

**AGREEMENT FOR CONSULTING SERVICES  
BETWEEN THE CITY OF REDONDO BEACH  
AND CASHEL CORPORATION, A CALIFORNIA CORPORATION DBA  
INTEGRATED MEDIA SYSTEMS**

THIS AGREEMENT FOR CONSULTING SERVICES (this "Agreement") is made between the City of Redondo Beach, a Chartered Municipal Corporation ("City") and Cashel Corporation, a California Corporation dba Integrated Media Systems ("Consultant" or "Contractor").

The parties hereby agree as follows:

1. Description of Project or Scope of Services. The project description or scope of services to be provided by Consultant, and any corresponding responsibilities of City, or services required to be performed by City are set forth in Exhibit "A."
2. Term and Time of Completion. Consultant shall commence and complete the project or services described in Exhibit "A" in accordance with the schedule set forth in Exhibit "B".
3. Compensation. City agrees to pay Consultant for work performed in accordance with Exhibit "C".

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**GENERAL PROVISIONS**

1. Independent Contractor. Consultant acknowledges, represents and warrants that Consultant is not a regular or temporary employee, officer, agent, joint venturer or partner of the City, but rather an independent contractor. This Agreement shall not be construed as a contract of employment. Consultant shall have no rights to any benefits which accrue to City employees unless otherwise expressly provided in this Agreement. Due to the independent contractor relationship created by this Agreement, the City shall not withhold state or federal income taxes, the reporting of which shall be Consultant's sole responsibility.
2. Brokers. Consultant acknowledges, represents and warrants that Consultant has not hired, retained or agreed to pay any entity or person any fee, commission, percentage, gift, or any other consideration, contingent upon or resulting from the award or making of this Agreement.
3. City Property. All plans, drawings, reports, calculations, data, specifications, videos, graphics or other materials prepared for or obtained pursuant to this Agreement shall upon request be delivered to the City within a reasonable time, and the rights thereto shall be deemed assigned to the City. If applicable,



Consultant shall prepare check prints upon request. Said plans, drawings, reports, calculations, data, specifications, videos, graphics or other materials, shall be specific for the project herein and shall not be used by the City for any other project without Consultant's consent. Notwithstanding the foregoing, Consultant shall not be obligated to assign any proprietary software or data developed by or at the direction of Consultant for Consultant's own use; provided, however, that Consultant shall, pursuant to Paragraph 14 below, indemnify, defend and hold the City harmless from and against any discovery or Public Records Act request seeking the disclosure of any such proprietary software or data.

4. Inspection. If the services set forth in Exhibit "A" shall be performed on City or other public property, the City shall have the right to inspect such work without notice. If such services shall not be performed on City or other public property, the City shall have the right to inspect such work upon reasonable notice. Inspections by the City shall not relieve or minimize the responsibility of Consultant to conduct any inspections Consultant has agreed to perform pursuant to the terms of this Agreement. Consultant shall be solely liable for said inspections performed by Consultant. Consultant shall certify in writing to the City as to the completeness and accuracy of each inspection required to be conducted by Consultant hereunder.
5. Services. The project or services set forth in Exhibit "A" shall be performed to the full satisfaction and approval of the City. In the event that the project or services set forth in Exhibit "A" are itemized by price in Exhibit "C", the City in its sole discretion may, upon notice to Consultant, delete certain items or services set forth in Exhibit "A", in which case there shall be a corresponding reduction in the amount of compensation paid to Consultant. City shall furnish Consultant to the extent available, with any City standards, details, specifications and regulations applicable to the Project and necessary for the performance of Consultant's services hereunder. Notwithstanding the foregoing, any and all additional data necessary for design shall be the responsibility of Consultant.
6. Records. Consultant, including any of its subcontractors shall maintain full and complete documents and records, including accounting records, employee time sheets, work papers, and correspondence pertaining to the project or services set forth in Exhibit "A". Consultant, including any of its subcontractors shall make such documents and records available for City review or audit upon request and reasonable notice, and shall keep such documents and records, for at least four (4) years after Consultant's completion of performance of this Agreement. Copies of all pertinent reports and correspondence shall be furnished to the City for its files.
7. Changes and Extra Work. All changes and/or extra work under this Agreement shall be provided for by a subsequent written amendment executed by City and Consultant.



8. Additional Assistance. If this Agreement requires Consultant to prepare plans and specifications, Consultant shall provide assistance as necessary to resolve any questions regarding such plans and specifications that may arise during the period of advertising for bids, and Consultant shall issue any necessary addenda to the plans and specifications as requested. In the event Consultant is of the opinion that City's requests for addenda and assistance is outside the scope of normal services, the parties shall proceed in accordance with the changes and extra work provisions of this Agreement.
9. Professional Ability. Consultant acknowledges, represents and warrants that Consultant is skilled and able to competently provide the services hereunder, and possesses all professional licenses, certifications, and approvals necessary to engage in its occupation. City has relied upon the professional ability and training of Consultant as a material inducement to enter into this Agreement. Consultant shall perform in accordance with generally accepted professional practices and standards of Consultant's profession.
10. Business License. Consultant shall obtain a Redondo Beach Business License before performing any services required under this Agreement. The failure to so obtain such license shall be a material breach of this Agreement and grounds for immediate termination by City; provided, however, that City may waive the business license requirement in writing under unusual circumstances without necessitating any modification of this Agreement to reflect such waiver.
11. Termination Without Default. Notwithstanding any provision herein to the contrary, the City may, in its sole and absolute discretion and without cause, terminate this Agreement at any time prior to completion by Consultant of the project or services hereunder, immediately upon written notice to Consultant. In the event of any such termination, Consultant shall be compensated for: (1) all authorized work satisfactorily performed prior to the effective date of termination; and (2) necessary materials or services of others ordered by Consultant for this Agreement, prior to Consultant's receipt of notice of termination, irrespective of whether such materials or services of others have actually been delivered, and further provided that Consultant is not able to cancel such orders. Compensation for Consultant in such event shall be determined by the City in accordance with the percentage of the project or services completed by Consultant; and all of Consultant's finished or unfinished work product through the time of the City's last payment shall be transferred and assigned to the City. In conjunction with any termination of this Agreement, the City may, at its own expense, make copies or extract information from any notes, sketches, computations, drawings, and specifications or other data, whether complete or not.
12. Termination in the Event of Default. Should Consultant fail to perform any of its obligations hereunder, within the time and in the manner provided or otherwise violate any of the terms of this Agreement, the City may immediately terminate



this Agreement by giving written notice of such termination, stating the reasons for such termination. Consultant shall be compensated as provided immediately above, provided, however, there shall be deducted from such amount the amount of damages if any, sustained by the City by virtue of Consultant's breach of this Agreement.

13. Conflict of Interest. Consultant acknowledges, represents and warrants that Consultant shall avoid all conflicts of interest (as defined under any federal, state or local statute, rule or regulation, or at common law) with respect to this Agreement. Consultant further acknowledges, represents and warrants that Consultant has no business relationship or arrangement of any kind with any City official or employee with respect to this Agreement. Consultant acknowledges that in the event that Consultant shall be found by any judicial or administrative body to have any conflict of interest (as defined above) with respect to this Agreement, all consideration received under this Agreement shall be forfeited and returned to City forthwith. This provision shall survive the termination of this Agreement for one (1) year.
14. Indemnity. To the maximum extent permitted by law, Consultant hereby agrees, at its sole cost and expense, to defend protect, indemnify, and hold harmless the City, its elected and appointed officials, officers, employees, volunteers, attorneys, and agents (collectively "Indemnitees") from and against any and all claims, including, without limitation, claims for bodily injury, death or damage to property, demands, charges, obligations, damages, causes of action, proceedings, suits, losses, stop payment notices, judgments, fines, liens, penalties, liabilities, costs and expenses of every kind and nature whatsoever, in any manner arising out of, incident to, related to, in connection with or arising from any act, failure to act, error or omission of Consultant's performance or work hereunder (including any of its officers, agents, employees, Subcontractors) or its failure to comply with any of its obligations contained in the Agreement, or its failure to comply with any current or prospective law, except for such loss or damage which was caused by the sole negligence or willful misconduct of the City. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by Consultant or Indemnitees. This indemnification obligation shall survive this Agreement and shall not be limited by any term of any insurance policy required under this Agreement.
  - a. Nonwaiver of Rights. Indemnitees do not and shall not waive any rights that they may possess against Consultant because the acceptance by City, or the deposit with City, of any insurance policy or certificate required pursuant to this Agreement.
  - b. Waiver of Right of Subrogation. Consultant, on behalf of itself and all parties claiming under or through it, hereby waives all rights of subrogation and contribution against the Indemnitees.



15. Insurance. Consultant shall comply with the requirements set forth in Exhibit "D." Insurance requirements that are waived by the City's Risk Manager do not require amendments or revisions to this Agreement.
16. Non-Liability of Officials and Employees of the City. No official or employee of the City shall be personally liable for any default or liability under this Agreement.
17. Compliance with Laws. Consultant shall comply with all federal, state and local laws, statutes, ordinances, rules and regulations, and the orders and decrees of any courts or administrative bodies or tribunals, with respect to this Agreement, including without limitation all environmental laws, employment laws, and non-discrimination laws.
18. Limitations upon Subcontracting and Assignment. Consultant acknowledges that the services which Consultant shall provide under this Agreement are unique, personal services which, except as otherwise provided herein, Consultant shall not assign or sublet to any other party without the prior written approval of City, which approval may be withheld in the City's sole and absolute discretion. In the event that the City, in writing, approves any assignment or subletting of this Agreement or the retention of subcontractors by Consultant, Consultant shall provide to the City upon request copies of each and every subcontract prior to the execution thereof by Consultant and subcontractor. Any attempt by Consultant to assign any or all of its rights under this Agreement without first obtaining the City's prior written consent shall constitute a material default under this Agreement.

The sale, assignment, transfer or other disposition, on a cumulative basis, of twenty-five percent (25%) or more of the ownership interest in Consultant or twenty-five percent (25%) or more the voting control of Consultant (whether Consultant is a corporation, limited liability company, partnership, joint venture or otherwise) shall constitute an assignment for purposes of this Agreement. Further, the involvement of Consultant or its assets in any transaction or series of transactions (by way of merger, sale, acquisition, financing, transfer, leveraged buyout or otherwise), whether or not a formal assignment or hypothecation of this Agreement or Consultant's assets occurs, which reduces Consultant's assets or net worth by twenty-five percent (25%) or more shall also constitute an assignment for purposes of this Agreement.

19. Subcontractors. Consultant shall provide properly skilled professional and technical personnel to perform any approved subcontracting duties. Consultant shall not engage the services of any person or persons now employed by the City without the prior written approval of City, which approval may be withheld in the City's sole and absolute discretion.
20. Integration. This Agreement constitutes the entire agreement between the parties concerning the subject matter hereof and supersedes any previous oral or written agreement; provided, however, that correspondence or documents



exchanged between Consultant and City may be used to assist in the interpretation of the exhibits to this Agreement.

21. Amendment. This Agreement may be amended or modified only by a subsequent written amendment executed by both parties.
22. Conflicting Provisions. In the event of a conflict between the terms and conditions of this Agreement and those of any exhibit or attachment hereto, this Agreement proper shall prevail. In the event of a conflict between the terms and conditions of any two or more exhibits or attachments hereto, those prepared by the City shall prevail over those prepared by Consultant.
23. Non-Exclusivity. Notwithstanding any provision herein to the contrary, the services provided by Consultant hereunder shall be non-exclusive, and City reserves the right to employ other contractors in connection with the project.
24. Exhibits. All exhibits hereto are made a part hereof and incorporated herein by reference; provided, however, that any language in Exhibit "A" which does not pertain to the project description, proposal, or scope of services (as applicable) to be provided by Consultant, or any corresponding responsibilities of City, shall be deemed extraneous to, and not a part of, this Agreement.
25. Time of Essence. Time is of the essence of this Agreement.
26. Confidentiality. To the extent permissible under law, Consultant shall keep confidential its obligations hereunder and the information acquired during the performance of the project or services hereunder.
27. Third Parties. Nothing herein shall be interpreted as creating any rights or benefits in any third parties. For purposes hereof, transferees or assignees as permitted under this Agreement shall not be considered "third parties."
28. Governing Law and Venue. This Agreement shall be construed in accordance with the laws of the State of California without regard to principles of conflicts of law. Venue for any litigation or other action arising hereunder shall reside exclusively in the Superior Court of the County of Los Angeles, Southwest Judicial District.
29. Attorneys' Fees. In the event either party to this Agreement brings any action to enforce or interpret this Agreement, the prevailing party in such action shall be entitled to reasonable attorneys' fees (including expert witness fees) and costs. This provision shall survive the termination of this Agreement.
30. Claims. Any claim by Consultant against City hereunder shall be subject to Government Code §§ 800 *et seq.* The claims presentation provisions of said Act are hereby modified such that the presentation of all claims hereunder to the City



shall be waived if not made within six (6) months after accrual of the cause of action.

31. Interpretation. Consultant acknowledges that it has had ample opportunity to seek legal advice with respect to the negotiation of this Agreement. This Agreement shall be interpreted as if drafted by both parties.
32. Warranty. In the event that any product shall be provided to the City as part of this Agreement, Consultant warrants as follows: Consultant possesses good title to the product and the right to transfer the product to City; the product shall be delivered to the City free from any security interest or other lien; the product meets all specifications contained herein; the product shall be free from material defects in materials and workmanship under normal use for a period of one (1) year from the date of delivery; and the product shall be fit for its intended purpose(s). Notwithstanding the foregoing, consumable and maintenance items (such as light bulbs and batteries) shall be warranted for a period of thirty (30) days from the date of delivery. All repairs during the warranty period shall be promptly performed by Consultant, at Consultant's expense, including shipping. Consultant shall not be liable under this warranty for an amount greater than the amount set forth in Exhibit "C" hereto.
33. Severance. Any provision of this Agreement that is found invalid or unenforceable shall be deemed severed, and all remaining provisions of this Agreement shall remain enforceable to the fullest extent permitted by law.
34. Authority. City warrants and represents that upon City Council approval, the Mayor of the City of Redondo Beach is duly authorized to enter into and execute this Agreement on behalf of City. The party signing on behalf of Consultant warrants and represents that he or she is duly authorized to enter into and execute this Agreement on behalf of Consultant, and shall be personally liable to City if he or she is not duly authorized to enter into and execute this Agreement on behalf of Consultant.
35. Waiver. The waiver by the City of any breach of any term or provision of this Agreement shall not be construed as a waiver of any subsequent breach.

*SIGNATURES FOLLOW ON NEXT PAGE*



IN WITNESS WHEREOF, the parties have executed this Agreement in Redondo Beach, California, as of this 5<sup>th</sup> day of February, 2019.

CITY OF REDONDO BEACH

CASHEL CORPORATION, A CALIFORNIA CORPORATION DBA INTEGRATED MEDIA SYSTEMS

\_\_\_\_\_  
William C. Brand, Mayor

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

ATTEST:

APPROVED:

\_\_\_\_\_  
Eleanor Manzano, City Clerk

\_\_\_\_\_  
Jill Buchholz, Risk Manager

APPROVED AS TO FORM:

\_\_\_\_\_  
Michael W. Webb, City Attorney



## EXHIBIT "A"

### SCOPE OF SERVICES

#### I. CONSULTANT'S DUTIES

Consultant shall perform the following duties.

##### A. GENERAL DUTIES

1. Verify Audio Visual ("AV") systems, electrical requirements, conduit, heat load data, and interior design considerations unique to the audiovisual systems, which have been incorporated in this specification and equipment list.
2. Integrate City Furnished Equipment ("CFE"), custom components, and installation materials provided by the Consultant to create complete, turnkey audiovisual systems performing all of the services and functions as described herein.
3. Provide detailed engineering of final systems configuration. Perform final AV systems engineering and design to meet the functional criteria identified.
4. Confirm the accuracy of the system designs. Identify any or all items necessary to ensure that the installed systems meet the functional requirements outlined in this Agreement.
5. Prepare detailed system fabrication, interface, rack elevation and signal flow drawings in electronic format.
6. Provide Project staging.
  - a. Upon the City's request, stage the project for installation allowing the City Council and Committee meetings to be conducted, recorded and broadcast without interruption during construction and the implementation of the new AV and broadcast systems.
  - b. Once the Library Multi-Purpose and Control Room infrastructure is complete, install and test the Library systems, to bring the systems online for use prior to de-installation and the commencement of construction work on the Council Chamber. Transition the Council and Committee meetings to the Library during construction in the Chamber.
7. Provide equipment coordination and supply.
  - a. Coordinate City Furnished Equipment ("CFE") and custom components and installation materials provided by the Consultant to ensure all required equipment to provide turnkey systems are



provided.

- b. Supply interface components and cabling, connectors, and installation materials.
  - c. Coordinate receipt and storage of all CFE equipment at Consultant's facility for pre-assembly and fabrication prior to site installation. If any CFE component is found to be damaged, defective or is not operational to meet the manufacturer's specifications, Consultant shall identify the issue, communicate the problem to the City and coordinate an expeditious solution. All time and expenses incurred in troubleshooting and coordinating replacement or repair of defective CFE equipment will be billed at the hourly rates set forth in Exhibit "C".
  - d. Provide lecterns and technical furniture, as specified in Exhibit "A" and in Attachment C-1.
  - e. Coordinate with the City and City designated Architect regarding furniture, millwork and work specified in the architectural, electrical and construction drawings, as required, allowing for a neat and professional installation of integrated technology system components. This includes, but is not limited to, the Council Chamber dais, Clerk and Staff tables, integrated table/lectern cable enclosures, tabletop microphones, cable management grommets, and furnishing manufacturer's cutout templates to City designated parties when requested.
  - f. Coordinate with the City on cable management needs and equipment installation requirements in all spaces.
  - g. Secure from City private IP addresses for use by Ethernet equipped audiovisual devices. Ensure no Ethernet equipped device will be connected to the City's network without permission of the City. This will include, but is not limited to configuration parameters such as DHCP, IP addresses, subnet information, VLAN setup and authorization.
  - h. Confirm all Ethernet equipped audiovisual devices to be connected to the City's network with the City.
  - i. De-install, remove and dispose of all existing AV equipment not to be reused in the new systems. Some items may be coordinated for disposal by the City, at the AV Consultant's discretion.
8. Designate a single Project Manager and an Engineer to oversee the



installation work for the duration of the project and to ensure that the systems are installed in accordance with the requirements described herein. Ensure the Project Manager will maintain adequate staff, and install and test the system on schedule.

9. Provide construction coordination.
  - a. Specify, design and coordinate, in collaboration with the City, required infrastructure modifications and additions supporting the new AV systems for installation by the City prior to onsite installation of the new AV systems. Collaborate with the architect and design team providing design and direction of modifications in the Council Chamber to ensure infrastructure, device mounting and spatial requirements, User access, ergonomic and serviceability issues are addressed in the integration of the technology in the new dais, Clerk workstation, Staff desks, LED display wall, audience area and Broadcast Control Room.
  - b. Prior to the start of work in the Council Chamber, Chamber Control Room, Storage Room, Library Multi-Purpose Room and Library Control Room, Consultant shall de-install all existing audiovisual components and legacy audiovisual cabling, except those components, devices and cabling identified in this document to be reused in the new systems; remove all unnecessary audiovisual cabling from conduit and j-boxes; provide all de-installed equipment not to be reused to the City for disposition and dispose of all de-installed cabling and connectors. Coordinate with the City for this work. Consultant shall not be responsible for the de-installation of networking, cable company interface, modulation or transmission equipment and cabling.
  - c. Coordinate with the City regarding City and AV network topology, and interface and configuration requirements and modifications to be performed by the City to support the new AV systems integration with the existing City network. Collaborate with the City IT Department, City Clerk's office and Granicus regarding logistical, network, deployment and functionality requirements and modifications required for integration of the City's CFE Granicus agenda management, voting and speaker timing applications. Coordinate with the City and cable and streaming providers regarding any incoming receiving or outbound transmission modifications required to support the new broadcast applications.
  - d. Communicate and coordinate directly with the City and other trades to comply with all requirements as defined herein and with cable providers, Granicus or other parties as identified by the City.



- e. Schedule installation operations in the sequence required to maintain operations of the City and obtain the best completion results.
  - f. Based on the shared broadcast head end design, develop a plan to enable and maintain temporary broadcast output from the Library Broadcast Control system to cable, encoding and streaming providers during the Chamber construction. This plan shall be in collaboration with the City and providers to minimize cutover and down time of City broadcasts.
  - g. Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
  - h. Verify required cable lengths for all bulk cable or manufactured cable assemblies prior to ordering.
  - i. Review the site and confirm completion of the construction site work by related trades prior to the delivery of sensitive electronic equipment. Commence installation after all construction is completed. This work includes, but is not limited to, demolition, structural construction and wet work, providing an environment free of dust and debris before equipment is moved into place.
10. Upon receipt of the CFE equipment, perform the construction and assemble the approved systems. Perform work in Consultant's facility. Ensure the Systems are fully assembled, wired, programmed and tested prior to delivery to the site.
11. Provide control system configuration and programming.
- a. Configure and develop control system programming code and touch panel graphical user interface (GUI) pages and code to provide efficient and intuitive system operation. Use the control system manufacturer's standard application development environment for all programming and configuration. Load complete operating code and test in the Consultant's facility prior to system installation.
  - b. Develop and install all custom software for control system, audio DSP units and other devices as required to optimize system performance.
  - c. Provide copies to the City of the executable (uncompiled) programming control code for all devices.
12. After all systems are assembled and programming installed, perform pre-installation factory acceptance testing ("FAT") in Consultant's facility.



13. Provide system installation.

- a. Once the site is completely prepared and acceptable for receipt of the electronic systems, transport the AV systems to the site and install the systems. Complete system installation to supporting infrastructure (conduit, electrical, cabling, etc.).
- b. Furnish and/or install all equipment as specified herein.
- c. Coordinate with the City to determine final channel selection for all wireless devices and resolve conflicts where they may occur.
- d. Upon completion of the system installation, furnish to the City all accessories and ancillary items included with the manufacturer's equipment but not used for the physical installation of the device. This shall include, but not be limited to all user manuals, remote controls, batteries, tools, installation hardware, carrying cases, and protective covers.
- e. Furnish all lifts, ladders, scaffolding or other resources as needed for proper safe installation. Coordinate with other trades as needed.
- f. Interconnect all components, both internal and external to rack cabinets.
- g. Ensure all cabling, equipment, and terminations are installed in accordance with accepted industry standards, approved Shop Drawings, manufacturer's recommendations as described herein.
- h. Provide cable management hardware as required; including hardware required internal to rack cabinet; hardware required between pieces of equipment not housed in rack cabinets; and hardware required to extend cabling from rack cabinets and equipment to the greater facility-cabling infrastructure.
- i. Provide custom cover plates, wall plates, I/O connection plates and floor box insert plates as required and coordinate with the City on the final selection of finishes.
- j. Where applicable, ensure all equipment, with the exception of portable equipment, is firmly fastened or attached in place.
- k. Utilize a safety factor of at least four, for all brackets, fasteners and attachments. Provide safety retention cables for overhead equipment, including but not limited to, loudspeakers and projectors. Structural support and engineering, if required, will be provided by the City.



- l. Ensure that all equipment mounting styles and locations comply with current ADA Standards for Accessible Design.
  - m. Provide all display mounts, including clamps and support assemblies back to structural members.
  - n. Field verify all display and mount locations and resolve any obstruction conflicts for optimal performance and serviceability. Reference the system, equipment, mounting and infrastructure drawings to accommodate all displays and field verify measurements to confirm integration in the space.
  - o. Costs of all manufacturer freight costs, shipping to the site, and of all unusual storage requirements, are included in this scope of work.
- 14. After all AV systems are installed, perform final testing and adjustments to ensure compliance with the established performance criteria.
- 15. Complete final testing and systems performance verification.
  - a. Upon completion of the site acceptance testing and verification of system performance and complete functionality, perform the final system tests and adjustments.
  - b. Utilize high quality source materials for all audio and video media types represented in the system.
  - c. Utilize a computer/video signal generator or generators, capable of outputting all signal types included in the system designs.
  - d. Load source material into all input sources and a laptop computer.
  - e. Switch randomly between all sources and demonstrate that all functions of the control system are working properly and tracking correctly.
  - f. Demonstrate that the displays have been optimized for all sources.
  - g. Demonstrate that the system meets the criteria as described herein.
- 16. The work described herein shall be deemed substantially complete when the systems are complete in accordance with the Specification described in Exhibit "A" and the City can utilize the systems as described herein.
- 17. Provide user training.



- a. Coordinate the User, Staff and Operator training time with the City and other providers for the manufacturer online and web-based training prior to completion of the Library system.
  - b. Coordinate the operational training for Council and Committee Member, Clerk and Staff use of the systems for Council and Committee meetings to be performed after the last day of the installation of the Library and Council Chamber systems.
  - c. If the designated City personnel cannot be present at the pre-scheduled time, Consultant shall provide a separate training session. The training session will be at an additional cost in accordance with Exhibit "C". Additional operational training and manufacturer specific operational training may be provided upon request at additional charge. This charge will be based on the manufacturer's rate schedule and executed by a subsequent amendment.
18. Submit documents.
- a. Within two weeks of the successful completion of Final Testing, prepare and submit a Final Documentation set to the City.
  - b. Submit all documents and drawings electronically in PDF and CAD or Visio format and as two (2) printed copies.
  - c. Include the following documents as part of the submittal.
    - i. AS-BUILT DRAWINGS, which will reflect the complete and final configuration of the systems, including the following components.
      - a. Complete functional system signal flow drawings of all systems described herein and meeting the functions indicated herein. System Signal Flow that illustrate and identify each major component indicating signal flow; signal type and equipment interconnectivity; all used and unused input and output connections for all devices; connector types; specific manufacturer and model number labels for each component; physical location callout indicating the components physical location (i.e. equipment rack number, lectern, wall mounted, etc.); cable fan-outs; wire/cable tags; 70 volt loudspeaker tap settings; amplifier/loudspeaker zone assignments; and other details as needed to accurately document the signal interconnectivity of the systems.
      - b. Rack elevations.



- c. Custom panel details.
- d. Patch bay layouts.
- e. A listing of each supplied item with manufacturer, model number and serial number.
- f. Operator's manuals for each piece of equipment supplied by the Consultant.

ii. SOFTWARE

- a. If custom software is developed as part of this project, furnish and install the system source code, passwords, and any associated related files, referenced files, and development software (and all relevant documentation and license) used to compile, develop, and build, etc. the executable code.
- b. Grant the City a license in perpetuity for use, including the right to modify or enhance the software. Notwithstanding the foregoing, Consultant will retain intellectual property rights and City will not sell or use the software code, in part or in whole, in any other project or application other than described herein.
- c. Submit the software to the City on CD-ROM inserted into a plastic sleeve appropriate for each media type.

iii. IP ADDRESSING SCHEDULE

Provide an IP Addressing Schedule for each provided device requiring an IP address and connected to any network. At a minimum, it will include the following.

- a. Product manufacturer and model
- b. LAN port connection location
- c. Assigned Static IP address
- d. Product MAC address

Submit the IP Addressing Schedule electronically in Microsoft Excel .xls format, compatible with Windows 7 or newer operating systems.

19. Coordinate and conduct an acceptance walk-through and sign-off session with the City and submit a "sign-off" document for the systems.

20. Provide one system engineer on-site for the first live council meeting



in each space that will utilize the new systems. Ensure the engineer assisting in day one support is thoroughly familiar with the details and operation of the systems.

21. Provide quality assurance.

- a. Unless otherwise stated, ensure all equipment for this installation is new, less than one year from the date of manufacture, and without blemish or defect.
- b. Ensure all electrical, electronic and optical equipment furnished by Consultant be a product of companies regularly engaged in the manufacture of electrical, electronic or optical equipment.
- c. Ensure the equipment is the latest model or type offered which meets the applicable specifications. All time and expenses incurred by the Consultant in the identification, coordination, system re-engineering and modification to accommodate replacement CFE equipment will be billed at the hourly rates set forth in Exhibit "C".
- d. Maintain the same project manager and field supervisor throughout the installation, and where practical, maintain the same installers.
- e. Complete all work described herein in a professional manner by qualified workers.

22. Provide reliability and warranty.

- a. Ensure the systems are designed for professional quality operation over a period of several years without the need for continual maintenance.
- b. Maintain permanent fabrication, service and support facilities within fifty (50) miles of the Project site during the Work and Warranty period described below.
- c. Warrant the system installation for a period of 90 days. The Manufacturers' standard or extended warranties, as identified herein, apply to equipment purchased pursuant to this Agreement. Excluded from the warranty is damage or failure due to City's abuse, misuse, or failure to observe equipment operational specifications and limitations. Also excluded are operational supplies such as lamps and CFE.
- d. If troubleshooting or repair of CFE and/or consultation with outside service providers (i.e. Equipment service providers or manufacturers, Telecommunication companies, IT providers, etc.),



is required to complete the integration of the system, this work will be in accordance with the hourly rates in Exhibit "C". Delays, rescheduling or time required due to delays in Consultant's receipt, substitutions, incomplete deliveries, defects, returns or replacement of equipment provided by the City and/or outside services will be additionally billed to the City.

- e. Notify the City before any service call whether such call is or is not covered under warranty. Notify the City of any service call or work if charges may be incurred before such work commences.

## **B. FUNCTIONAL SPECIFICATION**

### **1. COUNCIL CHAMBER**

#### **a. Council Chamber System Description**

- i. Upgrade the Council Chamber audio, video and related control systems to utilize current, reliable and supportable technology to allow the City to conduct Council and Committee meetings and other presentations requiring internal AV support and broadcast.
- ii. Ensure the new Council Chamber AV system includes a direct view LED video wall and LED displays; local sound reinforcement; audio and video recording; full integration with the City provided Granicus agenda management, voting and speaker timing application; multiple cameras; dedicated AV network; interface to the Library AV systems; and presentation distribution to cable broadcast, online streaming and other City rooms and facilities.
- iii. Use an integrated control system to allow easy and intuitive user control of the system. Ensure the AV network and control system provides full signal routing and system control, interface between the Council Chamber system and the Library system, encoding and decoding of audio and video signals, selection and control of source devices and routing, presentation switching, and audio control. Ensure the adjacent Council Chamber Lobby supports overflow of live non-delayed video and audio or other selected content and the exterior speaker systems will support selected audio content.
- iv. Remove all existing equipment and associated racks, except where it will be reused. Dress and terminate all wiring properly. Put cable-wiring management in place for easy access, testing and replacement of cables as needed. Label all cables and cords as well as all outlets and connections.

b. DAIS

- i. Ensure the Council Chamber includes a new seven (7) position dais at the front of the room to support the Chairman, five Council Members and an open position for Council meetings or designated positions for Committee meetings. Ensure each position has a 20" touch sensitive LED display, one (1) mounted gooseneck microphone and mute switch, one (1) local reinforcement audio speaker, a video nameplate and one (1) duplex 120v AC outlet with USB charging ports for personal devices. Make agenda management, voting (at applicable positions for each meeting type) and presentation viewing functions available on the touch sensitive LED displays. Ensure the microphones are used for local sound reinforcement, audio conferencing, recording and distribution to broadcast. Provide microphone muting via capacitive touch switches with LED status indicators located adjacent to each microphone.
- ii. Ensure the video nameplates are integrated into the dais front facing the audience to display the full name and title or position of the Council or Committee Member seated at the location and there is a graphical background behind the name and title. Collaborate and gain approval of the graphical content with the City prior to implementation.
- iii. Upgrade the existing dais, Clerk and Staff tables, which will be modified by the City. Coordinate all cutouts, cable paths, 120v electrical requirements and distribution required for audiovisual component integration with the architect or designer. Install all audiovisual components and integrate the supporting hardware into the dais, Clerk and Staff tables.

c. STAFF POSITIONS

The Council Chamber has seven (7) additional Staff positions located at two Staff tables and the Clerk and Assistant Clerk positions at a separate table adjacent to the dais in the front of the room.

i. CLERK AND ASSISTANT CLERK

Ensure the Clerk position has two local computers with corresponding monitors and a shared keyboard and mouse; a HDMI laptop input, a 10" touch panel, one (1) mounted gooseneck microphone, one (1) local reinforcement audio speaker, a video name plate and one (1) duplex 120v AC outlet with USB charging ports for personal devices. Make the Clerk's microphone muted or unmuted from the Clerk touch panel.



Dedicate one Clerk computer (Granicus PC) to running Granicus meeting management software to provide agenda management, minutes creation, request-to-comment, voting and speaker timing functionality. Provide that the second computer is used for in-room presentations (Presentation PC). Ensure the Clerk's Granicus PC is not available as a source for display in the room. Place a Granicus public display PC, generating agenda, voting results and speaker timing graphics, in the control room and make available as a source for display in the Chamber. Place a local presentation device input at the Clerk's position and make it accept an HDMI input to allow presentations from a portable laptop computer or other video device.

Make the Clerk's touch panel the primary Chamber presentation control point for use during Council meetings to control the AV presentation systems and select and control the presentation media to be displayed in the Chamber, lighting preset selection, presentation audio volume, microphone control, video confidence monitoring of the broadcast output and selection of display of the Granicus agenda, voting results and speaker timing information.

Include master "all-microphone" and individual microphone mute/unmute and gain level adjustment capability for all Council Members and Staff and all wireless microphones in the microphone control. Ensure the source gain level adjustment from the Clerk position adjusts the presentation source volume level output in the Chamber only, and does not affect the presentation source output level to the broadcast system.

Program the Clerk's touch panel with several preset meeting types and conditions appropriate for each. Make the touch panel control selection of the current Council or Committee utilize the room; indicate the digital name plates of the participants or any who are absent; and change names and positions of meeting participants for display.

Ensure the Clerk's touch panel selects all presentation sources displayed in the Chamber and distributed to the Council Member and Staff displays. Program the Clerk's touch panel to allow the selection of the outbound broadcast signal in a video window on the touch screen for confidence monitoring, which is surrounded by control function buttons. Ensure that



by touching the confidence monitor window on the touch screen, the window will go to full screen on the touch panel. In the event a party touches the screen, when full screen viewing mode is invoked, the window will revert to the standard size window with surrounding control functionality available.

Outfit the Assistant Clerk position with one (1) mounted gooseneck microphone, one (1) local reinforcement audio speaker and one (1) duplex 120v AC outlet with USB charging ports for personal devices.

ii. CITY MANAGER AND CITY ATTORNEY

Outfit the City Manager and City Attorney positions each with a 21' LED display, one (1) mounted gooseneck microphone and mute switch, one (1) local reinforcement audio speaker, a video name plate and one (1) duplex 120v AC outlet with USB charging ports for personal devices.

iii. STAFF

Outfit the table, with seating for three (3) Staff positions, with two (2) shared 21' LED displays, three (3) mounted gooseneck microphones and mute switches, three (3) local reinforcement audio speakers and three (3) duplex 120v AC outlets with USB charging ports for personal devices.

d. LECTERN

De-install the existing lectern and provide to the City for disposition. Provide and finish a new custom motorized, ADA compliant, rotating lectern with LED display, 7" touch control panel, gooseneck microphone and HDMI laptop input to be complimentary to the dais. Locate the new lectern and install at the existing lectern location.

Finish the new lectern to match the new dais and rotate 180 degrees to support speakers to present in both the direction of the dais and the audience to allow use in various meeting types. Motorize the lectern to allow height adjustment to comply with current ADA requirements.

Install a HDMI laptop input, new microphone and microphone mount and 7" touch control panel in the lectern surface. Program the touch panel to display speaker timing during Council meetings, and allow system control functionality and mute/unmute of the lectern microphone during use for presentations to an audience during training or other sessions outside of Council meetings. Ensure the Clerk's touch panel overrides the local lectern mute/unmute control.



e. VIDEO AND COMPUTER SOURCES

Provide Presentation sources for display in the Council Chamber for the Clerk Presentation PC and laptop input at the Clerk position, three (3) shared laptop inputs plates at the dais, laptop inputs plates at each of the City Manager and City Attorney positions, laptop inputs plates at each of the three (3) Staff positions, a laptop input at the lectern, an auxiliary laptop input in the Broadcast Control Room, Granicus Public Display PC, Spectrum and Verizon cable set top box feeds from the Broadcast Control Room, and Broadcast Program Output.

f. VIDEO DISPLAY

Utilize a new high-brightness 130" direct view LED display on a custom floor or wall supported mount and LED displays at the Council, Clerk, Staff and lectern positions, all capable of displaying full high definition 1080p images in the Chamber. Remove the existing video projector, mount and projection screen. Install the 130" LED display behind the Council positions. Ensure the 130" display is used to display a single presentation source image from any of the available computer or video input devices. Mount the direct view LED display utilizing a wall mount system or floor standing support, which may require a modification of the existing concave wall area behind the Council, based on the final determination of the design team. A not to exceed allowance has been provided in Exhibit "C". Final equipment for mounting of the display and costs will be determined by the final design approved by the City.

Group the Council, Staff and lectern displays as three individual groups to display a single presentation source image for each group from any of the available computer or video input devices. Ensure the selection of the source to be displayed on the display systems is controlled by the Clerk or Broadcast Control Room touch panels.

g. AUDIO REINFORCEMENT AND ASSISTED LISTENING

Install fifteen (15) gooseneck microphones, one (1) wireless lavalier microphone, two (2) wireless handheld microphones and two (2) wireless gooseneck microphones to be used for voice reinforcement and presentation support. Encode all wired microphones to Dante digital audio and encrypt all wireless microphones to digital units. Install all gooseneck microphones at the dais, Clerk, Staff and lectern positions with illuminated LED indicators to indicate current visible mute status of the microphone. Ensure both wired and wireless microphone systems are transmitted and routed through the AV network. Make all wireless microphones rechargeable via docking charging stations located in



the Broadcast Control Room or Storage Room. Ensure the video and computer sources provide media audio.

Employ the existing multi-zone distributed loudspeaker system for mixed media, audio conferencing, and voice audio reinforcement in the Council Chamber, Chamber Lobby Area and exterior area. Reuse the existing Chamber and Chamber Lobby Area speakers and remove the existing exterior speakers, and install new speakers. Amplify the loud speakers from the equipment rack. Use a DSP based mixer/router that will provide equalization, limiting, and feedback control to mix and manage the audio. Make the volume level for the Council Chamber, Lobby and Exterior systems available via the control system and control remotely from the Clerk and Broadcast touch panels. Supply and install an assisted listening system to support additional audio reinforcement in the Chamber. Ensure the system utilizes an under-carpet induction hearing loop for use with compatible T-coil hearing aids and ten (10) rechargeable hearing loop receivers with lanyards. Install the loop system in the space in coordination with the City prior to installation of the new carpeting and seating.

Distribute the selection of the audio source to the Chamber Lobby and select the exterior area via the Clerk or Broadcast touch panels. When Chamber "overflow mode" is selected for audio and video distribution to the Chamber Lobby and audio to the exterior area, control the volume level for the Chamber Lobby and exterior speaker systems via the Clerk or Broadcast touch panels.

h. AGENDA MANAGEMENT, VOTING AND SPEAKER TIMING SYSTEM

Make a CFE Granicus agenda and voting graphical display PC with HDMI output (located in the AV control room equipment rack), available as a source for display on the Council Chamber audience, dais and Staff displays, and send to broadcast. Provide, install and make functional the required interface devices, cabling, integration and AV control system programming to apply to the agenda and voting graphical display PC as part of the work. Install the member and Clerk PCs and the graphical display PC for use with the CFE Granicus application and presentation.

Integrate the CFE Granicus agenda management, voting, request to speak and speaker timing applications into the system for display of the CFE agenda, voting results and speaker timing via the graphical display PC. Ensure the Clerk initiates a vote utilizing the CFE Granicus PC at the Clerk's location. Ensure the Council or Committee Members are able to vote (Yes, No, or Abstain) using a



20" touch display at each Member position at the dais. Ensure that after all members have voted, the Clerk ends the vote and selects the results of the vote for display on the large room display, dais displays and Staff displays. Distribute the voting result for broadcast.

i. VIDEO NAMEPLATE SYSTEM

Integrate the video nameplate system into the dais to make the control system, automatically load and display each Council or Committee Member's name when the corresponding meeting type is selected. Ensure the Clerk or Operator touch panel is programmed to identify absent Council or Committee members or changing names to accommodate new members.

j. BROADCAST SYSTEM

House the broadcast system in the Control Room. Ensure the broadcast system provides selection and complete control of the cameras, and selection of all source devices for the broadcast feed. Scan convert and scale camera feeds and computer inputs from the Council Chamber utilizing high-resolution digital HDMI signals to the appropriate output format and frequency for distribution to each of the broadcast system components. Select sources for broadcast through a broadcast-quality video production switcher with eight (8) available inputs (seven inputs will be active with one spare) to be paired with a 27" touch screen multi-view display allowing all presets and camera positions to be displayed and activated by touching the "video thumbnail" of the preset.

Configure the touch screen multi-viewer to display seven input windows and two larger "Preview" and "Program" windows with red and green tally window borders. In addition, ensure each camera input is capable of having up to 12 stored "video thumbnail" preset camera shots. Accomplish character and graphical overlay with an integral, high quality, keying character generator with graphical content uploaded from the CFE engineering PC. Configure the source preview and program monitoring through the 49" display with production multi-viewer to provide continuous monitoring of all cameras, Chamber current presentation source, character generator, presentation switcher, and broadcast program.

Use one (1) 21" monitor, mounted on an articulating arm on the console, for the engineering PC display of production switcher control set-up, character generation, application and internet viewing and one (1) wall mounted 32" display to provide continuous confidence monitoring of incoming cable feeds from Spectrum and Verizon via CFE set-top-boxes and the broadcast system signal output. Distribute broadcast output to a press plate with two (2) HD-



SDI and two (2) XLR audio connections, the CFE Granicus Agenda Management System HD-SDI encoder for web streaming and recording, an internal City network streaming encoder allowing City Staff to view streamed content, a high definition Cable Cast system for content intended for cable broadcast to be recorded and distributed, a Blu-Ray DVD Recorder for hard copy archival of meeting proceedings and two cable modulators or encoders (Spectrum and Verizon) as feeds to the City's contracted cable providers. Use the Cable Cast system to play live broadcast and time scheduled looping video and audio to the CFE cable modulators and encoders on a 24/7 basis.

House all broadcast video and control equipment in or on a custom broadcast style operator console system that incorporates racks, desk space, and other accessories as required to provide a workspace that is ergonomically designed for long session operator use, aesthetically pleasing and operator-friendly. Repurpose the existing Chamber AV equipment racks to support the new systems.

Make source audio for the broadcast and recording available as mixed microphone and media audio from the Council Chamber, and distribute to multiple outputs on the digital audio mixer/router for distribution to the broadcast system recorders and the cable system modulators and encoders. Use a pair of stereo speakers for monitoring of available audio signals. Make the monitor speaker source selection and volume control available from the operator touch panel. Route all audio and video signals into and out of all devices in the broadcast through the video and audio-networked routing systems located in the Broadcast Control Room racks.

k. CAMERA SYSTEM

Utilize a high definition multi-camera system for cable broadcast and video archival of meetings. Install five (5) CFE remotely controlled cameras in the Council Chamber. Ensure the cameras contain integral remotely controlled pan and tilt motors, and utilize power zoom and focus lenses. Outfit the CFE cameras with single-chip broadcast quality image pickup devices and equip with multi-element 30x optical glass auto-focus zoom lenses. Make remote control of white balance, color correction, and other available settings and controls available via the camera control unit surface, which will be located in the Broadcast Control Room. Ensure the high-quality lenses, suitable for broadcast use, are capable of remote control of focus, zoom, and iris provides the capability to gain close-up head shots of people seated at the dais and other locations.

Integrate joystick type camera and touch screen production



controllers, with the production switcher, to ensure control of all cameras pan, tilt, zoom, focus, and other controls as required. Locate these controllers in the Broadcast Control Room. Locate one (1) camera in the center rear of the Chamber, wall mount two (2) cameras adjacent to the audience area and two (2) cameras in the front of the Chamber on each side of the large audience display to capture Staff, presenters from the lectern and the audience.

I. BROADCAST MONITORING

Install a 49" 4K display, configured with multiple windows provided by a multi-viewer, in the Broadcast Control Room for easy viewing by the Operator and to provide broadcast production monitoring. Make all available cameras, engineering PC/character generator and presentation sources, the currently selected presentation source displayed in the Council Chamber and broadcast preview and program available for simultaneous viewing. Enable operator control of video and audio routing to the production system utilizing a 10.1" touch panel control interface. Distribute all cameras video signals to a dedicated window and to individual inputs of a high definition video production switcher. Distribute the program video from the switcher to multiple outputs sufficient to provide program video to all video recording devices, the press plate, cable broadcast modulators or encoders and Granicus encoder. Embed the video and mixed voice reinforcement and media audio in the video with the video distribution signal. Ensure the digital video recording and playback system includes software programmable for unattended looping playback on a time-scheduled basis. Locate the monitoring, routing and control equipment in racks or in the operator's console in the Broadcast Control Room and enable control from the Control Room operator's position.

m. AV NETWORK

Utilize a dedicated 10 Gigabit Ethernet network to support the new AV application. Ensure the AV network switches support encoded video and audio traffic, routing of AV signal paths and control protocol, remote system monitoring and maintenance access, interface and distribution of the City network to dedicated Granicus PCs and traffic and separation of high bandwidth video traffic from the City network. Locate the AV network core switch in the Chamber Broadcast Control Room with edge switches, which are located at the Chamber dais, Library Broadcast Control Room and Library Multi-purpose Room Clerk AV rack. Connect the Chamber AV core switch to the City network via three (3) CAT-6 network connections to support 1 Gigabit network traffic each and the Library Broadcast Control Room switch via an existing CFE City



single-mode fiber uplink to support 10 Gigabit network traffic.

n. CONTROL SYSTEM

i. GENERAL DESCRIPTION

Install and program an integrated AV control system to support the Council Chamber system. Ensure functionality of the control system will include, but is not limited to, system power control, selection and control of source devices to be displayed on the displays, presentation source selection, microphone muting and level control, Chamber ceiling speaker volume level control, broadcast signal confidence monitoring and lighting preset level selection. Make control of source selection and audio level for the Lobby and exterior distribution areas available on the touch panels. Locate the primary control point of the Chamber presentation system at the Clerk's position. Make duplicate control capabilities along with Broadcast control available in the Broadcast Control Room. Connect the control system to CFE rack mounted networked and controlled UPS units located in the Broadcast Control Room and storage room racks and interface to the control system. In the event of a power outage, ensure the UPS units provide sufficient power to shut down the system in an appropriate fashion without damaging equipment or programming. When power is restored to the system, ensure the AV systems will power up and return to the default start-up ready state automatically. Reuse and reprogram the CFE remote monitoring and management system to use in the new systems.

ii. CONTROL SYSTEM FUNCTIONALITY GUIDE

a. TOUCH CONTROL PANELS

Ensure the touch control panels allow the operator to have access to Council Chamber presentation system controls for system power, display source selection, and video preview of any source. Make the control system sufficiently control all devices necessary to allow, upon source selection, seamless and automatic distribution of a selected Council Chamber presentation source device to the primary, dais and Staff video displays and to the production system in high definition video.

Ensure the audio from the selected source device is automatically selected and routed to the audio digital signal processor (DSP) while all unselected source devices are muted. Lay out control pages, panels or buttons logically and symmetrically with a minimum of



page flips, pop-ups or button changes for standard control functions. Coordinate background colors and button colors with the City prior to site installation.

b. MICROPHONE MUTE

Ensure all mounted gooseneck microphones have a corresponding adjacent mute button mounted in the dais, Staff or lectern millwork. Make all microphone mute buttons provide visual status feedback of the microphone mute function. Control the lectern microphone mute function locally when the system is in presentation mode only, but allow for it to be overridden by the Clerk's touch panel.

o. LIGHTING AND ROOM DIMMING SYSTEM

i. DAIS LIGHTING

Reuse the existing Chamber lighting fixtures to support appropriate illumination of the Council members at the dais for video production. Make the fixtures dimmable and support appropriate color temperature and lighting levels of the participants at the dais, key lighting of the rear wall area and integrate with the other room lighting to provide room illumination supporting the Council, Committee and public activities in the room.

ii. CHAMBER LIGHTING

Reuse the existing in-ceiling house lighting fixtures. Ensure the fixtures support appropriate color temperature and lighting levels to provide proper room illumination and interface to the dimming system.

iii. DIMMING SYSTEM

Reuse the existing Council Chamber lighting dimming system and low-voltage interface to connect to the AV control system. Interface the dimming system to the new integrated control system and use to control the existing fixtures and circuits of lighting installed in the Chamber.

p. DAIS MILLWORK MODIFICATIONS

Coordinate the integration of the AV equipment and digital nameplates with the City's selected architect for inclusion in the new millwork.

q. COUNCIL CHAMBER LOBBY

Ensure the Council Chamber Lobby system supports live un-delayed broadcast audio and video of the Council Chamber proceedings or,



when not in use supporting meetings in process, a broadcast or other selected input feed from the Chamber Broadcast system. Ensure the selection of the Council Chamber feed as the current feed to the system is controlled by the Clerk's or Broadcast Operator's touch panels. Display the video feed on three (3) new 42" LED displays. Support the audio for the Lobby by the existing in-ceiling speakers, which will be reused.

## 2. ADMINISTRATION AND PLANNING CONFERENCE ROOMS

Interface an encoded video and audio feed to the existing Administration Conference room to enable current proceedings in the Chamber or any of the available sources from the Chamber or Broadcast system that route to the room for display. Make the selection of the source from the Chamber Broadcast Operator touch control panel to the room for routing. Ensure the control of the room system, display, audio reinforcement and selection of the incoming source for display will be via the existing room AV system. Interface to the Planning Conference room, which will be applied and integrated in the future. Include connectivity at the primary AV network switch as a part of the current project for future use.

## 3. LIBRARY

Ensure the Library Multi-Purpose Room and Broadcast system act as extensions of the Council Chamber and Chamber Broadcast systems. Use the Multi-Purpose Room as a secondary Council Chamber to support Council and Committee meetings while the primary Chamber is under construction and when desired by the City. Use the Multi-Purpose room as a City and public meeting, conference and rental space. Provide allowance to interface the Library Conference Room to the Library AV systems in the future. Upgrade the video, audio and related control systems to utilize current, reliable and supportable technology to allow the City to conduct Council and Committee meetings and to support City, public and rental applications in the spaces. The Library audiovisual and broadcast systems functional description is outlined below.

### a. MULTI-PURPOSE ROOM SYSTEM DESCRIPTION

Ensure the Multi-Purpose Room is reconfigurable and allows the City to conduct Council and Committee meetings and supports other City, public and rental meetings and presentations requiring AV support and broadcast. Upgrade audio, video and related control systems to utilize current, reliable and supportable technology to enable room utilization for the intended meeting and event types. Ensure the new Multi-Purpose AV system includes use of the existing room video projection system; local sound reinforcement; audio and video recording; full integration with the City provided Granicus agenda management, voting and speaker timing application; multiple cameras; dedicated AV network; interface to the Chamber AV systems; and presentation distribution to cable broadcast, online



streaming and other City rooms and facilities. Use an integrated control system to allow easy and intuitive user control of the system by the Clerk and Broadcast operator during Council and Committee meetings, and by Staff or the public for City meetings, public or rental applications. Ensure the AV network and control system provides full signal routing and system control, interfaces between the Library and Council Chamber systems, encodes and decodes audio and video signals, and selection and control of source devices and routing, presentation switching and audio control. Remove all existing AV equipment and associated racks, except where identified to be reused. Dress and terminate all wiring properly. Place cable wiring management in a location for easy access. Test and replace cables as needed. Label all cables and cords, all outlets and connections.

4. COUNCIL AND COMMITTEE MEETING CONFIGURATION

a. COUNCIL AND COMMITTEE SEATING POSITIONS

Ensure the six (6) Council seating positions support the Chairman and five (5) Council Members. Have each position utilize a CFE Apple iPad, connected via the City WiFi network, for interface to the CFE Granicus agenda management, voting and speaker timing application. Deploy at each position one (1) wireless gooseneck microphone with mute switch for audio pickup and reinforcement. Position Council seating to allow the Council to have a direct view of the existing video projection screen supporting voting results, presentations and public content. Use the microphones for local sound reinforcement, audio conferencing, recording and distribution to broadcast. Ensure CFE microphones provide muting via mute switches with LED status indicators located on the microphone base.

b. STAFF POSITIONS

Configure the Council meeting area to have four (4) additional Staff positions located at two Staff tables and the Clerk and Assistant Clerk positions at a separate table to be located perpendicular to the front wall at the right front of the room.

i. Clerk and Assistant Clerk

Ensure the Clerk and Assistant Clerk position utilizes a portable rolling equipment rack system to be deployed to support Council and Committee meetings when conducted in the space. Design the rack system to fully support utilization, connectivity and control of the agenda management, voting, speaker timing, presentation and audio control performed by the Clerk and Assistant Clerk during Council and Committee meetings, all through a single Ethernet wall plate connection. Ensure the system contains support equipment and interfaces to devices to be deployed on the Clerk and Assistant Clerk's shared table.



Design access to and operational control of the CFE Granicus application and meeting control to operate in a similar and familiar fashion to the Clerk's operational interface to the Council Chamber system. Ensure the rack system is deployed with two CFE local computers with connectivity for corresponding monitors and a shared wireless keyboard and mouse to be located on the table; a HDMI laptop input, a network switch and a 10.1" touch panel connection for deployment of the touch panel to the table. Ensure the Clerk and Assistant Clerk positions will each have one (1) wireless gooseneck microphone with mute switch deployed for audio pickup and reinforcement.

Dedicate one Clerk CFE micro form factor computer (Granicus PC), which will be located in the rolling rack, to running Granicus meeting management software to provide agenda management, minutes creation, request-to-comment, voting and speaker timing functionality. Use the second CFE microform factor computer for in-room presentations (Presentation PC). Ensure the Clerk's Granicus PC will not be a source for display in the room. Locate a CFE Granicus public display PC, generating agenda, voting results and speaker timing graphics, in the control room and make it available as a source for display in the room. Locate a local presentation device input at a connection point on the front of the rack and ensure it accepts an HDMI input to allow presentation from a portable laptop computer or other video device.

Make the Clerk's touch panel the primary presentation control point for use during Council meetings to control the AV presentation systems and use to select and control the presentation media to be displayed in the room, presentation audio volume, microphone control, video confidence monitoring of the broadcast output and selection of display of the Granicus agenda, voting results and speaker timing information. Include master "all-microphone" and individual microphone mute/unmute and gain level adjustment capability for all Council Members and Staff and all wireless microphones in the Microphone control. Ensure the source gain level adjustment from the Clerk position adjusts the presentation source volume level output in the room only, and does not affect the presentation source output level to the broadcast system. Program the Clerk's touch panel with several preset meeting types and conditions appropriate for each. Ensure the



touch panel controls selection of the current Council or Committee to utilize the room.

Use the Clerk's touch panel to select all presentation sources to be displayed on the room CFE projection display. Program the Clerk's touch panel to allow display of the outbound broadcast signal in a video window for confidence monitoring, which will be surrounded by control function buttons. Upon touch of the confidence monitor window on the touch screen, the window will go to full screen on the touch panel. Ensure touching the screen, when full screen viewing mode is invoked causes the window to revert to the standard size with surrounding control functionality available.

ii. City Manager and City Attorney

Outfit the City Manager and City Attorney positions with one (1) wireless gooseneck microphone with mute switch each.

iii. Staff

Outfit a table with seating for two (2) Staff positions with two (2) wireless gooseneck microphones with mute switch.

c. LECTERN

Provide a new custom, ADA compliant, lectern and install the CFE 7" touch control panel, gooseneck microphone, HDMI laptop input, encoder and network switch. Locate and install the new lectern at the existing lectern location and connect to the room AV system via one (1) Ethernet connection, which supports all AV transmission to and from the system. Ensure the new lectern supports speakers presenting during a Council or Committee meeting or for public meeting use. Provide the lectern with a flip-up shelf system to comply with current ADA requirements.

Install the HDMI laptop input, new microphone and microphone mount and 7" touch control panel in the lectern surface. Program the touch panel to display speaker timing during Council or Committee meetings, allow system control functionality, and mute/unmute of the lectern microphone during use for presentations to an audience during training or other sessions outside of Council or Committee meetings. Ensure the Clerk's touch panel overrides the local lectern mute/unmute control.

d. VIDEO AND COMPUTER SOURCES

Ensure the Clerk Presentation PC and laptop input at the rolling rack, a HDMI laptop input plate at the front of the room, a laptop input at the lectern, wireless connectivity for two (2) laptop PCs, an



Engineering PC and auxiliary laptop input in the Broadcast Control Room, Granicus Public Display PC, Spectrum and Verizon cable set top box feeds from the Chamber Broadcast Control Room and Broadcast Program Output are available as presentation sources for display during Council or Committee meetings.

e. VIDEO DISPLAY

Ensure the Multi-Purpose Room utilizes the existing video projector and 120" diagonal projection screen supporting the Council, Clerk, Staff and lectern positions and displaying full high definition 1080p images. Provide that the 120" projection display is used to display a single presentation source image from any of the available computer or video input devices. Make the Clerk or Broadcast Control Room touch panels control the selection of the source to be displayed on the display system. Ensure the existing short-throw video projection system in the rear of the room remains as a stand-alone system and is not connected to the new AV systems.

f. AUDIO REINFORCEMENT AND ASSISTED LISTENING

Ensure fourteen (14) wireless gooseneck microphones, one (1) wired gooseneck microphone and two (2) wireless handheld microphones are deployed for voice reinforcement and presentation support. Encode the wired microphone to Dante digital audio and ensure all wireless microphones are encrypted digital units. Ensure all gooseneck microphones for use by the Council, Clerk and Staff, and at the lectern position have illuminated LED indicators to indicate current visible mute status of the microphone. Transmit and route both wired and wireless microphone systems through the AV network.

Ensure all wireless microphones are rechargeable via docking charging stations located in the Broadcast Control Room or storage area. Reuse an existing CFE AV equipment rack for support of the new systems. Ensure the video and computer sources provide media audio. Employ the existing multi-zone distributed loudspeaker system for mixed media, audio conferencing, and voice audio reinforcement in the room. Ensure the new audio DSP and routing system distributes presentation source and microphone audio to the Chamber system and broadcast upon selection by the Broadcast operator. Amplify the loud speakers from the Broadcast Control Room equipment rack. Mix and manage the audio using a DSP based mixer/router that will provide equalization, limiting, and feedback control. Make available the volume level for the Multi-Purpose Room system via the control system and ensure it is controlled remotely from the Clerk and Broadcast touch panels.

Install the CFE assisted listening system to support additional



audio reinforcement in the Chamber. Utilize a digital RF signal and four (4) rechargeable intelligent DSP receivers with lanyards and universal ear speakers for the system. Select the audio source to be distributed to the Multi-Purpose Room via the Clerk or Broadcast touch panels.

g. AGENDA MANAGEMENT, VOTING AND SPEAKER TIMING SYSTEM

Install the CFE Granicus agenda and voting graphical display PC with HDMI output, located in the Library Broadcast Control Room equipment rack, as a source for display on the Multi-Purpose Room display, which may be sent to broadcast. Provide, install, and make functional required support devices, cabling, integration and control system programming to apply to the agenda and voting graphical display PC is as a part of this work. Integrate the CFE Granicus agenda management, voting, request to speak and speaker timing applications into the system for display of the CFE agenda, voting results and speaker timing via the graphical display PC.

Ensure that the Clerk can initiate a vote utilizing the CFE Granicus PC at the Clerk's location. The Council or Committee Members will be able to vote (Yes, No, or Abstain) using their individual CFE iPads. After all members have voted, the Clerk will end the vote and select the results of the vote for display on the room display and the voting results will be distributed via broadcast.

h. BROADCAST SYSTEM

Design the Library broadcast system with a similar complement of equipment, functionality and configuration to the Chamber broadcast system to allow operators to easily transition between the Chamber and Library systems. House the Library broadcast system in the Library Control Room.

Ensure the broadcast system provides selection and complete control of the cameras, and all source devices for the broadcast feed. Scan convert and scale camera feeds and computer inputs from the Multi-Purpose Room, utilizing high-resolution digital HDMI signals, to the appropriate output format and frequency for distribution to each of the broadcast system components. Select the sources for broadcast through a broadcast-quality video production switcher with eight (8) available inputs (seven inputs will be active with one spare) that is paired with a 27" touch screen multi-view display allowing all presets and camera positions to display and activate by touching the "video thumbnail" of the preset. Configure the touch screen multi-viewer to display seven input windows and two larger "Preview" and "Program" windows with red and green



tally window borders. Ensure each camera input is capable of having up to 12 stored "video thumbnail" preset camera shots. Accomplish character generation and graphical overlay with an integral, high quality, keying character generator with graphical content uploaded from the engineering PC.

Configure source preview and program monitoring through the 49" display with production multi-viewer to provide continuous monitoring of all cameras, Multi- Purpose Room current presentation source, character generator, presentation switcher and broadcast program.

Use one (1) 21" monitor, mounted on an articulating arm on the console, for the engineering PC display of production switcher control set-up, character generation, application and internet viewing and install one (1) wall mounted 32" display for continuous confidence monitoring of incoming cable feeds from Spectrum and Verizon via CFE set-top-boxes (located in the Chamber Broadcast Control room) and the broadcast system signal output.

Distribute broadcast output to a press plate with two (2) HD-SDI and two (2) XLR audio connections and a local Blu-Ray DVD Recorder. Transmit the distribution to the CFE Granicus Agenda Management System HD-SDI encoder for web steaming and recording, the Cable Cast system for broadcast distribution and recording and the two cable modulators or encoders (Spectrum and Verizon), all shared with the Chamber system and located in the Chamber Broadcast Control Room, via the AV network to the devices. House all Library broadcast video and control equipment in or on a custom broadcast style operator console system that incorporates racks, desk space, and other accessories as required to provide a workspace which is ergonomically designed for long session operator use, aesthetically pleasing and operator-friendly.

Make source audio for the broadcast and recording available as mixed microphone and media audio from the Multi-Purpose Room, and distribute to multiple outputs on the digital audio mixer/router for distribution to the broadcast system recorders and the cable system modulators and encoders. Install a pair of stereo speakers for monitoring of available audio signals. Make monitor speaker source selection and volume control available from the operator touch panel.

Route all audio and video signals into and out of all devices in the broadcast system through the video and audio networked routing systems located in the Library Broadcast Control Room racks.



i. CAMERA SYSTEM

Utilize a high definition multi-camera system for cable broadcast and video archival of meetings. Mount four (4) remotely controlled cameras permanently in the Multi-Purpose Room. Mount two (2) cameras on the vertical face of the soffit area in approximately the same locations of the existing cameras. Remove the existing cameras and provide to the City for disposition. Install one (1) camera toward the front of the room behind the Council seating location to provide shots of the Clerk, City Manager, City Attorney and Staff tables and install one (1) camera at the front of the room to the left of the projection screen to provide shots of the lectern and audience, install both in in-ceiling domes to ensure greater security of the devices.

Ensure the cameras have integral remotely controlled pan and tilt motors and utilize power zoom and focus lenses. Ensure the cameras are single-chip broadcast quality cameras equipped with multi-element 30x optical glass auto-focus zoom lenses. Make remote control of white balance, color correction, and other available settings and controls be available via the camera control unit surface, which will be located in the Library Broadcast Control Room. Ensure high-quality lenses are provided, suitable for broadcast use, capable of remote control of focus, zoom, and iris and provides the capability to gain close-up head shots of people seated at the Council and Staff tables, lectern and other locations. Locate the joystick type camera and touch screen production controllers, integrated with the production switcher, in the Broadcast Control Room for control of all cameras pan, tilt, zoom, focus, and other controls as required.

j. BROADCAST MONITORING

Install a 49" 4K display configured with multiple windows provided by a multi-viewer in the Library Broadcast Control Room for easy viewing by the Operator and provide broadcast production monitoring. Make available all available cameras, engineering PC/character generator and presentation sources, the currently selected presentation source displayed in the Multi-Purpose Room and broadcast preview and program available for simultaneous viewing. Perform operator control of video and audio routing to the production system utilizing a 10.1" touch panel control interface. Distribute all cameras video signals to a dedicated window and to individual inputs of a high definition video production switcher. Distribute program video from the switcher to multiple outputs sufficient to provide program video to all video recording devices, the press plate, cable broadcast modulators, encoders and Cable Cast recorder and Granicus encoder (located in the Chamber Broadcast



Control Room). Embed video and mixed voice reinforcement and media audio in the video distribution signal. Locate the monitoring, routing and control equipment in racks or in the operator's console in the Library Broadcast Control Room and control from the Control Room operator's position.

k. AV NETWORK

Utilize the dedicated 10 Gigabit Ethernet network to support the AV application for transmit and receive functions of encoded audio and video traffic and system control between the Library and Chamber systems. Ensure the Library AV network utilizes a 10 Gigabit primary switch with 1 Gigabit edge switches in the Clerk's rolling rack and lectern to support encoded video and audio traffic, routing of AV signal paths and control protocol, remote system monitoring and maintenance access, interface and distribution of the City network to the dedicated Granicus PC and traffic and separation of high bandwidth video traffic from the City network.

l. CONTROL SYSTEM

i. General Description

Install an integrated AV control system in the Multi-Purpose Room system. Ensure the functionality of the control system includes, but is not limited to, system power control, selection and control of source devices to display, presentation source selection, microphone muting and level control, ceiling speaker volume level control and broadcast signal confidence monitoring.

Make the control of transmission to the Chamber Broadcast system available on the touch panels. Locate the primary control point of the Library presentation system during Council or Committee meetings at the Clerk's position. Provide duplicate control capabilities along with Broadcast control in the Broadcast Control Room. Connect the control system to rack mounted networked and controlled UPS units located in the Library Broadcast Control Room racks and interface to the control system. In the event of a power outage, ensure the UPS units provide sufficient power to shut down the system in an appropriate fashion without damaging equipment or programming. When power is restored to the system, ensure the AV systems power up and return to the default start-up ready state automatically. Reuse and reprogram the CFE remote monitoring and management system to use in the new systems.



ii. CONTROL SYSTEM GENERAL FUNCTIONALITY GUIDE  
GUIDELINES

a. Touch Control Panels

Ensure the Touch Control Panels allow the operator to have access to Library presentation system controls for system power, display source selection, and video preview of any source. Make the control system sufficiently control all devices necessary to allow, upon source selection, seamless and automatic distribution of a selected Multi-Purpose Room presentation source device to the projection and audience video displays and to the production system in high definition video. Ensure the audio from the selected source device is automatically selected and routed to the audio digital signal processor (DSP) while all unselected source devices are muted. Lay out control pages, panels or buttons logically and symmetrically with a minimum of page flips, pop-ups or button changes for standard control functions. Coordinate background colors and button colors with the City prior to site installation.

b. Microphone Mute

Ensure all CFE wireless gooseneck microphones are provided with a corresponding mute button on the base of the unit. Ensure all microphones provide visual status feedback of the microphone mute condition. Ensure the lectern microphone mute function is controlled by the Clerk's touch panel.

m. ROOM AND BROADCAST LIGHTING

Reuse the existing Multi-Purpose Room lighting fixtures to support appropriate illumination of the general room area.

5. CITY OR PUBLIC MEETING OR PRESENTATION APPLICATION

a. ROOM MEETINGS AND PRESENTATIONS

Meetings or presentations may be conducted in the front primary room area or in the rear area of the Multi-Purpose Room and may be configured using various table and seating arrangements. Design the new AV system to support meetings utilizing the existing front of room 120" video projection system.

The existing short-throw projection system will remain as a stand-alone operating system and will not be integrated into the primary AV presentation systems.



b. VIDEO AND COMPUTER SOURCES

Ensure the presentation sources available for display on the 120" projection system during City or public meetings held in the primary or front of the room include a HDMI laptop input plate at the front of the room and wireless connectivity for two (2) laptop PCs. If the lectern is deployed for use, ensure a laptop input at the lectern may be used.

The existing short-throw projector presentation source inputs will remain available for display on the short-throw projection system.

c. AUDIO REINFORCEMENT AND ASSISTED LISTENING

Repurpose the existing in-ceiling audio speaker system to support media presentations in the room. Ensure that two (2) wireless handheld microphones may be used for voice reinforcement and presentation support for meetings held in the front primary area of the room. Make utilization of the lectern wired microphone available, if the lectern is deployed for use. Ensure the computer sources provide media audio.

Amplify the loud speakers from the Broadcast Control Room equipment rack. Mix and manage the audio using a DSP based mixer/router to provide equalization, limiting, and feedback control. Make the volume level for the presentation area of Multi-Purpose Room system available via the control system and ensure they are controlled from the Clerk or Operator touch panels during Council or Committee meetings or a wall mounted 10.1" touch panel located at the front of the room during public use. Ensure the assisted listening system may be used to support additional audio reinforcement for presentations conducted in the front area of the room. Make certain the system utilizes a digital RF signal and four (4) rechargeable intelligent DSP receivers with lanyards and universal ear speakers. The audio source distributed to the room will include any active microphones in use, which will be mixed with the current media source being displayed.

d. LECTERN

Provide the new ADA compliant lectern to support meetings held in the front portion of the room, when desired. Install in the lectern the CFE 7" touch control panel, gooseneck microphone, HDMI laptop input, encoder and network switch allow presentation and control of the system from the lectern position. At the City's discretion, locate the lectern at the existing lectern location or a new wall plate connection point at the front left of the room. Connect the lectern to the room AV system via one (1) Ethernet connection and



120V AC power, to support all AV transmission to and from the system.

Program the touch panel to allow system control functionality and mute/unmute of the lectern microphone during meetings or presentations not held during Council or Committee meetings.

e. CONTROL SYSTEM

Integrate one (1) wall mounted 10.1" touch panel with the master AV control system in the Multi-Purpose Room. Mount the touch panel in the front part of the room to allow user control of the primary front presentation and meeting area during public rental meetings or non-Council or Committee meeting use.

Include local system power control, selection and control of source devices displayed on the projection display, microphone muting and level control and ceiling speaker volume level control in the touch panel functionality.

Use the wall mounted touch panel to support front of room presentations only and disable during Council or Committee meetings. At the City's request, program the wall mounted touch panel with password protected access and install in a protective housing.

f. ROOM LIGHTING

Utilize existing room lighting and lighting controls to support meetings and presentations in the room.

6. LIBRARY CONFERENCE ROOM

Apply and integrate interface to the Library Conference room at a time designated by the City. Provide connectivity at the primary AV network switch.

C. PRODUCTS

1. EQUIPMENT

a. Provide equipment as described in Attachment C-1.

b. Connectors, Adapters and Assemblies

i. Provide field terminated connectors compatible and approved for use for a specific cable type and application by the cable and equipment manufacturer.

ii. Provide connectors manufactured by Neutrik, Switchcraft, AMP, Amphenol, Kings, Canare, Crestron, Extron, or equal.



- iii. Furnish constructed cable adapters and assemblies as manufactured by Crestron, Extron, or equal.
- c. Digital Media System, or equal, Required Cable and Connectors
  - i. Provide Digital Media category cabling shielded CAT6, or equal.
  - ii. Provide Crestron Digital Media category-cabling connectors landed at Crestron, or equal. Ensure the equipment is Crestron DM-CONN, or equal.
  - iii. Provide Crestron category cable connections for Crestron Digital Media, or equal. Ensure the cabling terminations at the room boundaries are color-coded Neutrik EtherCON, or equal, and Cat6 rated shielded panel connectors and DM compliant shielded Cat6 rated inline connector, are in the appropriate color-coded Neutrik EtherCON connector carrier, or equal. Ensure all wires within the cable are connected and shielded.
- d. Custom Panels
  - i. Provide custom panels machined aluminum, nominal thickness 0/125", with beveled edges and a brushed, anodized finish. Confirm with the City the required finish color for each panel location.
  - ii. Label all panel connectors with engraved lettering, minimum 0/10" letter height, and provide with contrasting paint fill.
- e. AV Rack Accessories
  - i. Install manufacturers rack mount adapters where available.
  - ii. Where manufacturers rack mount adapters are not available, provide and install Middle Atlantic Products RSH4S-series custom rack shelf adapters, with -C clamping option as required, or equal.
  - iii. Provide blank rack panels: Middle Atlantic Products EB-series, or equal.
  - iv. Provide vented rack panels: Middle Atlantic Products VT-series, or equal.
  - v. Provide rack screws, lacer bars and accessories: Middle Atlantic Products, or equal.
- f. AV Rack Power Distribution Equipment
  - i. Where the Technical Power supply to the rack is IG (isolated



ground), provide a power distribution system within the rack that maintains the integrity of the IG system.

- ii. Install vertical power strips: Middle Atlantic Products PDT-series, or equal.
- iii. Install rack rail power strips: Middle Atlantic Products PD-series, or equal.
- iv. Install a sufficient number of AC convenience outlets to accommodate all installed equipment plus an extra 20% spare capacity.

#### **D. INSTALLATION PRACTICES**

##### **1. GENERAL**

- a. Install all equipment in accordance with this Specification, approved Shop Drawings, and manufacturer's recommendations.
- b. Firmly fasten or attach all equipment with the exception of portable equipment in place. Utilize a safety factor of at least four for all brackets, fasteners and attachments. Provide safety retention cables for overhead equipment such as loudspeakers, projectors, etc.
- c. In the installation of equipment and cable, include both operational efficiency and overall aesthetic factors.
- d. Install all equipment so that proper cooling and ventilation is ensured.
- e. Install all equipment in a manner, which prevents hum, RF/EMI/EMF interference, and mechanical vibration-based noises (e.g. fan mounts, etc.)
- f. Solidly mount and brace cameras, displays, projectors, lenses, and mirrors so that there will be no observable movement in the image induced by motor vibration or other mechanical operations.
- g. Protect all equipment from construction dust and debris until final acceptance of the system.
- h. Protect all equipment from theft until final acceptance of the system.

##### **2. SEISMIC RESTRAINTS**

Secure all hanging and/or free-standing equipment and cabinets furnished including but not limited to racks, loudspeakers, projection screens, and TV monitors to substantial building structures. Ensure the equipment described will resist seismic acceleration in any direction up to a limit of the greater of 1.0 G or the limit prescribed by the local



governing codes.

- a. Maintain electrical isolation between the equipment racks and building steel.

3. EQUIPMENT RACKS AND EQUIPMENT RACK CABLE MANAGEMENT

- a. Install racks in such a way to permit access to all equipment for service.
- b. Completely assemble and test the racks at Consultant's facility prior to onsite installation.
- c. Fit all equipment in racks with vent panels and/or fans as required to provide ventilation and cooling in accordance with the equipment manufacturer's recommendations.
- d. Fit unused front facing rack spaces with blank rack panels.
- e. Bolt adjacent racks together with appropriate ganging hardware.
- f. Use rear and mid rails for intermediate terminations. Maintain accessibility to the rear of the equipment.
- g. Use mid rails to support equipment weighing more than 50 pounds.
- h. Dress all power cables, control cables, and high-level cables to the left rear of an equipment rack. Dress audio and video cables to the right rear of the rack. Bundle audio, video and control cables separately and space not less than three (3) inches apart.
- i. Support internal equipment rack cabling by lacing strips, support brackets, or other cable management systems as required to ensure that all cabling is supported in both the vertical and horizontal planes within the rack.
- j. With the exception of ganged equipment rack assemblies, completely protect cabling routed between equipment racks or pieces of equipment exterior to equipment racks, or extending to the greater facility cabling infrastructure, end-to-end, by a raceway, wire-way, or duct appropriately sized for the cable run.
- k. Ensure all cabling between rolling pieces of equipment not housed in rack cabinets or a rolling equipment rack and any device to which it is connected, is protected by a split-loom corrugated tubing wrap or other such flexible cable management system appropriately sized for the cable run.



- l. Install any controls with security panels if those controls are not adjusted by the user and accessible from the front of the equipment rack.
- m. Unless otherwise approved in writing by the City, completely assemble, test and program equipment rack(s) in Consultant's shop. No rack assembly will be performed at the project site.

#### 4. VIDEO DISPLAYS

- a. Turn off or disable all eco, green or energy saving modes on all flat panel and projector displays where displays are controlled by an external control system.
- b. Adjust video settings on all flat panel displays to optimize color and contrast. Disable any dynamic contrast modes within flat panel displays.

#### 5. CABLING

- a. Execute all cabling and termination in compliance with the standard industry practices and as outlined in the following materials.
  - i. AV Installation Handbook: Best Practices for Quality Audiovisual Systems: InfoComm International, latest edition.
  - ii. Philip Giddings - Audio Systems Design and Installation: Boston Focal Press, latest edition.
  - iii. Kenneth T. Deschler -Cable System Design and Installation: McGraw-Hill, Inc. latest edition.

#### 6. CABLE INSTALLATION

- a. Install non-contiguous cable support mechanisms such as hangers, rings, and hooks not spaced farther than four (4) feet apart. Install all manufactured raceways used for cables in accordance with the raceway manufacturer's specifications.
- b. Support cable runs with devices designed for this purpose and install independent of any other structural component.
- c. Route cables vertically up walls, or between floors as vertical riser, support with clamps or other mechanisms. Install these supports at least three times per floor.
- d. Ensure cable pulling tension does not exceed manufacturer recommendations. Where cable-pulling lubricant is used, ensure the lubricant is compatible (non-damaging) with the conduit and cable sleeve materials and does not harden over time to prevent future



pulls.

- e. Dress cables in conveniently sized bundles and either lace or band. Lacing or banding will not be so tight as to deform cable bundles.
- f. Support cables and bundles terminating at equipment or connector panels, but not in a way, to put strain on connections or connectors.
- g. Provide cabling for equipment mounted in drawers or on slides with a service loop of appropriate length. Provide a cable management support for the service loop to prevent the service loop travel from interfering with the operation of the drawer or slide, or snagging on adjacent cabling.
- h. Run the Microphone level, line level, loudspeaker level, and video lines in separate conduits, trough, raceway divider, and cable bundles. At Consultant's discretion, low voltage DC and control may be run along with any but microphone or line level runs.

#### 7. TERMINATION OF COMPONENTS

- a. Ensure all termination components will meet or exceed all specifications for given media type and application as described in this document and system drawings.
- b. Install crimp on connectors only on the appropriate size cable using the manufacturer recommended crimp tool and die set.
- c. Terminate connections to electronic devices providing screw terminals using the appropriate gauge insulated spade or ring crimp terminal connector and crimp tool.
- d. Attach all mechanical solder-on connectors to cable ends using rosin core solder.
- e. Protect audio signal cable shields with the appropriate gauge Teflon or heat-shrinkable tubing. Fit the jacket end of each audio cable with the appropriate gauge heat shrinkable tubing to provide additional protection to the base of the shield or shield foil. Do the same to the inside of mechanical connectors and cables that terminate at partitioned barrier strips.

#### 8. CATEGORY CABLING AND CONNECTORS FOR AV SYSTEMS

- a. General. Ensure all category cabling installed meets the equipment manufacturer's specifications for cable and connector types, installation methods and routing, separation distance from adjacent



services, maximum number of disconnect points and maximum overall cable run lengths required to meet the systems design performance criteria. Test, verify, and document the category cabling system to meet the ANSI/TIA-568-C.2 Standard, including all applicable Addenda.

- b. Digital Media Distribution Systems. Ensure each digital media RJ-45 receptacle, permanently installed cable, equipment cord, patch cord and patch panel will be of a color or have markings that are nonstandard with the voice/data system, and labeled plainly and permanently "AV ONLY".
- c. AV Control Ethernet Systems. Ensure each AV control RJ-45 receptacle, permanently installed category cable, equipment cord patch cord and patch panel will be of a color or have markings that are non-standard with the voice/data system, and labeled plainly and permanently.
- d. AV USB Extension Systems
  - i. Installed equipment and connections for USB extension over category cable: Ensure all RJ-45 style room boundary wall panel or floor box panel connections provided are mechanically keyed with color-specific positive and negative keying features to prevent unintentional mating with unlike keyed or non-keyed patch cables.
  - ii. Ensure each USB extension RJ-45 receptacle, permanently installed category cable, equipment cord patch cord and patch panel will be of a color or have markings that are non-standard with the voice/data system, and labeled plainly and permanently.
- e. Digital Video Signal Cable Installation and Testing
  - i. General. Ensure all digital video signal cabling installed to support AV Systems connectivity, meets the equipment manufacturer's specifications for cable and connector types, installation methods and routing, separation distance from adjacent services, maximum number of disconnect points and maximum overall cable run lengths required to meet the systems design performance criteria. Test, verify, and document the cabling system.
  - ii. When issues (such as cable length) compromise specifications or the integrity of the audiovisual system, employ active cable equalization, twisted pair extenders, or fiber-optic extenders, as appropriate.
    - a. When using twisted pair extenders, ensure the type of



cable used and its shielding complies with the extender manufacturer's recommendations for optimum performance.

- b. When using products that draw power from the +5V line, configure the system to ensure that source power is not overdrawn.
- iii. Ensure the bend radius of each cable will not be less than the minimum recommended by the cable manufacturer.
- iv. Ensure system interconnects do not exceed the minimum required for system functionality.
- v. Do not use cable splices, joiners, and gender changers.
- f. Labels / Wire Markers
  - i. Except where otherwise indicated, clearly label all rack-mounted equipment, switches, controls, and interface panels.
    - a. Label rack mounted equipment. Where appropriate, indicate the function of, or the input, output, or loudspeaker(s), served by each device. Other methods of labeling rack-mounted equipment may be accepted pending prior approval by the City.
    - b. Identify all cables permanently at each end by machine printed cable markers.
    - c. Ensure each cable will have a unique tag number identifier. Include this unique tag number on the As-Built signal flow documentation.
    - d. Place cable markers two (2) inches from where the cable exits the strain relief of the connector, but never within a cable bundle.
    - e. In addition to the unique tag number identifier, include the name of the origination and destination equipment termination at each cable end in each cable marker.

## 9. CONTROL SYSTEM & SOFTWARE DESIGN

- a. Crestron Control System
  - i. Ensure the Crestron control system processing equipment provides local control for devices as specified. Equip each processor with Ethernet expansion cards and memory expansion as required to support their operation. Ensure a



connection between the processors, the AV LAN and the building LAN provides communications between these devices and the remote monitoring and diagnostic support system.

b. Graphical User Interface/Touch Panels

i. General

- a. Ensure the Control System employs an easy to use, intuitive, touch panel graphical user interface. Make certain that the touch panel control will be icon based and utilize graphical representations that mimic the actual device for all devices under control. In every case where the device under control offers feedback, ensure the Control System provides indication on the touch panel(s) of individual component control state conditions.
- b. Make available a "Quit", "System Shutdown" or similar button from the Main Menu. When the User has selected this button, a confirmation screen indicating that the shutdown sequence has been selected, and a message will pop-up reminding the User to remove all media such as DVD or Blu-Ray discs. Install a second button press to initiate the power down sequence. If a lamp-based component such as a video projector has a significant cool down and warm-up time between its on and off state, ensure that the warning indicates that this particular device will be unavailable for a specified period of time. To accomplish this, use a graphical representation of a clock, a countdown timer, bar graph, or a similar method.
- c. Maintain all pages with a consistent graphical "look and feel".
- d. Ensure the opening page, at a minimum, has a City logo, a large button to start the system, and the ability to control the lighting system without powering up the entire system.
- e. After system start-up, ensure the primary page or main menu in each system application displays (at a minimum) a room identifier; all relevant input sources grouped together, all environmental controls grouped together, a quit option, a date icon displaying the current date, and a clock indicating current local time.
- f. With the City, determine those control panels requiring passwords and limited access.



- g. Ensure each touch panel provides a method for service personnel to access detailed system information and configuration menus. Provide that this information may be accessed by service personnel via a hidden button and/or by entering a password.
  - h. Include the following on the information page: "System Installed by \_\_\_\_\_", "ph. \_\_\_\_\_", and website address; "Programming Supplied by \_\_\_\_\_", "Program Name"; "Compiler Version X.0"; "Panel File #"; and other relevant system software information.
- ii. Video Preview Function
  - a. Where specified components permit, provide a video preview function on the touch panel.
  - b. Ensure the video preview function operates in a way that when the video source is selected, its output will be automatically routed to a video preview window on the touch panel.
  - c. Ensure that touching the video preview window on the touch panel will toggle the video display between a predetermined sized video window and full screen display on the touch panel.
  - d. Ensure the control buttons for the selected video source device are always present below the video preview window and/or overlaid onto the full screen display.
  - e. Ensure that switching and control will be such that a user may preview and cue video on the touch panel from a selected video source device at the same time that program material is running, uninterrupted, on the systems primary display device and sound reinforcement system.
  - f. Ensure that pressing a video source device button followed by pressing a 'display' (or similarly labeled) button will route the source's video signal to the primary display.
- iii. Audio Control
  - a. Make available a volume control icon to the User at any time there is an audio enabled system.
  - b. Include a clearly visible mute button with positive feedback



to an on/off indicator on the touch panel.

- c. Set the system's master gain control such that the user has a reasonable range of audio level, but the maximum level is set below that which could allow the user to inadvertently cause harm to system components or cause feedback in the system.
  - d. Provide that the control system automatically resets the audio levels to an indexed preset level each time the system is shut down or restarted.
  - e. Ensure that pressing a video source device button followed by pressing a 'display' (or similarly labeled) button routes the source's video signal to the primary display. Make the source device's audio simultaneously route to the room's sound reinforcement system (audio follow).
  - f. In systems with multiple assignable video displays:
    - i. Include a button in the video preview window, or buttons, representing each assignable video display connected to the system. Where touch panel size permits, ensure this takes the form of a graphical representation of the room with a display assignment button showing the relative location of each display.
    - ii. Ensure that pressing a video source device button followed by pressing a display assignment button will route the source's video signal to that display. Repeat this process to assign a single video source to multiple displays.
  - g. In systems with multiple assignable video displays and a single sound reinforcement system:
    - i. Provide a method by which users select which video source's audio signal may will be routed to the room's sound reinforcement system (audio break away).
  - h. In systems with multiple assignable video displays and a multiple sound reinforcement system:
    - i. Provide a method by which users may select which video source's audio signal routes to each sound reinforcement system (audio break away).
- iv. Lighting Control. Include lighting preset recalls in each room



in the touch panel layouts, as applicable.

v. Controlled Devices

- a. Wherever possible, ensure the Control System provides positive feedback of individual component control-state conditions to the touch panel. For example, the touch panel page to control a Blu-Ray or DVD player will have a status window indicating the status of the device (such as "Play Mode") or the absence of media (such as "No Disc"). If environmental controls are triggered with a particular device, ensure the trigger for that environmental control will be feedback from the device rather than a simple button push. For example, if the control system will automatically lower the lights when the DVD player is placed in "Play" mode, the control system will not directly trigger the lighting preset from the "Play" button press, but rather by first confirming that a disc is present in the player and that the player is in fact in "Play" mode.
- b. Program all control system processors with an Auto Shutdown feature. Ensure Auto Shutdown will automatically power down a system at a given time unless overridden by the local User or System Administrator. The Auto Shutdown feature will function as follows: For any given room, when Auto Shutdown is set to "On", the system will power down at a time specified by the City, 10:00 PM for example. Ten minutes prior to the specified time, the touch panel will display a warning message and beep indicating that the system will shut down unless the local defeat button on the panel is pressed within the ten-minute time limit. Pressing the local defeat button will delay the Auto Shutdown sequence by one-hour, or other set length of time as requested by the City. Fifty minutes after the one-hour delay button has been pressed, the warning message and beep indicating that the system will shut down unless the local defeat button on the panel is pressed within the ten-minute time limit will appear. This sequence will continue so long as the operator continues to press the delay button.

E. WORK CONDITIONS

Inspect the City job site for readiness prior to installation. If any of the conditions listed in Section II are not completed, installation of audiovisual equipment and/or systems will not begin.

No work will be performed without receipt of a hard copy purchase order or other appropriate document authorizing the performance of services. Electronic or facsimile transmissions will be acceptable to initiate the start of



work, with hard copy back-up following.

**F. EXCLUSIONS**

1. The supply and installation of electrical conduit, electrical power and associated boxes, any required structural support or seismic restraint, millwork and millwork modifications (including millwork finishes), ceiling work and any equipment, installation and connectivity of CFE, telecommunications and network structured cabling systems, including horizontal and backbone cabling and termination, voice and data face plates, associated racks and cabinets, raceway, and cable management systems and configuration are excluded from this Agreement, unless otherwise noted herein.
2. CFE and related services are excluded, unless otherwise described herein.

**II. CITY'S DUTIES**

City will perform the following duties.

- A. Ensure the CFE required by Consultant is new in-box, undamaged, fully operational in accordance with the manufacturer's specifications and complete with all accessories and documentation. Provide no substitutions of equipment specified. Coordinate and deliver to IMS all CFE specified herein prior to final in-shop pre-installation assembly and testing.
- B. Ensure electrical, electronic and optical equipment furnished by the City is a product of companies regularly engaged in the manufacture of electrical, electronic or optical equipment.
- C. Replace the Council Chamber dais, Clerk station and Staff millwork and modify the rear wall behind the dais to accommodate the new AV components to be installed by Consultant.
- D. Perform facility electronic, electrical, millwork, structural and infrastructural design, engineering and modification are required to support the upgrade identified in Section I.B.
- E. Deploy portable tables at an angle at the left front of the room for Council Member seating during Council meetings when conducted in the space.
- F. Provide, configure and support the PCs.
- G. Provide, configure and support member iPads and the Clerk PC for use with the CFE Granicus application and presentation.
- H. If a product listed as described in Section I.A.21 is discontinued prior to



procurement, the City will submit a request to the Consultant to provide specifications for an appropriately functional and acceptable manufacturer's replacement model.

- I. Provide, configure, and support all iPads, PCs and wired and wireless networks for use with the CFE Granicus, presentation and engineering applications.
- J. Replace any lamps outside the 3200-3500 degree kelvin color temperature.
- K. Provide a safe work area complying with all codes and practices.
- L. Provide a facility in a condition to accept the installation of equipment.



## EXHIBIT "B"

### SCHEDULE FOR COMPLETION

**TERM.** The term of this Agreement shall commence on February 5, 2019 and expire December 31, 2020 ("Term"), unless otherwise terminated herein.



**EXHIBIT "C"**  
**COMPENSATION**

Provided Consultant is not in default under this Agreement, Consultant shall be compensated as provided below.

- I. **AMOUNT.** Consultant shall be paid in accordance with the following schedule.

| DESCRIPTION                                                                                     | NOT TO EXCEED<br>AMOUNT |
|-------------------------------------------------------------------------------------------------|-------------------------|
| <b>Equipment</b>                                                                                |                         |
| Equipment (CFE is not included). Detailed equipment information may be found in Attachment C-1. | \$97,247.02             |
| <b>Equipment Total</b>                                                                          | <b>\$97,247.02</b>      |
| <b>Pre-Installation</b>                                                                         |                         |
| Detailed Systems and Infrastructure Engineering and Coordination with Other Trades              | \$25,980.00             |
| Off-Site Project Management                                                                     | \$14,980.00             |
| Final Systems and Infrastructure Design Drawings and CAD                                        | \$10,840.00             |
| Administration                                                                                  | \$4,330.00              |
| Equipment Coordination                                                                          | \$6,990.00              |
| Systems Programming                                                                             | \$39,930.00             |
| Pre-Installation Equipment and Systems Configuration, Adjustment, Programming Load and Testing  | \$75,455.00             |
| <b>Pre-Installation Total</b>                                                                   | <b>\$178,505.00</b>     |
| <b>Installation</b>                                                                             |                         |
| Project Management On-site                                                                      | \$9,720.00              |
| De-Installation and Disposal of Existing Systems and Cabling and Coordination of Temp Systems   | \$19,720.00             |
| Systems Installation and Configuration, Network Configuration, Preliminary Testing              | \$124,810.00            |
| Systems Final Programming, Testing and Adjustment                                               | \$28,550.00             |
| Systems As-Built Drawings and Close-out Documentation                                           | \$3,995.00              |
| Administration                                                                                  | \$4,880.00              |
| User Training                                                                                   | \$3,875.00              |
| Support of Initial Meetings                                                                     | \$3,740.00              |
| <b>Installation Total</b>                                                                       | <b>\$199,290.00</b>     |
| <b>SUB-TOTAL FOR LABOR:</b>                                                                     | <b>\$377,795.00</b>     |
| STATE SALES TAX - 9.5%                                                                          | \$9,238.47              |
| FREIGHT                                                                                         | \$2,870.00              |
| <b>TOTAL:</b>                                                                                   | <b>\$487,150.49</b>     |

In the event additional services are requested, Consultant shall be paid in accordance with the following schedule.



| Staff                               | Hourly Rate           |
|-------------------------------------|-----------------------|
| Audiovisual designer, principal     | \$250                 |
| Audiovisual engineer                | \$150                 |
| Audiovisual project manager         | \$120                 |
| Audiovisual field technician        | \$110                 |
| Travel – portal to portal           | At above hourly rates |
| City Furnished Equipment Repair     | Cost + 10%            |
| Equipment Repair Freight & Handling | Cost                  |
| Expenses as described below.        | Cost                  |

- II. **EXPENSES.** Contractor will be reimbursed for expenses at cost; provided however, that Contractor obtains City's prior written authorization and provides written documentation evidencing the expenditure. Reimbursable expenses include the following.

- A. Expenses of transportation; auto or truck rental.
- B. Expenses of equipment rental.
- C. Expense of reproductions, postage and handling of drawings, schedules, technical proposals and any other documents and freight charges.
- D. Expenses of any renderings, presentation supplies, models, mock-ups, demonstration equipment or samples requested by City.
- E. Consultant will advance the Reimbursable Expenses, Freight and Handling as required for the project.

- III. **NOT TO EXCEED AMOUNT.** In no event shall the total amount paid to Contractor, including expenses exceed \$550,000 during the term of this Agreement.

- IV. **METHOD OF PAYMENT.** Consultant shall provide monthly invoices to City for approval and payment for equipment received by Consultant and those services performed in the month in which the invoice is submitted. Invoices must include the following information.

- A. A listing of the equipment received and invoiced for the period.
- B. Applicable sales tax and freight for equipment billed during the period.
- C. Number of hours worked.
- D. Hourly rate, if applicable.
- E. Fixed or prorated amount for labor, including the percentage of labor performed within each labor line item contained in this Exhibit "C" and the amount during the reporting period.
- F. If applicable, expenses incurred.

Invoice must be itemized, adequately detailed, based on accurate records, in a form reasonably satisfactory to City. If no work is performed in a given month, no invoice is required. Invoices must attach the prior written authorization of the City



and copies of receipts to substantiate expense requests. Consultant may be required to provide back-up material upon request.

V. **SCHEDULE FOR PAYMENT.** City agrees to pay Contractor within thirty (30) days of receipt of monthly invoices; provided, however, that services are completed to the City's full satisfaction.

VI. **NOTICE.** Written notices to City and Contractor shall be given by registered or certified mail, postage prepaid and addressed to or personally served on the following parties.

Contractor: Cashel Corporation dba Integrated Media Systems  
200 McCormick Ave.  
Costa Mesa, CA 92626  
Attention: Brad Caldwell, President and CEO

City: City of Redondo Beach  
Information Technology  
415 Diamond Street  
Redondo Beach, CA 90278  
Attention: Chris Benson, Information Technology Director

All notices, including notices of address changes, provided under this Agreement are deemed received on the third day after mailing if sent by registered or certified mail. Changes in the respective address set forth above may be made from time to time by any party upon written notice to the other party.



## ATTACHMENT C-1

### EQUIPMENT

#### CONSULTANT'S EQUIPMENT

City Furnished Existing or New Equipment is indicated as "CFE" below.

#### Council Chamber, Chamber Broadcast Control Room, Lobby and Administration Conference Room

| Line #                                                   | Qty | Manufacturer    | Part No.      |     | Description                                                                            | Unit Price  | Extended Price |
|----------------------------------------------------------|-----|-----------------|---------------|-----|----------------------------------------------------------------------------------------|-------------|----------------|
| <b>Council Chamber and Chamber Control Room Systems</b>  |     |                 |               |     |                                                                                        |             |                |
| <b>Chamber Display - Video Wall Equipment</b>            |     |                 |               |     |                                                                                        |             |                |
| 1                                                        | 1   | IMS             | CUSTOMT       |     | Custom Mounting System, Video Wall                                                     | \$32,870.00 | \$32,870.00    |
| 2                                                        | 1   | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                 | \$11.32     | \$11.32        |
| 3                                                        | 2   | Kramer          | C-DPM/DPM-6   |     | DP Interface Cable, 6'                                                                 | \$11.30     | \$22.60        |
| 4                                                        | 1   | Kramer          | C-DPM/DPM-10  |     | DP Interface Cable, 10'                                                                | \$14.28     | \$14.28        |
| <b>Clerk Equipment</b>                                   |     |                 |               |     |                                                                                        |             |                |
| 5                                                        | 2   | Middle Atlantic | RSH4S2S       |     | Custom Shelf and Face Plate, 2RU                                                       | \$98.88     | \$197.76       |
| 6                                                        | 1   | IMS             | CUSTWPLT1     |     | Custom Wall Plate, 1 HDMI Input                                                        | \$72.00     | \$72.00        |
| 7                                                        | 3   | Middle Atlantic | U1            |     | Rack Shelf, 1 Space                                                                    | \$30.76     | \$92.28        |
| 8                                                        | 2   | Leviton         | T5632-E Black |     | USB Charger/Tamper Resistant Duplex Receptacle, Black                                  | \$29.00     | \$58.00        |
| 9                                                        | 1   | CFE             | CFE           | CFE | Dedicated Micro Form Factor PC (Granicus PC), HDMI Output, City IT Provided            |             |                |
| 10                                                       | 1   | CFE             | CFE           | CFE | Dedicated Micro Form Factor PC (Presentation), HDMI Output, City IT Provided           |             |                |
| <b>Dais Display &amp; Voting Equipment</b>               |     |                 |               |     |                                                                                        |             |                |
| 11                                                       | 7   | ELO             | E396119       | CFE | 20" Touch Display, 1920x1080, City IT Provided                                         |             |                |
| 12                                                       | 4   | Kramer          | C-MHM/MHM-25  |     | HD Interface Cable, 25'                                                                | \$23.83     | \$95.32        |
| 13                                                       | 2   | Kramer          | C-MHM/MHM-15  |     | HD Interface Cable, 15'                                                                | \$17.87     | \$35.74        |
| 14                                                       | 2   | Kramer          | C-MHM/MHM-10  |     | HD Interface Cable, 10'                                                                | \$12.51     | \$25.02        |
| 15                                                       | 15  | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                 | \$11.32     | \$169.80       |
| 16                                                       | 7   | Kramer          | C-USB/AB-6    |     | USB Interface Cable, 6'                                                                | \$2.00      | \$14.00        |
| 17                                                       | 7   | CFE             | CFE           | CFE | Member Dedicated Micro Form Factor PC (Granicus Client), HDMI Output, City IT Provided |             |                |
| <b>Staff Display Equipment</b>                           |     |                 |               |     |                                                                                        |             |                |
| 18                                                       | 2   | Kramer          | C-MHM/MHM-25  |     | HD Interface Cable, 25'                                                                | \$23.83     | \$47.66        |
| 19                                                       | 2   | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                 | \$11.32     | \$22.64        |
| <b>Dais Member Computer Input and Device Charging</b>    |     |                 |               |     |                                                                                        |             |                |
| 20                                                       | 3   | IMS             | CUSTWPLT1     |     | Custom Wall Plate, 1 HDMI Input                                                        | \$72.00     | \$216.00       |
| 21                                                       | 6   | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                 | \$11.32     | \$67.92        |
| 22                                                       | 7   | Leviton         | T5632-E Black |     | USB Charger/Tamper Resistant Duplex Receptacle, Black                                  | \$29.00     | \$203.00       |
| <b>Staff Position Computer Input and Device Charging</b> |     |                 |               |     |                                                                                        |             |                |
| 23                                                       | 5   | IMS             | CUSTWPLT1     |     | Custom Wall Plate, 1 HDMI Input                                                        | \$72.00     | \$360.00       |
| 24                                                       | 10  | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                 | \$11.32     | \$113.20       |
| 25                                                       | 5   | Leviton         | T5632-E Black |     | USB Charger/Tamper Resistant Duplex Receptacle, Black                                  | \$29.00     | \$145.00       |
| <b>Lectern and Equipment</b>                             |     |                 |               |     |                                                                                        |             |                |
| 26                                                       | 1   | DWI             | CUSTLECT      |     | Custom Lectern, 180 Degree Swivel, Motorized, Finish to Match                          | \$8,165.00  | \$8,165.00     |
| 27                                                       | 1   | C2G             | 40814         |     | VGA-HDMI Converter                                                                     | \$138.39    | \$138.39       |
| 28                                                       | 1   | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                 | \$11.32     | \$11.32        |
| 29                                                       | 1   | IMS             | CUSTFPLT1     |     | Custom Floor Plate, 3 CAT-6                                                            | \$150.00    | \$150.00       |



| Line #                                                  | Qty | Manufacturer    | Part No.      |     | Description                                                                               | Unit Price  | Extended Price |
|---------------------------------------------------------|-----|-----------------|---------------|-----|-------------------------------------------------------------------------------------------|-------------|----------------|
| <b>Networking, Routing &amp; Control Equipment</b>      |     |                 |               |     |                                                                                           |             |                |
| 30                                                      | 1   | Custom          | REMMON        | CFE | Remote Monitoring System, Existing                                                        |             |                |
| <b>Broadcast Video Equipment</b>                        |     |                 |               |     |                                                                                           |             |                |
| 31                                                      | 2   | Kramer          | C-USB/AB-6    |     | USB Interface Cable, 6'                                                                   | \$2.00      | \$4.00         |
| 32                                                      | 1   | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                    | \$11.32     | \$11.32        |
| 33                                                      | 1   | IMS             | CUSTRPLT      |     | Custom Rack Plate, 1 HDMI, 1 R/L Aud, 1RU                                                 | \$114.00    | \$114.00       |
| 34                                                      | 1   | Kramer          | C-MHM/MHM-15  |     | HD Interface Cable, 15'                                                                   | \$17.87     | \$17.87        |
| 35                                                      | 1   | Middle Atlantic | RSH4S2S       |     | Custom Shelf and Face Plate, 2RU                                                          | \$98.88     | \$98.88        |
| 36                                                      | 1   | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                    | \$11.32     | \$11.32        |
| 37                                                      | 1   | Kramer          | C-MHM/MHM-25  |     | HD Interface Cable, 25'                                                                   | \$23.83     | \$23.83        |
| 38                                                      | 1   | IMS             | CUSTPWPLT     |     | Custom Press Wall Plate, 2 HD-SDI Output, 2 XLR Audio Output                              | \$215.00    | \$215.00       |
| 39                                                      | 1   | CFE             | CFE           | CFE | Dedicated PC (CG/Control Rm PC), HDMI Output, City IT Provided                            |             |                |
| 40                                                      | 1   | CFE             | CFE           | CFE | Graphics Software, (GC), City IT Provided                                                 |             |                |
| 41                                                      | 1   | Spectrum        | TBD           | CFE | Cable Television Set-Top-Box, City Service Provided                                       |             |                |
| 42                                                      | 1   | Spectrum        | TBD           | CFE | Cable Television Modulator/Encoder, City Service Provided                                 |             |                |
| 43                                                      | 1   | Verizon         | TBD           | CFE | Cable Television Set-Top-Box, City Service Provided                                       |             |                |
| 44                                                      | 1   | Verizon         | TBD           | CFE | Cable Television Modulator/Encoder, City Service Provided                                 |             |                |
| 45                                                      | 1   | Granicus        | TBD           | CFE | Granicus Encoder, City Service Provided                                                   |             |                |
| 46                                                      | 1   | Granicus        | TBD           | CFE | Granicus Display Server, City Service Provided                                            |             |                |
| <b>Audio DSP, Distribution and Assisted Listening</b>   |     |                 |               |     |                                                                                           |             |                |
| 47                                                      | 15  | Atlas Sound     | C803AT167     | CFE | Speaker, In-Ceiling, Existing                                                             |             |                |
| <b>Exterior Equipment</b>                               |     |                 |               |     |                                                                                           |             |                |
| 48                                                      | 2   | Atlas Sound     | FA138T167     | CFE | Speaker, Exterior, Existing                                                               |             |                |
| <b>Lighting</b>                                         |     |                 |               |     |                                                                                           |             |                |
| 49                                                      | 1   | CUSTOM          | CUSTOM        | CFE | Lighting Fixtures and Dimming System, Existing                                            |             |                |
| <b>Rack Equipment</b>                                   |     |                 |               |     |                                                                                           |             |                |
| 50                                                      | 2   | CFE             | CFE           | CFE | 44 Space (77"), 26" Deep Gangable Rack with Rear Door, Black, Existing                    |             |                |
| 51                                                      | 2   | CFE             | CFE           | CFE | Pair of Side Panels, Black, Existing                                                      |             |                |
| 52                                                      | 1   | Middle Atlantic | UPS-2200R-8IP | CFE | UPS Rackmount Power, 8 Outlet, IP Enabled, Existing                                       |             |                |
| 53                                                      | 3   | Middle Atlantic | U1V           |     | Utility Rack shelf, 1 RU, 10.4"D, Vented                                                  | \$35.85     | \$107.55       |
| 54                                                      | 1   | Middle Atlantic | U2V           |     | Utility Rack shelf, 2 RU, 14.75"D, Vented                                                 | \$49.10     | \$49.10        |
| 55                                                      | 1   | Middle Atlantic | D3            |     | Equipment Rack Drawer, 3RU                                                                | \$150.88    | \$150.88       |
| <b>Administration Conference Room Display Equipment</b> |     |                 |               |     |                                                                                           |             |                |
| 56                                                      | 1   | DELL            | Unknown       | CFE | Video Projector, Short Throw, Existing                                                    |             |                |
| 57                                                      | 1   | Unknown         | Unknown       | CFE | Projection Screen, Existing                                                               |             |                |
| 58                                                      | 1   | Kramer          | C-MHM/MHM-6   |     | HD Interface Cable, 6'                                                                    | \$11.32     | \$11.32        |
| <b>Miscellaneous</b>                                    |     |                 |               |     |                                                                                           |             |                |
| 59                                                      | 1   | Middle Atlantic | UPS-2200R-8IP | CFE | UPS Rackmount Power, 8 Outlet, IP Enabled, Existing                                       |             |                |
| 60                                                      | 1   | Laguna Designs  | CUSTOM        |     | Operator Console, 4-Bay, 18" Deep Base Module, (2) 6RU Turret, (2) Articulating Arm Mount | \$9,401.00  | \$9,401.00     |
| 61                                                      | 1   | IMS             | RACK PARTS    |     | Miscellaneous Rack Accessories                                                            | \$950.00    | \$950.00       |
| 62                                                      | 1   | IMS             | MISC          |     | Miscellaneous Cables, Connectors and Installation Materials                               | \$17,000.00 | \$17,000.00    |



## Library Multi-Purpose Room and Library Broadcast Control Room

| Line #                                                             | Qty | Manufacturer    | Part No.     |     | Description                                                                                        | Unit Price | Extended Price |
|--------------------------------------------------------------------|-----|-----------------|--------------|-----|----------------------------------------------------------------------------------------------------|------------|----------------|
| <b>Library Multi-Purpose Room and Library Control Room Systems</b> |     |                 |              |     |                                                                                                    |            |                |
| <b>Display Equipment - Multi-Purpose Room</b>                      |     |                 |              |     |                                                                                                    |            |                |
| 1                                                                  | 1   | DELL            | 7700         | CFE | Video Projector, Existing                                                                          |            |                |
| 2                                                                  | 1   | Elite Screen    | SKT120NXW-E  | CFE | Projection Screen, Electrically Operated, 16:9, 120" Diagonal with Low Voltage Interface, Existing |            |                |
| 3                                                                  | 1   | DELL            | Unknown      | CFE | Video Projector, Short Throw, Existing                                                             |            |                |
| 4                                                                  | 1   | Unknown         | Unknown      | CFE | Projection Screen, Existing                                                                        |            |                |
| 5                                                                  | 1   | Kramer          | C-MHM/MHM-6  |     | HD Interface Cable, 6'                                                                             | \$11.32    | \$11.32        |
| <b>Clerk Equipment</b>                                             |     |                 |              |     |                                                                                                    |            |                |
| 6                                                                  | 1   | CFE             | CFE          | CFE | Dedicated Micro Form Factor PC (Granicus PC), HDMI Output, City IT Provided                        |            |                |
| 7                                                                  | 1   | CFE             | CFE          | CFE | Dedicated Micro Form Factor PC (Presentation), HDMI Output, City IT Provided                       |            |                |
| 8                                                                  | 2   | Middle Atlantic | RSH4S2S      |     | Custom Shelf and Face Plate, 2RU                                                                   | \$98.88    | \$197.76       |
| 9                                                                  | 1   | Middle Atlantic | D3           |     | Equipment Rack Drawer, 3RU                                                                         | \$150.88   | \$150.88       |
| 10                                                                 | 1   | IMS             | CUSTFRPLT    |     | Custom Rack Panel, Front of Rack, 1 HDMI Input                                                     | \$200.00   | \$200.00       |
| 11                                                                 | 1   | IMS             | CUSTRRPLT    |     | Custom Rack Panel, Rear of Rack, 3 HDMI Input, 1 RJ-45                                             | \$350.00   | \$350.00       |
| 12                                                                 | 1   | IMS             | CUSTWPLT1    |     | Custom Wall Plate, 1 RJ-45                                                                         | \$72.00    | \$72.00        |
| 13                                                                 | 3   | Middle Atlantic | U1           |     | Rack Shelf, 1 Space                                                                                | \$30.76    | \$92.28        |
| <b>Dais Agenda &amp; Voting Equipment</b>                          |     |                 |              |     |                                                                                                    |            |                |
| 14                                                                 | 6   | Apple           | iPad         | CFE | Agenda and Voting Device, City IT Provided                                                         |            |                |
| <b>Lectern and Equipment</b>                                       |     |                 |              |     |                                                                                                    |            |                |
| 15                                                                 | 1   | DWI             | CUSTLECT     |     | Custom Lectern, 180 Degree Swivel, ADA Flip-Up Shelf, Finish to Match                              | \$5,434.00 | \$5,434.00     |
| 16                                                                 | 1   | C2G             | 40814        |     | VGAA-HDMI Converter                                                                                | \$138.39   | \$138.39       |
| 17                                                                 | 1   | Kramer          | C-MHM/MHM-6  |     | HD Interface Cable, 6'                                                                             | \$11.32    | \$11.32        |
| 18                                                                 | 1   | IMS             | CUSTFPLT1    |     | Custom Floor Plate, 1 CAT-6                                                                        | \$50.00    | \$50.00        |
| <b>Broadcast Video Equipment</b>                                   |     |                 |              |     |                                                                                                    |            |                |
| 19                                                                 | 1   | CFE             | CFE          | CFE | Dedicated PC (CG/Control Rm PC), HDMI Output, City IT Provided                                     |            |                |
| 20                                                                 | 1   | CFE             | CFE          | CFE | Graphics Software, (GC), City IT Provided                                                          |            |                |
| 21                                                                 | 1   | Spectrum        | TBD          | CFE | Cable Television Set-Top-Box - Shared, In Chamber Control Room, City Service Provided              |            |                |
| 22                                                                 | 1   | Spectrum        | TBD          | CFE | Cable Television Modulator/Encoder - Shared, In Chamber Control Room, City Service                 |            |                |
| 23                                                                 | 1   | Verizon         | TBD          | CFE | Cable Television Set-Top-Box - Shared, In Chamber Control Room, City Service Provided              |            |                |
| 24                                                                 | 1   | Verizon         | TBD          | CFE | Cable Television Modulator/Encoder - Shared, In Chamber Control Room, City Service Provided        |            |                |
| 25                                                                 | 1   | Granicus        | TBD          | CFE | Granicus Encoder - Shared, In Chamber Control Room, City Service Provided                          |            |                |
| 26                                                                 | 1   | Granicus        | TBD          | CFE | Granicus Display Server, City Service Provided                                                     |            |                |
| 27                                                                 | 2   | Kramer          | C-USB/AB-6   |     | 6' USB Interface Cable                                                                             | \$2.00     | \$4.00         |
| 28                                                                 | 1   | Kramer          | C-MHM/MHM-6  |     | HD Interface Cable, 6'                                                                             | \$11.32    | \$11.32        |
| 29                                                                 | 1   | IMS             | CUSTRPLT     |     | Custom Rack Plate, 1 HDMI, 1 R/L Aud, 1RU                                                          | \$114.00   | \$114.00       |
| 30                                                                 | 1   | Kramer          | C-MHM/MHM-15 |     | HD Interface Cable, 15'                                                                            | \$17.87    | \$17.87        |
| 31                                                                 | 1   | Middle Atlantic | RSH4S2S      |     | Custom Shelf and Face Plate, 2RU                                                                   | \$98.88    | \$98.88        |
| 32                                                                 | 1   | Kramer          | C-MHM/MHM-6  |     | HD Interface Cable, 6'                                                                             | \$11.32    | \$11.32        |
| 33                                                                 | 1   | Kramer          | C-MHM/MHM-25 |     | HD Interface Cable, 25'                                                                            | \$23.83    | \$23.83        |
| 34                                                                 | 1   | IMS             | CUSTPWPLT    |     | Custom Press Wall Plate, 2 HD-SDI Output, 2 XLR Audio Output                                       | \$215.00   | \$215.00       |
| <b>Audio DSP, Distribution and Assisted Listening</b>              |     |                 |              |     |                                                                                                    |            |                |
| 35                                                                 | 12  | Unknown         | Unknown      | CFE | Speaker, In-Ceiling (Approx. Qty), Existing                                                        |            |                |
| 36                                                                 | 3   | Unknown         | Unknown      | CFE | Speaker, Wall Mount, Existing                                                                      |            |                |
| <b>Rack Equipment</b>                                              |     |                 |              |     |                                                                                                    |            |                |
| 37                                                                 | 1   | CFE             | CFE          | CFE | 44 Space (77"), 26" Deep Gangable Rack with                                                        |            |                |
| 38                                                                 | 3   | Middle Atlantic | U1V          |     | Utility Rack shelf, 1 RU, 10.4"D, Vented                                                           | \$35.85    | \$107.55       |
| 39                                                                 | 1   | Middle Atlantic | U2V          |     | Utility Rack shelf, 2 RU, 14.75"D, Vented                                                          | \$49.10    | \$49.10        |
| 40                                                                 | 1   | Middle Atlantic | D3           |     | Equipment Rack Drawer, 3RU                                                                         | \$150.88   | \$150.88       |
| <b>Miscellaneous</b>                                               |     |                 |              |     |                                                                                                    |            |                |
| 41                                                                 | 1   | Laguna Designs  | CUSTOM       |     | Operator Console, 4-Bay, 18" Deep Base                                                             | \$9,401.00 | \$9,401.00     |
| 42                                                                 | 1   | IMS             | RACK PARTS   |     | Miscellaneous Rack Accessories                                                                     | \$850.00   | \$850.00       |
| 43                                                                 | 1   | IMS             | MISC         |     | Miscellaneous Installation Equipment                                                               | \$8,000.00 | \$8,000.00     |



## CITY'S EQUIPMENT

City Furnished Additional New Equipment is indicated as "CFE" below.

| Line # | Qty | Manufacturer      | PartNo.           |     | Description                                                                 |
|--------|-----|-------------------|-------------------|-----|-----------------------------------------------------------------------------|
| 1      | 4   | ATEN              | CS-1792           | CFE | KVM Switch                                                                  |
| 2      | 7   | Attero Tech       | unD4I-L           | CFE | Dante Networked Audio Interface , 4 Mic/Line Inputs with Logic I/O          |
| 3      | 6   | Attero Tech       | unD4O             | CFE | Dante Networked Audio Interface , 4 Line Level Audio Outputs                |
| 4      | 2   | Barco             | CSE200            | CFE | Wireless PC Presentation Unit, 2 Dongles                                    |
| 5      | 2   | Biamp             | FORTEDANCI        | CFE | DSP fixed I/O server with 12 analog inputs, 8 analog outputs                |
| 6      | 2   | Biamp             | FORTEDANVT        | CFE | DSP fixed I/O server with 12 analog inputs, 8 analog outputs                |
| 7      | 2   | Blackmagic Design | CONVMSDIDA4K      | CFE | Micro Converter - 1x8 HD-SDI Distribution                                   |
| 8      | 2   | Chief             | CMA115            | CFE | 6" (152 mm) Ceiling Plate                                                   |
| 9      | 2   | Chief             | MCM1U             | CFE | Display Ceiling Pole Mount, Tilt                                            |
| 10     | 1   | Chief             | MTM1U             | CFE | Display Wall Mount, Tilt                                                    |
| 11     | 1   | Chief             | PAC525CVRW-KIT    | CFE | White Cover Kit for PAC525                                                  |
| 12     | 1   | Chief             | PAC525FWP2        | CFE | In-wall Storage Box with 2 Receptacle Filter & Surge                        |
| 13     | 2   | Chief             | TS318TU           | CFE | Display Wall Mount, Articulating                                            |
| 14     | 3   | Cisco             | C9300-48U-E       | CFE | Catalyst 9300 48-port UPOE Network Switch                                   |
| 15     | 3   | Cisco             | C9300-DNA-E-48    | CFE | C9300 DNA Essentials, 48-port, Term Licenses                                |
| 16     | 3   | Cisco             | C9300-DNA-E-48-3Y | CFE | C9300 DNA Essentials, 48-port, 3 Year Term License                          |
| 17     | 3   | Cisco             | C9300-NM-8X       | CFE | Catalyst 9300 8 x 10GE Network Module                                       |
| 18     | 3   | Cisco             | C9300-NW-E-48     | CFE | C9300 Network Essentials 48-port License                                    |
| 19     | 3   | Cisco             | CAB-SPWR-30CM     | CFE | Catalyst Stack Power Cable 30 CM                                            |
| 20     | 3   | Cisco             | CAB-TA-NA         | CFE | North America AC Type A Power Cable                                         |
| 21     | 3   | Cisco             | CON-SNT-C93004UE  | CFE | SNTC-8X5XNBD Catalyst 9300 48-port UPOE, Network Esse - 1-Yr - No Sales Tax |
| 22     | 3   | Cisco             | CON-SNT-SG3510NA  | CFE | SNTC-8X5XNBD Cisco SG350-10MP 10-port Gigabit POE Man - 1-Yr                |
| 23     | 1   | Cisco             | CON-SNT-SG35MNPK  | CFE | SNTC-8X5XNBD Cisco SG350-28MP 28-port Gigabit POE Man - 1-Yr                |
| 24     | 5   | Cisco             | GLC-TE=           | CFE | SFP UTP CAT-5 Module, 1G                                                    |
| 25     | 4   | Cisco             | MGBT1             | CFE | Gigabit Ethernet SX Mini-GBIC SFP Transceiver - UTP CAT-5                   |
| 26     | 3   | Cisco             | PWR-C1-1100WAC    | CFE | 1100W AC Config 1 Power Supply                                              |
| 27     | 3   | Cisco             | PWR-C1-1100WAC/2  | CFE | 1100W AC Config 1 Secondary Power Supply                                    |
| 28     | 3   | Cisco             | S9300UK9-166      | CFE | CAT9300 Universal Image                                                     |
| 29     | 4   | Cisco             | SFP-10G-LR=       | CFE | SFP Single Mode Fiber Module, 10G                                           |
| 30     | 3   | Cisco             | SG350-10MP-K9-NA  | CFE | IP Switch, 10-Port Gigabit PoE Managed                                      |
| 31     | 1   | Cisco             | SG350-28MP-K9-NA  | CFE | IP Switch, 28-Port Gigabit PoE Managed                                      |
| 32     | 3   | Cisco             | STACK-T1-50CM     | CFE | 50CM Type 1 Stacking Cable                                                  |
| 33     | 13  | Clock Audio       | TS003             | CFE | Microphone Mute Switch, Capacitive Touch Sensitive, Bi-Color Halo Ring      |
| 34     | 2   | Crestron          | AMP-8150          | CFE | Audio Power Amplifier, 4-Channels, 150 Watts P/Ch                           |
| 35     | 8   | Crestron          | C3COM-3           | CFE | 3-Series™ Control Card – 3 COM Ports                                        |
| 36     | 1   | Crestron          | CBLR2-CAT5E       | CFE | Cable Retractor for FlipTops, CAT5e                                         |
| 37     | 1   | Crestron          | CBLR2-HD          | CFE | Cable Retractor for FlipTops, HDMI                                          |
| 38     | 4   | Crestron          | CBLRA-INSERT-     | CFE | Blank Space Insert                                                          |
| 39     | 4   | Crestron          | CEN-CI3-3         | CFE | 3-Series Card Interface - 3 Slot                                            |
| 40     | 2   | Crestron          | PRO3              | CFE | 3-Series Control System                                                     |
| 41     | 10  | Crestron          | DGE-100           | CFE | Graphics Generator                                                          |
| 42     | 4   | Crestron          | DMF-CJ-8          | CFE | DM 4K HDR Encoder/Decoder Cardframe                                         |
| 43     | 18  | Crestron          | DM-NVX-350        | CFE | DM 4K HDR Encoder/Decoder                                                   |



| Line # | Qty | Manufacturer        | Part No.          |     | Description                                   |
|--------|-----|---------------------|-------------------|-----|-----------------------------------------------|
| 44     | 24  | Crestron            | DM-NVX-350C       | CFE | DM 4K HDR Encoder/Decoder Card                |
| 45     | 2   | Crestron            | DM-RMC-4K-100-C   | CFE | HDMI Receiver                                 |
| 46     | 2   | Crestron            | DM-TX-4K-100-C-   | CFE | HDMI Transmitter, Wall Plate, Decora Style,   |
| 47     | 1   | Crestron            | DM-TXRX-100-STR   | CFE | Streaming Encoder, H.264                      |
| 48     | 1   | Crestron            | DM-XIO-DIR-160    | CFE | Virtual Switching Appliance                   |
| 49     | 1   | Crestron            | FT2-700-ELEC-B    | CFE | FlipTop Enclosure, Electric, Black Anodized   |
| 50     | 1   | Crestron            | FT2A-CBLR-GR-4K-  | CFE | Gravity Cable Retractor, HDMI                 |
| 51     | 1   | Crestron            | FT2A-CBLR-GR-CAT6 | CFE | Gravity Cable Retractor, CAT6                 |
| 52     | 1   | Crestron            | FT2A-CHGR-USBA/C  | CFE | USB Rapid Charging Module                     |
| 53     | 1   | Crestron            | FT2A-PLT-BLANK-10 | CFE | Blank Space Insert                            |
| 54     | 1   | Crestron            | FT2A-PWR-US-1     | CFE | AC power outlet module                        |
| 55     | 1   | Crestron            | FT-600-B          | CFE | FlipTop™ Basic, Black Anodized                |
| 56     | 1   | Crestron            | FTA-CP-USB-102    | CFE | Flip Top Connector plate USB X 2              |
| 57     | 1   | Crestron            | FTA-PWR-102       | CFE | Flip Top - Dual AC power outlet module        |
| 58     | 2   | Crestron            | HD-DA-2-QUAD      | CFE | Quad 1x2 HDMI Distribution Amplifier          |
| 59     | 7   | Crestron            | HD-DA4-4K-E       | CFE | 1x4 HDMI Distribution Amplifier               |
| 60     | 1   | Crestron            | HD-DA8-4K-E       | CFE | 1x8 HDMI Distribution Amplifier               |
| 61     | 3   | Crestron            | HD-EXT3-C-        | CFE | HDMI/RS-232 Extender System                   |
| 62     | 3   | Crestron            | ST-RMK            | CFE | Rack Mount                                    |
| 63     | 4   | Crestron            | TSW-1060          | CFE | 10.1" Touch Screen                            |
| 64     | 3   | Crestron            | TSW-1060-TTK      | CFE | Tabletop Kit for TSW-1060                     |
| 65     | 2   | Crestron            | TSW-760-B-S       | CFE | 7" Touch Panel                                |
| 66     | 2   | Crestron            | TSW-UMB-60        | CFE | Touch Panel Mounting Bracket                  |
| 67     | 2   | Crimson             | DHS2              | CFE | Dual Display Mount, Table Top                 |
| 68     | 2   | Denon               | DN700R            | CFE | Network SD/USB Audio Recorder                 |
| 69     | 1   | Extron              | DSC 3G-HD A       | CFE | 3G-SDI to HDMI Scaler                         |
| 70     | 2   | Extron              | DSC-HD-3G A       | CFE | HDMI-HDSDI Converter/Scaler                   |
| 71     | 1   | Extron              | MDA3AV            | CFE | 1 X 3 Composite Video/Stereo Audio            |
| 72     | 3   | Extron              | RSU129            | CFE | Rack Mount                                    |
| 73     | 12  | GPO                 | PA20H             | CFE | 20" Panoramic LED Display, 1920x539, 700nit,  |
| 74     | 2   | JBL                 | C2PS              | CFE | Amplified Monitor Speakers, Pair              |
| 75     | 2   | JVC                 | SR-HD2700US       | CFE | Blu-ray Disc & HDD Recorder w HD-SDI Input    |
| 76     | 2   | Kramer              | SVG3GHD           | CFE | HD and SD SDI auto-sensing Input Module with  |
| 77     | 2   | Kramer              | SVGFRAME          | CFE | 1RU Frame w/ Redundant Power Holds up to 5    |
| 78     | 4   | Kramer              | SVGHDMI           | CFE | HDMI Input Module with embedded audio,        |
| 79     | 2   | Kramer              | SVGOMHDSHDMI      | CFE | HD-SDI and HDMI Output Module for SVG         |
| 80     | 7   | Kramer              | VS-211UHD         | CFE | 2x1 HDMI Switch, Relay Control                |
| 81     | 1   | Kramer              | VS-24xl           | CFE | 2 X 1 Composite Video/Stereo Audio Switch,    |
| 82     | 1   | Leightronix         | TOTAL INFO-HD     | CFE | Annual (One Year) Subscription for HD Dynamic |
| 83     | 1   | Leightronix         | UltraNEXUS-HD X2  | CFE | HD/SD Digital Video Server                    |
| 84     | 1   | Listen Technologies | D7-2-DANTE        | CFE | D Series MULTILoop™ Driver                    |
| 85     | 4   | Listen Technologies | FB1.8-UL          | CFE | Flat Insulated Copper Cable 1.8 mm² Approx.   |
| 86     | 2   | Listen Technologies | LA-304            | CFE | Notification Signage Kit                      |
| 87     | 1   | Listen Technologies | LA-326            | CFE | Universal Rack Mounting Kit                   |
| 88     | 1   | Listen Technologies | LA-381-01         | CFE | Intelligent 12-Unit Charging Tray             |
| 89     | 750 | Listen Technologies | LA-396-14-G       | CFE | 14 AWG Hearing Loop Cable - Green             |
| 90     | 750 | Listen Technologies | LA-396-14-R       | CFE | 14 AWG Hearing Loop Cable - Red               |
| 91     | 4   | Listen Technologies | LA-401            | CFE | Universal Ear Speaker                         |
| 92     | 1   | Listen Technologies | LA-422            | CFE | USB to Mico USB Cable                         |
| 93     | 1   | Listen Technologies | LA-423            | CFE | Four Port USB Charger                         |
| 94     | 4   | Listen Technologies | LA-430            | CFE | Intelligent Earphone/Neck Loop Lanyard        |
| 95     | 10  | Listen Technologies | LP-IL-1           | CFE | Hearing Loop Receiver with Lanyard            |
| 96     | 4   | Listen Technologies | LR-4200-IR        | CFE | Intelligent DSP IR Receiver                   |
| 97     | 4   | Listen Technologies | LR-5200-216       | CFE | Portable Digital RF Receiver                  |
| 98     | 1   | Listen Technologies | LT-82-01          | CFE | Stationary RF Transmitter                     |
| 99     | 1   | Listen Technologies | MX3-4             | CFE | Audio Everywhere 4-Channel WiFi Server        |



| Line # | Qty | Manufacturer        | Part No.       |     | Description                                     |
|--------|-----|---------------------|----------------|-----|-------------------------------------------------|
| 100    | 4   | Listen Technologies | PWT            | CFE | Adhesive Install/Warning Tape Approx. 164 ft.   |
| 101    | 4   | Microsoft           | M7J-00001      | CFE | Wireless Keyboard Desktop 2000                  |
| 102    | 2   | Middle Atlantic     | MRK-4426       | CFE | 44 Space (77"), 26" Deep Gangable Rack with     |
| 103    | 2   | Middle Atlantic     | MW-4QFT-FC     | CFE | Fan Top w/ Controller, 220 CFM                  |
| 104    | 2   | Middle Atlantic     | PD-815SC-NS    | CFE | Power Strip, Vertical, 8-Outlet                 |
| 105    | 2   | Middle Atlantic     | PDC-915R-6     | CFE | Rackmount Power, 9 Outlet, 15A, 2-Stage         |
| 106    | 8   | Middle Atlantic     | PDT-1015C-NS   | CFE | Rack Power Strip, 10 Outlet, Vertical           |
| 107    | 12  | Middle Atlantic     | PDT-1615C-NS   | CFE | 16 Outlet, Single 15A Circuit Power Strip       |
| 108    | 3   | Middle Atlantic     | PDT-615C-NS    | CFE | Rack Power Strip, 6 Outlet, Vertical            |
| 109    | 1   | Middle Atlantic     | RFR-1628BR     | CFE | Equipment Rack, Furniture Style, 16RU, Casters, |
| 110    | 1   | Middle Atlantic     | RLNK-SW715R-NS | CFE | Rackmount Power Unit, Rack Link                 |
| 111    | 2   | Middle Atlantic     | SPN-44-267     | CFE | Pair of Side Panels, Black                      |
| 112    | 1   | Middle Atlantic     | SRSR-4-16      | CFE | Equipment Rack, Pull-out, 16RU                  |
| 113    | 5   | Middle Atlantic     | UPS-2200R-8IP  | CFE | UPS Rackmount Power, 8 Outlet, IP Enabled       |
| 114    | 7   | Middle Atlantic     | UTB-A2-14      | CFE | Under Counter Rack, 1-2 Space                   |
| 115    | 14  | RDL                 | DBPSP1F        | CFE | Decora-Style Active Loudspeaker, Black          |
| 116    | 2   | Samsung             | CY-LJFNAS/ZA   | CFE | Front Service Jig                               |
| 117    | 2   | Samsung             | DC32E          | CFE | 32" LED Display                                 |
| 118    | 1   | Samsung             | LFH15FWA       | CFE | Frame Kit                                       |
| 119    | 20  | Samsung             | LH015IFHTAS/ZA | CFE | 1.5mm Direct View LED Cabinet                   |
| 120    | 3   | Samsung             | PH43F-P        | CFE | 43" Professional 4K LED Display, High           |
| 121    | 20  | Samsung             | P-LE-PPXX20SS  | CFE | 2yr Extended Warranty                           |
| 122    | 2   | Samsung             | QM49H          | CFE | 49" Professional LED Display, 4K                |
| 123    | 11  | Samsung             | S22E450B       | CFE | 22" 1080P Display                               |
| 124    | 2   | Samsung             | SBB-SNOWH3U/ZA | CFE | S-Box Processor                                 |
| 125    | 16  | Shure               | MX400SMP       | CFE | Microphone Table Top Shock Mount                |
| 126    | 16  | Shure               | MX410RLPDF/C   | CFE | 10" Gooseneck Microphone, Dual Bend,            |
| 127    | 16  | Shure               | MX415RLPDF/C   | CFE | 15" Gooseneck Microphone, Dual Bend,            |
| 128    | 1   | Shure               | MXW1           | CFE | Wireless Belt Pack Transmitter, Digital,        |
| 129    | 4   | Shure               | MXW2/SM86      | CFE | Wireless Handheld Microphone, Digital,          |
| 130    | 16  | Shure               | MXW8           | CFE | Wireless Microphone Transmitter/Base            |
| 131    | 3   | Shure               | MXWAPT8        | CFE | Microphone Wireless Access Point, 8 Mic         |
| 132    | 5   | Shure               | MXWNCS8        | CFE | Wireless Microphone Charging Station, 8 Unit    |
| 133    | 1   | Shure               | WL-185         | CFE | Lavalier Microphone                             |
| 134    | 1   | TVOne               | C2-2855        | CFE | CORIO2 Universal Scaler                         |
| 135    | 2   | Vaddio              | 998-9000-200   | CFE | Camera Enclosure, In-Ceiling Dome               |
| 136    | 7   | Vaddio              | 999-2225-118   | CFE | Camera Enclosure, In-Wall                       |
| 137    | 2   | Vaddio              | 999-5660-000   | CFE | AV Bridge MatrixMIX                             |
| 138    | 2   | Vaddio              | 999-5755-000   | CFE | PCC MatrixMIX Control Surface                   |
| 139    | 2   | Vaddio              | 999-80000-027  | CFE | TeleTouch 27" HD Touch Screen LCD Monitor       |
| 140    | 9   | Vaddio              | 999-9963-200W  | CFE | RoboSHOT™ 30 HDBT Camera (White) with           |



## EXHIBIT "D"

### INSURANCE REQUIREMENTS FOR CONSULTANTS

Without limiting Consultant's indemnification obligations under this Agreement, Consultant shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Consultant, its agents, representatives, or employees.

#### Minimum Scope of Insurance

Coverage shall be at least as broad as:

Insurance Services Office Commercial General Liability coverage (occurrence form CG 0001).

Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).

Workers' Compensation insurance as required by the State of California.

Employer's Liability Insurance.

#### Minimum Limits of Insurance

Consultant shall maintain limits no less than:

General Liability: \$1,000,000 per occurrence for bodily injury, personal injury and property damage. The general aggregate limit shall apply separately to this project.

Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.

Employer's Liability: \$1,000,000 per accident for bodily injury or disease.

#### Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees and volunteers or (2) the Consultant shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration and defense expenses.

#### Other Insurance Provisions

The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:



### Additional Insured Endorsement:

General Liability: The City, its officers, elected and appointed officials, employees, and volunteers shall be covered as insureds with respect to liability arising out of work performed by or on behalf of the Consultant. General liability coverage can be provided in the form of an endorsement to the Consultant's insurance, or as a separate owner's policy.

Automobile Liability: The City, its officers, elected and appointed officials, employees, and volunteers shall be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Consultant.

For any claims related to this project, the Consultant's insurance coverage shall be primary insurance as respects the City, its officers, elected and appointed officials, employees, and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, or volunteers shall be excess of the Consultant's insurance and shall not contribute with it.

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be canceled by either party, except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

Each insurance policy shall be endorsed to state that the inclusion of more than one insured shall not operate to impair the rights of one insured against another insured, and the coverages afforded shall apply as though separate policies had been issued to each insured.

Each insurance policy shall be in effect prior to awarding the contract and each insurance policy or a successor policy shall be in effect for the duration of the project. The maintenance of proper insurance coverage is a material element of the contract and failure to maintain or renew coverage or to provide evidence of renewal may be treated by the City as a material breach of contract on the Consultant's part.

### Acceptability of Insurers

Insurance shall be placed with insurers with a current A.M. Best's rating of no less than A:VII and which are authorized to transact insurance business in the State of California by the Department of Insurance.

### Verification of Coverage

Consultant shall furnish the City with original certificates and amendatory endorsements effecting coverage required by this clause. The endorsements should be on the City authorized forms provided with the contract specifications. Standard ISO forms which shall be subject to City approval and amended to conform to the City's requirements may be acceptable in lieu of City authorized forms. All certificates and endorsements shall be received and approved by the City before the contract is awarded. The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements effecting the coverage required by these specifications at any time.



### Subcontractors

Consultant shall include all subcontractors as insured under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

### Risk Management

Consultant acknowledges that insurance underwriting standards and practices are subject to change, and the City reserves the right to make changes to these provisions in the reasonable discretion of its Risk Manager.

