

**REQUEST FOR PROPOSAL (RFP) AND STATEMENT OF WORK
RFP 12165**

for

**Communications Network Equipment
and
VoIP Phone System**

Prepared for



West Virginia
Council for Community and Technical Education and
Kanawha Valley Community and Technology College

Prepared by

Newcomb & Boyd

Special Technologies Group
Atlanta, Georgia

May 21, 2012
11N223

TABLE OF CONTENTS

	<u>Page</u>
Section I: Statement of Work.....	3
Section II: Proposal Instructions & Evaluation	13
Section III: Pricing Form	28
<u>Appendices:</u>	
Appendix A: Technical Requirements:	
Appendix A1: Specialty Systems General.....	31
Appendix A2: Communications VoIP phone system	39
Appendix A3: Local Area Network & Wi-Fi System	64
Appendix A4: Specialty Systems Commissioning	82
Appendix B: Attachments:	
Appendix B1: Schedule of New Desk Sets	98
Appendix B2: Network Port Counts	106
Appendix B3: Network Diagram	108
Appendix B4: Floor Plans	109
Appendix B5: Riser Diagrams	110
<u>Exhibits</u>	
Exhibit A, Instructions to Bidders	111
Exhibit B, Terms and Conditions.....	112
Exhibit C, Agreement Addendum (WV96)	113
Exhibit D, No-Debt Affidavit	114

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Exhibit E, Drug Free Workplace Conformance Affidavit	115
Exhibit F, Registration and Disclosure Statement	116

SECTION I
STATEMENT OF WORK

PART 1: GENERAL

1.01 INTRODUCTION:

- A. The West Virginia Council for Community and Technical Education has a requirement for the installation and maintenance of a voice over IP (VoIP) telephony system, communications network equipment, and a wireless network system at the Kanawha Valley Community and Technical College Headquarters Building, housed in Building 2000, and the Advantage Valley Advanced Technology Center. The project shall include a network connection to the Bridgemont Community and Technical College Building 704. This document describes the system requirements and the parameters of installation and maintenance needed for providing a proposal for this Project. The Owner, West Virginia Council for Community and Technical Education shall be referred to as the Owner or CTCS herein after.
- B. The Owner will be the General Contract holder and the company responding to this RFP shall be the Offeror. The Offeror that is awarded the contract will be the Contractor.
- C. Each site will have a Using Agency that will be involved in project coordination of each specialty system defined herein. The Using Agency for Kanawha Valley Community and Technical College Headquarter Building shall be Kanawha Valley Community and Technical College and shall be referred to as **KVCTC**. The Using Agency for Advanced Technology Center (ATC) is the Community and Technical College System of West Virginia and shall be referred to as **CTCS**. The Using Agency for the Bridgemont Building 704 is Bridgemont Community and Technical College and shall be referred to as **BCTC**.
- D. This Request for Proposal (RFP) and Statement of Work is for the purchase, installation and maintenance of network equipment, VoIP phone system, wireless network, UPS Systems and configuration of the network and all associated systems for the KVCTC and ATC buildings. The company responding to this RFP (the Offeror) shall agree to furnish and install the proposed products and services in accordance with the conditions, requirements and specifications of this RFP and the Offeror's proposal.
 1. The Offeror shall identify any terms and conditions of their contract that conflict with the requirements and terms and conditions of this request for proposal. In the event of any such conflict between the requirements of this RFP, the requirements (specifications) of this RFP shall govern, except as specifically identified in writing by the Offeror and agreed to at the time of contract award by the Owner..

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E. Contract Administration:

1. The Contracting Officer for this contract is:

Richard Donovan
West Virginia Council for Community and Technical Education
1018 Kanawha Boulevard, East, Suite 700
Charleston, WV 25301
Telephone: (304) 558-0277
Fax: (304) 558-0259
E-Mail: donovan@hepc.wvnet.edu

2. The KVCTC Contracting Officer's Technical Representative (COTR) is:

Jason Stark
Kanawha Valley Community & Technical College
106 Cole Complex
PO Box 1000
Institute, WV 25112-1000
(304) 204-4091

3. The CTCS Contracting Officer's Technical Representative (COTR) is:

James A. Cercone Ph.D., P.E.
Director of Advanced Technology Centers Development
West Virginia Council for Community and Technical Education
1018 Kanawha Blvd., East, Suite 700
Charleston, WV 25301
(304) 558-0265

4. The BCTC Contracting Officer's Technical Representative (COTR) is:

Thomas Minnich
Bridgemont Community and Technical College
619 2nd Avenue
Montgomery, WV 25136
(304) 734-6699

F. Services are to be performed at the following sites:

1. Kanawha Valley Community and Technical College (KVCTC)
Building 2000
2001 Union Carbide Drive
South Charleston, WV 25303

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2. Advanced Technology Center (ATC)
#3 Science Way
South Charleston, WV 25303
 3. Bridgemont Community and Technical College (BCTC)
Building 704
Science Park Drive
South Charleston, WV 25303
- G. The Contractor is responsible to deliver all items in good condition to each site. The Contractor is responsible for replacing any items damaged during shipping or that otherwise arrive not in good working order. The Contractor is responsible for any and all costs associated with delivery. Shipment tracking information must be sent to the COTR once it is available.
- H. The Offeror shall submit questions no later than 5:00 PM, Eastern Daylight Time, May 30, 2012 to the Contracting Officer. Answers to questions regarding the RFP will be incorporated as an Addendum to the RFP and will be posted to the Owner's purchasing webpage at the following URL by 5:00 PM, Eastern Daylight Time, June 1, 2012: <https://wvhepc.org/purchasing/>
Telephoned questions will not be accepted.
1. All questions shall be submitted in writing via e-mail or hard copy by the due date and time. Answers to questions and clarifications will be provided to all Offerors via the webpage posting above, giving due regard to the proper protection of proprietary information.
- I. The Offeror shall deliver the proposal to the Contracting Officer by 3:00 PM Eastern Daylight Time, June 7, 2012. The Offeror shall deliver one (1) original proposal in a three ring binder suitable for photo copying and one (1) complete copy in Adobe PDF format on a CD-ROM to the Contracting Officer by the due date and time. The Pricing Forms should be provided in Microsoft Excel format. Electronic proposal submission will not be accepted.
- J. Sealed proposals shall be enclosed and secured in an envelope/package and properly marked and displayed on outside of envelope/package bearing the Offeror's name, license number (if applicable), address of Offeror, proposal number and project identification. No other information shall be included or written on the outside of the proposal envelope/package. The Owner shall not be responsible for unidentified proposals. Proposals should be addressed to:

Chief Procurement Officer
RFP 12165
West Virginia Council for Community and Technical Education
1018 Kanawha Boulevard, East, Suite 700
Charleston, WV 25301

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- K. Late proposals will not be considered. If there is any variance between the PDF and printed versions, except for signatures, the Evaluation Committee may reject the proposal in whole or in part. Do not submit proposals by fax or E-mail.
- L. The proposal shall be provided in separate volumes: technical and business proposal. Refer to Section II for the required proposal format.
- M. The award will be based on a best value evaluation, as defined in Section II.
- N. The Owner reserves the right to reject any proposal that is incomplete, late, or improperly formatted. The Owner may also reject any proposal if the Offeror fails to respond to a request for clarification by the Owner.
- O. The Owner will be the sole judge as to whether any proposal complies with the Technical Specifications and whether equivalent items offered or variations from the Technical Specifications will afford comparable and equivalent performance. Any such decisions by the Owner shall be final and conclusive.
- P. In the event of a conflict between any of the RFP documents, resolution will be at the sole discretion of the Owner.
- Q. The system shall be installed, tested, and fully operational by:
 - 1. KVCTC: July 2, 2012
 - 2. ATC: to be determined
 - 3. BCTC: to be determined

1.02 IMPORTANT DATES:

RFP Issued: May 21, 2012

Optional Site Visit to
KVCTC HQ Building: 10:00 AM, Eastern Daylight Time, May 29, 2012

Questions and Requests for
Clarifications Due: 5:00 PM, Eastern Daylight Time, May 30, 2012

Proposals Due: 3:00 PM, Eastern Daylight Time, June 7, 2013

Anticipated Proposal
Award: June 12, 2012

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Anticipated KVCTC
Notice to Proceed: June 12, 2012

Anticipated ATC
Notice to Proceed: To be determined

Anticipated BCTC
Notice to Proceed: To be determined

1.03 PROJECT DESCRIPTION:

- A. The Owner is soliciting proposals for a new IP based local area network (LAN), VoIP phone system and a wireless (Wi-Fi) networking system located in the KVCTC Headquarter Building, and the ATC. The ATC shall be networked to the BCTC, Building 704.
- B. The specialty systems being installed at the KVCTC Headquarter Building shall be considered the base system and shall be referred to as **Phase 1**. The specialty systems being installed at the ATC and the connection between KVCTC and the ATC shall be considered an option to the base system and shall be referred to as **Phase 2**. The building connection between the BCTC and the ATC shall be considered **Phase 3**.
- C. **Phase 2** shall be implemented once the construction of the ATC is complete. The Contractor shall work closely with CTCS to coordinate the implementation schedule for Phase 2.
- D. **Phase 2** shall include pricing to provide and configure a network connection between KVCTC and the ATC building over owner provided fiber cabling.
- E. The optional pricing for ATC system shall be extended through December 31, 2013 and all optional component pricing shall be available at the declared cost through the one-year warranty period for each facility.
- F. For **Phase 3**, the Contractor shall configure a network connection between the ATC and BCTC. The Contractor shall provide the level of network connectivity and security as specified by each Using Agency in the LAN Workshops. The connection will be made over Owner-provided fiber cabling. The ATC network shall utilize IEEE 802.1x authentication to allow users to authenticate to either the KVCTC LAN or the BCTC LAN.
- G. For the KVCTC and the ATC, provide new LAN equipment consisting of a 10G core network switch with dual 10G uplinks to edge switch stacks in each intermediate distribution room (IDF) as defined in the Network Diagram in

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Appendix C. From the edge, the LAN shall be configured for gigabit to the desktop.

- H. For the KVCTC and the ATC, provide a new IP based telephone system with an integrated voice mail system. This system shall be configured to operate on a VoIP VLAN and be accessible at each site. Individual workstations will have dedicated lines on this system with their own DID number and voice mailboxes.
- I. The ATC IP based telephone system shall be configured as a survivable remote. The VoIP phone system at KVCTC Headquarter Building shall be the automatic failover for the ATC.
- J. The existing call flow and other programming parameters of KVCTC's existing telephone system must be documented and implemented in the new system's programming.
- K. New IP desk sets, support for analog lines and associated support equipment shall be provided, as defined in Appendix A, Schedule of New Desk Sets.
- L. Refer to Appendix B for port count quantities for each location.
- M. Refer to Appendix C for a Network Diagram of each facility. The Network Diagram is intended to be a schematic diagram. The Contractor is responsible for the final network design in collaboration with the Owner and each Tenant's Project Coordinator through the LAN workshops.
- N. The Contractor shall provide recommendations and assist with the procurement of local internet service and local PRI circuits necessary to implement the proposed solution but shall not be responsible for the cost of installation or reoccurring costs of those services. Location and patching of dedicated analog lines shall also be coordinated and provided.
- O. Provide any additional hardware and software as necessary to the network to accommodate the new switches and to provide support for the QoS configuration, congestion control, VLAN expansion and routing necessary. The Contractor shall be responsible for configuring the network.
- P. Provide a centralized 802.11n wireless (Wi-Fi) network on the local area network throughout the KVCTC and the ATC. The Wi-Fi network will need to support separate SSID and secure encryption for each VLAN on the system, as well as a guest/student user network that will be provided with basic Internet only and no access to the private LAN. The guest/student VLAN and SSID shall be accessible from each location.
- Q. Provide two dedicated servers for DNS and two dedicated DHCP servers for each location.

- R. The Contractor shall work with the KVCTC and the CTCS staff to transition the existing telephone service to the new service. Transition tasks, responsibilities, and important dates shall be reflected on the Contractor's implementation plan.
- S. Provide a Security VLAN for KVCTC access control and IP-based video surveillance systems in Phase 1. In Phase 2, extend the Security VLAN in the ATC and support the security vendor with provisions for connected systems. In Phase 3, coordinate with the security systems vendor and BCTC IT and provision a Security VLAN for the new security systems for Bldg 704. Coordinate network provisions with the Owner's security systems vendor and support the needed configurations in each phase.
- T. The schedule may be adjusted to later dates by the Owner. The Contractor shall complete the installation within the time stated, unless the completion date is adjusted to a later date by the Owner.
- U. The Contractor shall submit a work schedule of days and hours of each day that the contractor's employees will require access to each facility. The work schedule shall give specific dates for the following activities at the site: equipment delivery F.O.B., station reviews, installation, programming, testing, training, pre-cutover testing, cutover, and final system acceptance.

1.04 PROJECT MEETING REQUIREMENTS:

- A. An optional site visit will be held at 10:00 AM, Eastern Daylight Time, May 29, 2012, at the KVCTC Headquarter Building. Attending the site visit is not a prerequisite for submitting a proposal. The site visit will provide an opportunity to view the building and verify existing conditions.
- B. The Contractor's Project Manager and Project Engineer shall attend an on-site Kick-off meeting at the KVCTC Headquarter Building. The Kick-off meeting shall provide the Contractor the opportunity to tour the facility, meet key personnel involved in the project, and present their proposed project implementation plan and schedule.
- C. The Contractor's Project Manager and Project Engineer shall attend an on-site Kick-off meeting at the ATC. The Kick-off meeting shall provide the Contractor the opportunity to tour the ATC, meet key personnel involved in the project, and present their proposed project implementation plan and schedule.
- D. The Contractor's Project Manager and Project Engineer shall attend a Station Review Meeting at the KVCTC Headquarter Building for Phase 1. The Station Review meeting shall provide the Contractor the opportunity to gather necessary design requirements from each KVCTC Unit to configure the phone system and

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the templates for each User's IP phone. The Station Review meeting shall be a minimum of two days.

- E. The Contractor's Project Manager and Project Engineer shall attend a Station Review Meeting at the ATC for Phase 2. The Station Review meeting shall provide the Contractor the opportunity to gather necessary design requirements from ATC staff to configure the phone system and the templates for each User's IP phone. The Station Review meeting shall be a minimum of two days.
- F. The Contractor shall be responsible for configuring the LAN network equipment in a series of LAN Workshops for the KVCTC as part of Phase 1. The Contractor shall meet with the KVCTC Office of Information Technology (OIT) on-site to design, configure, and deploy the network equipment and coordinate that effort with the OIT.
- G. The Contractor shall be responsible for configuring the LAN network equipment in a series of LAN Workshops for the ATC and BCTC as part of Phase 2. The Contractor shall meet with the CTCS Office of Information Technology (CTCSOIT), the KVCTC and the BCTC on-site to design, configure, and deploy the network equipment and coordinate that effort with each Using Agency.
- H. The Contractor's Project Manager shall attend the new phone system cutover and be on-site for the First Day of Business and the Second Day of Business to assist with the help desk for each facility.
- I. The Contractor shall meet with each Using Agency's staff for periodic review meetings at each facility during installation, design and implementation to define the requirements for network configuration, implementation and testing. Note that the Project Coordinator for each facility will require an approved implementation and testing plan prior to any network connection.
- J. The Contractor shall host weekly conference calls with project key personnel during the design and implementation of the new system to update the each Using Agency on the network implementation plan, the new phone system implementation plan, and the project schedule during each phase.

1.05 CONTRACTOR KEY PERSONNEL REQUIREMENTS

- A. The Contractor shall assign a Project Manager and a Project Engineer as key personnel under this scope of work.
 - 1. The Contractor's Project Manager shall have over 5 years of experience performing all project management aspects of a VoIP phone system and network deployment and local area network deployment.

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2. The Contractor's Project Engineer shall have over 5 years of experience performing all project engineering aspects of a VoIP phone system and network deployment and local area network deployment.
- B. The Offeror shall provide resumes of all personnel proposed as key personnel. As a minimum (or as otherwise specified in the RFP), resumes shall include the following:
- name of person;
 - brief description of functional project responsibility;
 - education (including, in reverse chronological order, colleges and/or technical schools attended (with dates), degree(s)/certification(s) received, major field(s) of study, and approximate number of total class hours);
 - professional certifications or licenses;
 - citizenship status;
 - experience including, in reverse chronological order for up to ten years, area(s) or work in which a person is qualified, company and title of position, approximate starting and ending dates (month/year), concise descriptions of experience for each position held including specific experience related to the requirements of this contract; and
 - certification that the information contained in the resume is correct and accurate (signature of key person and date signed, and signature of the supervisor or higher authority and date signed will be accepted as certification).
- C. Individuals identified below as key personnel and accepted for this contract are expected to remain dedicated to this contract. However, in the event that it becomes necessary for the Contractor to replace any of the individuals designated as key personnel, the Contractor shall request such substitutions in accordance with this clause. Substitution of key personnel will be considered under the following circumstances only:
1. All substitutes shall have qualifications at least equal to those of the person being replaced.
 2. All appointments of key personnel shall be approved in writing by the CO, and no substitutions of such personnel shall be made without the advance written approval of the CO.
 3. Except as provided in paragraph (4) of this clause, at least 30 days (60 days if security clearance is required) in advance of the proposed substitution, all proposed substitutions of key personnel shall be submitted in writing to the CO, including the information required in paragraph (5) of this provision.
 4. The following identifies the requirements for situations where individuals proposed as key personnel become unavailable because of sudden illness,

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death or termination of employment. The Contractor shall within 5 work days after the event, notify the CO in writing of such unavailability. If the event happens after award, the CO will determine if there is an immediate need for a temporary substitute and a continuing requirement for a permanent substitute for the key personnel position. The CO will promptly inform the Contractor of this determination. If the CO specifies that a temporary substitute is required, the Contractor shall as soon as is practical identify who will be performing the work as a temporary substitute. The temporary substitute will then start performance on a date mutually acceptable to the CO and the Contractor. Within 5 work days following the event, if the CO specifies that a permanent substitute is required, the Contractor shall submit, in writing, for the CO's approval, the information required in (5) and (6) below, for a proposed permanent substitute for the unavailable individual. The approval process will be the same as (7) below.

5. Request for substitution of key personnel shall provide a detailed explanation of the circumstances necessitating substitution, a resume of the proposed substitute, and any other information requested by the contracting officer to make a determination as to the appropriateness of the proposed substitute's qualifications. All resumes shall be signed by the proposed substitute and his/her formal (per company accepted organizational chart) direct supervisor or higher authority.
6. The CO will promptly notify the Contractor in writing of his/her approval or disapproval of all requests for substitution of key personnel. All disapprovals will require re-submission of another proposed substitution within 5 days by the Contractor.

1.06 EXHIBITS APPLICABLE TO THIS RFP AND CONTRACT

- A. The following is a list of Exhibits that are attached and are a binding part of this RFP:

Exhibit A, Instructions to Bidders
Exhibit B, Terms and Conditions
Exhibit C, Agreement Addendum (Form WV-96)
Exhibit D, No-Debt Affidavit
Exhibit E, Drug Free Workplace Conformance Affidavit
Exhibit F, Vendor Registration and Disclosure Statement

- B. Exhibit A identifies additional bidding terms and conditions applicable to this RFP.

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- C. Exhibits B and C identify the terms and conditions applicable to the contract/purchase order that will be issued to the Contractor. Exhibit C must be signed by the successful Offeror prior to receiving a contract/purchase order.
- D. Exhibits D and E must be submitted with the proposal.
- E. Exhibit F is the Vendor Registration and Disclosure Statement and is the form that must be completed by the successful Offeror to become a registered vendor with the West Virginia Department of Administration prior to receiving a contract/purchase order. A vendor registration fee must also be paid.

SECTION II
PROPOSAL INSTRUCTIONS & EVALUATION

PART I: GENERAL

1.01 INSTRUCTIONS FOR THE PREPARATION OF RESPONSES

- A. The Offeror is responsible for any and all expenses related to the preparation and submission of a response to this RFP. The Owner shall incur no obligation except pursuant to the execution of a contract and the successful Offeror (Contractor).
- B. Every effort has been made to use industry standard terminology throughout the RFP, but the Offeror is advised that industry standard terminology is not used by all manufacturers and, in many cases, no industry standard terminology exists. It is the responsibility of the Offeror to define the terminology used in its response if believed a question may occur as to its meaning.
- C. This section provides general instructions on how to prepare and submit a response to this RFP. The Offeror's response shall provide all of the information requested below. A cover letter may accompany the response to set forth any additional information that the Offeror wishes to bring to the attention of the Owner.
 1. The Offeror shall submit a single proposal in response to this RFP. Multiple and/or alternate proposals from the same Offeror will not be accepted.
 2. The Offeror shall provide one (1) original proposal in a three ring binder suitable for photo copying and one (1) complete copy in Adobe PDF format on a CD-ROM to the Contracting Officer by the due date and time. Electronic proposal submission will not be accepted. The Pricing Forms should be provided in Microsoft Excel format. All proposals shall consist of two (2) parts — Volume I: Business Proposal, Volume II: Technical Proposal.
 3. The Offeror shall tailor its response to the RFP format; specifically, each paragraph shall be identified with the corresponding RFP paragraph/subparagraph number(s) being addressed. Pages in each response are to be consecutively numbered using the number followed by a dash and standard Arabic numbers (e.g., I-1, II-1, and III-1). The Offeror shall include the RFP text for each line item with their response to that line item.
 4. All proposals must be signed by a representative of the Offeror who is authorized to submit a proposal, and valid for a period of ninety (90)

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calendar days from the Submission Due Date, unless another time period is specified in an addendum to this RFP.

1.02 REQUIRED FORMAT OF OFFEROR'S PROPOSALS

- A. The Offeror's proposal shall be two separate volumes. The following is a summary of the required volume parts and sections:

VOLUME I: BUSINESS PROPOSAL

- Part 1: Pricing Proposal / Pricing Form
- Part 2: Assumptions, conditions, and/or exceptions

VOLUME II: TECHNICAL PROPOSAL

- Part 1: Contract Compliance - Response to RFP Sections
- Part 2: Technical Documentation
- Part 3: Implementation Plan
- Part 4: Capability to Provide Options
- Part 5: Experience and Past Performance
- Part 6: Installation and Maintenance Support
- Part 7: Technical Staffing

- B. VOLUME I: BUSINESS PROPOSAL FORMAT

This volume of the proposal shall consist of the two (2) parts/sections described below:

1. **Part 1: Pricing Proposal:** The Offeror shall provide pricing in Volume I: Business proposal as detailed below. The Offeror shall provide separate pricing for each line item using the Pricing Form provided in Section III. Additional rows may be inserted by the Offeror as necessary.
 - a. All prices shall be on a fixed-price arrangement for all specified systems, services, features, and requirements in this RFP. Offerors shall provide the total price for all basic, mandatory, and optional requirements as defined in the Pricing Form.
 - b. The price shall include (but not be limited to) all equipment, services, accessories, cables, connectors, and other related items for fully installed systems ready for operation. Any material, equipment, or information specified in the Offeror's response which is necessary for complete and operational systems for which a price is not specifically identified by the Offeror shall be considered to be included in the price of another item or provided at no cost to the Owner unless otherwise provided in this contract.

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- c. In addition to the Pricing Form, the Offeror shall provide an itemized detailed list of materials for each system at the end of Volume I in an Excel spreadsheet format.
- d. The following list is a detailed description of each line item of the Pricing Form in Section III. Provide pricing in the Pricing Form as detailed below:
 - 1) Provide the total base system cost for the KVCTC Headquarter Building system (Phase 1) in the Pricing Form below under 1.02, A. Provide the total system cost for the total integrated system including each individual task cost as described in this RFP including but not limited to the purchase, installation, VoIP, LAN and Wi-Fi configuration, voicemail integration, warranty and maintenance. The price shall include any software, licenses, and hardware necessary for full integration. Total cost shall include all materials, labor, taxes, and fees for the KVCTC network, Wi-Fi and VoIP system.
 - 2) Provide the total price for the Phase 2 system in the Pricing Form below under 1.02, B. Provide the total system cost for the ATC system including each individual task cost as described in this RFP including but not limited to the purchase, installation, VoIP, LAN and Wi-Fi configuration, voicemail integration, warranty and maintenance. The price shall include any software, licenses, and hardware necessary for full integration. Total cost shall include all materials, labor, taxes, and fees.
 - 3) Provide the total price for the Phase 3 work at the BCTC in the Pricing Form below under 1.02, C. The price shall include any software, licenses, and hardware necessary for full integration. Total cost shall include all materials, labor, taxes, and fees.
 - 4) Provide the total price for all three phases (TPO) in the Pricing Form below under 1.02, D. The TPO price shall comprise of each individual task cost as described in this RFP including the full system purchase, installation, integration, warranty and maintenance of the VoIP, local area network, and Wi-Fi system. The price shall include any software, licenses, and hardware necessary for full integration. The TPO price shall include all materials, labor, taxes, and fees. A detailed list of cost savings and itemized prices shall be included in the Business proposal following the Pricing Form in an Excel format.

- 5) Provide the total price for a Cisco VoIP phone system for Phase 1 that meets the requirements of Appendix A2 of this RFP. The price shall include each individual task cost including but not limited to the purchase, installation, configuration, voicemail system and integration, call detail recording system, warranty and maintenance during the warranty period. The price shall include any software, licenses, and hardware necessary for full integration.
- 6) Provide the total price for a Cisco VoIP phone system for Phase 2 that meets the requirements of Appendix A2 of this RFP. The price shall include each individual task cost including but not limited to the purchase, installation, configuration, voicemail system and integration, call detail recording system, warranty and maintenance during the warranty period. The price shall include any software, licenses, and hardware necessary for full integration.
- 7) Provide the total price for a Cisco Local Area Network (LAN) system for Phase 1 that meets the requirements of Appendix A3 of this RFP. The price shall include each individual task cost including but not limited to the purchase, installation, configuration, integration of other systems, warranty and maintenance during the warranty period. The price shall include any software, licenses, and hardware necessary for full integration.
- 8) Provide the total price for a Cisco Local Area Network (LAN) system for the Phase 2 that meets the requirements of Appendix A3 of this RFP. The price shall include each individual task cost including but not limited to the purchase, installation, configuration, integration of other systems, warranty and maintenance during the warranty period. The price shall include any software, licenses, and hardware necessary for full integration.
- 9) Provide the total price for a Cisco Wi-Fi system for Phase 1 that meets the requirements of Appendix A3. The price shall include each individual task cost including but not limited to the purchase, installation, configuration, integration, warranty and maintenance during the warranty period. The price shall include any software, licenses, and hardware necessary for full integration.
- 10) Provide the total price for a Cisco Wi-Fi system for Phase 2 that meets the requirements of Appendix A3. The price shall

include each individual task cost including but not limited to the purchase, installation, configuration, integration, warranty and maintenance during the warranty period. The price shall include any software, licenses, and hardware necessary for full integration.

- 11) For Phase 1, provide the annual pricing for ongoing maintenance as indicated under Option 1 in the Pricing Form below. Ongoing maintenance shall be offered on an optional basis for years two through five after system acceptance (after the warranty has expired). Provide separate breakout cost for each year.
 - 12) Phase 2, provide the annual pricing for ongoing maintenance as indicated under Option 2 in the Pricing Form below. Ongoing maintenance shall be offered on an optional basis for years two through five after system acceptance (after the warranty has expired). Provide separate breakout cost for each year.
 - 13) Provide the cost for the Enhanced Licensing Package under Option 3 in the Pricing Form below. Include licenses to support every IP user with softphone and extension to cellular for Phase 1.
 - 14) Provide the cost for the Enhanced Licensing Package under Option 4 in the Pricing Form below. Include licenses to support every IP user with softphone and extension to cellular for each site in Phase 2.
 - 15) Provide unit pricing for the Owner to purchase separate to the base system or option system for the items listed under O - Z.
 - 16) Include a detailed itemized list of all equipment and services offered for this RFP as an appendix to the Business Proposal.
2. **Part 2: Assumptions, conditions, and/or exceptions:** The Offeror shall include all (if any) assumptions, conditions, and/or exceptions upon which the contractual and cost/price terms and conditions of the Offeror/Contractor's proposals based. If not included in this Section, it will be assumed that none exists and that the Contractor agrees to comply with all of the terms and conditions set forth herein this RFP document, including all requirements, specifications, and provisions. It is not the responsibility of the Owner or Tenant to seek out and identify assumptions, conditions, and/or exceptions buried within the Offeror/Contractor's response.

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C. VOLUME II: TECHNICAL PROPOSAL FORMAT

1. Volume II: Technical proposal shall be used to determine the technical acceptability of the Offeror with regards to its understanding, acceptance, and compliance with the requirements and specifications set forth in the Statement of Work and Technical Specifications. Volume II will also be used to determine the Technical Excellence of the proposed solution, implementation plan, and capability to provide options and to determine the Management and Business Risk to the Owner.
2. This volume of the proposal shall consist of the seven (7) parts/sections described below:

Part 1: Contract Compliance with RFP Requirements:

- a. This section shall include the Offeror's responses to the following paragraphs and each of their respective subparagraphs: Appendix A (A1, A2, A3, & A4). The Offeror shall clearly identify each paragraph and subparagraph number and provide a complete response to the specified requirement stating how the requirement will be met.

Part 2: Technical Documentation:

- a. This section shall include product brochures, cut sheets, technical manuals and other information demonstrating compliance of the proposed specialty system. Offerors shall provide technical documentation for the proposed systems, its components, and equipment including (at a minimum):
 - 1) VoIP phone system
 - 2) Handset types and accessories
 - 3) System Administration Interfaces
 - 4) UPS Battery Backup Systems
 - 5) Local Area Network System Equipment
 - 6) Servers
 - 7) Wi-Fi System Equipment

Part 3: Implementation Plan:

- a. **Section 1, Technical Requirements and Specifications:** This section shall include the Offeror's responses to: Inspection and System Acceptance Test Plan, Contention and Resolution Plan, and Standards Support. The Offeror shall provide a complete response to the specified requirement stating how the requirement will be met. The response of, "**understand and comply**" is ***not*** an

acceptable response for these paragraphs and responses with this or similar phrases will be considered unresponsive.

- 1) INSPECTION AND SYSTEM ACCEPTANCE TEST PLAN: After installation and cutover is completed, system acceptance tests shall be performed by the Contractor for the installed VoIP phone system including common equipment, phone desk sets, centralized voice messaging system, system administration interface, centralized call accounting system, UPS battery backup systems, call recording, LAN system, Wi-Fi system and all selected options. The Contractor shall provide a System Acceptance Test Plan that details this process.
 - 2) CONTENTION AND RESOLUTION PLAN: In the event that the VoIP phone system, local area network, or Wi-Fi system does not operate as required by this specification or as expected by the equipment manufacturer or has failed any tests defined in the test plan, the Contractor shall propose a plan for identifying and resolving the cause of the problem. This contention resolution plan shall isolate faults in the local dialtone provider facilities, FTS provider facilities, copper cabling, or equipment provided by the Contractor. The Contractor is not responsible for correcting faults associated with equipment, services, or cabling that was not installed as part of the contract resulting from this RFP. The Contractor shall correct faults associated with equipment, service or cabling that is part of the contract resulting from this RFP prior to system acceptance.
 - 3) STANDARDS SUPPORT: The Offeror's detailed description of what standards are supported by the new phone system, LAN system, and Wi-Fi system.
- b. **Section 2, Schematic Diagram**: This section shall include a schematic diagram of the proposed VoIP phone system, LAN system, Wi-Fi system, and adjuncts in the IP networked arrangement detailing the architecture, configurations, integrations, and capacities of the systems as proposed.
- c. **Section 3, Implementation Schedule**: This section shall include the Offeror's proposed implementation schedule beginning from notice-to-proceed date in chronological order to completion for both phases of the project. The proposed schedule is only a draft to show each Using Agency the different stages the Offeror plans to

implement the entire length of the project. The final implementation schedule shall be approved by the Owner after award and before the project begins.

- 1) PERIOD OF PERFORMANCE: The period of performance shall be from the day of Contract Award to the end of the warranty period for each phase.

Part 4: Capability to Provide Options

- a. Section 1, Technical Requirements and Specifications: This section shall include the Offeror's responses to system options to the base system. The Offeror shall provide a complete response to the specified requirement stating how the requirement will be met. If the option cannot be met as specified, provide a solution that best meets the technical requirements. The response of, "**understand and comply**" is *not* an acceptable response for these paragraphs and responses with this or similar phrases will be considered unresponsive
- b. Section 2, Technical Documentation: This section shall include product brochures, technical manuals and other information demonstrating capabilities of the options to the proposed base system to meet or exceed the specifications. Offerors shall provide documentation for the proposed optional systems and equipment including optional bundled licensing.

Part 5: Experience and Past Performance

- a. Section 1, Offeror Experience and Past Performance: The Offeror shall provide a minimum of five (5) references for projects of similar size and scope. References for other collegiate organizations are preferred and shall be rated higher than non-collegiate related work. At a minimum, each reference shall include the following information:

1.	Business/organization name and agencies supported
2.	Technical Point of Contact (name, title, address, and telephone number)
3.	Contracting Officer (name, title, address, and telephone number)
4.	Description of systems provided and work performed
5.	Approximate dollar value of contract and year of contract

- b. Offerors are advised to verify that the points of contact, and their telephone numbers, are current and correct prior to submission. The references provided will be used as the basis for the evaluation. The Contracting Officer and/or the technical point of

contact may be contacted to validate the Offeror's written response and to determine satisfaction with the Offeror and the systems and services provided under their contract.

Part 6: Installation and Maintenance Support

- a. Section 1, Installation Support: The Offeror shall provide the name and location of the organization proposed to perform installation of the VoIP phone system, network equipment, Wi-Fi equipment, and the qualifications of this organization to perform the installation. This shall include the number of technicians who are manufacturer certified for installation of the proposed system for this project.
- b. Section 2, Maintenance Support: The Offeror shall provide the name and location of the organization proposed to perform warranty service and ongoing maintenance of the VoIP phone system, network equipment and the qualifications of this organization to perform the maintenance services. This shall include the number of technicians who are manufacturer certified for maintenance of the proposed system for this project.

Part 7: Technical Staffing:

1. Key personnel shall meet the requirements of Section I, 1.05.
 - a. Section 1, Key Personnel Qualifications: The Offeror shall provide resumes addressing the relevant qualifications for all key personnel proposed to work on the project. One page resumes shall be submitted with letters of intent for any key personnel who are not currently employed by the Offeror.
 - b. Section 2, Subcontracting: Where subcontractors will be used to meet the requirements, they must be included as Contractor personnel but separately identified as a subcontractor. The Offeror shall describe any work which will be accomplished by a subcontractor (including the percent of effort to be provided), provide the rationale for such subcontracting, and specify the lines of authority between any proposed subcontractor and the prime Contractor. The Offeror also shall provide a description of the subcontractor's experience applicable to the work which will be performed by the subcontractor on t his project, including information on s imilar tasks completed by the subcontractor for other clients.

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2.01 ACCEPTANCE CRITERIA FOR DELIVERABLES

- A. All products and reports as a result of the performance of the above tasks shall be performed in accordance with the schedule provided herein. All deliverables are the property of the Owner and are reserved for unlimited use. All deliverables shall be submitted to the COTR.

- B. All “To Be Determined” (TBD) due dates shall be established by the Owner and must be mutually agreed to based on the project’s schedule. When producing deliverables, the Contractor shall follow the performance measures listed below:
 - 1) **Accuracy:** Work products shall be accurate in presentation, technical content and adherence to industry standards and accepted elements of style;
 - 2) **Clarity:** Work products shall be clear and concise, standard technical and engineering terms shall be used. All tables and diagrams shall be easy to understand and be relevant to the supporting narrative;
 - 3) **Consistency to Requirements:** All work products shall satisfy the requirements of the contract;
 - 4) **Electronic File Formats:** All electronic files shall be provided in the following formats: All word processing documents shall be provided in the current version of **WordPerfect or MS-Word**. All spreadsheets shall be provided in **MS-Excel**. If a work product cannot be provided using one of the above formats, the contractor must seek a format exception from the CO or the COTR;
 - 5) **Timelines:** Work products shall be submitted on or before the due dates specified or in accordance with the contractor’s approved work plan. The CO shall be notified immediately, in writing, of any unexpected delays in delivering products or services specified in the work plan with an explanation and reason for the delay.

2.02 EVALUATION COMMITTEE

- A. The evaluation committee will consist of KVCTC, BCTC, and CTCS staff and the Owner. They will be chosen because of their special expertise in procurement of the products and/or services that are the subject of this RFP. Offerors may not knowingly contact members of the Evaluation Committee (other than the CO or COTR) regarding this RFP. Any intentional, unauthorized contact may disqualify the Offeror's proposal.

2.03 EVALUATION FACTORS FOR AWARD

- A. The evaluation committee reserves the right to award the contract based on the initial proposals received, without discussions or negotiations of such proposals. Therefore, it is critically important that each proposal be fully responsive to the RFP without exception to any provision. Offerors should submit initial proposals which respond most favorably to the requirements.

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- B. The evaluation committee also reserves the right to conduct discussions, if later determined to be necessary, with Offerors making the competitive range (i.e., the most highly rated proposals, unless the range is further reduced for the purposes of efficiency). The Owner anticipates awarding a contract to the Offeror whose proposal is the "best value" with price and other factors considered. The Contracting Officer may consider award to other than the lowest priced Offeror when in the best interest of the Owner. The Owner reserves the right to make no award pursuant to this RFP.
- C. Offerors are hereby notified that the Owner may utilize a private consultant to assist in the evaluation of responses. The consultant will have access to any and all information contained in an Offeror's response and will be subject to the appropriate conflict of interest, standards of conduct, and confidentiality restrictions.
- D. The Owner reserves the right to consider as acceptable only those responses that are submitted in accordance with all requirements set forth or referenced in this RFP. Offerors shall demonstrate an understanding of all requirements and a capability to provide the required products, services, and items. The Owner reserves the right to reject responses that do not address the totality of the RFP requirements, including the contract terms and conditions. Only those responses considered to be in compliance with all requirements herein shall be evaluated further for technical acceptability, technical excellence, management and business risk, and price reasonableness.
 - 1. Responsiveness and Technical Acceptability:
 - a. The evaluation committee will evaluate each Offeror's response for compliance and responsiveness to the requirements of Sections I, II, III, and Appendix A. To be considered responsive and technically acceptable, the Offeror must respond to and clearly indicate compliance with all the requirements of these Sections (including associated paragraphs and subparagraphs). Where the Offeror does not meet the requirement, the Offeror must clearly identify it with the word "**EXCEPTION**" and follow with a brief description of why.
 - b. Any Offeror failing to comply with all of the requirements and specifications of these Sections and Paragraphs (including associated subparagraphs) may be deemed technically unacceptable, and could be dropped from further consideration for contract award.
 - 2. Technical Excellence and Management and Business Risk: The technical excellence and management and business risk factors of each Offeror's

response will be evaluated to determine which response offers the best technical and management value to the Owner.

- a. The evaluation committee will evaluate each Offeror's Business Proposal for level of business risk to the Owner. To be considered responsive, the Offeror must complete the Pricing Form in Section III and include a detailed itemized bill of materials as detailed for Volume I.
- b. Technical excellence and management and business risk factors are considered to be more important than price. Although price/cost is considered secondary, it will be a significant criterion for award as part of an integrated assessment with the technical excellence and management and business risk factors. The importance of price will increase as the technical and management merits of the Offerors' responses become more equal. Among responses that are substantially equal in technical and management merit, price may become the determinative factor for award. The response offering the Owner the "best value" with technical excellence, management and business risk, and price factors considered, will be recommended for contract award. The contract may be awarded to other than the Offeror with the lowest price or the highest technical and management rating.

2.04 EVALUATION APPROACH

- A. The following evaluation factors are listed in descending order of importance. Factor 1 is more important than Factor 2; Factor 2 is more important than Factor 3, and so on. For each factor, the evaluation will consist of an assessment of the degree to which the systems and services offered in the response provide added value, added capability, and/or reduced risk.

Factor 1: *Technical Excellence* – Capability to meet the RFP requirements.

Factor 2: *Technical Excellence - Implementation Plan.* The evaluation committee will evaluate each Offeror's Implementation plan as detailed in Volume II, Part 2.

Factor 3: *Management and Business Risk* – Experience and Past Performance. This evaluation will be based on the Offeror's references provided in response to the instructions contained in Volume II, Part 4. The evaluation committee will review the references provided and may contact references to determine recent customer satisfaction with the Offeror and the systems and services provided under their contract. The number of references provided by each Offeror will be considered. Offerors with less past performance (fewer references) will not be penalized in the scoring. Offerors without a record of relevant past performance,

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or for whom information on past performance is not available, will receive a "neutral" rating and will not be evaluated favorably or unfavorably on past performance. The amount of past performance will be considered as a risk factor in the evaluation and decision-making process, with less past performance considered a higher risk to the Owner. While the Owner may elect to consider information from other sources, the burden of providing thorough and complete past performance information rests with the Offeror.

Factor 4: *Management and Business Risk – Technical Staffing.* This evaluation will be based on the Offeror's response to the instructions. The evaluation committee will consider the qualifications of the Offeror's proposed key personnel and Subcontractors as they relate to the capability for successful performance of the contract including ongoing maintenance and support.

Factor 5: *Technical Excellence – Capability to Provide Options.* Each Offeror's technical documentation and responses to System Options shall be evaluated. Evaluation of options does not obligate the Owner to exercise the options.

Factor 6: *Management and Business Risk – Installation and Maintenance Support.* The evaluation committee will consider the Offeror's capabilities for successful performance of the contract including ongoing maintenance and support.

Factor 7: *Management and Business Risk - Price.* The Best Overall System Price presented in the Pricing Form including options that could be exercised at the time of award.

- B. The evaluation assessment of Factors 1, 2, 3, 4, 5, 6, and 7, will be depicted by narrative and an overall score for each Offeror's response based on the following:

Excellent	20 Points	Enhanced value and/or capability that is of significant benefit and/or is of no risk. Response is above and beyond the base requirement.
Very Good	15 Points	High value and/or capability that is of benefit and/or is of no risk. Response meets base requirement with added value and no risk.
Acceptable	10 Points	Satisfactory value and/or capability and/or is of low risk. Response meets base requirements with no added value and very low risk.
Marginal	5 Points	Marginal value and/or capability and/or is of high risk. Response does not fully meet base requirements or level of expectation.
Poor	0 Points	Reduced value and/or capability and/or is of unacceptably high risk. Response does not meet requirements or expectations.

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- C. Evaluation of Information from Other Sources
 - 1. The evaluation committee reserves the right to utilize all information available at the time of evaluations. The evaluation committee may rely on information made available through reference checks, information available through commercial sources (such as Dunn and Bradstreet reports), and information publicly available (such as articles contained in periodicals). If information obtained through sources outside of the Offeror substantially disagrees with the Offeror's response, the Offeror will be given an opportunity to address the inconsistencies during discussions and negotiations. Recent and current customers of the Offeror may be contacted to determine satisfaction with the Offeror's capabilities and performance.
- D. Price Evaluation
 - 1. Offerors' quoted prices will be evaluated for reasonableness. Responses containing unrealistic prices will not be considered for award.
- E. Unrealistic Quotations
 - 1. Offerors are placed on notice that any responses which are unrealistic in terms of technical commitment or unreasonably high or low in cost or price may be deemed reflective of an inherent lack of technical competence or indicative of failure to comprehend the complexity and risk of the contract requirements and may be grounds for the rejection of the Offeror's response.

2.05 EVALUATION INCLUSIVE OF OPTIONS

- A. The evaluation committee will evaluate offers for purposes of award by adding the total price for all options to the total price for the base system requirement. Evaluation of options does not obligate the Owner to exercise the options. Responses containing any charges for failure to exercise any option will be rejected.
- B. Any offer that is materially unbalanced as to prices for base and option quantities may be rejected. An unbalanced offer is one that is based on prices significantly less than cost for some work and prices that are significantly overstated for other work.
- C. Any system features described as an option will be included in the Business Proposal under optional items. The cost of implementing optional features will be evaluated as a part of the evaluation and award process.

PART 3: AWARD

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3.01 CONTRACT AWARD TERMS AND CONDITIONS

- A. Once proposals have been received and evaluated, the CO will provide copies of all the compliant proposals to the Evaluation Committee. The Evaluation Committee will then evaluate proposals and select the Contactor that offers the best value. The Evaluation Committee may request additional information from any Offeror. The Owner will negotiate a contract with the selected Offeror.

3.02 NOTIFICATION OF INTENT TO AWARD

- A. Any Offeror who responds to this RFP will be notified in writing of the Owner's intent to award a contract as a result of this RFP.

SECTION III

PRICING FORM

- A. Phase 1 Total Base System _____
- B. Phase 2 Total System Cost _____
- C. Phase 3 Total Cost _____
- D. Total Cost for all Phases _____

SYSTEMS ITEMIZED:

- E. Cisco VoIP Phone System (Phase 1) _____
- F. Cisco VoIP Phone System (Phase 2) _____
- G. Cisco Network incl. LAN & Security (Phase 1) _____
- H. Cisco Network incl. LAN & Security (Phase 2) _____
- I. Cisco Wi-Fi System (Phase 1) _____
- J. Cisco Wi-Fi System (Phase 2) _____

OPTIONS:

- K. Option 1 - Annual Maintenance Year 2 _____
(Phase 1) Year 3 _____
Year 4 _____
Year 5 _____
- L. Option 2 - Annual Maintenance Year 2 _____
(Phase 2) Year 3 _____
Year 4 _____
Year 5 _____
- M. Option 3 - Enhanced Licensing Package (Phase 1) _____
- N. Option 4 - Enhanced Licensing Package (Phase 2) _____

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UNIT PRICING:

- O. Hourly rate for non-warranty work
 - Normal business hours _____
 - After hours _____

- P. Softphone license - Per user or bulk rate _____

- Q. Extension to cellular – Per user or bulk rate _____

- R. ISDN-PRI interface card _____

- S. ISDN-BRI interface card _____

- T. T1 interface card _____

- U. Miscellaneous replacement desk sets
 - Enhanced _____
 - Standard _____
 - Basic _____
 - Video _____
 - Conference _____
 - Expansion Modules _____

- V. Wireless headset _____

- W. Wired headset _____

- X. Wi-Fi access points _____

- Y. 48-Port distribution edge switch _____

- Z. 24-Port distribution edge switch _____

APPENDIX A
TECHNICAL REQUIREMENTS

APPENDIX A1

SPECIALTY SYSTEMS GENERAL

PART 1: GENERAL

1.01 DESCRIPTION:

- A. These Specialty Systems General provisions apply to the following for Phase 1 and Phase 2 of this project:
 - 1. Appendix A2, Communications VoIP Phone System.
 - 2. Appendix A3, Local Area Network & Wi-Fi Systems.
- B. Power provisions in each facility are being provided as part of the electrical contractor's scope. A 20 amp 120 V circuit will be provided for the purpose of connecting the required UPS units at each IDF switch location. Coordinate the power requirements and plug types of the proposed network equipment and notify the Owner immediately if additional power or power of a different voltage or amperage is required.
- C. Any additional power requirements necessary shall be provided as part of this contract after the determined review period has occurred and the Contractor's additions have been approved.
- D. For the ATC, the communications infrastructure and cabling systems in each facility will be installed as a part of the telecommunications cabling contractor's scope under a separate contract. For the KVCTC and the BCTC, the communications infrastructure and cabling is existing. Any additional requirements necessary, including the physical connection of the cross-connects and patch cables shall be provided as part of this contract. Obtain Owner approval before purchasing.
- E. Specialty systems commissioning is specified in Appendix A4, Specialty Systems Commissioning.
- F. The Contractor shall be responsible for interfacing power and grounding provisions with work provided under these Sections.

1.02 QUALITY ASSURANCE:

- A. Provision of manufactured components, installation, wiring and testing shall be the responsibility of a single contractor.
- B. Conform to applicable federal, state and local codes and regulations not limited to:

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1. NFPA 70-2008
 2. ISO 9001-2008
 3. Americans with Disabilities Act (ADA)
- C. Supply only new equipment, parts and material currently manufactured at the time of submittal, and operate only for testing as part of installation procedure.
- D. Codes, standards and regulations specified herein include the edition date. Revisions and addenda to these codes, standards and regulations shall be part of the specifications. Provisions of referenced codes, standards and regulations do not create duty or responsibility by the Engineer or Owner, unless otherwise specified herein.
- E. The Contractor shall be both a Cisco certified business partner and a manufacturer certified partner for any other manufacturers equipment installed as part of this project.
- F. The Contractor shall have a Cisco CCIE on staff and the CCIE shall be directly involved in the network design, configuration and shall attend the design workshops.

1.03 SUBMITTALS:

- A. Submittals shall be prepared in a line-by-line format corresponding to these Specifications and shall indicate compliance with each requirement specified herein and indicated in the Drawings.
- B. In addition to any other transmittal or cover sheet used, fill out and attach to each individual submittal a copy of the Cover Sheet for Submittals to Newcomb & Boyd included at the end of this Section.
- C. Submittals not specifically required, or not complying with the format requirements, will be returned unreviewed.
- D. Submittal data shall be submitted as a single package.
- E. Approved submittals are required before installation begins. Equipment shall not be ordered, and pay requests will not be approved prior to receipt and approval of submittals.
- F. Submittals shall include searchable PDFs on CD.
- G. Submittals shall include (for each phase):

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1. Implementation schedule that details: *(Provide separate implementation schedules for each site)*
 - a. Outline of work by telecom room.
 - b. LAN configuration schedule: the number of proposed network design workshops, the proposed dates, and agendas for each workshop.
 - c. Local phone, internet, T1, and PRI services activation schedule.
 - d. 911 Call Center Connection requirements.
 - e. Any downtime/cut over time.
 - f. Testing procedures and schedules.
 - g. Completion date.
 - h. Training plan.
 - i. Phone system and voice mail system testing and activation.
 - j. Wi-Fi system testing and activation.
 - k. Paging system testing and activation.
2. Implementation Plan for the following systems:
 - a. VoIP phone system
 - b. Local area network
 - c. Wi-Fi system
 - d. Paging System
3. System Interfaces Diagram for the following systems:
 - a. VoIP phone system
 - b. Local area network
 - c. Wi-Fi system
 - d. Paging System

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4. Product data sheets on equipment, materials, and cables in the scope of this work.
 5. Service Provider coordination:
 - a. PRI services activation requirements and trunking recommendations.
 6. Proposed Physical network diagram indicating all network components and network equipment. Details shall include:
 - a. Specific connections for all equipment.
 7. Proposed Logical network diagram indicating:
 - a. VLANs.
 - b. Firewalls.
 8. Test Plan for both the local area network, Wi-Fi, and VoIP system to include:
 - a. Station Tests
 - b. Integration Tests
 - c. Users' Test plan
 - d. Final Acceptance tests
 9. Test plan for the paging system.
 10. Training Plan – User and Administrative
 11. Required raceways and power outlets, including quantity, locations, and capacity characteristics.
 12. Environmental requirements, including heat release.
 13. Scaled floor plans clearly identifying equipment layout in the switch room and installation requirements, such as clearances, power outlets, and plywood backboard space, shall be provided by the contractor within a timeframe agreed upon.
- H. Construction Phase submittals shall include:

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1. The Contractor shall provide written meeting notes to KVCTC within one week of each meeting for Phase 1 and to CTCS for Phase 2. The meeting notes shall include the project schedule and implementation plan with milestones, responsibilities, completion dates, and status clearly identified.
2. The Contractor shall submit a weekly progress report during the construction phase which shall include an updated implementation schedule for each phase of the project.

I. Commissioning phase submittals:

1. Refer to Appendix A4, Specialty Systems Commissioning for commissioning phase submittal requirements.

1.04 ENVIRONMENTAL REQUIREMENTS:

- A. Identify the environmental requirements of the proposed equipment.

1.05 SPACE CONDITIONS:

- A. Verify dimensions of equipment, equipment arrangements, space availability provide systems that work within the constraints of the space available. Notify the Engineer of any situation where space constraints are a problem, prior to the ordering or purchase of equipment. The Contractor shall bear the expense of providing alternate equipment which will work within the available space, if space availability problems are discovered after equipment is ordered. The Owner will provide site visit access during normal business hours. Provide three days notice.
- B. The drawings and diagrams included in this RFP are diagrammatic in nature and, unless explicitly dimensioned, indicate approximate locations of equipment and components. Changes in the location, and offsets, of same which are not shown on the Drawings but are necessary in order to accommodate building conditions and coordination with the work of other trades, shall be made during the production of shop drawings and prior to initial installation, without additional cost to the Owner.
- C. Provide access to equipment and components requiring operation, service or maintenance within the life of the system.
- D. The existing call flow and other programming parameters of the existing phone system must be documented and implemented in the new phone system's programming including auto attendants.
- E. Provide additional hardware and software as necessary for a complete and operational system that meets the requirements specified herein.

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PART 2: PRODUCTS

2.01 AC POWER:

A. General:

1. Except as otherwise specified herein, or indicated on the Drawings, grounding conductors shall be insulated and sized in accordance with NFPA 70-2008. Insulation shall be rated 600 V. Conductors shall be continuous from connector to connector with no splices. Grounding connectors shall be solid bronze, compression type, designed for use intended.

2.02 UNINTERRUPTIBLE POWER SUPPLY (UPS):

- A. An Uninterruptible Power Supply (UPS) battery backup system shall be provided to operate each specialty system part of this scope of work during an electrical power failure.

1. The Contractor shall provide an appropriately sized UPS to support specialty system equipment in each IDF room. The Contractor is responsible for sizing each UPS to support the VoIP and LAN equipment in each closet. Coordinate and submit for approval the UPS products to the Using Agency before purchasing.

- B. Offerors shall provide manufacturer's technical specifications for the proposed UPS system with their proposals as supplemental documentation. The specifications shall clearly document the kVA load rating and hours of battery storage for the proposed UPS battery backup system for each telecom IDF room.

- C. The UPS battery backup system shall be equipped to operate the attached telephone system, all telephone stations, network equipment, and all adjunct equipment including, but not limited to, voice messaging system, router, firewall, wireless controller, network administration server, and administration personal computer for a minimum of 15 minutes during and after complete electrical power failure at the site. The UPS system shall provide continuous no-break power during complete power outage or momentary power interruption.

- D. The UPS system shall be rated for 125% of the total maximum load (kVA) for all proposed devices to be supported.

- E. The UPS system shall provide power surge protection from voltage and current surges on the system up to 150% of normal system operational limits.

- F. The UPS system shall have a transformer for electrical isolation between input and output with current limiting overload protection and output neutral bonded to

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ground. The transformer shall qualify as a separately derived power source under NEC Article 250.

- G. The UPS shall connect to existing power outlets for each site.

PART 3: EXECUTION

3.01 GENERAL:

- A. The Contractor shall provide incidental equipment or devices to provide a complete and operable system.
- B. Verify correctness of parts lists and equipment model numbers and conformance of each component with manufacturer's specifications.
- C. Equipment shall be installed in accordance with the manufacturer's instructions.
- D. Equipment, except portable equipment, shall be held in place. This shall include equipment, enclosures, components, and cables. Fastenings and supports shall support their loads with a safety factor of at least 3 unless otherwise specified herein.
- E. Prevent and guard against electromagnetic and electrostatic hum, and install the equipment to provide safety for the operator.
- F. Repair or replace any equipment or materials damaged during the construction period.

3.02 GROUNDING:

- A. Equipment shall be grounded in accordance with NFPA 70-2008 as specified herein, and in accordance with the equipment supplier's recommendations.
- B. A Telecom Ground Bus Bar is provided by the Owner in each closet and bonded to each rack or cabinet. Any additional grounding required shall be provided by this project.

COVER SHEET FOR
SUBMITTALS TO NEWCOMB & BOYD

Project: _____ Date: _____

Item: _____ Submittal Number: _____

Manufacturer: _____ Model: _____

Specification Paragraph and/or Drawing Number: _____

Options Included (if any): _____

Deviations (if any; if none, state so): _____

Approval: _____

APPENDIX A2
COMMUNICATIONS VOIP PHONE SYSTEM

PART 1: GENERAL

1.01 DESCRIPTION

- A. This Section covers the communications switching systems (CSS), including the voice over IP telephone system (VoIP) with telephone stations and ancillary equipment to provide voice communications services for Phase 1 and Phase 2 of this project.
- B. Specialty systems general provisions are specified in Appendix A1, Specialty Systems General.
- C. Specialty Systems commissioning is specified in Appendix A4, Specialty Systems Commissioning.

1.02 INTERFACE ARRANGEMENTS:

- A. Each Using Agency will order from the local telephone company, and other common carriers, the interface arrangements identified by the Contractor in his proposal for trunks, tie lines, and access lines for the initial system requirements and any subsequent requirements.
- B. The Contractor shall interface and activate the Owner provided paging system for the KVCTC and the ATC.
- C. The Contractor shall coordinate with the security contractor on interfaces for SIP devices that will integrate with the new system.

1.03 CONTRACTOR RESPONSIBILITIES

- A. The Contractor shall provide all hardware, software, and incidental equipment or devices to provide a complete and operable system for each site. The system installation includes all telephone system equipment and software, station port and trunk port terminations, telephone stations, plus all system adjuncts including the voice messaging system equipment and software, system administration terminals, UPS battery backup systems, and all selected options, with station reviews, initial programming and all associated equipment required.
- B. The existing call flow, and other programming parameters of the existing phone system must be documented and implemented in the new phone system's programming including auto attendants.

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- C. The Contractor shall coordinate with each Using Agency to port existing numbers over to the new system after hours. Reflect transition tasks, responsibilities, and dates on the approved implementation plan.
- D. Provide recommendations and assist with the procurement of local internet service and local PRI circuits necessary to implement the proposed solution for both sites.

PART 2: PRODUCTS

2.01 SYSTEM REQUIREMENTS:

- A. VoIP phone system Architecture:
 - 1. The system shall be a modular IP based connectionless switching system utilizing Voice over Internet Protocol (VoIP) communications. It shall have stored program control, self-diagnostic routines, and modular design.
 - 2. Dedicated redundant call processors shall be provided such that failure of any single server does not disrupt any call in progress, call being initiated, or result in the degradation of any feature or service. The processor shall connect via a newly configured IP network that provides redundant voice and control paths between servers, router connectors to PRI and local Ethernet with QoS circuits, and IP devices.
 - 3. A new voice mail system shall be provided in accordance with Appendix A2, 2.13.
 - 4. The system shall have a high level of security to prevent against unauthorized entry into the system through voicemail, remote maintenance port, or any other back door.
 - 5. The Contractor shall provide an auto attendant console capable of handling a minimum of 75 callers at a time.
 - 6. The system shall allow users to log onto any IP phone on the system and make calls through their own DID and receive their own voicemail.
- D. System and Traffic Capacities:
 - 1. The system shall provide a busy hour call completion capacity of 10000, and a busy hour call attempts capacity of 30000.
- E. Manufacturer: Cisco.

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2.02 VOIP PHONE SYSTEM RELIABILITY:

- A. The system shall provide 99.999% availability.
- B. The system shall remain fully available as software upgrades or patches are installed in the call processor.
- C. The system shall be a highly available IP telephony call-processing solution.

2.03 SYSTEM POWER:

- D. The systems shall be nonvolatile, for the main memory and central processor in the event of power loss. This capability shall facilitate rapid resumption of operation following a power failure, eliminating the need to reload memory from the storage medium. During this period, the voice mail system shall maintain messages, data, and software.
- E. Provide standby power/battery back-up capable of supporting full system operation for 15 minutes or more upon failure of normal AC power to the system.
- F. The standby power system shall include housing, batteries, and rectifiers. Batteries shall be packaged in flame-retardant containers, shall be installed in the equipment room and shall be maintenance-free, non-hydrogen producing and require no special venting.

2.04 VOIP PHONE SYSTEM FEATURES:

- D. Speed Dialing Features:
 - 1. Personal: minimum 12 numbers.
 - 2. Group: minimum 90 numbers.
 - 3. System: minimum 1000 numbers.
- E. Station Restriction Features:
 - 1. Inward: able to receive calls only.
 - 2. Origination: able to originate calls only.
 - 3. Trunk-to-trunk transfer.
- F. Call Coverage:

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1. The system shall include a call coverage feature to allow calls to an extension to be redirected (forwarded) to a coverage path consisting of up to six separate answering positions (different extensions) accessed in sequence if coverage criteria is met.
2. Redirection criteria shall include the following:
 - a. Active/busy.
 - b. No answer (after a preset number of rings).
 - c. All calls. The set forwarding the calls will not ring. Calls will be forwarded immediately.
 - d. Time of day.
 - e. Day of week.
3. Redirection criteria shall be programmable by the system administrator.
4. Redirection criteria shall be defined separately for internal and external calls.
5. The system shall support overriding criteria, which shall be checked before the redirection criteria, and the call redirected accordingly. The following capabilities shall be provided:
 - a. An internal caller shall be able to send the call directly to coverage without ringing the called party's phone.
 - b. The called party shall be able to temporarily direct incoming calls to coverage regardless of the assigned redirection criteria.
 - c. The called party shall be able to forward his or her calls to another extension and have calls completed to this extension before redirecting to coverage.
6. The system shall provide the following capabilities to the covering user:
 - a. For display-equipped sets, the incoming call shall be identified to the covering user as a call coverage call, and the principal shall be identified on the display.
 - b. The covering user shall be able to call the covered principal for a consultation, then conference or transfer the calling party.

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- c. The covering user shall be able to leave a message for the principal to call an internal caller back simply by pressing a designated button.
 7. The switch shall maintain control of the call until it is answered or receives a busy signal. If the call is not answered with a predefined number of rings or if a busy signal is received, the call shall be returned to the switch for further routing.
 8. The user shall be able to change primary and secondary coverage paths locally and remotely.
- G. Integrated Directory:
 1. Four digit dialing shall be supported across the network for any extension. The system shall include an integrated directory feature to allow internal system users with display-equipped sets to access the system database, use the touch-tone pad to key in a name, and retrieve an extension number for all users.
 2. Once a name and number is displayed, the user shall be able to place a call to that person by pressing one button.
 3. The System Administrator shall be able to hide certain names in the directory for personnel privacy.
- H. ISDN-BRI:
 1. The system shall support the International Telecommunication Union – Telecommunications Section (ITU-T) defined Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI).
- I. ISDN-PRI:
 1. The system shall support the ITU-T defined Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) and the European Telecommunications Standards Institute (ETSI) ISDN-PRI.

2.05 VOIP PHONE SYSTEM MANAGEMENT FEATURES:

- D. System Management Features:
 1. Administration from an Ethernet 10/100/1000 Base-T local area network (LAN).
 2. Error and alarm log access.

3. Scheduled execution of previously input system management commands.
4. The system shall notify designated personnel of system alarms via SMTP. Alarms should include, but not be limited to, servers, UPS and network hardware.

E. Window-Based System Administration:

1. The telecommunications system shall include two copies of the system administration software that shall operate on a personal computer (PC) with a Windows XP or higher, to provide a Graphical User Interface (GUI) for administration and management of the telephone system. The system administration software shall be provided with licensing for installation on an Owner provided PC. The system administration software shall also provide a GUI interface for administration and management of the voice messaging system. All required licensing (Right to Use –RTU) for use of the system administration software to manage the telephone system shall be included.
2. The contractor shall install on one PC all necessary software and licensing, configured as required to operate the Windows-based system administration. A single PC may be configured for the Windows-based system administration and the Windows-based call accounting system.
3. This system shall include all required hardware (including, but not limited to, modems, data modules, cables, and LAN interface modules) for the connection from the telephone switch to the on-site PC and for remote connection from an off-site PC.
4. This system shall include all initial programming and installation of the system administration software on the PC provided by the Owner.
5. The Windows-based system administration capabilities to be provided include:
 - a. Telephone station administration including features, privileges, and restrictions.
 - b. Telephone station moves, adds, changes, deletions.
 - c. Switch equipment inventory, configuration, and status.
 - d. Trunk administration and status (out of service).

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e. Traffic analysis for trunks including busy hour reports, peg count.

F. System Diagnostics:

1. The system shall provide for the detection, diagnosis, and reporting of potential and actual troubles and component failures. The system shall be capable of routinely self-administering the diagnostic programs. System problems shall be automatically logged and reported.
2. Alarms shall be reported to the attendant console, the switch, any active management terminals, and to the Contractor's remote maintenance facility.

G. Call Detail Recording/Accounting:

1. The system shall be able to generate and output Call Detail Records (CDRs). CDRs shall be generated for both incoming and outgoing calls on trunk facilities, and for station-to-station calls to and from specific stations.
2. Provide pricing for a call accounting system to collect the CDRs from the system and provide call costing. The system shall be PC-based and compatible with Windows XP.
3. The system shall support the generation of reports on demand and on a customer-defined schedule.
4. A call accounting system shall be provided for both sites.

H. Security Features:

1. Call Routing Security.
 - a. As a standard feature, the system shall require authorization codes. These codes, when dialed, shall provide a user with additional call routing capabilities than would not otherwise be available. Authorization codes shall be validated by the switch and included in the CDR generated for the call.
2. Remote Access Security:
 - a. The remote access feature shall be password protected to prevent unauthorized use.
 - b. The system shall be able to also require the remote access user to enter a valid authorization code in order to use the feature.

3. System Management Security:
 - a. Access to the system for management purposes shall be login-password protected.
 - b. The system shall have the capability to automatically age passwords, thereby forcing users to change their passwords. The cycle length must be changeable by the Owner, and the user shall be given advance notice of the upcoming expiration.
 - c. The system shall support the setting of an attempt threshold (number of attempts within a specific time period) for access to system management ports. If this threshold is exceeded, the system shall automatically disable the login for a predefined period of times.
4. Reports:
 - a. The system shall provide reports addressing the security violations specified herein.
 - b. In addition, the system shall support a recent change history report so that any changes made by an unauthorized user can be traced.
 - c. In order to assist the system administrator in verifying the security of the system, the system shall provide a report that lists all stations with call forwarding activated and the forwarded-to number. The system log must be capable of being sent off the PBX to a separate server.
 - d. The system shall provide reports addressing the security violations specified herein. In order to assist the system administrator in verifying the security of the system, the system shall provide a report that lists all stations with call forwarding activated and the forwarded-to number. The system log must be capable of being sent off the PBX to a separate server.
 - e. The system shall be capable of emailing reports to the System Administrators on a weekly basis.

2.06 AUTO ATTENDANT REQUIREMENTS:

- A. The system shall provide an auto attendant console for servicing incoming calls to the system. The console shall feature a simple, uncluttered layout of call

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appearance keys, numeric keypad, attendant function keys, an easy-to-read display, system time indication, and major and minor alarm indication.

- B. The console shall include the ability to determine the status of an extension number (busy/not busy) and to call an extension without having to key in the number.
- C. The console shall allow the attendant to assign a call to a busy extension such that when the extension becomes available the call is automatically connected (camp-on). The call shall be redirected if not connected within a predefined period of time.
- D. The console display shall provide information on the calling party (name, extension, and class of service/class of restriction); called party (name and extension); and call purpose (direct call, forwarded call, and returned call).
- E. Calls shall be distributed to active attendant consoles on a most-idle-attendant basis. When all consoles are busy, calls shall be queued to an attendant queue and served on a first-in-first-out basis.
- F. The attendant shall have the ability to restrict calls to or from individual extensions or groups of extensions. In addition, it shall be possible to activate or deactivate call forwarding all calls for individual extensions from the attendant console.
- G. The attendant shall be able to establish a five-party conference, and hold the conference on the console. The system shall support a conference of both internal and external parties.
- H. The attendant shall be able to use an integrated directory of switch extension numbers from the console.
- I. The auto attendant console desk set type shall be an Enhanced Set with expansion modules or equivalent.
- J. The auto attendant console shall have a main number with rollover capability.
- K. Coordinate with each Using Agency for auto attendant configuration requirements.
- L. Refer to Schedule of New Desk Sets in Appendix A for attendant quantities.

2.07 STATION EQUIPMENT REQUIREMENTS:

- A. Desk Set Stations:

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1. Enhance Set: Cisco 7975G.
2. IP Standard Set: Cisco 7945G.
3. IP Basic Set: Cisco 3905.
4. IP Conference Set: Cisco 7937G.

B. Expansion Modules:

1. Expansion module shall be the same manufacturer as the desk set and shall be recommended by the manufacturer for use with the desk set model number.
2. The expansion module shall have an LCD display and illuminated buttons indicating line status.
3. Refer to Schedule of New Desk Set for locations that require an expansion module. Coordinate final quantities with the Owner before purchasing.

C. Wireless Headsets:

1. The headset shall be wireless headset with one touch mute capability.
2. The headset shall be rated for use in loud office and open environments.
3. The headset shall be able to convert to over-the-ear, over-the-head, and behind-the-ear head styles.
4. The headset operating frequency shall be the newest most current technology available.
5. The headset shall utilize an electronic off-hook switch. A handset lifter shall not be used.
6. Headset manufacturer shall be Plantronics or equal.
7. Include a *bundle of 10* wireless headsets for each phase. Provide additional unit pricing on the pricing form.

D. Wired Headsets:

1. The headset shall be a corded headset for the handset station.
2. The headset shall be rated for use in loud office and open environments.

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3. The headset shall be able to convert to over-the-ear, over-the-head, and behind-the-ear head styles.
 4. The headset shall be equipped with a noise cancelling microphone.
 5. The cord shall be a coil cord with a minimum length of 10 feet.
 6. The headset shall include the cord to connect to the phone.
 7. Headset manufacturer shall be Plantronics or equal.
 8. Include a *bundle of 10* wired headsets for each phase. Provide additional unit pricing on the pricing form.
- E. Wall Phones
1. Wall phone locations shall consist of Standard sets wall-mounted at the location specified in the Schedule of New Desksets.
 2. The Contractor shall include wall-mount bracket and necessary accessories to mount the deskset to the wall.
- F. Spare Sets:
1. Spare desk set stations shall be included in the base system cost for phase 1 and the system cost for phase 2.
 2. Provide spare desk set stations for each phone type/quantity listed below:

KVCTC, Building 2000
 - a. Enhanced: 2
 - b. Standard: 5
 - c. Basic: 1
 - d. Expansion Module: 2
 - e. Conference: 1
ATC
 - a. Enhanced: 1
 - b. Standard: 1
 - c. Basic: 0
 - d. Expansion Module: 0
 - e. Conference: 0

2.08 TELEPHONY CONFIGURATION DETAILS:

- A. Definitions:

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1. Equipped: the equipped quantities are the at-cut requirements. The port circuit packs, stations, and trunks shall be configured to support the equipped numbers.
 2. Wired-for: the wired-for quantities are the quantities that the system can support without the addition of software and/or the re-engineering of existing hardware. Cabinets, carriers, memory, processor capability, power (including back-up power), and other equipment shall be included so that the wired-for configuration and traffic capacity can be achieved by the addition of only port circuit packs. These quantities represent expected growth.
 3. Licensed for: the licensed-for quantities are the quantities that the system can support without the addition of licenses and/or the re-engineering of existing hardware. Cabinets, carriers, memory, processor capability, power (including back-up power), and other equipment shall be included so that the licensed-for configuration and traffic capacity can be achieved by the addition of only users. These quantities represent expected growth.
- B. Port requirements: provide a system configured to support the wired-for capacity of analog and IP stations, and trunks (including the ISDN-PRI interface) as indicated in the following table:

KVCTC, Building 2000

<u>Port Type</u>	<u>Equipped-For/Wired-For</u>
IP Station Ports	194
Analog Ports	16

<u>Trunk Ports</u>	<u>Equipped-For</u>	<u>Licensed-For</u>
ISDN-PRI	3	3
Voicemail Ports	200	200

ATC

<u>Port Type</u>	<u>Equipped-For/Wired-For</u>
IP Station Ports	44
Analog Ports	16

<u>Trunk Ports</u>	<u>Equipped-For</u>	<u>Licensed-For</u>
ISDN-PRI	2	1
Voicemail Ports	50	50

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- C. Refer to Appendix A, Schedule of New Desk Sets for final quantity of port types and phone types. Submit final quantities of port types and phone types for approval before purchasing.

- D. Extension-to-Cellular:
 - 1. The VoIP system shall be configured with Extension-to-Cellular (ETC) capabilities.
 - 2. ETC shall allow incoming calls to re-route directly to the user's personal cellular phone and allow outgoing calls to route from the cellular phone to the network.
 - 3. ETC shall allow users to seamlessly transfer calls between mobile devices and the deskphone or computer based software client.
 - 4. The ETC feature shall include visual voicemail, consolidated call logs, unified contact lists, and access to corporate directories.
 - 5. The system shall be licensed for 5 ETC users for *Phase 1* and 5 ETC for *Phase 2*.

- E. Softphone Feature:
 - 1. The system shall be configured with softphone capabilities. The IP softphone feature shall be a Window's based application for a PC or laptop with a user interface similar to the IP desk set. The softphone shall be fully integrated with the VoIP system including the system's interactive directory.
 - a. The Contractor shall configure each softphone with the same preferences as their IP desk set phone. Coordinate with each user on the final configuration.
 - 2. Provide 10 softphone licenses for *Phase 1* and 10 softphone licenses for *Phase 2*.

- F. Desktop Software Client:
 - 1. The system shall be licensed and configured for every user to have a desktop software client application. The Contractor shall configure each user's desktop software client application with the same preferences as their IP desk set phone. Coordinate with each user group to define desk set phone preferences during the station review meetings.

- G. Licenses:

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1. The Contractor shall provide as part of the base system all necessary licenses to provide for a system that meets the requirements listed in this RFP. As an option to the base system, the Contractor shall provide pricing for an enhanced licensing package. The enhanced licensing package shall provide each user with ETC and softphone license and shall be a special bundled licensing package. Refer to Section II for additional pricing information.

2.09 VOICE MAIL SYSTEM REQUIREMENTS:

A. General:

1. The voicemail system shall be an integral component of the base VoIP phone system.
2. The voicemail system shall be provisioned as a modular voicemail system with the capability to service multiple sites from one central system. The Contractor shall provide the capability to integrate additional sites in the future.

B. Call Answer Features:

1. Calls shall be automatically answered by the called party's greeting without re-entering the mail box number.
2. A caller shall be automatically routed out of the voice mail system to an attended telephone by pressing a single digit. Each mail box shall be capable of being assigned a unique destination versus a system-wide destination.
3. Callers shall be able to escape/transfer out of voice mail without returning to the main menu.
4. Callers shall be able to transfer out by specifying a subscriber's name or extension.
5. Callers shall be able to first leave a message and then transfer out to another extension or the attendant.
6. Callers shall be able to review and re-record their message.
7. Callers shall be able to skip the greeting and immediately record their message.

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8. Callers shall be able to mark their message as private or priority. A message marked as private or priority shall be capable of being changed back to a regular message any time before sending.
9. Callers, who are also subscribers, shall be able to transfer into their own mail box after leaving a message or in place of leaving a message.
10. The system administrator shall be able to vary the maximum voice mail message length on a per subscriber basis.
11. The voice mail system shall provide subscribers with the ability to greet their callers with a personal message.
12. If the called party's mail box is full, the system shall advise callers of the other available options.
13. Subscribers shall be able to choose to use a generic system greeting rather than a personalized greeting.

C. Message Addressing/Scheduling Features:

1. The system shall provide the following capabilities to subscribers during addressing or scheduling messages for delivery.
 - a. Address by extension.
 - b. Address by name.
 - c. Address to a predetermined mailing/distribution list.
2. Subscribers shall be able to create and maintain mailing lists.
3. Subscribers shall be able to use mailing lists created by another subscriber.
4. Subscribers shall be able to remove a recipient prior to sending the message, even if the recipient was part of a pre-defined mailing list.
5. Subscribers shall be able to broadcast a message to everyone without using a mailing list.
6. Subscribers shall be able to broadcast to users when they log in to the system.
7. The system administrator shall be able to maintain system distribution list, which can be accessed by any subscriber.

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D. Message Delivery Options:

1. After addressing, the system shall provide the following options:
 - a. Mark messages as private (such that it cannot be forwarded).
 - b. Mark message as priority.

E. Message Retrieval Features:

1. The system shall provide the number of new messages at login time.
2. A voice mail subscriber shall be able to skip to next message.
3. A voice mail subscriber shall be able to replay messages.
4. A voice mail subscriber shall be able to delete messages at any time.
5. The system shall present priority messages before all other new messages.
6. The following information shall be available for each message:
 - a. Sender's name (if subscriber).
 - b. Sender's extension (except for an outside call).
 - c. Date and time message was delivered.
 - d. Private status (only if this is a private message).
 - e. Priority status (only if this is a priority message).
7. A voice mail subscriber shall be able to add a comment to the message that is being forwarded.
8. The system shall allow a message to be sent from one subscriber to multiple extensions, names, or distribution lists and still retain all added comments.

F. Message notification: the system shall light message waiting lamps until all new messages are retrieved.

G. TDD support: the system shall provide Telecommunications Devices for the Deaf (TDD) support including TDD toned prompts.

2.10 AUTOMATED ATTENDANT REQUIREMENTS:

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- A. The automated attendants shall have at least 10 menu choices, and shall have multiple menu choices (nesting).
- B. Callers to the automated attendant shall be able to enter extensions in addition to menu choices, and shall be able to enter names as well as extensions.
- C. The automated attendant shall have a default (timeout) if callers do not select a choice within a given time frame.
- D. The system administrator shall be able to record the attendant menu from any touch-tone station.
- E. The system shall provide for callers to have the menu repeated either by pressing a button or timing out.
- F. A caller shall be able to specify an invalid choice or extension, then be notified and given another opportunity to make a choice.
- G. The automated attendant shall support a minimum of 75 callers simultaneously.
- H. Separate automated attendants shall be available for different times during the day, days of the week and holidays.
- I. The system shall allow for a different automated attendant menu to be played to external callers than that played to internal callers.
- J. At a system minimum, separate automated attendants shall be provided and configured for the main number. The Contractor shall coordinate with each Using Agency on the configuration requirements for the auto attendant.
- K. The system shall allow a message to be left in the automated attendant mail box.

2.11 UNIFIED MESSAGING:

- A. General:
 - 1. The Unified Messaging System shall be a component of the base VoIP phone system for Phase 1 and Phase 2.
 - 2. The system shall provide access to the voice messaging server and e-mail server system via a personal computer graphical user interface (GUI) and telephone user interface (TUI).
 - 3. UM shall integrate with Using Agency Exchange server. Confirm latest version at configuration and provision as needed.

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B. Features:

1. The system shall as a minimum provide incoming message notification with attached WAV files via a Microsoft Exchange server over a LAN.
2. The message shall identify the date and time received, the sending party, and the subject in the header information.
3. The system shall have the capability to reply, forward, save or delete any type of message (voice, e-mail or facsimile) from either interface type (GUI or TUI) regardless of how the message was created.
4. The system shall allow text messages to be forwarded with a voice preface.
5. The system shall support facsimile messages to be forwarded to any facsimile machine with DTMF capabilities.
6. The system shall support text to speech conversion for facsimile headers and e-mail retrieval via TUI connections.
7. The system shall allow for messages to be listed in a user definable hierarchy.
8. The system shall allow for messages to be viewed in any order.
9. The system shall allow a voice message to be created and addressed to multiple parties.
10. The system shall allow that when a voice mail message is selected from the GUI, the message shall play via user's handset and shall allow control via PC console.
11. The system shall allow any type of message to be saved to a user selected hard drive for archival purposes.

C. Security:

1. The system shall require a password and user id to access the unified message system.
2. The password shall be alphanumeric and be encrypted before it is stored on any server.

2.12 USER INTERFACE AND VOICE-MAIL MANAGEMENT:

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A. Security:

1. Subscribers shall be able to create or change their personal password at any time, from any touch-tone telephone.
2. The system shall prevent the system administrator from obtaining personal passwords.
3. The administrator shall be able to assign a subscriber a new password without obtaining the old password.
4. New subscribers shall be required to change the default password upon initial log in to the system.
5. The system shall require a password to log into the system.
6. The system shall allow remote logins into the system.
7. The system shall have the capability to prevent unauthorized system access or transfers from the system.

B. Voice-Mail System Management:

1. The system shall provide for the addition, deletion, or changing of mail boxes without service interruption.
2. The administrative interface shall be screen-based.
3. The system shall provide for the subscriber's extension to be changed without deleting their messages or changing anything else in their mail box.
4. The following parameters shall be definable on a class-of-service (COS) and per-subscriber basis:
 - a. The mail box size (number of messages).
 - b. The length of message a caller can record (call answer).
 - c. The length of message a subscriber can record (voice mail).

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C. Traffic and Report Statistics:

1. The following traffic statistics shall be available for reports:
 - a. Total number of calls handled by each active port and total seconds busy for each port.
 - b. Total messages created.
 - c. Disk utilization.
 - d. Average call answer session (in minutes and/or seconds).
 - e. Average voice mail session (in minutes and/or seconds).
 - f. Subscriber directory by extension and name.
 - g. Average ports in use by hour.
2. The following subscriber statistics shall be provided:
 - a. Messages received (call answer).
 - b. Messages received (voice mail).
 - c. Number of call answer and voice mail sessions.
 - d. Maximum space used per mail box.

D. Integration:

1. Ports shall not be required for activities such as lighting message waiting lamps.
2. If a port is in trouble, the system shall take it out of service and automatically notify the switch to stop sending calls to that port (without manual intervention).

E. Networking:

1. The voice messaging system shall support Audio Message Interchanges Specification (AMIS) open networking.

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F. Technical Requirements:

1. The system shall allow for mail box numbers to be changed without losing messages, mailing lists, or subscribers' names.
2. The system shall alert subscribers when their mail box space gets low.
3. The system shall provide help prompts to the subscribers, which list a menu of all available options from any point in the system.

2.13 MEDIA GATEWAY

- A. The Contractor shall provide and configure a media gateway to support analog devices. The media gateway shall be capable of at least 16 analog ports.
- B. The media gateway shall include signaling and call control functionality.

2.14 FAX SERVER

- A. The Contractor shall provision the system with a fax server. The fax server shall allow system users to securely send and receive documents through fax, email messages, print devices, or the internet.
- B. The fax server shall fully integrate with the VoIP system.
- C. Provide necessary software and licenses to allow for full fax server capabilities by all users.

2.15 PAGING SYSTEM REQUIREMENTS:

- A. The VoIP phone system shall support paging through the handset and paging via overhead speakers.
- B. The Contractor shall interface the overhead paging system with the VoIP phone system.
- C. The system shall provide 4 extensions for individual zone paging and a separate extension for an all call page for Phase 1.
- D. The system shall provide 2 extensions for individual zone paging and a separate extension for an all call page for Phase 2.

2.16 DNS & DHCP CONTROLLER SERVERS:

- A. Provide dual dedicated DNS and DHCP servers for use by the VoIP system.

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- B. DNS and DHCP servers shall be Dell Power Edge R710 series or equal with Windows Server 2008 R2 software (or most current release) included.

2.17 E-911:

- A. Provide "port" level location data for 911 calls. Include floor and room number information.
- B. Provide an administrative alert for any 911 calls made from within the system.

PART 3: EXECUTION

3.01 GENERAL:

- A. Perform the detailed configuration, engineering, installing, testing, and cutover for the total system including the interconnectivity of system components.
- B. The Contractor shall coordinate with the local telephone company to have the cutover from the existing interface lines to the new interface (ISDN-PRI) with new DID blocking. For Phase 1, this shall be coordinated and approved by KVCTC. For Phase 2, this shall be coordinated and approved by CTCS. This shall occur in conjunction with the Owner move-in schedule. KVCTC and ATC shall have separate DID blocks.
- C. The Contractor shall coordinate the installation and final location of the VoIP phone system equipment with the Owner.
- D. Station review and all initial programming and software changes shall be included in the Contractor's installation.
- E. The Contractor's Project Manager shall work with each Using Agency's personnel to identify all station locations, types, and extensions, and to plan station programming, features, and call coverage path. The Contractor shall complete the programming forms for the telephone system and stations. All station parameters, including button assignments, programmable classes of service, call coverage assignments, speed calling and other features shall be documented and programmed by the Contractor. The station review shall be conducted in cooperation and with the assistance of KVCTC personnel for Phase 1 and CTCS personnel for Phase 2. Revisions to the initial programming and software changes shall be made before acceptance of the system.
- F. Extensions shall match the last four digits of the DID line number. Coordinate with the each Using Agency for assignment of DID lines to handset locations.
- G. Coordinate with each Using Agency for call set up, routing, and configuration details and requirements accordingly.

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3.02 VOIP PHONE SYSTEM INSTALLATION:

- A. The station port wiring shall be connected to patch panels and cross connected such that 1 jack is provided for each wired port in the system.
- B. Telephone system labeling shall be typewritten or machine printed labels.
- C. The Contractor shall provide any necessary patch cords to connect the equipment provided. The existing patch cords may be reused but the Contractor shall be responsible for any additional needs. The patch cords shall be manufacturer certified patch cords that meet the Owner's channel warranty requirements for the structured cabling system. Obtain Owner approval on quantity and type before purchasing.

3.03 PAGING SYSTEM INSTALLATION:

- A. Provide all necessary components to interface with the Owner's paging system. The paging system shall have a minimum of 4 zones for KVCTC Building 2000. The paging system shall have a minimum of 2 zones for the ATC. Coordinate with OIT on final configuration.

3.04 ENHANCED 911:

- A. The system shall provide Enhanced 911 service.
- B. Provide "port" level location data for 911 calls. Include floor, room, cubicle information.
- C. Provide an administrative alert for any 911 calls made from within the system.

3.05 UPS:

- A. Provide new UPS units to support the VoIP phone system and the local area network equipment in each telecom room. Refer to the floor plans in Appendix D for telecom room quantities and locations.

3.06 WARRANTY AND MAINTENANCE SERVICE:

- A. Equipment shall be free of faulty workmanship and defects for a period of one year from date of substantial completion.
- B. Replace defective materials and repair faulty workmanship within 24 hours of notification at no cost to the Owner during warranty period.

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- C. In addition to warranty, provide maintenance service for the warranty period, including at least two semi-annual visits to site for checking and adjustment of equipment. During this period, answer service calls within 24 hours. During this period, maintenance calls shall be completed within 24 hours of notification and at no cost to the Owner.
- D. Contractor warrants that all maintenance staff who shall service the system have been fully trained and certified by the manufacturer as qualified to service the system.
- E. Repair service shall be provided by the contractor on a 24 hour, seven day a week schedule.
- F. The Contractor shall provide a two hour on-site response time in the case of emergencies. Emergencies are considered system problems in which 25% or more of the stations or trunks are out of service.
- G. Remote monitoring, diagnostics and repair services shall be provided for the telecommunications system 24 hours per day, seven days a week, during the entire warranty period. All required hardware and software for remote monitoring, diagnostic, and repair services shall be included in the quoted price and shall be the property of the owner with passwords provided to the owner upon system cutover. The Offeror shall explain how system alarms are monitored and responded to remotely. Additionally, the Offeror shall explain what security features are provided to protect remote diagnostic access ports from unauthorized users.
- H. The Contractor shall provide a toll free help line for maintenance and programming questions/assistance during the warranty period.
- I. The Contractor shall include all software upgrades during the one year warranty period.
- J. Non-Warranty Services (both phases):
 - 1. Offerors shall provide hourly labor rates for service calls relating to non-warranty service including moves, adds and changes (MACs).
 - 2. The Offeror shall provide information on their warranty service contracts and follow-on maintenance programs available to the owner after the end of the warranty period.
 - 3. If the owner does not execute a service contract by the end of the warranty period, the Contractor shall provide services to the owner on a time-and-materials basis for at least six years. Time-and-materials repair service

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shall be provided by the contractor from 8:00 am to 6:00 pm Monday through Friday.

APPENDIX A3
LOCAL AREA NETWORK & WI-FI SYSTEM

PART 1: GENERAL

1.01 DESCRIPTION

- A. This section covers the installation and configuration of the Local Area Network (LAN) and Wi-Fi system for both Phase 1 and Phase 2.
- B. Specialty system general provisions are specified in Appendix A1, Communications General.
- C. Specialty systems commissioning is specified in Appendix A4, Communications Commissioning.

1.02 QUALITY ASSURANCE REQUIREMENTS

- A. Conform to the following:
 - 1. TIA 568-B1-B3, with addenda.
 - 2. TIA/J-STD-A-2002.
- B. Contractors Qualifications:
 - 1. Offerors with a minimum of five years successful installation experience who, in the last three years, have installed two systems similar to that required for this project.
 - 2. Cisco gold certified partner.
 - 3. Contractor shall assign a project manager with a minimum of five years field experience in installation of local area networks and certified by the manufacturer as a master networking partner. The project manager shall be assigned for the duration of the project and shall not be replaced without written approval from the Owner.

1.03 WARRANTY

- A. Response Times for Trouble Calls:
 - 1. Each Using Agency has normal hours of operation from 8:00 am to 6:00 pm, three-hundred-sixty-five days each year. The service provider is expected to provide support during those hours of operation as described.

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2. The service provider will be required to have remote access, monitoring, and diagnostic capability for problem identification and, possibly, resolution. A VPN would be acceptable.
3. "On-site response" is defined as having technical support on site and troubleshooting the problem within the defined timeframes. Upon arrival on site, the service provider must notify each Using Agency's Office of Information Technology (OIT) that assistance is on site and must continue to update the OIT personnel on a regular basis until the trouble is resolved and cleared.
4. The service provider will be responsible for notifying the OIT in a timely manner so that the OIT trouble ticket can be kept current on the progress toward resolution as well as the specific actions taken to resolve each problem.
5. Utilize OIT's Response and Escalation Plan defining levels of support, logistics and proposed processes to meet the service level requirements.
6. The final determination of whether a call is of "critical" or "non-critical" severity shall be solely at the discretion of OIT.
7. Critical Trouble Calls:
 - a. Critical trouble calls are those as reported by OIT as severely affecting the operations of the facility such as:
 1. Core Switch down.
 2. The VoIP phone system down.
 3. Total system failure.
 4. Other problems at the discretion of OIT.
 - b. The on-site response time for a Critical Trouble Call during OIT department hours of operation is one (1) hour or less between the time the problem is reported to the service provider and the time a technician is on-site.
 - c. The on-site response time for a Critical Trouble Call during OIT department hours of non-operation is four (4) hours or less between the time the problem is reported to the service provider and the time a technician is on-site.
 - d. During OIT department hours of operation, the remote services and diagnostics should commence within fifteen (15) minutes following notification to the service provider of a malfunction by OIT department or by way of remote monitoring.

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- e. During OIT department hours of non-operation the remote services and diagnostic should commence within two (2) hours following notification to the service provider of a malfunction by OIT department or by way of remote monitoring.
 - f. Critical trouble calls are to be resolved within twenty-four (24) hours following notification to the service provider of a malfunction by OIT department or by way of remote monitoring.
5. Non-Critical:
- a. Non-Critical trouble calls are those reported by OIT as those not severely impeding normal operations such as:
 - 1. Single peripheral inoperative.
 - 2. Secondary work station malfunction.
 - 3. Others at the discretion of OIT.
 - b. The on-site response time for a Non-Critical Trouble Call during OIT department hours of operation is twenty-four (24) hours or less between the time the problem is reported to the service provider and the time a technician is on-site.
 - c. The on-site response time for a Non-Critical Trouble Call during OIT department hours of non-operation is twenty-four (24) hours or less between the time the problem is reported to the service provider and the time a technician is on-site.
 - d. During OIT department hours of operation, the remote services and diagnostics for a Non-Critical Trouble Call should commence within two (2) hours following notification to the service provider of a malfunction by OIT department or by way of remote monitoring.
 - e. During OIT department hours of non-operation the remote services and diagnostics for a Non-Critical Trouble Call should commence within twenty-four (24) hours following notification to the service provider of a malfunction by OIT department or by way of remote monitoring.
 - f. Non-Critical trouble calls are to be resolved within ninety-six (96) hours following notification to the service provider of a malfunction by OIT department or by way of remote monitoring.
- B. Warranty Services:

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1. The Local Area Network inclusive of all software and hardware shall perform as specified for a period of twelve (12) months from the date of final acceptance by the Owner of the overall project.
2. Contractor shall provide all labor, materials, and transportation necessary to correct defective programs, applications including any reprogramming, replacement, and/or change out as may be necessary.
3. All replacement parts will be new during the period of warranty.
4. All new parts and hardware shall be warranted from defects for a period of twelve months from the date of final acceptance of the overall project.
5. All products delivered shall conform to all technical specifications, shall be free from defects in material, workmanship and design and shall be suitable for their intended use at the time of final acceptance.
6. Contractor shall provide all labor, materials and transportation necessary to correct or replace defective or non-conforming parts or components when notified by OIT department of such defects within the warranty period at no additional cost to the Using Agency.
7. All servers, workstations and peripherals shall receive preventative maintenance servicing at a minimum of every six months constituting two such services during the warranty period.

C. Warranty Term Maintenance Services:

1. The Successful Contractor shall provide preventive and emergency maintenance services as part of the warranty.
2. The Successful Contractor shall provide 365 days a year, 24 hours a day, 7 days a week telephone support for System Administrators via a toll free or local telephone number.
3. All technicians (including backup technicians) performing installation and maintenance shall have a minimum of two years experience on the proposed system and be manufacturer certified on all hardware/software applications.
4. All hardware support and application software support shall be provided by the Successful Contractor.
5. Manufacturer warranty and maintenance contracts shall be maintained for all third party hardware and software obtained under this contract.

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6. All maintenance will be performed by manufacturer certified and authorized technicians.

1.04 MAINTENANCE

- A. The maintenance period will begin on completion of the twelve (12) month warranty period.
- B. The Contractor will provide annual maintenance for a period of three (3) years as a separate price to OIT.
- C. The maintenance fee will be paid monthly, in arrears.
- D. All maintenance will be performed by manufacturer certified and authorized technicians for all hardware and software.
- E. Manufacturer maintenance contracts will be maintained by the Contractor on behalf of each Using Agency. The CTCS will be the named contract owner for all maintenance contracts.

1.05 SERVICE LEVELS

- A. As noted previously, the network is considered to be a mission critical system. It is expected that the successful Contractor will provide a system that meets the classification of "mission critical". Therefore, it is the intent to encourage the successful Contractor to support the system in a suitable manner.
 1. The durations defined below begin when the service provider arrives on-site.
 2. The penalties noted below are cumulative each thirty (30) days.
 3. The total penalties will not exceed the monthly maintenance fee for the period under consideration.
 4. Multiple penalties will not be applied for any single failure.
 5. Each single failure will have the most stringent penalty applied.
 6. Multiple penalties will be applied, as appropriate, within any thirty (30) day period.
 7. The Contractor will be expected to schedule maintenance windows between the hours of 7:00 PM and 5:00 AM.

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8. Maintenance windows must be scheduled at least one (1) week in advance and must be approved by OIT at least twenty-four (24) hours in advance.
9. Penalties will not accumulate during normal maintenance windows.
10. Emergency maintenance windows may be permitted at the discretion of OIT.
11. OIT will have the right, but not the obligation, to waive any combination of penalties should circumstances warrant.

B. SLA Reporting:

1. The Contractor will provide system availability reports to OIT on-demand for any thirty (30) day period.
2. The Contractor will provide monthly system availability reports to OIT within 10 days of the end of each month and at least five (5) prior to the invoice for the preceding month.
3. The Contractor and OIT will cooperatively define the format for the SLA reporting.
4. SLA reports will be provided with each monthly invoice.
5. The service provider will provide SLA reports on demand for any thirty (30) day period.

1.06 SCOPE OF WORK

- A. A new network design for the new KVCTC BUILDING 2000 and ATC, including the installation and configuration of new core switches. Provide redundant connections of distribution switches to the new core switches located in the MDF. Refer to the network diagram in Appendix C for additional information.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All active Local Area Network components and software shall be the product of Cisco. No substitutions shall be allowed.
- B. 10 Gigabit Ethernet (GBIC) interfaces between switches shall be provided in a configuration appropriate for the fiber type and distance between switches.

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Provide dual 10 Gigabit uplinks for each distribution switch stack to the core switch for each site.

- C. The Contractor shall provide effective network management software.

2.02 CORE SWITCH

- A. Manufacturer

- 1. Cisco 6500 series.

- B. Physical and Electrical Reliability

- 1. Mounting – 19-Inch EIA Rack.

- 2. Operating Power – 120VAC 60 Hz.

- 3. Mean Time Between Failures (MTBF): 200,000 hours.

- C. Port Capacity

- 1. Configured to support connections indicated on the LAN diagram at minimum. Final design will be configured by the Contractor in collaboration with Owner and Tenant Project Personnel in the LAN workshops.

- D. Downlink Configuration (To Distribution Switches)

- 1. Media Type – Single-mode fiber from remote facilities, multimode to edge distribution.

- 2. Architecture – Multiple.

- 3. Fail-Over – Automatic to remaining link.

- 4. Load Balancing – IEEE 802.1D Spanning Tree, Primary assigned by VLAN.

- 5. Backbone 10 Gbps links.

- E. Switch Internal Configuration

- 1. Switching Fabric - 32-720 Gbps.

- 2. Packets Per Second Rate - 15-400 Mpps.

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- F. VLAN Support
 - 1. VLAN trunking – IEEE 802.1Q.
 - 2. Quality of Service (QOS) – IEEE 802.1P.
 - 3. Port Based Network Access Control - IEEE 802.1X.

- G. Switch Administration
 - 1. Multicast Routing by Port.
 - 2. Per Port Broadcast Storm Control.
 - 3. Group Switch Administration.
 - 4. Web Browser Based Administration.

- H. Network Protocols Supported
 - 1. Ethernet: IEEE 802.3, 10BaseT, and 10BaseFL.
 - 2. Fast Ethernet: IEEE 802.3u, 100BaseTX, 100BaseFX.
 - 3. Gigabit Ethernet: IEEE 802.3z.
 - 4. 10 Gigabit Ethernet: 802.3ae
 - 5. 40 and 100 Gigabit Ethernet: 802.3ba

- I. Management Protocols Support
 - 1. Network Management
 - 2. VLAN Management
 - 3. Traffic Management
 - 4. Auto-Discovery
 - 5. SNMP agent V.1 (RFC 1155-1157)
 - 6. SNMPv2c
 - 7. Workgroup Management Information Base (MIB)

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8. Ethernet MIB (RFC 1643)
9. Ethernet Repeater MIB (RFC 1516)
10. SNMP MIB II (RFC 1213)
11. RMON (RFC 1757)
12. Interface Table (RFC 1573)
13. Bridge MIB (RFC 1493)
14. SMT 7.3 (RFC 1285)
15. Enhanced SPAN
16. Port snooping and connection steering
17. Text Based Command Line Configuration Language
18. Utilize SSH for management access

2.03 DISTRIBUTION SWITCH

- A. Manufacturer
 1. Cisco.
- B. Switch Requirements
 1. 10/100/1000 BaseT PoE ports to support connections as listed on the Network Diagram.
 2. Refer to Appendix B2 for port quantities for each site.
- C. Model number
 1. Cisco 2960-S.
- D. Physical, Electrical and Reliability
 1. Mounting – 19-Inch EIA Rack.
 2. Operating Power – 120VAC 60 Hz.

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3. Mean Time Between Failures (MTBF): 150,000 hours minimum.

E. Port Configuration

1. Port Connector Type – RJ45.
2. Number of Ports – 24, 48 as required.
3. Protocol Support – IEEE 802.3 10BaseT, 100BaseTX, 1000BaseT.
4. Auto-Sensing – 10/100/1000 Mbps.
5. Auto-Negotiation – Full/Half Duplex or fixed.
6. Power over Ethernet (POE+) - IEEE 802.3at.

F. Stacking Configuration

1. Stacking Configuration – 4 Switches Maximum.
2. Stacking Link – 40 Gbps links and loop-back cable.
3. Optional arrangement of chassis based edge switches will be acceptable.
Include proposed arrangement in proposal.
4. For switch stacks above four (4) switches, provide multiple stacks of 2960S switches or provide equivalent port counts utilizing 4500 series or stacked 3750X switches up to nine (9).

G. Uplink Configuration

1. Media Type – multimode OM3 fiber and singlemode.
 - a. Singlemode fiber cable in the campus backbone.
 - b. OM3 multimode fiber cable in the building backbone.
2. Uplink Configuration – Dual port to separate blades on core switches.
3. Fail-Over – Automatic to remaining link.

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4. Load Balancing – IEEE 802.1D Spanning Tree, Primary assigned by VLAN.
 5. Backbone uplink 10 Gbps.
- H. Switch Internal Configuration
1. Switching Fabric – 88 Gbps.
 2. Packet Forwarding Rate – 100 Mpps.
 3. DRAM – 128 Mb.
- I. VLAN Support
1. VLANs per switch – 250
 2. VLAN trunking – IEEE 802.1Q
 3. Quality of Service (QOS) – IEEE 802.1P
- J. Switch Administration
1. Multicast Routing by Port
 2. Per Port Broadcast Storm Control
 3. Group Switch Administration
 4. Web Browser Based Administration
- K. Protocols Support
1. Simple Network Management Protocol (SNMP)
 2. Telnet
 3. Remote Monitoring (RMON) for History, Statistics, Alarm and Events by Port, Port Group or switch.
 4. Domain Name Service (DNS)
 5. Trivial File Transfer Protocol (TFTP)

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6. Network Time Protocol (NTP)
7. Address Resolution Protocol (ARP)
- L. Switch Security
 1. MAC Based Port Level Security
 2. Password Protected Management (In-Band and Out-of-Band)
 3. Multi-Level Passwords

2.04 WI-FI SYSTEM

- A. Manufacturer: Cisco.
- B. General Requirements:
 1. The Contractor shall provide, configure, and deploy a new 802.11n MIMO Wi-Fi network as an extension to the Local Area Network provided in the scope of this RFP.
 2. The Wi-Fi system shall be a highly secured, scalable network architecture.
 3. The Contractor shall provide a high level of security to prevent unauthorized access to the network or wireless intrusion.
 4. The Wi-Fi network shall be interoperable with the local area network equipment. The integration of the wireless equipment shall be seamless.
 5. Refer to the Floor Plans in Appendix D for wireless access point (WAP) telecom outlet locations. The WAP telecom outlets are surface mount biscuit type enclosures with 20' of spare cable coiled for future WAP installation. The telecom cabling and outlet devices have been provided under a separate contract. The Contractor shall determine if additional WAP telecom outlet locations are needed for full coverage and notify OIT

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of the additional infrastructure needed. At minimum, each site shall have a total of 20 WAPs.

6. The Contractor shall utilize a site survey tool for designing the Wi-Fi system and heat maps for optimizing the access point locations. The Contractor shall work with OIT to deliver a Wi-Fi network with the capacity, reliability, coverage, and performance levels required by OIT. The Contractor is responsible for 100% Wi-Fi coverage.

C. System Requirements:

1. The system shall have redundant wireless controllers such that if one controller is down, the system will automatically failover to the other controller.
2. Access points shall be manageable from a central application or device.
3. Network access and authenticating shall be fully functional while the centralized controller or manager is off-line.
4. The Contractor shall provide user/device management software for access control and bandwidth use and tracking.
7. The Wi-Fi system shall have a centralized management software to allow for configuration, monitoring, and security of the system. The Contractor shall provide a software solution that seamlessly integrates the Wi-Fi management with the network management software for visualizing and troubleshooting and maintaining the Wi-Fi system.
5. A firewall shall be provided and configured for the Wi-Fi wireless system. Coordinate with the OIT on security requirements.

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6. The system shall support GRE or IPSEC DMZ tunnels for guest or other Wi-Fi access.
 7. The Wi-Fi system shall be configured with three separate levels of SSIDs:
 - a) Staff SSID
 - b) Student SSID
 - c) Guest Network SSID
 8. The Contractor shall separate SSIDs for BCTC and ATC.
- D. Standards Support:
1. 802.11 a/b/g/n
 2. QoS, VLAN, VoWLAN, WMM (802.11e), 802.1p
 3. VPN, LDAP, AD, and RADIUS authentication support
 4. 802.3af and 802.3at PoE support

2.05 SECURITY EQUIPMENT

- A. Manufacturer: Cisco.
- B. Cisco Adaptive Security Appliances (ASA): The Contractor shall provide and configure Cisco ASA 5525-X series sized for the User's LAN, VoIP, and Wi-Fi system. The ASA appliance shall be a redundant configuration as shown on the Network Diagram in Section X.
- C. Cisco Intrusion Prevention System (IPS): The Contractor shall provide and configure the IPS to the security and risk level requirements defined in the LAN workshops.
- D. Firewalls: The Contractor shall provide and configure Cisco Firewall software to provide security and protect the network, phone system, and Wi-Fi. The Contractor shall configure the firewall with the security requirements defined in the LAN workshops.
- E. Cisco Security Device Manager: The Contractor shall provide and configure the firewall appliance management software.

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- F. Refer to the Network Diagram for quantities and minimum configurations. Final configuration shall be coordinated with the User's through the network workshops.

PART 3 - EXECUTION

3.01 GENERAL

- A. All copper and fiber-optic jumpers installed shall be neatly arranged and labeled according to their circuit numbers. Coordinate with OIT on provisions for patch cords.
- B. All equipment shall be cleaned and free of dirt, debris, and other blemishes.
- C. All debris and packing materials shall be removed from network equipment rooms and disposed of at an off-site or designated disposal location.
- D. A complete drawing shall be produced in Visio format that reflects all items of network equipment, all interfaces and corresponding circuit numbers.
- E. All switch configurations shall be documented in both printed and electronic form and delivered to a designated representative of OIT.
- F. A master list of all IP addressing for both LAN and LAN user components shall be compiled for both network equipment and end user equipment. End user systems using DHCP are exempt from this requirement and must be identified as DHCP systems.
- G. Rack layouts shall be provided for approval.

3.02 SYSTEM CONFIGURATION

- A. The network shall be configured as indicated herein and in cooperation with OIT. Configuration shall not be limited to the equipment provided but shall also include the existing switches and other equipment as necessary.
- B. Configuration Workshops:
 - 1. Prior to installation, the Contractor including the on staff CCIE shall meet with OIT departments in weekly workshops for a minimum of 6 sessions.
 - 2. Workshops shall define the process of installation and configuration of the network components.
 - 3. The CCIE shall configure and test the network equipment prior to installation.

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- C. Distribution switch stacks shall be configured for OSI layer two operations with a maximum of 250 VLANs. Configure Spanning Tree bridge priority on all core switch ports serving distribution switches to ensure the correct distribution switch is selected as the root for each VLAN group.
- D. Core switch blades shall be configured in physically separate pairs as OSI layer three devices, supporting inter-VLAN routing, protocol filtering and access list based security for the region of the network they serve. While most addressing for this network will be static, distribution switches shall be configured to provide Dynamic Host Control Protocol (DHCP) services for the authorized DHCP address range for the region, by either operating as a DHCP server or with a central DHCP server through the use of a helper address.
- E. Distribution switches shall be configured to block unauthorized protocols, ranges of addresses and superfluous traffic from reaching the core of the network. Specific protocols and traffic types to be allowed and disallowed shall be determined jointly with OIT after award of contract. Distribution switches shall be configurable to support regional servers and other resources that are local to the region.
- F. Each distribution switch shall be configured with multiple aggregated 10 Gigabit Ethernet uplinks to separate core switch blades. Traffic shall be load-balanced across all operating links. Configure all aggregate link groups to allow traffic from a failed link to load balance with other traffic on the remaining operating links in the aggregate group. Provide automatic redistribution of traffic on aggregate link groups when a failed link is restored to service.
- G. Distribution switches shall be configured with Hot Standby Protocol in pairs. This configuration shall support fail-over of three layer routing functions to the surviving switch in a failed pair while allowing each client and server to utilize a single default gateway address.

3.03 ADDRESSING PLAN

- A. A complete addressing plan for the data network shall be developed as part of this work through coordination.
 - 1. Contractor shall fully coordinate the addressing scheme.

3.04 ROUTING PROTOCOLS

- A. The IP routing protocol used on the network shall be developed as part of this work through coordination.

3.05 PERFORMANCE VERIFICATION TESTING

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- A. Beginning 3 months prior to the anticipated performance testing the Contractor shall meet weekly with the owner to determine the programming and display requirements of the system. The Contractor shall utilize the information gathered in the meeting to prepare a series of performance verification test checklists. The performance tests shall be submitted for review and approval prior to testing. Upon an approved test plan the Contractor shall perform a pre-performance verification test to verify the system is completely operational prior to requesting the performance verification test schedule. The Contractor shall submit a proposed schedule for testing with a copy of the successful pre-performance verification checklists as proof of readiness.
- B. The performance verification test shall consist of multiple checklists that describe each step required to operate the system. Operational functions such as login at gate location for inbound or outbound flight from workstation locations, modifying flight data, visual paging, and other items discussed in the weekly meetings shall be addressed. These checklists should have checkboxes for approval and signature lines for both the Contractor and OIT personnel to sign-off on as the test is successfully completed.

3.06 TRAINING

- A. On-site training shall be provided for technical and operations staff who will maintain and operate the VoIP phone system and Local Area Network. This training shall result in factory certification of each individual in the areas for which they will be responsible. All costs for this training shall be included in the cost for this work.
- B. Training shall include but not limited to network operation, configuration, traffic monitoring, troubleshooting, repair, and routine maintenance. Training shall include classroom training and hands-on training on the actual network. Each trainee shall be provided with factory produced training materials on the portions of the network they will be responsible for. One complete and reproducible set of materials shall be provided for future training use.

3.07 DOCUMENTATION

- A. Complete system documentation is to be delivered in both print and electronic format. Including:
 - 1. As-built drawings showing all cabling and network components.
 - 2. As-built drawings showing all head-end equipment.
 - 3. As-built drawings showing all system interconnections to other systems.

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4. All system user, administrative, operational and maintenance documentation.
5. All training materials.
6. Complete system inventory showing the location, model numbers, and serial numbers of all components.
7. Complete inventory of all spares showing model number, serial number, and location.
8. Escalation chart showing contact information and trouble reporting process.
9. Inventories to be in either Microsoft Excel or Access format (Office 2007 or newer).
10. Documents to be in either Microsoft Word (Office 2007 or newer) or PDF format.
11. Drawings to be in Microsoft Visio format.

APPENDIX A4
SPECIALTY SYSTEMS COMMISSIONING

PART 1: GENERAL

1.01 DESCRIPTION:

- A. Commissioning is an ongoing process and shall be performed throughout the installation. Commissioning verifies that systems are operating in a manner consistent with the Contract Documents.
- B. This Section covers specialty systems commissioning, as required to demonstrate that the equipment and systems of Appendix A, Communications VoIP Phone Systems, and Local Area Network & Wi-Fi system, are ready for safe and satisfactory operation, as defined by the Contract Documents. Commissioning shall include, but shall not be limited to, identification specialty system devices, cabling and equipment, cleaning, check-out, testing and adjusting of systems, preparation of equipment and systems documentation and of maintenance and operation manuals, Owner training, and preparation of record drawings.
- C. Commissioning shall conclude with the completion of required testing, training, and system documentation as specified herein and required to demonstrate the proper operation of the specialty equipment and systems.
- D. This Section applies to all phases of the project.

1.02 QUALITY ASSURANCE:

- A. Provide a Specialty Systems Commissioning Supervisor. The Specialty Systems Commissioning Supervisor shall have 10 years experience in specialty systems contracting. The Specialty Systems Commissioning Supervisor shall become familiar with the Owner's project requirements and the requirements of the commissioning process as defined in this Section. The Specialty Systems Commissioning Supervisor shall coordinate and execute the required commissioning activities.
- B. The Specialty Systems Commissioning Supervisor shall review submittal data for conformance with the requirements of the Project, shall monitor compliance with the requirements specified herein for storage and protection of equipment during installation, shall oversee testing, and shall document that the scheduled and specified performance requirements of each system have been accomplished.

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1.03 COMMISSIONING RESPONSIBILITIES:

- A. The Specialty Systems Commissioning Supervisor shall be responsible for, scheduling, supervising, coordinating, and executing the testing and commissioning activities as specified herein.

- B. Specialty systems commissioning shall take place in three phases. Commissioning requirements for each phase are as follows:
 - 1. Installation Phase:
 - a. Each Friday during the installation phase of the Project, transmit a weekly status update report to the Owner (via e-mail), using the form included herein. (The Owner will e-mail an electronic version of the attached form to the Contractor upon request.)

 - b. Provide documentation of installed systems and equipment and develop functional testing procedures, prior to normal O&M manual submittals. This documentation shall include detailed manufacturer installation, operating, troubleshooting and maintenance procedures; full factory testing reports, if any; and full warranty information, including responsibilities of the Owner to keep the warranty in force. In addition, the installation, check-out materials that are actually shipped inside the equipment, and the actual field check-out sheet forms to be used by the factory or field technicians shall be submitted to the Owner.

 - c. Develop and submit to the Owner for review and comment, prior to system functional testing, a complete functional testing plan using manufacturer's testing procedures and functional testing checklists for equipment to be commissioned.

 - d. Assist in clarifying the proposed operation and control of commissioned equipment in areas where the specifications, drawings or equipment documentation is not sufficient for writing detailed testing procedures.

 - e. Review the proposed functional test procedures to ensure feasibility, safety, and equipment protection. Obtain approval from the Owner for proposed functional test procedures before the Commissioning phase begins.

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- f. Prepare a preliminary schedule for commissioning activities, including equipment testing and adjusting from start to completion, and update the schedule during the construction period, as appropriate. Notify the Owner immediately when commissioning activities not yet performed, or not yet scheduled, will delay the installation.
 - g. Provide functional testing for equipment and execute the specialty systems related portions of the functional checklists for commissioned equipment during the testing process.
 - h. Perform and document functional tests results, providing a copy to the Owner.
 - i. Correct noncompliance items before beginning acceptance testing. Discrepancies and problems shall be remedied before acceptance testing.
2. Acceptance Phase:
- a. Place equipment and systems into operation and continue their operation during each working day of the acceptance testing and commissioning activities, as required.
 - b. Provide skilled technicians to execute acceptance testing of each system. Technicians shall be available and present during the agreed upon scheduled acceptance tests and for sufficient duration to complete the necessary tests, adjustments and problem-solving.
 - c. Perform acceptance testing for specified systems and equipment as directed by the Owner and interpret the test data as necessary.
 - d. Correct deficiencies (differences between specified and observed performance) as identified and interpreted by the Owner and retest the equipment, as required to demonstrate proper operation and performance.
 - e. Prepare O&M manuals as specified, including clarifying and updating the original sequences of operation to as-built conditions.
 - f. Maintain marked-up record drawings and produce final record drawings of project drawings and Contractor-generated coordination drawings.
 - g. Provide specified training of the Owner's operating personnel.

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- h. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty.
 - i. After installation and cutover is completed, system acceptance tests shall be performed by the Contractor for the installed VoIP phone system including common equipment, telephone instruments, IP voice/data LAN infrastructure, centralized voice messaging system, system administration interface, centralized call accounting system, paging system UPS battery backup systems, and all selected options.
3. Warranty Period:
- a. Correct deficiencies and make necessary adjustments to operations and maintenance manuals, and as-built drawings system or equipment modifications made during the warranty period. Provide complete, accurate, and up-to-date as-built drawings at completion of warranty period.
 - b. Warranty period shall begin upon the Owner's final acceptance of the phone system.

PART 2: PRODUCTS

2.01 TEST EQUIPMENT:

- A. Standard testing equipment required to perform the required testing shall be provided by the Contractor for the equipment or system being tested.
- B. Test equipment shall be of the quality and accuracy required to test and/or measure system performance with the tolerances specified and shall have been calibrated within the last 12 months, or as specified herein. Equipment shall be calibrated according to the manufacturer's recommended intervals and when dropped or damaged. Calibration tags shall be affixed or certificates available on request. Accuracy of other sensors shall be at least twice that of the instrumentation being tested.

PART 3: EXECUTION

3.01 CLEANING:

- A. Equipment and Equipment Rooms:
 - 1. Remove dust, dirt, rust, stains, and temporary covers.

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2. Foreign matter shall be blown, vacuumed, or cleaned out of and from equipment, and enclosures.
3. In equipment rooms, clean equipment, and room surfaces from dust and dirt and maintain in a clean condition from date of substantial completion until final completion of work and corrective work.

3.02 IDENTIFICATION:

A. General:

1. Identification shall consist of upper case letters.
2. Provide labeling for patch cables and all equipment installed as part of this contract.

B. Equipment:

1. Provide and install labels for each item rack-mounted equipment.

3.03 SUBMITTALS:

- A. Submit additional documentation as required to support the commissioning process. This additional submittal documentation shall include, at a minimum, the proposed functional testing plan, and functional testing checklists. Provide the functional testing plan and checklists to the Owner for approval at least 10 days before testing is to begin.

3.04 FUNCTIONAL TESTING:

A. General:

1. Functional testing shall be performed as required to ensure that the equipment and systems are properly installed and ready for operation, so that acceptance testing may proceed without delays. Follow the approved functional testing procedures. Sampling strategies shall not be used for functional testing. The functional testing for equipment and subsystems of a given system shall be successfully completed and documented prior to acceptance testing of the system.
2. Functional testing plan: develop the detailed functional testing plans for equipment and systems that are to be commissioned, as specified herein. Review the proposed procedures and functional testing documentation to ensure that there is written documentation that each of the manufacturer-recommended procedures has been completed.

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3. The functional testing plan shall include the manufacturer's standard written check-out procedures copied from the installation manuals and manufacturer's normally used field check-out sheets. The plan shall include checklists and procedures with specific boxes or lines for recording and documenting the tests recommended by the equipment manufacturer, and as specified herein. Each checklist shall include a summary statement with a signature block at the end of the plan.

B. Communications VoIP Phone System Tests:

1. General:

- a. Applies to Appendix A2, Communications VoIP Phone System.
- b. Prior to performance testing, certify that hardware and features have been tested to ensure that no mechanical or electrical problems exist, and that features are functional.
- c. Performance testing shall verify the ability of the system equipment components (hardware and software) and modules to perform the service functions specified are complete and functioning properly. The performance test shall determine performance under a day to day operation during a 30 day period immediately following cutover. The test shall be performed until a consecutive 30 day period has elapsed, during which performance is satisfactory. Documentation of the satisfactory completion of this test shall be provided to the Owner.

3.05 ACCEPTANCE TESTING:

- A. Before obtaining permission from the Owner to schedule the acceptance tests, provide written certification that each system has been calibrated, tested and is ready to begin the 14 day burn-in period and acceptance testing.
- B. Conduct final acceptance test after a period of not less than 14 consecutive normal working days of trouble- free operation.
- C. During this burn-in period, each system shall operate continuously for 24 hours per day. During the acceptance test, demonstrate the correct operation of features and capabilities specified herein.
- D. The Owner reserves the right to witness the acceptance tests. Notify the Owner at least 10 days prior to the date scheduled for the tests.
- E. The Owner will accept the installed integrated systems when each Using Agency's personnel have witnessed that the acceptance tests have been satisfactorily

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completed and the specified criteria have been satisfied and the system operates without failure or Contractor intervention for the entire burn-in period.

- F. The Offeror shall include the cost for system acceptance testing in the quoted price for each system.
- G. During system cutover, the Contractor's personnel shall test each telephone instrument and connected device to ensure that all programming is correct based upon the programming templates.
- H. The Contractor shall provide a Test and Acceptance Report (TAR) including, but not limited to the following information:

1.	A copy of the completed Acceptance Test Plan
2.	A copy of the performance test certification
3.	Test results and verification sheets
4.	Areas of noncompliance /deficiencies to be corrected by Contractor
5.	Conclusions and recommendations
6.	Signature block for the Owner and the Contractor

- I. The Contractor shall provide a test and acceptance plan to demonstrate correct operation of the installed systems to each Using Agency's personnel. The system acceptance test plan shall include, but not be limited to, the following:

1.	The VoIP phone systems, voice messaging system, telephone instruments, and all other equipment and software shall operate correctly to provide telephone communications as specified
2.	The VoIP phone systems shall operate correctly in the VoIP networked arrangement over the network and with the lines and trunks installed and supplied by the local dialtone provider
3.	All connected telephone instruments shall have dialtone and shall be able to originate and receive calls
4.	All telephone instruments, keypads, feature keys, buttons, lights, tones, and signals shall operate and be programmed correctly to meet the requirements as determined in programming reviews
5.	Classes of service and call coverage shall be defined and assigned to each telephone instrument per pre-cutover request. Each class shall be demonstrated to provide the defined access/restriction
6.	Incoming and outgoing call routing shall operate as specified including long distance and 911 emergency calls
7.	The installed system shall provide all features and capabilities required by the specifications
8.	All features and capabilities shall operate trouble free under operational traffic loads
9.	All dialing (DTMF and dial pulsing) shall be correctly done and incoming calls correctly processed.

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10	All cabling, grounding and equipment installation shall be complete, in permanent locations and in accordance with industry standards and these specifications
11.	System monitoring and alarms shall be operating correctly
12.	Power outage feature - Power and system restoration procedures shall be demonstrated, including explanation of required coordination with the local telephone company for digital circuits and DID trunks. - Testing and demonstration of the operation of the UPS system with a total power outage
13.	System documentation shall be complete and on file at each location
14.	All telephone system and voice messaging system training and help desk support shall be completed as specified and agreed upon including training for telephone user personnel and the system administrators
15	All deficiencies noted by each Using Agency shall be corrected

- J. In the event that the VoIP phone systems do not operate as required by this specification or as expected by the equipment manufacturer or has failed any tests defined in the test plan, the Contractor shall propose a plan for identifying and resolving the cause of the problem. This contention resolution plan shall isolate faults in the local dialtone provider facilities, FTS provider facilities, copper cabling, or equipment provided by the Contractor. The Contractor is not responsible for correcting faults associated with equipment, services, or cabling that was not installed as part of the contract resulting from this RFP. The Contractor shall correct faults associated with equipment, service or cabling that is part of the contract resulting from this RFP prior to system acceptance.

3.06 RETESTING OF EQUIPMENT AND/OR SYSTEMS:

- A. Provide labor and materials required for retesting of any functional test found to be deficient.
- B. Prior to retesting, submit required data indicating that the deficient items have been completed and/or corrected to the Owner for approval and rescheduling of the functional test. If during the retesting it becomes apparent that the deficient items have not been completed and/or corrected as indicated in the data provided by the Contractor, the retesting shall be stopped. Costs for the commissioning team to further supervise the retesting of a functional test shall be the responsibility of the Contractor.

3.07 TESTING DOCUMENTATION, NONCONFORMANCE, AND APPROVALS:

- A. Provide the Owner with a list of outstanding items of the functional testing procedures that were not completed successfully within 2 days of test completion. The Owner will then review the Contractor's functional testing reports and submit either a noncompliance report or an approval form to the Contractor. The

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Contractor shall work with the Owner to retest deficiencies or uncompleted items. Correct items that are deficient or incomplete in the checklists and tests in a timely manner, and notify the Owner as soon as outstanding items have been corrected. Resubmit an updated report and a statement of correction on the original noncompliance report. When requirements are completed, the Owner will recommend approval of the functional testing of each system and schedule the acceptance testing of the equipment or system.

- B. As acceptance testing progresses and deficiencies are identified, work with the Owner to resolve the issues.

3.08 OPERATION AND MAINTENANCE DOCUMENTATION PACKAGE:

- A. These operation and maintenance (O&M) manual requirements supplement O&M manual documentation requirements of other Sections of these specifications.
- B. The Contractor shall compile and prepare documentation for equipment and systems covered in Appendix A, Communications VoIP Phone System and Local Area Network and Wi-Fi system, and deliver this documentation for inclusion in the O&M manuals prior to the training of the Owner's personnel. The Owner shall receive a copy of the O&M manuals for review.
- C. O&M documentation, in hardback 3-ring loose-leaf binders except full size drawings and diskettes, shall cover the specialty systems. Documentation shall include operations and maintenance documentation directory, Contractor emergency information, operating manuals, maintenance manuals, test reports, and Contract Documents.
- D. The operating and maintenance documentation package shall be submitted as one comprehensive package to the Owner 3 weeks before systems acceptance testing, and shall be updated, revised and completed during, and at completion of, commissioning.
- E. Documentation shall be type written and shall contain, at a minimum, the following information.
 - 1. Introduction:
 - a. Project name, Contract number, Contractors' name, address, and telephone and facsimile numbers.
 - b. Index.
 - 2. O&M Documentation Directory:

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- a. Explanation of the identification system used, including lists of systems, equipment and component identifiers and names.
3. Emergency Information:
 - a. Information for technical and nontechnical personnel about actions recommended during emergency situations to protect property and to minimize disruption to the building occupants. Emergencies shall, at a minimum, include:
 - 1) Power failure.
 - 2) Cooling failure.
 - 3) Equipment Failure.
 - b. Contractor contact information for warranty period issues.
 4. Operating Manual:
 - a. General information for each system as applicable:
 - 1) System features.
 - 2) System description.
 - b. Technical information for each system as applicable:
 - 1) System specifications.
 - 2) Operating routines and procedures.
 - 3) User programming instructions.
 - 4) Special procedures.
 - 5) Basic troubleshooting.
 - 6) Operating Manuals.
 5. Maintenance Manual:
 - a. Descriptions (specifications) of the equipment and components.

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- b. Description of function, as applicable: the function of the equipment, functional parameters, and performance verification procedures.
 - c. Recommended maintenance procedures and their recommended frequency for this Project.
 - d. Name, address and contact of at least one qualified service company.
 - e. Recommended list of spare parts, part numbers, and the place(s) from which they can be obtained.
 - f. Original purchase order number; date of purchase; name, address, and the telephone number of the Contractor; and warranty information.
 - g. Manufacturer's recommended procedures.
 - h. Any other information needed for the preparation of documents supporting the management of O&M programs.
 - i. Copies of software configuration files and/or programming files, as applicable, on CD-ROMs.
6. Test Reports and Certifications:
- a. Copies of tests and certifications performed during manufacture, construction, and commissioning.
7. Contract Documents:
- a. Record drawings.
 - b. Approved submittals.
 - c. Warranty certificates.
 - d. Inspection certificates.
 - e. Commissioning report.
- F. Submit a receipt signed by the Owner acknowledging receipt of the O&M documentation package.

3.09 RECORD DRAWINGS:

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- A. Upon completion of the Project, submit record drawings indicating as-built conditions of the VoIP phone system and network equipment incorporating changes made during the project. Submit the following:
 - 1. One as-built drawing of installed equipment in the each telecom room submitted electronically in PDF format. The as-built drawing shall consist of elevations of console, cabinet, or rack-mounted equipment in each telecom room. Provide two hard copies in full size print to each Using Agency along with the electronic copy.
 - 2. Scaled floor plans clearly indicating equipment locations including equipment identification and references to any cross connects. Floor plans shall include all phone devices installed by the Contractor and their associated DID submitted, VoIP phone system equipment, LAN equipment, and Wi-Fi equipment, electronically in PDF format. Provide two hard copies in full size print to each Using Agency along with the electronic copy.
 - 3. Logical network diagram of final system configuration.
- B. A record of as-built conditions shall be maintained at the site, shall be kept current throughout the Project, and shall be used in the preparation of the final record drawings.
- C. Record drawings shall, as a minimum, include:
 - 1. The manufacturer and model number of each piece of equipment.
 - 2. Equipment location and orientation.
 - 3. Revised shop drawings indicating field and as-installed conditions.
- D. Provide one full size record drawing of the equipment elevation and floor plan framed in each telecom room.

3.10 MAINTENANCE:

- A. Equipment operated prior to the date of final system acceptance shall be maintained in accordance with manufacturers' recommendations.

3.11 INSTRUCTION OF OPERATING PERSONNEL:

- A. Conduct formal user training sessions for operating personnel.

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- B. Prepare and submit a syllabus describing an overview of the program, describing how the program will be conducted, when and where meetings are to be held, names and company affiliations of lecturers, description of contents and outline for each lecture, and recommended reference material and outside reading. Obtain direction on which operating personnel shall be instructed in each system.
- C. The Contractor shall digitally record the training classes and shall provide digital copies.
- D. Sessions shall include:
 - 1. General familiarization and operating procedures for each specialty systems installation.
 - 2. Routine maintenance procedures for equipment.
 - 3. User level programming.
 - 4. Provide a complete record copy on CD-ROM of all training materials, handouts, and other printed materials.
 - 5. Obtain receipt acknowledging completion of each item of instruction.

3.12 USER TRAINING:

- A. Specialty Systems:
 - 1. Conduct general user training in a number of classes using manufacturer certified trainer for the system. The Contractor shall submit the Trainer's resume for approval before training is to begin. Coordinate the number of classes required to satisfy user training with KVCTC and CTCS. The total hours of user training is 80 hours per site to be coordinated with the each group. Training hours only is actual time on site in training classes. Travel time shall not be included in these hours.
 - a. User training shall include two types of classes:
 - 1) Level 1: Standard User
 - 2) Level 2: Power User
 - 2. Provide appropriate user training flyers or manuals for each training class in a quantity of 1 per telephone plus 10% and an electronic PDF copy to the KVCTC and CTCS staff.
 - 3. Coordinate schedule for training classes at a time and location mutually agreed upon for each site.

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4. Provide separate private training for the auto attendant users. The auto attendant sessions shall be a minimum of 8 additional hours of training. auto attendant training sessions shall be coordinated with the IT staff.

3.13 ADMINISTRATIVE TRAINING:

A. Specialty Systems:

1. Conduct extensive administrative training class for four (4) IT staff personnel for KVCTC and CTCS consuming a minimum of 80 hours total time for each using manufacturer certified trainer for the system.
2. Coordinate administrative training schedule and location with each Using Agency group. Obtain approval on Training Plan before installation of the new system begins for each facility.
3. The administrative training shall certify the KVCTC and CTCS IT personnel on each system installed as part of this project.

WEEKLY PROJECT STATUS UPDATE TO NEWCOMB & BOYD

Date: _____

Covering progress for the week of: _____ through: _____

Project: _____

Location: _____

Expected date of completion: _____ Expected date of acceptance testing: _____

General Contractor: _____ SubContractor using this report: _____

Contact: _____ Contact: _____

Telephone: _____ Telephone: _____

E-mail: _____ E-mail: _____

Summary of progress made since last report: _____

Summary of progress to date: _____

Outstanding RFIs: _____

Outstanding change orders: _____

Other issues or discrepancies: _____

File Name of Photos sent via e-mail:

Areas covered/subject matter:

APPENDIX B
ATTACHMENTS

APPENDIX B1

SCHEDULE OF NEW DESK SETS

KVCTC

Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
KG04	004	CLASSROOM	STANDARD	1	MDF-1 (KD01)
KG06	005	OFFICE	STANDARD	1	MDF-1 (KD01)
KG08	005B	VP WORKFORCE	STANDARD	1	MDF-1 (KD01)
KG09	005C	DIR. CONT. ED	ENHANCED	1	MDF-1 (KD01)
KG11	005E	PROGRAM COORD.	STANDARD	1	MDF-1 (KD01)
KG12	005F	DIR. PROF. DEV.	STANDARD	1	MDF-1 (KD01)
KG13	005G	ADMIN.	STANDARD	1	MDF-1 (KD01)
KG14	005H	ADMIN.	STANDARD	1	MDF-1 (KD01)
KG15	005J	ADMIN.	STANDARD	1	MDF-1 (KD01)
KG16	006	BOARD/CONF./TRAIN.	STANDARD	1	MDF-1 (KD01)
KG16	006	BOARD/CONF./TRAIN.	STANDARD	1	MDF-1 (KD01)
KG18	008	STUDENT GOV.	STANDARD	1	MDF-1 (KD01)
KG18	008	STUDENT GOV.	STANDARD	1	MDF-1 (KD01)
KG18	008	STUDENT GOV.	STANDARD	1	MDF-1 (KD01)
KG19	009	WORKRM ADJ. FAC.	STANDARD	1	MDF-1 (KD01)
KG19	009	WORKRM ADJ. FAC.	STANDARD	1	MDF-1 (KD01)
KG19	009	WORKRM ADJ. FAC.	STANDARD	1	MDF-1 (KD01)
KG19	009	WORKRM ADJ. FAC.	STANDARD	1	MDF-1 (KD01)
KG19	009	WORKRM ADJ. FAC.	STANDARD	1	MDF-1 (KD01)
KG21	012A	CASHIER	STANDARD	1	MDF-1 (KD01)
KG21	012A	CASHIER	STANDARD	1	MDF-1 (KD01)
KG21	012A	CASHIER	STANDARD	1	MDF-1 (KD01)
KG21	012A	CASHIER	STANDARD	1	MDF-1 (KD01)
KG21	012A	CASHIER	STANDARD	1	MDF-1 (KD01)
KG24	012C	DIS. TEST	STANDARD	1	MDF-1 (KD01)
KG25	012D	DIS. TEST	STANDARD	1	MDF-1 (KD01)
KG28	TBD	VET. COORD.	STANDARD	1	MDF-1 (KD01)
KG29	TBD	STUD. PROG. ADV.	STANDARD	1	MDF-1 (KD01)
KG31	TBD	TRANS. ADV.	STANDARD	1	MDF-1 (KD01)
KG32	TBD	TRANS. ANALY.	STANDARD	1	MDF-1 (KD01)
KG33	012	RECEPTION	STANDARD	1	MDF-1 (KD01)
KG33	012	RECEPTION	ENHANCED	1	MDF-1 (KD01)

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Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
KG34	011	SECURITY	STANDARD	1	MDF-1 (KD01)
KG35A	012P	DEAN OF STUD. SERV.	STANDARD	1	MDF-1 (KD01)
KG36	012N	FIN. AID ASSOC. DIR.	STANDARD	1	MDF-1 (KD01)
KG37	012M	FIN. AID COUNC.	STANDARD	1	MDF-1 (KD01)
KG38	012L	FIN. AID	STANDARD	1	MDF-1 (KD01)
KG39	012K	DISAB. COUNC.	STANDARD	1	MDF-1 (KD01)
KG40	012J	CAREER SERVICES	STANDARD	1	MDF-1 (KD01)
KG41	012H	ADMIN. COUNSLER	STANDARD	1	MDF-1 (KD01)
KG42	012G	DIR. OF ADMISS.	ENHANCED	1	MDF-1 (KD01)
KG43	012F	REGISTR.	STANDARD	1	MDF-1 (KD01)
KG54	021	CLASSROOM	STANDARD	1	MDF-1 (KD01)
KG55	022	CLASSROOM	STANDARD	1	MDF-1 (KD01)
KG56	023	CLASSROOM	STANDARD	1	MDF-1 (KD01)
KG57	024	CLASSROOM	STANDARD	1	MDF-1 (KD01)
KG58	025	CLASSROOM	STANDARD	1	MDF-1 (KD01)
KG59	026	CLASSROOM	STANDARD	1	MDF-1 (KD01)
KG64	029	ABE LAB	STANDARD	1	MDF-1 (KD01)
KG65	029A	OFFICE	STANDARD	1	MDF-1 (KD01)
KG67	030	COMPUTER TESTING	STANDARD	1	MDF-1 (KD01)
KG68	031	SUCCESS CENTER	STANDARD	1	MDF-1 (KD01)
KG69	032A	FAC.	STANDARD	1	MDF-1 (KD01)
KG70	032B	FAC.	STANDARD	1	MDF-1 (KD01)
KG71	032C	FAC.	STANDARD	1	MDF-1 (KD01)
KG72	032D	DEAN	STANDARD	1	MDF-1 (KD01)
KG74	032F	ADMIN.	STANDARD	1	MDF-1 (KD01)
KG75	032G	FAC.	STANDARD	1	MDF-1 (KD01)
KG76	032H	FAC.	STANDARD	1	MDF-1 (KD01)
KG77	032J	FAC.	STANDARD	1	MDF-1 (KD01)
K103	103	FAC.	STANDARD	1	IDF-1 (KD100)
K104	104	IV	STANDARD	1	IDF-1 (KD100)
K105	105	CLASSROOM	STANDARD	1	IDF-1 (KD100)
K106	106	BIOLOGY LAB	STANDARD	1	IDF-1 (KD100)
K108	108	BIOLOGY LAB	STANDARD	1	IDF-1 (KD100)
K109	109	EMT LAB	STANDARD	1	IDF-1 (KD100)
K111	115	SKILLS LAB	STANDARD	1	IDF-1 (KD100)
K112	114	OBSERV.	STANDARD	1	IDF-1 (KD100)
K113	113D	SKILLS LAB	STANDARD	1	IDF-1 (KD100)
K115	113C	NURSING SKILLS LAB	STANDARD	1	IDF-1 (KD100)

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Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
K117	113B	CLASSROOM	STANDARD	1	IDF-1 (KD100)
K118	112	LIBRARY	STANDARD	1	IDF-1 (KD100)
K119	111E	FAC.	STANDARD	1	IDF-1 (KD100)
K120	111F	FAC.	STANDARD	1	IDF-1 (KD100)
K121	111G	DEAN OF ALL. H-S	STANDARD	1	IDF-1 (KD100)
K123	111A	ADMIN.	STANDARD	1	IDF-1 (KD100)
K124	111B	FAC.	STANDARD	1	IDF-1 (KD100)
K125	111C	FAC.	STANDARD	1	IDF-1 (KD100)
K126	111D	FAC.	STANDARD	1	IDF-1 (KD100)
K127	110E	FAC.	STANDARD	1	IDF-1 (KD100)
K128	110K	FAC.	STANDARD	1	IDF-1 (KD100)
K129	110G	FAC.	STANDARD	1	IDF-1 (KD100)
K130	110H	FAC.	STANDARD	1	IDF-1 (KD100)
K132	110A	RECEPT.	STANDARD	1	IDF-1 (KD100)
K133	110B	FAC.	STANDARD	1	IDF-1 (KD100)
K134	110C	FAC.	STANDARD	1	IDF-1 (KD100)
K135	110D	FAC.	STANDARD	1	IDF-1 (KD100)
K139	119	OPEN COMPUTER LAB	STANDARD	1	IDF-1 (KD100)
K145	118	WORKRM ADJ. FAC.	STANDARD	1	IDF-1 (KD100)
K145	118	WORKRM ADJ. FAC.	STANDARD	1	IDF-1 (KD100)
K145	118	WORKRM ADJ. FAC.	STANDARD	1	IDF-1 (KD100)
K145	118	WORKRM ADJ. FAC.	STANDARD	1	IDF-1 (KD100)
K145	118	WORKRM ADJ. FAC.	STANDARD	1	IDF-1 (KD100)
K151	141	CHEMISTRY	STANDARD	1	IDF-1 (KD100)
K153	129D	SIM. OFF.	STANDARD	1	IDF-1 (KD100)
K154	129E	SIM. OFF.	STANDARD	1	IDF-1 (KD100)
K155	129	DEBRIEF	STANDARD	1	IDF-1 (KD100)
K156	129A	SIM. COUNS.	STANDARD	1	IDF-1 (KD100)
K157	129B	SIM. COUNS.	STANDARD	1	IDF-1 (KD100)
K158	129C	SIM. COUNS.	STANDARD	1	IDF-1 (KD100)
K160	130A	FAC.	STANDARD	1	IDF-1 (KD100)
K161	130B	FAC.	STANDARD	1	IDF-1 (KD100)
K162	130C	FAC.	STANDARD	1	IDF-1 (KD100)
K163	131A	FAC.	STANDARD	1	IDF-1 (KD100)
K164	131B	FAC.	STANDARD	1	IDF-1 (KD100)
K165	131C	FAC.	STANDARD	1	IDF-1 (KD100)
K167	131D	FAC.	STANDARD	1	IDF-1 (KD100)
K168	131E	FAC.	STANDARD	1	IDF-1 (KD100)

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Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
K169	131F	FAC.	STANDARD	1	IDF-1 (KD100)
K170	132A	FAC.	STANDARD	1	IDF-1 (KD100)
K171	132B	FAC.	STANDARD	1	IDF-1 (KD100)
K172	132C	FAC.	STANDARD	1	IDF-1 (KD100)
K174	133	CLASSROOM	STANDARD	1	IDF-1 (KD100)
K175	134	CLASSROOM	STANDARD	1	IDF-1 (KD100)
K179	137	LECTURE	STANDARD	1	IDF-1 (KD100)
K180	138	LECTURE	STANDARD	1	IDF-1 (KD100)
K181	139	CLASSROOM	STANDARD	1	IDF-1 (KD100)
K183	140	NUCLEAR MED. LAB	STANDARD	1	IDF-1 (KD100)
K202	202	CLASSROOM	STANDARD	1	IDF-2 (KD200)
K204	203	CLASSROOM	STANDARD	1	IDF-2 (KD200)
K205	TBD	OFFICE	STANDARD	1	IDF-2 (KD200)
K206	204C	FAC.	STANDARD	1	IDF-2 (KD200)
K208	204E	FAC.	STANDARD	1	IDF-2 (KD200)
K209	204F	FAC.	STANDARD	1	IDF-2 (KD200)
K210	204G	FAC.	STANDARD	1	IDF-2 (KD200)
K211	204H	FAC.	STANDARD	1	IDF-2 (KD200)
K212	204J	DEAN BUS. STUD.	STANDARD	1	IDF-2 (KD200)
K213	204B	FAC.	STANDARD	1	IDF-2 (KD200)
K214	204A	FAC.	STANDARD	1	IDF-2 (KD200)
K215	204K	FAC.	STANDARD	1	IDF-2 (KD200)
K217	205	GLOBAL CONFERENCE	STANDARD	1	IDF-2 (KD200)
K217	205	GLOBAL CONFERENCE	STANDARD	1	IDF-2 (KD200)
K218	206	MODEL OFFICE	STANDARD	1	IDF-2 (KD200)
K219	206A	OFFICE	STANDARD	1	IDF-2 (KD200)
K220	206B	OFFICE	STANDARD	1	IDF-2 (KD200)
K222	207A	OFFICE	STANDARD	1	IDF-2 (KD200)
K223	207B	OFFICE	STANDARD	1	IDF-2 (KD200)
K224	207C	SMALL BUS. DEV.	STANDARD	1	IDF-2 (KD200)
K232	214	CRIMINAL JUSTICE LAB/STORAGE	STANDARD	1	IDF-2 (KD200)
K233	215	WORKROOM ADJ. FAC.	STANDARD	1	IDF-2 (KD200)
K233	215	WORKROOM ADJ. FAC.	STANDARD	1	IDF-2 (KD200)
K233	215	WORKROOM ADJ. FAC.	STANDARD	1	IDF-2 (KD200)
K234	216	CLASSROOM	STANDARD	1	IDF-2 (KD200)
K235	217A	FAC.	STANDARD	1	IDF-2 (KD200)
K236	217B	FAC.	STANDARD	1	IDF-2 (KD200)
K237	217C	FAC.	STANDARD	1	IDF-2 (KD200)

Newcomb & Boyd

Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
K239	217D	FAC.	STANDARD	1	IDF-2 (KD200)
K240	217E	FAC.	STANDARD	1	IDF-2 (KD200)
K241	217F	FAC.	STANDARD	1	IDF-2 (KD200)
K242	218A	FAC.	STANDARD	1	IDF-2 (KD200)
K243	218B	ADMIN.	STANDARD	1	IDF-2 (KD200)
K244	218C	DIVISION DEAN	STANDARD	1	IDF-2 (KD200)
K246	219	CLASSROOM	STANDARD	1	IDF-2 (KD200)
K247	220	CLASSROOM	STANDARD	1	IDF-2 (KD200)
K302	302	ENTRY	STANDARD	1	IDF-3 (KD300)
K302	302	ENTRY	STANDARD	1	IDF-3 (KD300)
K304	302A	DIR. OF HR	ENHANCED	1	IDF-3 (KD300)
K305	303B	SPECIAL ASSIST. TO PRES.	ENHANCED	1	IDF-3 (KD300)
K306	303C	EXEC. ASSIST.	ENHANCED	1	IDF-3 (KD300)
K307	303	ENTRY	STANDARD	1	IDF-3 (KD300)
K309	303D	PRESIDENT OFFICE	ENHANCED	1	IDF-3 (KD300)
K311	304	EXEC. BOARDROOM	ENHANCED	1	IDF-3 (KD300)
K312	305B	CFO/FIN. REPORT	ENHANCED	1	IDF-3 (KD300)
K313	305C	DIR. OF PURCH.	ENHANCED	1	IDF-3 (KD300)
K314	305D	BUSINESS MANAGER	STANDARD	1	IDF-3 (KD300)
K316	TBD	FIN. STOR.	STANDARD	1	IDF-3 (KD300)
K317	305A	PAYROLL	STANDARD	1	IDF-3 (KD300)
K318	305E	ACC. PAYABLE	STANDARD	1	IDF-3 (KD300)
K319	306	ENTRY	STANDARD	1	IDF-3 (KD300)
K319	306	ENTRY	STANDARD	1	IDF-3 (KD300)
K321	306A	OFFICE ADMIN.	STANDARD	1	IDF-3 (KD300)
K322	306B	VP ACAD. AFFAIRS	ENHANCED	1	IDF-3 (KD300)
K323	307	CLASSROOM	STANDARD	1	IDF-3 (KD300)
K324	308	INSTRUCT. TECH	STANDARD	1	IDF-3 (KD300)
K325	308A	TECH. TRAIN./STORAGE	STANDARD	1	IDF-3 (KD300)
K326	309	WORKROOM/ADJ. FAC.	STANDARD	1	IDF-3 (KD300)
K326	309	WORKROOM/ADJ. FAC.	STANDARD	1	IDF-3 (KD300)
K326	309	WORKROOM/ADJ. FAC.	STANDARD	1	IDF-3 (KD300)
K333	315A	WORK/STOR. AREA	STANDARD	1	IDF-3 (KD300)
K334	315	STUDENT/TECH.	STANDARD	1	IDF-3 (KD300)
K334	315	STUDENT/TECH.	STANDARD	1	IDF-3 (KD300)
K336	317	IT	STANDARD	1	IDF-3 (KD300)
K337	316	DIR. OF COMP. OP.	ENHANCED	1	IDF-3 (KD300)
K338	318A	ADMIN.	STANDARD	1	IDF-3 (KD300)

Newcomb & Boyd

Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
K339	318B	DEAN OF SCIE. & TECH.	STANDARD	1	IDF-3 (KD300)
K341	318C	FAC.	STANDARD	1	IDF-3 (KD300)
K342	318D	FAC.	STANDARD	1	IDF-3 (KD300)
K343	318E	FAC.	STANDARD	1	IDF-3 (KD300)
K344	319A	FAC.	STANDARD	1	IDF-3 (KD300)
K345	319B	FAC.	STANDARD	1	IDF-3 (KD300)
K346	319C	FAC.	STANDARD	1	IDF-3 (KD300)
K348	320	SCIENCE & TECHNOLOGY	STANDARD	1	IDF-3 (KD300)
K350	321	COMPUTER LAB	STANDARD	1	IDF-3 (KD300)
K351	323	COMPUTER LAB	STANDARD	1	IDF-3 (KD300)

ATC

Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
ATC	138A	Lab Tech	Standard	1	IDF 144
ATC	140A	Lab Tech	Standard	1	IDF 144
ATC	142A	Lab Tech	Standard	1	IDF 144
ATC	141A	Lab Tech	Standard	1	IDF 144
ATC	137B	Office	Standard	1	IDF 144
ATC	139B	Office	Standard	1	IDF 144
ATC	134A	Lab Tech	Standard	1	IDF 131
ATC	134B	Lab Tech	Standard	1	IDF 131
ATC	IDF 131	IDF Room - Wall Phone	Standard	1	IDF 131
ATC	103	Office	Enhanced	1	IDF 131
ATC	104	Office	Enhanced	1	IDF 131
ATC	106	Conference Room	Conference	1	IDF 131
ATC	111	Staff Area	Standard	1	IDF 131
ATC	111	Staff Area	Standard	1	IDF 131
ATC	111	Staff Area	Standard	1	IDF 131
ATC	111	Staff Area	Standard	1	IDF 131
ATC	111	Staff Area	Standard	1	IDF 131
ATC	111	Staff Area	Standard	1	IDF 131
ATC	107	Office	Standard	1	IDF 131
ATC	N/A	Reception Area	Enhanced	1	IDF 131
ATC	122	Kitchen - Wall Phone	Standard	1	IDF 131
ATC	125	Office	Standard	1	AV #124B
ATC	124B	AV Room - Wall Phone	Basic	1	AV #124B
ATC	130	Electrical - Wall Phone	Basic	1	AV #124B
ATC	128	Staging - Wall Phone	Basic	1	AV #124B
ATC	129	Mechanical - Wall Phone	Basic	1	AV #124B
ATC	214	Comp Ed Lab	Standard	1	MDF 210
ATC	220	High Level Lab	Standard	1	MDF 210
ATC	222	Classroom	Standard	1	MDF 210
ATC	224	Classroom	Standard	1	MDF 210
ATC	226	Office	Standard	1	MDF 210
ATC	223	Office	Standard	1	MDF 210
ATC	224	Office	Standard	1	MDF 210
ATC	219	Office	Standard	1	MDF 210
ATC	221	Office	Standard	1	MDF 210

Newcomb & Boyd

Room Schedule Number	Room Signage Number TBD = to be determined	Room Name	Phone	Port Counts	Telecom Room Served From
ATC	218	Office	Standard	1	MDF 210
ATC	206	Classroom	Standard	1	MDF 210
ATC	208	Classroom	Standard	1	MDF 210
ATC	212	Computer Lab	Standard	1	MDF 210
ATC	210	MDF - Wall Phone	Standard	1	MDF 210
ATC	207	Office	Standard	1	MDF 210
ATC	209	Office	Standard	1	MDF 210
ATC	201A	Mechanical - Wall Phone	Standard	1	MDF 210
ATC	202	Elev Equip - Wall Phone	Standard	1	MDF 210
ATC	202	Analog Port		1	MDF 210

APPENDIX B2

NETWORK PORT COUNTS

KVCTC

Data Closet	Outlet Type	Ports/Outlet	Quantity	Total Ports	Switch Count	
MDF-1 (Ground Floor)	1 Port	1	9	9		
	2 Port	2	41	82		
	3 Port	3	39	117		
	4 Port	4	40	160		
	Wireless Access Point	1	17	17		
				Total:		385
IDF-1 (Main Floor)	2 Port	2	56	112		
	3 Port	3	36	108		
	Wireless Access Point	1	25	25		
	Wall Phone	1	5	5		
				Total:		245
IDF-2 (Second Floor)	2 Port	2	21	42		
	3 Port	3	25	75		
	Wireless Access Point	1	11	11		
				Total:		128
IDF-3 (Third Floor)	1 Port	1	1	1		
	2 Port	2	58	116		
	3 Port	3	25	75		
	Wireless Access Point	1	11	11		
				Total:		203
				Grand Total:	961	23

ATC

IDF Rooms				
IDF	Voice Ports	Data Ports	Total Ports	Switch Count
124B	67	140	207	5
131	30	58	136	3
144	1	42	103	3
210	38	217	255	6
216	0	48	48	1
Total Ports for ATC: 641				

APPENDIX B3
NETWORK DIAGRAM

(See Attached)

APPENDIX B4

FLOOR PLANS

Available upon request. Contact the CO to request Floor Plans.

APPENDIX B5
RISER DIAGRAMS

Available upon request. Contact the CO to request Riser Diagrams.

EXHIBITS

(See Attached)

INSTRUCTIONS TO BIDDERS

(Purchases greater than \$25,000)

1. **BIDDER'S REPRESENTATIONS:** The bidder, by making a bid, represents that: (a) the bidder has read and understands the bidding documents, terms and conditions, and the bid is made in accordance therewith; and (b) the bid is based upon the materials, equipment, systems, printing and/or services specified.
2. **QUALITY STANDARDS:** Brand names, when identified, include the standard of quality, performance or use desired. Unless otherwise noted, bids by bidders on equivalents may be considered, provided the bidder furnishes descriptive literature and other proof required by the Institution. Samples, when required, must be furnished free of charge, including freight. In the event the Institution elects to contract for a brand purported to be an equivalent by the bidder, the acceptance of the item will be conditioned on the Institution's inspection and testing after receipt. If, in the sole judgment of the Institution, the item is determined not to be equivalent, the item will be returned at the Seller's expense and the contract terminated.
3. **SUBMISSION OF BIDS:** The bid, the bid security, if any, and other documents required to be submitted with the bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the bids and shall be identified as a "Sealed Bid," and shall include the bid number, the bid opening time, and the bid opening date. Bids shall be delivered and deposited at the designated location prior to the time and date for receipt of bids. Bids received after the time and date for the bid opening will be returned unopened. The bidder shall assume full responsibility for timely delivery at the location designated for receipt of bids. Oral, telephonic, facsimile or telegraphic bids are invalid and will not receive consideration.
4. **MODIFICATION OR WITHDRAWAL OF BIDS:** Prior to the time and date designated for receipt of bids, a bid submitted may be modified or withdrawn by notice to the party receiving bids at the place designated for receipt of bids. Such notice shall be in writing over the signature of the bidder and shall be received prior to the designated time and date for receipt of bids. A modification shall be worded so as not to reveal the amount of the original bid. A withdrawal may be made by facsimile or electronic transmission. A modification may also be made by facsimile or electronic transmission if the final bid result is not revealed prior to the bid opening.
5. **OPENING OF BIDS:** Bids shall be publicly opened and read aloud at the designated location for receipt of bids shortly after the time and date bids are due.
6. **REJECTION OF BIDS:** The Institution shall have the right to reject any and all bids, in whole or part; to reject a bid not accompanied by a required bid security or other data required by the bidding documents; or reject a bid which is in any way incomplete or irregular.
7. **ACCEPTANCE OF BID (AWARD):** It is the intent of the Institution to award a contract to the lowest responsible and responsive bidder provided the bid does not exceed the funds available. The Institution shall have the right to waive informalities or irregularities in a bid received and to accept the bid, which in the Institution's judgment, is in the Institution's own best interests. All bids are governed by the West Virginia Code and the Procedural Rules of the Commission.
8. **VENDOR REGISTRATION:** Prior to any award for purchases exceeding \$15,000, the apparent successful bidder must be properly registered with the W. Va. Department of Administration, Purchasing Division, and have paid the required vendor registration fee.
9. **NON-FUNDING:** All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contract, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
10. **PAYMENTS AND INTEREST ON LATE PAYMENTS:** Payment may only be made after the delivery and acceptance of goods or services. Interest may be paid for late payment in accordance with the West Virginia Code.
11. **RESIDENT VENDOR PREFERENCE:** A resident vendor preference will be granted upon written request in accordance with the West Virginia Code.
12. **TAX EXEMPTION:** The State of West Virginia, the Commission, Governing Board and its institutions are exempt from federal and state taxes and will not pay or reimburse such taxes.

TERMS AND CONDITIONS

1. **ACCEPTANCE:** Vendor shall be bound by this Order and its terms and conditions upon receipt of this Order. This Order expressly limits acceptance to the terms and conditions stated herein. Additional or different terms proposed by the Vendor are objected to and are hereby rejected, unless otherwise provided for in writing by the Institution and approved by the Attorney General.
2. **APPLICABLE LAW:** The laws of the State of West Virginia and the Procedural Rules of the Higher Education Policy Commission shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
3. **ASSIGNMENT:** Neither this Order nor any monies due, or to become due hereunder, may be assigned by the Vendor without the Institution's consent.
4. **INSTITUTION:** For the purposes of these Terms and Conditions, the "Institution" means the institution purchasing goods and services for which a Purchase Order has been lawfully issued to the Vendor.
5. **CANCELLATION:** The Institution may cancel any Purchase Order/Contract upon 30 days written notice to the Vendor.
6. **COMPLIANCE:** Vendor shall comply with all federal, state and local laws, regulations and ordinances including, but not limited to, the prevailing wage rates of the W. Va. Division of Labor, if applicable.
7. **DELIVERY:** For exceptions to the delivery date as specified in the Order, the Vendor shall give prior notification and obtain the approval of the Institution. Time is of the essence of this Order and it is subject to termination by the Institution for failure to deliver on time.
8. **DISPUTES:** Disputes arising out of the agreement shall be submitted to the West Virginia Court of Claims.
9. **HOLD HARMLESS:** The Institution will not agree to hold the Vendor or any other party harmless because such agreement is not consistent with state law.
10. **MODIFICATIONS:** This writing is the parties' final expression of intent. No modification of this Order shall be binding unless agreed to in writing by the Institution.
11. **NON-FUNDING:** All services performed or goods delivered under this Purchase Order/Contract are to be continued for the term of the Purchase Order/Contract, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
12. **ORDER NUMBERS:** Contract Order numbers or Purchase Order numbers shall be clearly shown on all acknowledgments, shipping labels, packing slips, invoices and correspondence.
13. **PAYMENTS AND INTEREST ON LATE PAYMENTS:** Payments may only be made after the delivery of goods or services. Interest may be paid on late payments in accordance with the West Virginia Code.
14. **RENEWAL:** The Contract may be renewed only upon mutual written agreement of the parties.
15. **REJECTION:** All goods or materials purchased herein are subject to approval of the Institution. Any rejection of goods or materials resulting in nonconformity to the terms, conditions or specifications of this Order, whether held by the Institution or returned to the Vendor, will be at the Vendor's risk and expense.
16. **VENDOR:** For the purposes of these Terms and Conditions, the "Vendor" means the vendor whose quotation, bid, proposal or expression of interest has been accepted and has received a lawfully issued Purchase Order from the Institution.
17. **SHIPPING, PACKING, BILLING & PRICING:** Unless otherwise stated, all goods are to be shipped prepaid, FOB destination. No charges will be allowed for special handling, packing, wrapping, bags, containers, etc., unless otherwise specified. All goods or services shall be shipped on or before the date specified in this Order. Prices are those that are stated in this Order. No price increase will be accepted without written authority from the Institution.
18. **TAXES:** The State of West Virginia (the Institution) is exempt from Federal and State taxes and will not pay or reimburse such taxes.
19. **TERMINATION:** In the event of a breach by the Vendor of any of the provisions of this contract, the Institution reserves the right to cancel and terminate this contract forthwith upon giving written notice to the Vendor. The Vendor shall be liable for damages suffered by the Institution resulting from the Vendor's breach of contract.
20. **WARRANTY:** The Vendor expressly warrants that the goods and/or services covered by this Order will: (a) conform to the specifications, drawings, samples or other description furnished or specified by the Institution; (b) be merchantable and fit for the purpose intended; (c) be free and clear of all liens, claims and encumbrances of any kind; and/or (d) be free from defect in material and workmanship.

AGREEMENT ADDENDUM

In the event of conflict between this addendum and the agreement, this addendum shall control:

1. **DISPUTES** - Any references in the agreement to arbitration or to the jurisdiction of any court are hereby deleted. Disputes arising out of the agreement shall be presented to the West Virginia Court of Claims.
2. **HOLD HARMLESS** - Any provision requiring the Agency to indemnify or hold harmless any party is hereby deleted in its entirety.
3. **GOVERNING LAW** - The agreement shall be governed by the laws of the State of West Virginia. This provision replaces any references to any other State's governing law.
4. **TAXES** - Provisions in the agreement requiring the Agency to pay taxes are deleted. As a State entity, the Agency is exempt from Federal, State, and local taxes and will not pay taxes for any Vendor including individuals, nor will the Agency file any tax returns or reports on behalf of Vendor or any other party.
5. **PAYMENT** - Any references to prepayment are deleted. Payment will be in arrears.
6. **INTEREST** - Any provision for interest or charges on late payments is deleted. The Agency has no statutory authority to pay interest or late fees.
7. **NO WAIVER** - Any language in the agreement requiring the Agency to waive any rights, claims or defenses is hereby deleted.
8. **FISCAL YEAR FUNDING** - Service performed under the agreement may be continued in succeeding fiscal years for the term of the agreement, contingent upon funds being appropriated by the Legislature or otherwise being available for this service. In the event funds are not appropriated or otherwise available for this service, the agreement shall terminate without penalty on June 30. After that date, the agreement becomes of no effect and is null and void. However, the Agency agrees to use its best efforts to have the amounts contemplated under the agreement included in its budget. Non-appropriation or non-funding shall not be considered an event of default.
9. **STATUTE OF LIMITATION** - Any clauses limiting the time in which the Agency may bring suit against the Vendor, lessor, individual, or any other party are deleted.
10. **SIMILAR SERVICES** - Any provisions limiting the Agency's right to obtain similar services or equipment in the event of default or non-funding during the term of the agreement are hereby deleted.
11. **FEES OR COSTS** - The Agency recognizes an obligation to pay attorney's fees or costs only when assessed by a court of competent jurisdiction. Any other provision is invalid and considered null and void.
12. **ASSIGNMENT** - Notwithstanding any clause to the contrary, the Agency reserves the right to assign the agreement to another State of West Virginia agency, board or commission upon thirty (30) days written notice to the Vendor and Vendor shall obtain the written consent of Agency prior to assigning the agreement.
13. **LIMITATION OF LIABILITY** - The Agency, as a State entity, cannot agree to assume the potential liability of a Vendor. Accordingly, any provision limiting the Vendor's liability for direct damages to a certain dollar amount or to the amount of the agreement is hereby deleted. Limitations on special, incidental or consequential damages are acceptable. In addition, any limitation is null and void to the extent that it precludes any action for injury to persons or for damages to personal property.
14. **RIGHT TO TERMINATE** - Agency shall have the right to terminate the agreement upon thirty (30) days written notice to Vendor. Agency agrees to pay Vendor for services rendered or goods received prior to the effective date of termination.
15. **TERMINATION CHARGES** - Any provision requiring the Agency to pay a fixed amount or liquidated damages upon termination of the agreement is hereby deleted. The Agency may only agree to reimburse a Vendor for actual costs incurred or losses sustained during the current fiscal year due to wrongful termination by the Agency prior to the end of any current agreement term.
16. **RENEWAL** - Any reference to automatic renewal is deleted. The agreement may be renewed only upon mutual written agreement of the parties.
17. **INSURANCE** - Any provision requiring the Agency to purchase insurance for Vendor's property is deleted. The State of West Virginia is insured through the Board of Risk and Insurance Management, and will provide a certificate of property insurance upon request.
18. **RIGHT TO NOTICE** - Any provision for repossession of equipment without notice is hereby deleted. However, the Agency does recognize a right of repossession with notice.
19. **ACCELERATION** - Any reference to acceleration of payments in the event of default or non-funding is hereby deleted.
20. **CONFIDENTIALITY** - Any provision regarding confidentiality of the terms and conditions of the agreement is hereby deleted. State contracts are public records under the West Virginia Freedom of Information Act.
21. **AMENDMENTS** - All amendments, modifications, alterations or changes to the agreement shall be in writing and signed by both parties. No amendment, modification, alteration or change may be made to this addendum without the express written approval of the Purchasing Division and the Attorney General.

ACCEPTED BY:

STATE OF WEST VIRGINIA

VENDOR

Spending Unit: _____

Company Name: _____

Signed: _____

Signed: _____

Title: _____

Title: _____

Date: _____

Date: _____

RFQ No. _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

“Debt” means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers’ compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

“Debtor” means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. “Political subdivision” means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. “Related party” means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers’ compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code* §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor’s Name: _____

Authorized Signature: _____ Date: _____

State of _____

County of _____, to-wit:

Taken, subscribed, and sworn to before me this ____ day of _____, 20__.

My Commission expires _____, 20__.

AFFIX SEAL HERE

NOTARY PUBLIC _____



State of West Virginia
DRUG FREE WORKPLACE CONFORMANCE AFFIDAVIT
West Virginia Code §21-1D-5

STATE OF _____

COUNTY OF _____, TO-WIT:

I, _____, after being first duly sworn, depose and state as follows:

- 1. I am an employee of _____; and, (Company Name)
2. I do hereby attest that _____ (Company Name)

maintains a valid written drug free workplace policy and that such policy is in compliance with West Virginia Code §21-1D-5.

The above statements are sworn to under the penalty of perjury.

(Company Name)

By: _____

Title: _____

Date: _____

Taken, subscribed and sworn to before me this _____ day of _____.

By Commission expires _____

(Seal)

(Notary Public)

THIS AFFIDAVIT MUST BE SUBMITTED WITH THE BID IN ORDER TO COMPLY WITH WV CODE PROVISIONS. FAILURE TO INCLUDE THE AFFIDAVIT WITH THE BID SHALL RESULT IN DISQUALIFICATION OF THE BID.

WV-1
REV. 04/01/09

STATE OF WEST VIRGINIA
PURCHASING DIVISION

VENDOR REGISTRATION AND DISCLOSURE STATEMENT

Dear Vendor:

Before a vendor is eligible to sell goods and/or services to the State of West Virginia, the **West Virginia Code** (§5A-3-12) requires all vendors to have on file with the West Virginia Purchasing Division a completed Vendor Registration and Disclosure Statement.

All vendors wishing to participate in the competitive bid process and receive purchase orders from the State of West Virginia exceeding one thousand dollars (\$1,000) are required to complete the Vendor Registration and Disclosure Statement (WV-1 form) and pay a **\$125.00** annual fee. Payment of the annual fee includes access to the **West Virginia Purchasing Bulletin**, in which purchases expected to exceed twenty-five thousand dollars (\$25,000) are advertised.

Please complete this form in its **ENTIRETY** and return it with a check or money order made payable to the **STATE OF WEST VIRGINIA** in the amount of **\$125.00**. Incomplete forms will not be processed and will be returned to the vendor. Please send completed form and payment to:

**Purchasing Division
Vendor Registration
2019 Washington Street East
P.O. Box 50130
Charleston, WV 25305-0130**

Pages 1 and 2 which consist of information related to vendor organizational structure must be completed. Whenever a change occurs in the information submitted as required, such change shall be reported immediately in the same manner as required in the original disclosure affidavit (**WV Code §5A-3-12**). If you have any questions concerning the Vendor Registration and Disclosure Statement, please call the Purchasing Division at (304) 558-2311.

PLEASE TYPE OR CLEARLY PRINT ALL INFORMATION
To Be Completed by the Vendor and Returned to the West Virginia Purchasing Division

1. Legal Name of Company/Individual _____
 Bidding Address _____

 City/State/Zip _____
 Contact Person _____
 Telephone Number _____ FAX Number _____

2. Vendor Classified As:

<input type="checkbox"/> Individual/ Sole Proprietor	<input type="checkbox"/> Partnership
<input type="checkbox"/> Non-Profit Organization	<input type="checkbox"/> Limited Liability Company (LLC)
<input type="checkbox"/> Corporation	<small>[Enter tax classification: D=Disregarded Entity; C=Corporation; P=Partnership]</small> _____
<input type="checkbox"/> Governmental Entity	<input type="checkbox"/> Other (Explain) _____
<input type="checkbox"/> Estate/Trust	_____

3. If you have a Federal Employer's Identification Number enter it. All partnerships, corporations, or companies with employees must have an FEIN.

--	--	--	--	--	--	--	--	--	--

For individuals with no FEIN, enter Social Security Number.

--	--	--	--	--	--	--	--	--	--

4. By providing the following information, I represent that this enterprise is a small business as defined by the **Code of Federal Regulations**, Title 13, Part 121, as appended - which contains detailed industry definitions and related procedures - and/or the characteristics of the enterprise's control, operation and/or ownership are accurately reflected in the information provided. *Check all that apply.*

<input type="checkbox"/> Disabled Small Business Ownership [1]	<input type="checkbox"/> Veteran Small Business Ownership [4]
<input type="checkbox"/> Minority Small Business Ownership [2]	<input type="checkbox"/> Woman Small Business Ownership [5]
<input type="checkbox"/> Small Business Ownership [3]	

The information gathered in question 4 is for data collection efforts only.

VENDOR REGISTRATION AND DISCLOSURE STATEMENT

PLEASE TYPE OR CLEARLY PRINT ALL INFORMATION

5. Are you registering as a new vendor with the Purchasing Division? _____ No _____ Yes

6. Are you updating the information previously submitted? _____ No _____ Yes

7. Are you completing this form to register a branch/division/subsidiary?
If yes, please list the parent company's name, address, and FEIN. _____ No _____ Yes

Company Name: _____

Address: _____

FEIN: _____

8. Has the vendor done business under another name? If so, list the name and address under which the business was conducted.

Name

Street Address, City and State

9. List the name, title, city and state of residence for all officers. Attach an additional sheet if space is needed.

Name

Position

City and State of Residence

Name	Position	City and State of Residence
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

If the vendor is classified as a Limited Liability Company (LLC) with only one officer, list officer above and initial here: _____

10. List the name and telephone number of one or more banking institutions to serve as reference for the vendor.

11. What is the latest Dun & Bradstreet number and rating on the vendor (if available)?

12. Is the vendor acting as an agent for some other individual, firm or corporation? If yes, attach statement of the principal authorizing such representation.

_____ No

_____ Yes

13. List the three digit commodity code number(s) from the list on pages 3 and 4 which best describe the product(s)/service(s) furnished by your company. (Attach additional page, if necessary)

As authorized agent of the vendor named herein, I do solemnly swear that the above information is true and complete.

Vendor Signature

Title

Date

PURCHASING DIVISION USE ONLY

Vendor ID: _____*

Check No.: _____

Memo No.: _____

Date: _____

Entered by: _____

Commodity Code Listing

CLASS	DESCRIPTION	CLASS	DESCRIPTION
005	ABRASIVES	233	CRAFTS, SPECIALIZED
010	ACOUSTICAL TILE, INSULATING MATERIALS, & SUPPLIES	240	CUTLERY, DISHES, FLATWARE, GLASSWARE, TRAYS, SUPPLIES
015	ADDRESSING, COPYING, MIMEOGRAPH MACHINES	245	DAIRY EQUIPMENT & SUPPLIES
020	AGRICULTURAL EQUIPMENT	250	DATA PROCESSING CARDS & PAPER
022	AGRICULTURAL, PARTS	920	DATA PROCESSING SERVICES & SOFTWARE
025	AIR COMPRESSORS & ACCESSORIES	255	DECALS & STAMPS
031	AIR CONDITIONING, HEATING, & VENTILATING EQUIPMENT	260	DENTAL EQUIPMENT & SUPPLIES
035	AIRCRAFT & AIRPORT, EQUIPMENT, PARTS & SUPPLIES	265	DRAPERIES, CURTAINS, UPHOLST. MATERIALS (& AUTO)
905	AIRCRAFT OPERATIONS SERVICES	271	DRUGS, PHARMACEUTICAL, & SETS
040	ANIMALS	924	EDUCATIONAL SERVICES
045	APPLIANCES & EQUIPMENT, HOUSEHOLD TYPE	280	ELECTRICAL CABLES & WIRES (NOT ELECTRONIC)
906	ARCHITECT-ENGINEER & PROF. DESIGN SERVICES	285	ELECTRICAL EQUIP. & SUPPLIES (EXCEPT CABLE & WIRE)
050	ARTEQUIPMENT	287	ELECTRONIC COMPONENTS, REPLACE. PARTS, & ACCESS.
052	ART OBJECTS	295	ELEVATORS, BUILDING TYPE
715	AUDIOVISUAL MATERIALS (PREPARED)	300	EMBOSSING & ENGRAVING
055	AUTOMOTIVE ACCESSORIES	290	ENERGY COLLECTING EQUIPMENT: SOLAR & WIND
065	AUTOMOTIVE BODIES, PARTS	305	ENGINEERING EQUIP., SURVEYING EQUIP., DRAWING
060	AUTOMOTIVE PARTS	310	ENVELOPES, PLAIN OR PRINTED
075	AUTOMOTIVE SHOPEQUIPMENT	315	EPOXY BASED FORMULATIONS FOR ADHESIVES, COATINGS
070	AUTOMOTIVE VEHICLES & TRANSPORTATION EQUIPMENT	929	EQUIPMENT MAINTENANCE, ETC., AG, AUTO, INDUSTRIAL
080	BADGES, EMBLEMS, NAME TAGS & PLATES, JEWELRY, ETC.	931	EQUIPMENT MAINTENANCE, ETC., APPLIANCE, FURNITURE
085	BAGS, BAGGING, TIES, & EROSION CONTROL EQUIPMENT	934	EQUIPMENT MAINTENANCE, ETC., GENERAL
090	BAKERY EQUIPMENT	938	EQUIP. MAINTENANCE, ETC., LAUNDRY, LAWN, PLUMBING
375	BAKERY PRODUCTS	936	EQUIPMENT MAINTENANCE, ETC., MEDICAL
095	BARBER & BEAUTY SHOPEQUIPMENT & SUPPLIES	939	EQUIPMENT MAINTENANCE, ETC., OFFICE, PHOTO, TV
100	BARRELS, DRUMS, KEGS, & CONTAINERS	318	FARE COLLECTION EQUIPMENT & SUPPLIES
105	BEARINGS (WHEEL BEARINGS & SEALS - SEE CLASS 060)	320	FASTENING EQUIPMENT
110	BELTS & BELTING: CONVEYOR, ELEVATOR, POWER TRANS.	325	FEED, BEDDING, VITAMINS & SUPPLEMENTS FOR ANIMALS
115	BIOCHEMICALS, RESEARCH	330	FENCING
270	BIOLOGICALS FOR HUMAN USAGE	335	FERTILIZERS & SOIL CONDITIONERS
120	BOATS, MOTORS, & MARINE & WILDLIFE SUPPLIES	946	FINANCIAL SERVICES
125	BOOKBINDING SUPPLIES	340	FIRE PROTECTION EQUIPMENT & SUPPLIES
908	BOOKBINDING, REBINDING, & REPAIRING	345	FIRST AID & SAFETY EQUIP. (NOT NUCLEAR OR WELDING)
135	BRICKS & OTHER CLAY PRODUCTS, REFRACTORY MATERIALS	350	FLAGS, FLAG POLES, BANNERS, & ACCESSORIES
140	BROOM, BRUSH, & MOP MFC MACHINERY & SUPPLIES	360	FLOOR COVERING, INSTALLATION, REMOVAL & SUPPLIES
145	BRUSHES (NOT OTHERWISE CLASSIFIED)	365	FLOOR MAINTENANCE MACHINES
150	BUILDER'S SUPPLIES	370	FOOD PROCESSING & CANNING EQUIPMENT & SUPPLIES
910	BUILDING MAINTENANCE & REPAIR SERVICES	380	FOODS: DAIRY PRODUCTS
155	BUILDINGS & STRUCTURES: FABRICATED & PREFABRICATED	385	FOODS: FREEZE-DRIED, FROZEN, READY-TO-EAT
160	BUTCHER SHOP & MEAT PROCESSING EQUIPMENT	390	FOODS: PERISHABLES
165	CAFETERIA & KITCHEN EQUIPMENT, COMMERCIAL	393	FOODS: STAPLES
175	CHEMICAL LABORATORY EQUIPMENT & SUPPLIES	395	FORMS, CONTINUOUS: COMP. PAPER, LABELS & FOLDERS
180	CHEMICAL RAW MATERIALS	400	FOUNDRY CASTINGS, EQUIPMENTS, AND SUPPLIES
190	CHEMICALS & SOLVENTS, COMMERCIAL (IN BULK)	405	FUEL, OIL, GREASE & LUBRICANTS
192	CLEANING COMPOSITIONS, DETERGENTS (PREPACKAGED)	415	FURNITURE, LABORATORY
193	CLINICAL LABORATORY REAGENTS & TESTS	425	FURNITURE, OFFICE
195	CLOCKS, TIMERS, WATCHES, & EQUIPMENT	420	FURNITURE: CAFE., CHAPEL, DORM., HOUSE, SCHOOL
200	CLOTHING, APPAREL, UNIFORMS, & ACCESSORIES	410	FURNITURE: HEALTH CARE & HOSPITAL FACILITY
915	COMMUNICATIONS & MEDIA SERVICES	430	GASES, CONTAINERS, EQUIPMENT: LAB., MED., WELDING
205	COMPUTER SYSTEMS: HARDWARE, SOFTWARE, & SUPPLIES	435	GERMICIDES, HEALTH CARE
210	CONCRETE & METAL CULVERTS, PILINGS, PIPE, SUPPLIES	440	GLASS & GLAZING SUPPLIES
220	CONTROLLING, INDICATING, MEASURING, SUPPLIES	450	HARDWARE & RELATED ITEMS
225	COOLERS, DRINKING WATER (WATER FOUNTAINS)	948	HEALTH RELATED SERVICES (HUMAN SER. SEE CLASS 952)
232	CRAFTS, GENERAL	745	HIGHWAY BUILDING MATERIALS, ASPHALT

Commodity Code Listing

CLASS	DESCRIPTION	CLASS	DESCRIPTION
475	HOSPITAL, SURGICAL & MEDICAL ACCESSORIES	966	PRINTING, PUBLISHING, SILK SCREENING, TYPESETTING
952	HUMAN SERVICES	961	PROFESSIONAL SERVICES
545	INDUSTRIAL MACHINERY & HARDWARE	710	PROSTHETIC DEVICES: HEARING AIDS, AUDITORY, ETC.
485	JANITORIAL SUPPLIES, GENERAL LINE	968	PUBLIC WORKS, CONSTRUCTION SERVICES
495	LABORATORY & FIELD EQUIPMENT: BIO., BOT., ETC.	720	PUMPING EQUIPMENT & ACCESSORIES
493	LABORATORY EQUIPMENT: BIOCHEM., CHEM., ENV. SCI.	730	RADIO COMM. & TELECOMMUNICATION TESTING, EQUIP.
490	LABORATORY EQUIPMENT: NUCLEAR, OPTICAL, PHYSICAL	725	RADIO COMMUNICATION, TELEPHONE, & TELECOMM.
505	LAUNDRY & DRY CLEANING COMPOUNDS AND SUPPLIES	735	RAGS, SHOP TOWELS, & WIPING CLOTHS
500	LAUNDRY & DRY CLEANING EQUIPMENT	971	REAL PROPERTY RENTAL OR LEASE
954	LAUNDRY & DRY CLEANING SERVICES	740	REFRIGERATION EQUIPMENT & ACCESSORIES
510	LAUNDRY TEXTILES & SUPPLIES	975	RENTAL, LEASE OF EQUIP. - AG., AIR., AUTO.
515	LAWN MAINTENANCE EQUIPMENT, ACCESSORIES (NON-AG)	977	RENTAL, LEASE OF EQUIP. - APPLIANCES, FILM, FURN.
520	LEATHER & RELATED EQUIPMENT, PRODUCTS, ACCESS.	985	RENTAL, LEASE OF EQUIP. - OFFICE, PHOTO, PRINT, TV
525	LIBRARY & ARCHIVAL EQUIPMENT, & SUPPLIES	979	RENTAL, LEASE OF EQUIP. - ENG. LAB., REFRIG.
956	LIBRARY SERVICES	981	RENTAL, LEASE OF EQUIP. - GENERAL EQUIPMENT
530	LUGGAGE, BRIEF CASES, PURSES & RELATED ITEMS	983	RENTAL, LEASE OF EQUIP. - JANITORIAL, LAUNDRY
540	LUMBER & RELATED PRODUCTS	765	ROAD & HIGHWAY EQUIP. (EXCEPT ASPHALT, CONCRETE)
550	MARKERS, PLAQUES, SIGNS, & TRAFFIC CONTROL DEVICES	755	ROAD & HIGHWAY EQUIP., ASPHALT AND CONCRETE
555	MARKING & STENCILING DEVICES	760	ROAD & HIGHWAY EQUIPMENT, EARTH HANDLING
557	MASS TRANSIT, BUS ACCESSORIES	988	ROADSIDE, GROUNDS, & PARK AREA SERVICES
556	MASS TRANSIT, BUSES	770	ROOFING (EXCEPT WOOD - SEE CLASS 540)
559	MASS TRANSIT, RAIL VEHICLE ACCESSORIES & PARTS	775	SALT (SODIUM CHLORIDE) (SEE CLASS 393 FOR TABLE SALT)
558	MASS TRANSIT, RAIL VEHICLES	780	SCALES & WEIGHING APPARATUS (175-08 LAB. BALANCE)
560	MATERIAL HANDLING EQUIPMENT	785	SCHOOL EQUIPMENT & SUPPLIES
565	MATTRESS MANUFACTURING MACHINERY & SUPPLIES	990	SECURITY, FIRE, SAFETY, & EMERGENCY SERVICES
570	METALS: BARS, PLATES, RODS, SHEETS, STRIPS, ETC.,	790	SEED, SOD, SOIL, & INOCULANTS
575	MICROFICHE & MICROFILM EQUIP., ACC., & SUPPLIES	795	SEWING ROOM & TEXTILE MACHINERY, & ACCESSORIES
578	MISCELLANEOUS PRODUCTS	800	SHOES & BOOTS
962	MISCELLANEOUS SERVICES	803	SOUND SYSTEMS, COMPONENTS, ACCESSORIES: I-COM, PA
580	MUSICAL INSTRUMENTS, ACCESSORIES, & SUPPLIES	805	SPORTING & ATHLETIC GOODS
590	NOTIONS, SEWING ACCESSORIES & SUPPLIES	810	SPRAYING EQUIP. (EXCEPT HOUSEHOLD, NURSERY, PAINT)
595	NURSERY STOCK, EQUIPMENT, & SUPPLIES	815	STEAM & HOT WATER FITTINGS, ACCESSORIES, & SUPPLIES
600	OFFICE MACHINES	820	STEAM BOILERS, STEAM HEATING, & POWER PLANT EQUIP.
605	OFFICE MECHANICAL AIDS & SMALL MACHINES	825	STOCKMEN EQUIPMENT & SUPPLIES
615	OFFICE SUPPLIES, GENERAL	998	SURPLUS SALES
610	OFFICE SUPPLIES: CARBON PAPER & RIBBONS, ALL TYPES	830	TANKS: MOBILE, PORTABLE, STATIONARY
620	OFFICE SUPPLIES: ERASERS, INKS, LEADS, PENS, PENCILS	832	TAPE (NOT DP, MEASURING, OPTICAL, SEWING, SOUND)
625	OPTICAL EQUIPMENT, ACCESSORIES, & SUPPLIES	840	TELEVISION EQUIPMENT & ACCESSORIES
630	PAINT, PROTECTIVE COATINGS, VARNISH, WALLPAPER, ETC.	845	TESTING APPARATUS & INSTRUMENTS (NOT ELECT.)
635	PAINTING EQUIPMENT & ACCESSORIES	850	TEXTILES, FIBERS, HOUSEHOLD LINENS, & PIECE GOODS
645	PAPER (FOR OFFICE & PRINT SHOP USE)	855	THEATRICAL EQUIPMENT & SUPPLIES
640	PAPER & PLASTIC PRODUCTS, DISPOSABLE	860	TICKETS, COUPON BOOKS, SALES BOOKS, SCRIPT BOOKS
650	PARK, PLAYGROUND, & SWIMMING POOL EQUIPMENT	893	TIRES & TUBES
964	PERSONNEL, TEMP. (EMPLOYMENT AGENCY SERVICES)	445	TOOLS, HAND (POWERED & NON-POWERED)
655	PHOTO. EQUIP. (NO GRAPH. ARTS, MICRO, X-RAY)	864	TRAIN CONTROLS, ELECTRONIC
660	PIPES, TOBACCOS, & SMOKING ACCESSORIES	865	TWINE
665	PLASTICS, RESINS, FIBERGLASS	870	VENETIAN BLINDS, AWNINGS, & SHADES
670	PLUMBING EQUIPMENT, FIXTURES, & SUPPLIES	875	VETERINARY EQUIPMENT & SUPPLIES
675	POISONS, AGRICULTURAL & INDUSTRIAL	880	VISUAL EDUCATION EQUIPMENT
680	POLICE EQUIPMENT & SUPPLIES	890	WATER SUPPLY & SEWAGE EQUIP. (NOT AC, LAB.)
685	POULTRY EQUIPMENT & SUPPLIES	885	WATER TREATING CHEMICALS
700	PRINTING PLANT EQUIPMENT & SUPPLIES (EXCEPT PAPERS)	895	WELDING EQUIPMENT & SUPPLIES
705	PRINTING PREPARATIONS: ETCHING, MATS, NEGS., PLATES	898	X-RAY & OTHER RADIOLOGICAL EQUIP. & SUPPLIES