
- E. **Vendor shall stage and deploy edge equipment according to the agreed-upon schedule.**
- F. **SCCD strongly prefers that vendor dispose of all existing equipment as part of a trade in/system upgrade plan. In the event that SCCD selects a vendor without trade in option, Vendor shall remove and make available to the College all replaced equipment upon successful cutover for each site.**
- G. **Vendor shall provide cutover coordination and support that includes the following:**
 - 1) **Vendor Project Manager shall work with College Project Manager to determine timeline and schedule for migration to new network infrastructure**

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- 2) **Vendor shall provide onsite and remote (as needed) resources to support migration schedule**
- 3) **Vendor should provide onsite or remote resources to support edge switch migration**

3.08 **POST INSTALLATION TEST AND ACCEPTANCE**

- A. **Vendor shall supply adequate resources for all post-installation issues including training, knowledge transfer, troubleshooting, and configuration adjustments.**
- B. **Vendor shall supply a Test and Acceptance document for review and approval by the College. At a minimum, the acceptance testing period shall consist of twenty-one (21) consecutive days of normal traffic load with no major component failures and user complains, defined as:**
 - 1) **Any switch failures**
- C. **Vendor shall work with College resources to conduct and document test acceptance and site sign off.**
- D. **The College shall accept the installed system after a signed letter of official system certification with successful acceptance test results, accompanied by two sets of as-built documentation provided by the Vendor, is received, reviewed with the Vendor, and accepted in writing by the College.**

3.09 **DOCUMENTATION**

- A. **Vendor shall provide College with documentation compiled during the course of the project.**
- B. **Vendor shall provide final as-built documentation including, but not limited to:**
 - 1) **Logical network drawings**
 - 2) **Detailed system configuration settings**

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- 3) ***Detailed device configurations***
- 4) ***Switch inventory information (MAC addresses, serial numbers, location, etc.)***
- 5) ***Jack/cable information***

3.10 **ASSUMPTIONS**

- A. ***The Vendor should base their Statement of Work on the following assumptions. Any and all other assumptions must be added to this list.***
 - 1) ***The College cabling infrastructure, premise wiring and data connectivity to required equipment is installed, tested and capable of supporting network upgrade prior to implementation.***
 - 2) ***The College resources assigned to the project are available to complete project tasks on a timely basis.***

END OF SECTION

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PART 1 GENERAL

1.01 SUMMARY

- A. ***As part of the network upgrade project, the College is seeking technically complete and commercially competitive bids from reputed Vendors for Supply, Installation, Configuration, Integration, and Maintenance of Network Management System (NMS) and System Security that provides***
- 1) ***Network Fault Management***
 - 2) ***Network Configuration Management***
 - 3) ***Network Performance Management***
 - 4) ***Network Traffic Analysis***
 - 5) ***Comprehensive Network Access Control and Security***
- B. ***The scope of network monitoring encompasses the College's IP Network Devices deployed across College's locations.***
- C. ***The selected vendor will also be, at the College's discretion, the solo sourcing for the directly related system support for the next 5 years.***

1.02 RELATED SECTIONS

- A. ***Section 271323 – Optical Fiber Backbone Cabling***
- B. ***Section 272100 – Network Equipment***
- C. ***Section 272133 – Wireless Access Points***

1.03 SUBMITTALS

- A. ***A response sheet clearly indicating either "Comply without exception", "Comply with clarification" or "Take exceptions" for requirements listed in 2.02.***

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- B. ***A response sheet answers RFP Request Questions listed in 2.03.***
- C. ***A detailed materials list and materials cost estimate for the proposed Network Management Solution.***
- D. ***System and module specification information for the materials used in the proposed network Management solution.***
- E. ***A price quote and timeframe for designing, installing, configuring, and implementing the Network management solution according to the Statement of work***
- F. ***Sample Statement of Work for implementation of Network Management solution***
- G. ***Price quote for on-going T&E support rates***

PART 2 PRODUCTS

2.01 **GENERAL**

- A. ***As part of this RFP, College is seeking a Robust, Scalable, and Secure Network Management System (NMS) to help manage and Monitor its IP network infrastructure.***
- B. ***The Vendor shall be responsible for Supply, Installation, Integration, Maintenance & Operationalization of the offered NMS System covering Network Devices at all College locations.***

2.02 **SCOPE OF SERVICES**

- A. ***The Vendor must provide a guarantee that the system will operate and perform as advertised***
- B. ***Vendor is responsible for all project management during the design phase, and project management during the implementation.***
- C. ***Minimum Requirement: The Offered Network Management Solution (NMS) solution should support at least the following.***
 - 1) ***All the proposed NMS Components should be from single vendor.***

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- 2) ***NMS Software should support Graphical view up to port level for all the devices.***
 - 3) ***Discovery of Network Elements.***
 - 4) ***Real time Traffic monitoring of Network Links and Devices with Historical reports for various periods.***
 - 5) ***Support SNMPv1, SNMPv2, SNMPv3, and device vendor MIBs.***
 - 6) ***Configuration of thresholds for alarms generation.***
 - 7) ***Configuration of alarm actions (visual, audible, email, etc.) for each network element***
 - 8) ***Should be able to provide secured consoles and/or secured web based consoles for accessing to the NMS.***
 - 9) ***Should have GUI interface with user name and Password Authentication.***
 - 10) ***Administrator/ Manager should have privilege to create/modify/delete user.***
 - 11) ***NMS should have support for SNMPv3 and IPv6, including dual-stack IPv4 & IPv6 to provide flexibility in protocol strategy and implementation.***
- D. ***The offered NMS solution should be Scalable, Secure, Robust, flexible, easy to deploy, reliable, and should support 3rd party integrations.***
- E. ***The Vendor is responsible for supply all necessary Hardware, Operating System (OS) Software, Application Software, Database etc. The NMS shall be deployed & Operationalized at central College location at College's discretion.***

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- F. ***Vendor shall advise the College of any required network changes at other Networking Devices for smooth deployment, operationalization and Integration of the offered NMS solution required, if any.***
- G. ***The Vendor shall identify and with College approval, document the network devices to be monitored and also identify grouping strategy of the devices.***
- H. ***The Vendor shall configure map in fault manager to depict College's Network Topology and drill down to Core, Aggregation and Access locations.***
- I. ***The Vendor shall be responsible to document reports that need to be generated for fault, performance and analysis of the network traffic as per the College's requirement.***
- J. ***The Vendor shall be responsible for configuring alarm (Device down, Link failure, Bandwidth Utilization etc.) and to take necessary actions.***
- K. ***The Vendor shall be responsible to supply necessary documents such as Installation Guide, Administration Guide, Manuals, and Data Sheet etc.***
- L. ***The Vendor shall provide operational training to College's IT staffs to support on-going operations of the offered Network Management Solution (NMS).***
- M. ***The offered solution should be comprehensive and may include a SysLog server. The interface/customization required, if any shall be provided/done by the Vendor along with the offered solution.***
- N. ***Detailed Technical Specification (The NMS solution must provide functions and features equivalent to the technical specifications listed here)***
 - 1) ***Network Fault Management***
 - a) ***The Proposed Network Fault Management consoles must provide topology map view from a single central console. The system should provide Auto Discovery & inventory of SNMP enabled network devices like Layer-3 switches, Routers and other IP devices and do mapping of LAN & WAN connectivity with granular visibility up to individual port level.***

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- b) ***Network Fault Management should support Graphical User Interface (GUI).***
- c) ***The NMS should provide event correlation engine and thus must filter, correlate & process, the events that are created daily from network devices. It should assist in root cause determination and help prevent flooding of non-relevant console messages***
- d) ***Polling intervals should be configurable on a need basis through a GUI tool, to ensure that key systems are monitored as frequently as necessary.***
- e) ***The NMS should provide operators with seamless transitions from fault data to performance reports and back.***
- f) ***Should have MIB browsing, MIB loading, and MIB expression collection features.***
- g) ***The system must deduce the root cause of the problem and in topology it should visually pinpoint single impacting device as well as other impacted devices through various colors.***
- h) ***The NMS performance system must provide out-of-the-box and highly customizable reporting across the network domain. The tool should provide sufficient reports pertaining to asset inventory, alarms & availability reports as well as a detailed asset report.***
- i) ***Network Fault Management Console should clearly identify in topology primary links and back up links and should change***

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color for back up link once it get activated when primary link is down.

- j) **The system should provide an outage summary that gives a high level health indication for each device as well as the details and root cause of any outage.**
- k) **Support for discovering and monitoring router redundancy groups (such as HSRP, VRRP) and recognizing situations that can result in multi-path conditions.**

2) **Network Configuration Management**

- a) **The proposed system should be able to administer configuration changes to network elements by providing toolkits to automate the following administrative tasks such as Capture and detect running & startup configuration, Upload configuration, Write startup configuration.**
- b) **The proposed tool should display configuration changes differences in GUI showing modified, remove, masked lined from last captured network configurations for routers and switches. Also this should be able to identify which user has made changes or modifications to device configurations.**
- c) **The System should be able to monitor Quality of Service (QoS) parameters configured to provide traffic classification and prioritization for reliable traffic transport.**
- d) **Manage network compliance by comparing devices to defined, best-practice standards.**
- e) **Manage dual-stack and pure IPv6 environments.**

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- f) ***Provide complete audit trail of configuration changes, (hardware, and software,) made to network devices, including critical change information.***
 - g) ***Configure granular, customizable user roles to control permissions on device views, device actions, and system actions.***
- 3) ***Network Performance Management System***
- a) ***Proposed performance management should integrate with fault management to forward performance exception alarms.***
 - b) ***Should establish the status of network devices and interfaces with visualization of network fault & performance data.***
 - c) ***The proposed system shall identify over-and under-utilized links and assist in maximizing the utilization of current resources. The proposed system shall provide Performance of Network devices like CPU, memory & buffers etc., LAN and WAN interfaces and network segments.***
 - d) ***The proposed system must have a report authoring tool built-in which will enable complete customization flexibility of performance reports for network devices.***
 - e) ***Network Performance reporting tool must provide the following capabilities:***
 - 1) ***Data collection and threshold of network device ports (any that support MIB2 including virtual interfaces):***
 - (i) ***Bytes In***

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- (ii) **Bytes Out**
- (iii) **Discards**
- (iv) **Errors**
- (v) **Network Delay**
- 2) **Data collection and threshold of network devices:**
 - (i) **CPU**
 - (ii) **Memory**
 - (iii) **Buffers**
 - (iv) **Component statistics**
- 3) **The Proposed Performance Management must provide following charts for all kinds of Health Reports:**
 - (i) **Availability Chart**
 - (ii) **Bandwidth Utilization Chart**
 - (iii) **Jitter Chart**
 - (iv) **Latency Chart**
 - (v) **Network Interface Utilization Chart etc.**
 - (vi) **Home page summary (At a Glance Chart)**
 - (vii) **Trends chart**
 - (viii) **Dashboard (Integrated for Performance & Traffic Analysis)**

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(ix) **Managed inventory report**

(x) **Top ten**

4) **Network Traffic Analysis System**

Analyzing network traffic pattern is very critical component to help in troubleshooting issues related to network traffic congestion. Proposed NMS should help in identifying type of traffic flowing based on various applications & protocols for capacity analysis and providing traffic utilization breakups on critical switch and router interfaces. Tool should help in identifying what applications\users are generating maximum traffic thus consuming most amount of bandwidth. Proposed network traffic analysis system should be sized to monitor traffic at Access, Aggregation and Core ports. Support monitoring & reporting on 100 critical interfaces. Tools should provide following features:

- a) **NMS Tool should assist in determining whether right traffic is flowing through or it is rogue traffic. Tool should provide deep traffic visibility by providing insight on type of traffic flowing through QoS Policies defined. This should help in pinpointing which type of traffic as specified in particular QoS Policy is in excess and is causing degradation on another application traffic sharing the same QoS pipe.**
- b) **The tool must have options to support heterogeneous network Flow monitoring and traffic analysis for any of technology vendors like NetFlow, J-Flow, S-Flow, IP Fix**

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- c) ***The proposed solution must be able to monitor and report on unique protocols per day and display utilization data and baselines for each protocol individually by interface.***
- d) ***Proposed tool must integrate with Central Network Fault & Performance Management System seamlessly for sending alarms and context sensitive reporting and integrate with common portal.***
- e) ***The proposed system must be capable of sending alerts via SNMP trap.***
- f) ***The system should allow via API to download data to generate reports and be able to restrict views and access for defined users to specific routers, interfaces, and reports.***
- g) ***The proposed system must be capable of providing the following detailed analysis***
 - 1) ***Top utilized links (inbound and outbound) based on utilization of every link being monitored by every collection device.***
 - 2) ***Top protocols by volume based on utilization of every link being monitored by every collection device***
- h) ***Correlates the obtained IP flow records with network fault manager for context based analysis.***
- 5) ***Network Access Control (NAC) and Security***
 - a) ***The proposed solution should feature a robust network access solution that provides granular access controls and***

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security to protect both district systems and end users. It should prevent unauthorized access, mitigate network and security threats (such as viruses, Trojans, worms, spyware, etc), provide posture and vulnerability assessment and remediation, recognize and categorize users and devices to apply appropriate access and security policies, and facilitate guest access to district resources.

- b) ***Proposed solution must integrate with the entire district network infrastructure, including users and devices accessing via wired LAN, WLAN, WAN, and VPN. An out-of-band solution is preferred; if in-band, proposed solution must account for bandwidth bottlenecks and WAN topology (i.e. different physical locations and subnets).***
- c) ***All district sites should have a single, centralized management interface for all NAC; individual systems and sites must have resiliency and/or redundancy to support loss of central management communication and no single point of failure.***
- d) ***Proposed solution should provide single sign-on authentication from sources such as MS Active Directory, LDAP, RADIUS and CAS.***
- e) ***Whenever possible, NAC should be agent-less to ease deployment and on-boarding of new devices and users.***
- f) ***Must provide thorough vulnerability scans and posture assessment to determine allowed access, including but not limited to:***

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- 1) ***Up to date Microsoft operating system security patch levels;***
 - 2) ***Installation of an approved antivirus/antimalware product;***
 - 3) ***Current antivirus/antimalware definitions;***
 - 4) ***No evidence of current infections or security vulnerabilities;***
 - 5) ***Role-based security policies determined by device and/or user***
- g) ***Must provide mechanisms for on-boarding of guest and employee BYOD. This should include:***
- 1) ***Captive portals for guest and vendor access;***
 - 2) ***The ability to tie BYOD (such as laptops, tablets and smartphones) to a known user in order to best apply policy;***
 - 3) ***This is not required to be a complete BYOD or MDM solution, just the preliminary framework to be refined and expanded in the future.***

2.03 ***RFP RESPONSE QUESTIONS***

- A. ***Network Management Systems Network Management Solution: An important aspect of this RFP is the network management solution to optimize the efficiency of network operations and reduce total cost of ownership. The ability to centrally manage all switches and routers seamlessly is critical for this purchase.***

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- 1) ***Explain your network management solution and any associated costs for additional modules or features. Also include any limitations on number of devices, etc. What is the cost of your base package? How many devices does this package support and at which tier levels?***
- 2) ***What platform(s) does your product run on?***
- 3) ***Describe your capabilities for switch upgrades (you must include how many switches you can upgrade simultaneously).***
- 4) ***Describe your macro scripting capabilities. How many switches can you run a script on at one time?***
- 5) ***Is your product web based for end user monitoring? How many user views can be launched at one time and what browsers are supported?***
- 6) ***Explain your product lifecycle and support model that your company follows when products***
- 7) ***802.1X and NAC solution are required. Please describe your solutions***

PART 3 EXECUTION

3.01 GENERAL

- A. ***The College will use a phased deployment approach that considers the needs of the business as well as the success of each previous project phase before approval is issued to proceed. Events that affect the availability of project resources, as well as other factors, may cause the schedule to be adjusted at any time during the anticipated deployment.***
- B. ***The following sample SOW is supplied as a general guideline for the proposing Vendors to create a suggested SOW for this project. It is***

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intended to demonstrate the minimum requirements and the desired level of project detail to be included in the Vendor's submission.

- C. ***Use this template to write the SOW and provide appropriate Professional Services pricing, or provide a standard SOW that includes all listed items, customized as necessary to ensure it is a suitable SOW for the delivery of all services. The Vendor's SOW response, including any modifications agreed to by the parties, will become the core element of any subsequent contract.***

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- B. ***Except as otherwise specifically provided in this SOW, Vendor will design, develop, deliver and implement a fully operable, comprehensive, integrated network management solution which meets all of the requirements set forth in the RFP and this SOW, for the Fixed Line Item Pricing set forth in the Contract Documents, and will demonstrate such solution for acceptance by the College as more fully set forth in this SOW. Costs associated must include all supervision, labor, materials, equipment, and testing instrumentation required for the work associated with the project, as well as any overtime for pre-installation, installation, and cutover work that may occur.***

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C. Vendor will provide the following resources:

- 1) **Vendor will provide a Project Manager experienced with the proposed solution to serve as the College's single point of contact in all aspects of this engagement including but not limited to scheduling, defining requirements, change control, risk mitigation, escalation, implementation planning, and acceptance.**
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D. College Resource

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- 3) ***The College will provide one or more technical resources to assist the vendor Project Engineer with implementation of hardware and software components, network configuration, and other technical requirements. However, the Vendor must clearly identify those tasks suggested for assignment to College personnel and quantify the work hours anticipated for completion.***

3.03 **SCHEDULING AND PROJECT PLAN**

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 - 1) ***Equipment ordered***
 - 2) ***Equipment received***
 - 3) ***Site preparedness including server preparation for NMS support***

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- 4) ***System design and configuration***
- 5) ***System configuration and testing***
- 6) ***On-site installation***
- 7) ***Testing and acceptance***
- 8) ***Post installation support***

B. ***Scheduling of work shall be coordinated with Campus representatives to minimize impact on operations and the public.***

3.04 ***PROJECT MANAGEMENT***

A. ***The Vendor must address the following (Project Management Approach)***

- 1) ***Risk management***
- 2) ***Issues management***
- 3) ***Financial management***
- 4) ***Change Control***

B. ***Vendor Project Manager shall:***

- 1) ***Participate in planning meetings, weekly status meetings, weekly conference calls and e-mail communications with the College to discuss the project and coordinate activities.***
- 2) ***Maintain the Project Plan/Schedule, track dependencies between Vendor and College tasks, identify and manage vendor initiated project risks, and alert both project teams of any timeline slips and their effect on the project's target end date.***

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- 3) ***Work in partnership with College's Project Manager to coordinate Vendor tasks with College tasks throughout all phases of the project.***
- 4) ***Provide project management throughout the project. The Vendor Project Manager will collaborate and participate in Steering Committee briefings.***

C. ***The College Project Manager shall:***

- 1) ***Participate in planning meetings, weekly status meetings, weekly conference calls and e-mail communications with the Vendor to discuss the project and coordinate activities.***
- 2) ***Identify College initiated project risks and manage resolution.***
- 3) ***Monitor project budgets, approve billings.***
- 4) ***Manage project communications with governance bodies.***
- 5) ***Work in partnership with Vendor Project Manager to coordinate College resources and tasks throughout for all aspects of the project.***

3.05 ***VENDOR RESPONSIBILITIES - PRE-INSTALLATION:***

A. ***Network management requirement workshop***

- 1) ***Vendor will work with designated College resource to conduct a requirement gathering and design workshop to identify the monitoring and reporting needed. Vendor will document the outcomes as functional specification for the network management configuration***

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- 2) ***Vendor will support and train designated College resources with system operations and report generations. The vendor shall also provide documented configuration settings.***

B. Training

- 1) ***The Vendor shall perform knowledge transfer on all elements of the proposed solution for the College's implementation team***
- 2) ***Vendor will work with College Project Manager to determine training curriculum and schedules.***
- 3) ***Trainers must be certified on the proposed equipment with at least one year of field training experience***

3.06 INSTALLATION COORDINATION

- A. ***Vendor shall work with College Project Manager to determine site installation, deployment schedule, and coordination of equipment delivery. Configuration tasks will need to be carefully coordinated and scheduled with the network upgrade project.***
- B. ***The Vendor shall assume all responsibility for delivery, installation, and testing of all vendor-supplied equipment, software and support services proposed.***
- C. ***Vendor shall install, configure, and test the network management system.***

3.07 POST INSTALLATION TEST AND ACCEPTANCE

- A. ***Vendor shall supply adequate resources for all post-installation issues including training, knowledge transfer, troubleshooting, and configuration adjustments.***
- B. ***Vendor shall supply a Test and Acceptance document for review and approval by the College. At a minimum, the acceptance testing period shall consist of twenty-one (21) consecutive days of normal traffic load with no major component failures and user complains and successfully produce agreed upon monitoring and trending reports.***

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- C. ***Vendor shall work with College resources to conduct and document test acceptance and site sign off.***
- D. ***The College shall accept the installed system after a signed letter of official system certification with successful acceptance test results, accompanied by two sets of as-built documentation provided by the Vendor, is received, reviewed with the Vendor, and accepted in writing by the College.***

3.08 **DOCUMENTATION**

- A. ***Vendor shall provide College with documentation compiled during the course of the project.***
- B. ***Vendor shall provide final as-built documentation.***

3.09 **ASSUMPTIONS**

- A. ***The Vendor should base their Statement of Work on the following assumptions. Any and all other assumptions must be added to this list.***
 - 1) ***The College network architecture is capable of supporting the network management system.***
 - 2) ***The College resources assigned to the project are available to complete project tasks on a timely basis.***

END OF SECTION

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Section 27 21 33 – Data Communications Wireless Access Points

PART 1 GENERAL

1.01 SUMMARY

- A. ***SCCD is seeking equipment specification and design proposals from qualified vendors to replace the existing wireless network as well as provide solo sourcing for the directly related device support for the next 5 years. The purpose of this RFP is to explore the various options currently available that will scale to the size of the district and provide for the capacities needed in the future. It is the intent of this RFP to provide vendors with sufficient information to prepare a proposal for the recommendation and design of a wireless network system for all school district locations. Our goal is to achieve 100% wireless coverage in all regularly occupied buildings of the school district as well as campus areas that support institutional learning goals, and the capacity for each staff member or student to connect multiple, system-owned or personal devices.***
- B. ***There is a district wide wireless system now. It is aging and beyond end of life. The scope of this project is to fully replace the existing systems with next generation 802.11.ac (or better) to replicate current coverage. (NB. This may require additional WAP quantities/deployment/location, vendor to determine.) Proposed systems are to be fully scalable to permit comprehensive expansion phased in over (up to) five years, for which a sole source agreement will be in place***
- C. ***Currently, SCCD is using Trapeze Wi-Fi infrastructure. Main campus has 104 internal APs and 9 external APs around buildings 600, 1300 and 1400 area. Remote campuses also has internal Wi-Fi coverage and limited outside coverages. Number of APs per IDF can be found online at the link: www.blueprintexpress.com/sccdmeasureq***
- D. ***The wired network infrastructure of SCCD is aging and is not fully capable of supporting the anticipated demands for high-densities of Wi-Fi enabled devices. The wired infrastructure is covered in a separate section of this RFP. Vendors should include any moves/add/changes to the wired infrastructure to support their wireless design in their response the wired section requirements***
- E. ***Summary of Work: The work of this section includes the design, provision, installation, configuration, testing, documentation, warranty and support of a district-wide wireless network infrastructure in accordance with the specifications.***

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1.02 RELATED SECTIONS

- A. **Section 271323 – Optical Fiber Backbone Cabling**
- B. **Section 272100 - Network Equipment**
- C. **Section 272133 - Network Management**

1.03 DRAWINGS

- A. **Specifications and drawings are for assistance and guidance only. The vendor shall make Wi-Fi surveys as part of their work.**
- B. **SCCD building floor plans are provided in Appendix B for your references.**

1.04 SUBMITTALS

- A. **A response sheet clearly indicating either “Comply without exception”, “Comply with clarification” or “Take exceptions” for requirements listed in 2.02.**
- B. **A response sheet answers RFP Request Questions listed in 2.03.**
- C. **A predictive analysis results for SCCD campus buildings showing locations and models of access points and/or controllers to be used in the proposed wireless network.**
- D. **A detailed materials list and materials cost estimate for the proposed wireless network solution.**
- E. **Equipment specification information for the materials used in the proposed wireless network solution.**
- F. **A price quote and timeframe for designing installing (includes necessary cabling installation to proposed Wireless Access Point (WAP) locations), and configuring wireless network solutions for each of the SCCD buildings as listed in Appendix B**
- G. **Sample Statement of Work for implementation of Wireless solution**
- H. **Price quote for on-going T&E support rates**

PART 2 PRODUCTS

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2.01 GENERAL

- A. ***The successful vendor will complete an onsite review/survey of each district building to determine the placement of access points prior to implementation.***

2.02 SCOPE OF SERVICES

- A. ***The Vendor must provide a guarantee that the system will operate and perform as advertised when students and staff fully utilize the system. This includes minimum RSSI of -65 dBm (in both the 2.4 GHZ and 5 GHZ bands) in all designated spaces.***
- B. ***Vendor is responsible for all project management during the design phase, and project management during the district-wide implementation.***
- C. ***Vendor shall, during the first building installation process, supply training to SCCD staff regarding specification of network security parameters, VLAN definition, and installation of any needed services on SCCD-owned equipment.***
- D. ***Vendor shall, during the first building installation process, work with SCCD technical staff to configure VLAN's and SSID's that provides appropriate and secure (for the user & SCCD) network access. This should include network management, system integration and security including (NAC)***
- E. ***The vendor is responsible for supplying documentation on all devices needed to implement the new wireless network.***
- F. ***The number of connections shall be similar to school one to one initiative.***
- 1) Each classroom will need to support 60 concurrent connections.
 - 2) Media Centers and multi-purpose rooms should support 100 concurrent connections.
 - 3) Large classroom, auditoriums and cafeterias should support connections of the posted seating capacity.
 - 4) Administration areas and small meeting rooms should support 15 concurrent connections per room.

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- 5) Larger meeting rooms should support connections at 150% of the posted seating capacity.
 - 6) Offices should support 4 connections per office space.
- G. *Only wireless systems that are capable of being centrally managed will be considered. Central management of the wireless access system should include, but not be limited to, the following capabilities:***
- 1) Work across subnets connected by geographically diverse routed WAN connections.
 - 2) Wireless access must continue to function normally if communication with centralized management is not available
 - 3) The ability to make global configuration changes
 - 4) Allow for dynamic power level adjustment
 - 5) Provide bandwidth management capabilities
 - 6) Lists of clients connected to each AP
 - 7) SSID availability
 - 8) Network Access Control (NAC)
 - 9) Monitor wireless network utilization, (client load, bandwidth utilization, etc.)
 - 10) Device finger printing
 - 11) Generate and view real-time and historical statistics on user and device access
 - 12) Provide a real-time health monitor for access points and wireless network

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- 13) Detect and remediate rogue access points without loss of coverage

H. ***The proposed wireless solution conform to the following capabilities:***

- 1) Be Wi-Fi certified for data and voice
- 2) The wireless network shall be designed for a configuration to have multiple SSID's on dedicated VLAN's as defined by SCCD technology staff during design.
- 3) Secure enterprise level authentication shall be provided by the controller (radius, LDAP or better solution).
- 4) Be compatible with 802.11 standards operating in both 2.4 GHz and 5 GHz bands
- 5) Meet or exceed the 802.11 ac standard and have a clear 802.11ax upgrade path.
- 6) Support legacy 802.11a/g/n devices in a mixed mode environment
- 7) Be capable of handling IPv4 multicast, IPv6, and IPv6 multicast traffic
- 8) Provide 100% coverage with:
 - a) A minimum RSI level of -65dbm in all building areas (including mobile classrooms/spaces) and certain outside areas identified on the school map
 - b) A minimum throughput of 5 mbps per connected device is required.

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- 9) Have the ability to perform QOS to allow for traffic prioritizations if multiple WLANs are implemented as well as different traffic types using the same SSID/WLAN with time sensitive videoconferencing or wireless VoIP
 - 10) Provide support for failed neighboring access points and will be capable of easily provisioning new or replacement access points.
- I. **All access points should provide the following capabilities as well:**
- 1) Have at least 1-gigabit Ethernet port. The standard connector for all data outlet connections shall be RJ45 jacks
 - 2) Be centrally managed from a single point of administration
 - 3) Auto provision, i.e., retrieve configuration information from a central location with little or no IT intervention
 - 4) Support multiple VLANs on single access point
 - 5) Support multiple SSIDs on single access point
 - 6) Support VLAN tagging on individual SSID's.
 - 7) Be able to load balance traffic across all available radios
 - 8) Layer 3 Mobility, i.e., seamless roaming between access points
 - 9) Minimize data rate reduction in a mixed radio environment
 - 10) Accept IEEE 802.3af standard Power over Ethernet
 - 11) Be plenum rated or be easily modified for plenum installation (i.e., remove cover)
 - 12) Have an option for outdoor installation

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- 13) Employ considerations for physical security

2.03 RFP RESPONSE QUESTIONS

A. Wireless Solution Architecture

- 1) Provide a brief overview of the solutions architecture and components.
- 2) Provide a description of your complete line of Access Points.
- 3) Describe how traffic flow is handled and the flexibility of the system to designate the actual flow.
- 4) Explain how the traffic flow is managed, prioritized, and accommodates quality of service.
- 5) Describe how your solution supports high density situations.
- 6) What is the maximum number of simultaneously connected clients with each client consuming 1 Mbps
- 7) What techniques are used to reduce channel utilization and management traffic congestion in areas of high client density?
- 8) Describe how your solution supports voice roaming.
- 9) Describe how streaming video is handled.
- 10) Describe the scalability of your proposed solution.

B. What is the maximum number of actively associated clients?

- 1) Per radio interface
- 2) Per access point
- 3) Per controller

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- C. What is the total available throughput?**
- 1) Per radio interface
 - 2) Per access point
 - 3) Per controller
- D. Explain how your system monitors and addresses interference issues.**
- E. Describe the features of your system which provides improved connection and performance to client's devices.**
- 1) How does the solution support roaming between APs or between WLAN controller(s) when the APs or controllers reside on different subnets?
 - 2) Can users maintain the same IP address as they roam?
 - 3) Does a roaming user need to re-authenticate or re-login?
 - 4) Do the user's subnet attributes (VLAN, ACLs, route policies) follow the user as they roam?
 - 5) Does the solution support any mechanisms to control where users can physically roam throughout the solution's infrastructure?
 - 6) For large installations, can the solution perform fast-roaming (802.11i) between controllers?
- F. Describe your Authentication options and implementation requirement**
- 1) Encryption
 - a) Options
 - b) Implementation requirements
 - c) Impact on performance for each type/level of encryption

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- 2) Describe the Intrusion Detection and Prevention capabilities of the solution. Is it included or a separately priced option?

G. Access Points

- 1) What model AP is being recommended?
- 2) When was this model released?
- 3) Does it support internal and external antennas?
- 4) Describe the level of intelligence that resides in the Access Point. (Is it a thin or thick AP).
- 5) Does it support 802.3af, or 802.3at or PoE+?
- 6) How many radios are in the unit?
 - a) Describe the radios.
 - b) Does it support Mesh?
- 7) What are the physical dimensions?
- 8) Is the Access Point plenum rated?
- 9) Describe the physical mounting options. Is mounting hardware included in your proposal?
- 10) What is the mean time between failures?
- 11) Describe any unique features about the recommended Access Point.

H. Does your solution include Controller(s)? If so, answer the followings:

- 1) What is the current rev level of code?

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- 2) What is the mean time between failures?
 - 3) How many Access Points are supported on the recommended controller?
 - 4) Describe how the controller expands to accommodate growth in the number of Access Points.
 - 5) Describe the functions performed by your controller.
 - 6) Explain the licensing structure for the controllers.
 - 7) Explain the cost structure for licenses.
 - 8) What license requirements are there for failover purposes?
 - 9) What network interface capabilities are available?
 - 10) Is Channel Bonding available?
- I. ***Describe the network management system.***
- 1) What is the current rev level of code?
 - 2) Is the network management system appliance based or can it be run on virtual machine?
 - 3) Does the solution allow for importation of floor plan drawings? If so, what format?
 - 4) What reports are available?
 - 5) Explain the process for code upgrades for all components; network management, APs, controllers.
 - 6) Does your network management system manage other vendors' products?

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PART 3 EXECUTION

3.01 GENERAL

- A. ***The College will use a phased deployment approach that considers the needs of the business as well as the success of each previous project phase before approval is issued to proceed. Events that affect the availability of project resources, as well as other factors, may cause the schedule to be adjusted at any time during the anticipated deployment.***
- B. ***The following sample SOW is supplied as a general guideline for the proposing Vendors to create a suggested SOW for this project. It is intended to demonstrate the minimum requirements and the desired level of project detail to be included in the Vendor's submission.***
- C. ***Use this template to write the SOW and provide appropriate Professional Services pricing, or provide a standard SOW that includes all listed items, customized as necessary to ensure it is a suitable SOW for the delivery of all services. The Vendor's SOW response, including any modifications agreed to by the parties, will become the core element of any subsequent contract.***

3.02 IMPLEMENTATION TEMPLATE

- A. ***The vendor is responsible for comprehensive project management services that include the ability to define and offer what are considered industry best practices for an implementation of this scope, and that address the expectations of both the Vendor and the College. The vendor implementation process shall include project controls and processes that will ensure a smooth implementation. Proposals should clearly outline the Vendor's methodology and address the following items.***
 - 1) Project Planning Process/Methodology/Project Plan
 - 2) Project Risk Management/Mitigation
 - 3) Testing and Acceptance Procedures
 - 4) Training
 - 5) Documentation
 - 6) Implementation Support

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- B. *Except as otherwise specifically provided in this SOW, Vendor will design, develop, deliver and implement a fully operable, comprehensive, integrated wireless solution which meets all of the requirements set forth in the RFP and this SOW, for the Fixed Line Item Pricing set forth in the Contract Documents, and will demonstrate such solution for acceptance by the College as more fully set forth in this SOW. Costs associated must include all supervision, labor, materials, equipment, and testing instrumentation required for the work associated with the project, as well as any overtime for pre-installation, installation, and cutover work that may occur.***
- C. *Vendor will provide the following resources:***
- 1) Vendor will provide a Project Manager experienced with the proposed solution to serve as the College's single point of contact in all aspects of this engagement including but not limited to scheduling, defining requirements, change control, risk mitigation, escalation, implementation planning, and acceptance.
 - 2) Vendor will provide a Project Manager who shall work in accordance with, and under the direction of the College Project Manager to verify design specifications and end user requirements.
 - 3) Vendor will provide guidance on best practices; however it is understood that the unique design requirements of the College will be the determining factor.
 - 4) Vendor will provide a Project Engineer to be the primary technical resource for delivery of the services proposed herein.
 - 5) Where specialized products or third party products are used, the project engineer must be fully versed in those components or additional qualified engineers must be available to the project team as required to support the complete solution.
 - 6) Vendor will provide a resource for integration purposes and any custom configuration that may be required to meet specific needs of the College,

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including co-existence with the existing wireless system(s) during all phases of the implementation.

- 7) Vendor will provide a recommendation for an appropriate staffing level/skill beyond what is called for in this section if the Vendor considers those resources critical to the success of the project.

D. College Resource

- 1) The College will provide an internal Project Manager to work closely with the Vendor project team. This internal Project Manager's responsibilities will be to facilitate all communication and meetings between Vendor Project Manager and the College project team, and to ensure that the College is meeting the deadlines for accomplishing any College tasks set forth in the project schedule. The Vendor must understand that the College and its designated Project Manager will provide overall project direction.
- 2) The College will provide one or more resources to assist the vendor Project Engineer with design specifications, and data gathering. However, the Vendor must clearly identify those tasks suggested for assignment to College personnel and quantify the work hours anticipated for completion.
- 3) The College will provide one or more technical resources to assist the vendor Project Engineer with implementation of hardware and software components, network configuration, and other technical requirements. However, the Vendor must clearly identify those tasks suggested for assignment to College personnel and quantify the work hours anticipated for completion.

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3.03 SCHEDULING AND PROJECT PLAN

A. ***Vendor Project Manager shall provide a detailed Project Plan/Schedule, subject to approval by the College, which documents all activities and timelines associated with the project including, but not limited to:***

- 1) Equipment ordered
- 2) Equipment received
- 3) Site preparedness including additional cabling installation for WAP support
- 4) System design and configuration
- 5) Equipment configuration and testing
- 6) On-site installation
- 7) Testing and acceptance
- 8) Post installation support

B. ***Scheduling of work shall be coordinated with Campus representatives to minimize impact on operations and the public.***

3.04 PROJECT MANAGEMENT

A. ***The Vendor must address the following (Project Management Approach)***

- 1) Risk management
- 2) Issues management
- 3) Financial management
- 4) Change Control

B. ***Vendor Project Manager shall:***

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- 1) Participate in planning meetings, weekly status meetings, weekly conference calls and e-mail communications with the College to discuss the project and coordinate activities.
- 2) Maintain the Project Plan/Schedule, track dependencies between Vendor and College tasks, identify and manage vendor initiated project risks, and alert both project teams of any timeline slips and their effect on the project's target end date.
- 3) Work in partnership with College's Project Manager to coordinate Vendor tasks with College tasks throughout all phases of the project.
- 4) Provide project management throughout the project. The Vendor Project Manager will collaborate and participate in Steering Committee briefings.

C. The College Project Manager shall:

- 1) Participate in planning meetings, weekly status meetings, weekly conference calls and e-mail communications with the Vendor to discuss the project and coordinate activities.
- 2) Identify College initiated project risks and manage resolution.
- 3) Monitor project budgets, approve billings.
- 4) Manage project communications with governance bodies.
- 5) Work in partnership with Vendor Project Manager to coordinate College resources and tasks throughout for all aspects of the project.

3.05 VENDOR RESPONSIBILITIES - PRE-INSTALLATION:

A. Wi-Fi Site Survey

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- 1) Vendor will work with designated College resource to perform a Wi-Fi Site Survey to identify the number of WAP and locations needed as well as potential interferences for each building. Vendor will provide a written report documenting findings and any required remediation that is based on the specific requirements of the proposed solution.

B. Network Readiness for Wireless Systems

- 1) Vendor will work with designated College resource to perform a Readiness Assessment to confirm network readiness for wireless prerequisites, include but not limited to POE ports and cabling availability for WAPs. Vendor will provide a written report documenting findings and any required remediation that is based on the specific requirements of the proposed solution.
- 2) Where required, the College will perform agreed-upon remediation and work with the Vendor to verify network readiness.
- 3) Vendor will define: QoS settings; IP subnet and VLAN recommendations; DNS, DHCP, and AD configuration requirements if needed; settings to enable BYOD and Guest Wi-Fi access and wireless LAN operations; needs of network monitoring tools; and make suggestions to address any potential firewall issues.
- 4) Vendor will support and train designated College resources with implementation and testing of QoS and other configuration settings. The vendor shall also provide documented configuration settings.

C. Monitoring

- 1) Vendor will meet with designated College representative to determine Wi-Fi monitoring requirements.

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D. Training

- 1) The Vendor shall perform knowledge transfer on all elements of the proposed solution for the College's implementation team
- 2) Vendor will work with College Project Manager to determine training curriculum and schedules.
- 3) Trainers must be certified on the proposed equipment with at least one year of field training experience

E. Vendor shall work with College Project Manager to determine site installation, deployment schedule, cutover plan, and coordination of equipment delivery. Cutover work will need to be carefully scheduled and performed with minimal disruption to College operations. This includes the potential for the project to be disrupted due to adverse weather conditions and public service emergencies.

F. The Vendor shall assume all responsibility for delivery, installation, and testing of all vendor-supplied equipment, software and support services proposed.

G. Vendor shall install, configure, and test all core equipment.

H. Vendor shall stage and deploy Wireless equipment according to the agreed-upon schedule.

I. Vendor shall remove and make available to the College all existing wireless equipment upon successful cutover for each site, unless a trade in has been proposed.

J. Vendor shall test and verify failover and recovery.

K. Vendor shall provide cutover coordination and support that includes the following:

- 1) Vendor Project Manager shall work with College Project Manager to determine timeline and schedule for migration to new Wi-Fi system
- 2) Vendor shall provide onsite and remote (as needed) resources to support migration schedule

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- 3) Vendor should provide onsite or remote resources to support Wi-Fi monitoring system configuration to include newly installed WAPs

3.06 POST INSTALLATION TEST AND ACCEPTANCE

- A. ***Vendor shall supply adequate resources for all post-installation issues including training, knowledge transfer, troubleshooting, and configuration adjustments.***
- B. ***Vendor shall supply a Test and Acceptance document for review and approval by the College. At a minimum, the acceptance testing period shall consist of twenty-one (21) consecutive days of normal traffic load with no major component failures and user complains, defined as:***
 - 1) Any core server, core appliance, controller failure;
 - 2) Any WAP failure;
 - 3) Inadequate Wi-Fi coverage areas
 - 4) Inadequate connections in the coverage areas
 - 5) Dropped connections
- C. ***Vendor shall work with College resources to conduct and document test acceptance and site sign off.***
- D. ***The College shall accept the installed system after a signed letter of official system certification with successful acceptance test results, accompanied by two sets of as-built documentation provided by the Vendor, is received, reviewed with the Vendor, and accepted in writing by the College.***

3.07 DOCUMENTATION

- A. ***Vendor shall provide College with documentation compiled during the course of the project.***
- B. ***Vendor shall provide final as-built documentation including, but not limited to:***
 - 1) Detailed system configuration settings

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- 2) Detailed device configurations
- 3) Wi-Fi inventory information (MAC addresses, serial numbers, location, etc.)
- 4) Jack/cable information

3.08 ASSUMPTIONS

A. The Vendor should base their Statement of Work on the following assumptions. Any and all other assumptions must be added to this list.

- 1) The College cabling infrastructure, premise wiring and data connectivity to required equipment is installed, tested and capable of supporting WAP deployment prior to implementation.
- 2) The College resources assigned to the project are available to complete project tasks on a timely basis.

END OF SECTION