

PROFESSIONAL SERVICES AGREEMENT
AUDIOVISUAL SYSTEMS UPGRADE – COUNCIL CHAMBERS AND CONTROL ROOM

This Agreement is made and entered into this 7 day of April, 2015, between the City of Brea, a municipal corporation (hereinafter referred to as “CITY”) and Western Audio Visual, (hereinafter referred to as “CONSULTANT”).

A. Recitals

(i) CITY has heretofore issued its Request for Proposals for professional services necessary to procure equipment and implement the upgrading of the audiovisual system for CITY’s Council chambers and control room. (Collectively, “Project” sometimes hereafter). A full, true and correct copy of the Request for Proposals is attached hereto as Exhibit “A” and by this reference made a part hereof.

(ii) CONSULTANT has submitted its proposal dated January 23, 2015, with an amendment dated March 3, 2015, for the performance of services necessary to complete the Project, a full, true and correct copy of which proposal and amendment are attached hereto collectively as Exhibit “B” and by this reference made a part hereof.

(iii) CITY desires to retain CONSULTANT to perform professional services necessary to complete the Project in accordance with the plans and specifications herein.

(iv) CONSULTANT represents that it is qualified and willing to perform such professional services as are necessary to complete the Project, as more fully described herein.

NOW, THEREFORE, it is agreed by and between CITY and CONSULTANT as follows:

B. Agreement

1. Scope of Services:

(a) The work required to be performed by CONSULTANT in order to satisfactorily complete the Project includes: Procurement of all necessary equipment, goods, and materials, and the performance of any and all design, installation, warranty and preventative maintenance and any and all other services, as necessary to provide a turn-key, upgraded audiovisual system for CITY's Council chambers and control room, all as, more fully described in Exhibits "A" and "B" hereto. Such services also include, but are not limited to, the preparation of documents, schematics, as-built drawings, designs, provision and programming of software, and the presentation, both oral and in writing, of work status reports, and working drawings and documents to CITY as required, and attendance at any and all work sessions, public hearings and other meetings conducted by CITY with respect to the Project. The Scope of Services shall also include successful testing of all functions of the completed audiovisual system, individually and as an integrated system, pursuant to a written test plan acceptable to the CITY. CONSULTANT shall not be deemed to have fully and satisfactorily performed all of its obligations under this Agreement unless and until such testing is completed. The

Scope of Services also includes CONSULTANT's and manufacturers' warranties as described in Exhibit "A" and/or "B".

(b) All work and services necessary to complete the Project as required herein are sometimes collectively referred to herein as the "Services."

(c) The date by which all phases of the Project shall be completed pursuant to the requirements of this Agreement, including any and all required installation, programming, provision of all deliverables, as well as successful acceptance testing of the upgraded audiovisual system, shall be in accordance with Exhibit A.

(d) CONSULTANT shall post a performance bond in favor of City (equal in amount to 100% of the total contract price set forth in Section 3 herein, as security for the faithful performance by CONSULTANT of its obligations hereunder. The bond shall be issued by: California Admitted Surety that is either a current A.M. Best A:VIII rated surety, or an admitted surety insurer which complies with the provisions of the California Code of Civil Procedure §995.660.

2. CONSULTANT agrees as follows:

(a) CONSULTANT shall forthwith undertake and complete the Project in accordance with Exhibits "A" and "B" hereto and all in accordance with Federal, State and CITY statutes, regulations, ordinances and guidelines, all to the reasonable satisfaction of CITY.

(b) CONSULTANT shall supply copies of all reports, schematics, plans and documents (hereinafter collectively referred to as "documents") including all supplemental technical documents and any and all other Project deliverables, as described in Exhibits "A" and "B", to CITY within the times specified in

Schedule 1 of Exhibit "A". Copies of the documents shall be in such form and numbers as are required in Exhibit "A". CITY may thereafter review and forward to CONSULTANT comments regarding said documents and CONSULTANT shall thereafter make such revisions to said documents as are deemed necessary. CITY shall receive revised documents in such form and in the quantities determined necessary by CITY. The time limits set forth pursuant to this Section may be extended upon written approval of CITY.

(c) CONSULTANT shall, at CONSULTANT's sole cost and expense, secure and hire such other persons as may, in the opinion of CONSULTANT, be necessary to comply with the terms of this Agreement. In the event any such other persons are retained by CONSULTANT, CONSULTANT hereby warrants that such persons shall be fully qualified to perform services required hereunder. CONSULTANT further agrees that no subcontractor, excepting only Front Side Solutions, shall be retained by CONSULTANT without the prior written approval of CITY.

3. CITY agrees as follows:

(a) To pay CONSULTANT a maximum, not to exceed, sum of Three hundred forty seven thousand, two hundred three dollars (\$347,203.00) for the performance of the Services. This sum shall cover all material costs, the cost of all staff time and all other direct and indirect costs or fees, including the work of employees, consultants and subcontractors to CONSULTANT, and any and all other costs and expenses necessary to complete the Project as required herein.

(b) Payments to CONSULTANT shall be made by CITY in accordance with the invoices submitted by CONSULTANT, on a monthly basis, for services and/or deliverables theretofore provided to and accepted by CITY, and such invoices shall be paid within a reasonable time after said invoices are received by CITY. With each submitted invoice, CONSULTANT shall provide proof of payment to any and all suppliers and subcontractors as to services and deliverables for which payment is requested in any invoice. Subject to the maximum amount payable hereunder set forth in Section 3(a), all charges shall be in accordance with and shall not exceed CONSULTANT's per unit prices. Notwithstanding any provision herein or as incorporated by reference, (i) in no event shall the totality of said invoices exceed 95% of the individual task or per unit totals described in Exhibits "A" and "B" and (ii) further provided that in no event shall CONSULTANT, or any person claiming by or through CONSULTANT be paid an aggregate amount in excess of the amount set forth in Section 3(a). In no event shall CONSULTANT submit any invoice, nor be paid, for any work not yet performed and accepted by CITY, or for any deliverable not yet received and accepted by CITY.

(c) CONSULTANT agrees that, in no event, shall CITY be required to pay to CONSULTANT any sum in excess of 95% of the maximum payable hereunder prior to receipt by CITY of proof of payment of all third party invoices, and receipt of all final documents, together with all supplemental technical documents, as described herein acceptable in form and content to CITY. Final payment shall be made not later than 60 days after presentation of documents and acceptance thereof by CITY.

(d) Additional services: CITY reserves the right to request services and/or deliverables at any time during the term of this Agreement that are not expressly or impliedly necessary to complete the Project as described herein. Payments for such additional services or deliverables requested in writing by CITY, shall be paid in accordance with the fee schedule set forth in said Exhibit "B", or otherwise as agreed upon in writing. Charges for additional services and deliverables shall be invoiced and paid pursuant to the procedures set forth in Section 3.

4. CITY agrees to provide to CONSULTANT:

(a) Information and assistance as reasonably necessary and available to CITY, to complete the Project.

(b) Reproducible copies of schematics and other information, if available, which CONSULTANT considers necessary in order to complete the Project.

(c) Such information as is generally available from CITY files applicable to the Project.

5. Ownership of Work Product:

(a) Unless otherwise agreed upon in writing, all reports, documents, or other original works or written material, including any original images, designs, photographs, video files, digital files, software, firmware, and/or other works or media created or developed for the CITY by CONSULTANT in the performance of this Agreement, including any and all intellectual property rights, copyrights, and proprietary rights arising from the creation of any of the foregoing (collectively, "Work Product") shall be and remain the property of CITY without restriction or limitation upon its use or dissemination by CITY for any municipal purpose. All Work Product shall be considered to be "works made for hire", and all Work Product and any and all intellectual property rights arising from their creation, including,

but not limited to, all copyrights and other proprietary rights, shall be and remain the property of CITY without restriction or limitation upon their use, duplication or dissemination by CITY for any municipal purpose. CONSULTANT shall not obtain or attempt to obtain copyright or other proprietary protection as to any of the Work Product.

(b) CONSULTANT hereby assigns to CITY any and all ownership and any and all intellectual property rights to the Work Product that are not otherwise vested in the CITY pursuant to subsection (a), above.

(c) CONSULTANT warrants and represents that it has secured all necessary licenses, consents or approvals to use any instrumentality, thing or component as to which any intellectual property right exists, including computer software and/or SaaS services, used in the rendering of the Services and the production of any Work Product produced under this Agreement, and that CITY has full legal title to and the right to reproduce the Work Product. To the maximum extent permitted by law, CONSULTANT shall defend, indemnify and hold CITY, and its elected officials, officers, employees, servants, attorneys, designated volunteers, and agents serving as independent contractors in the role of city officials, harmless from any loss, claim or liability in any way related to a claim that CITY's use of any of the Work Product, or any other deliverable, system, process or device provided by CONSULTANT hereunder, is violating federal, state or local laws, or any contractual provisions, or any laws or statutory or common law rights relating to trade names, licenses, franchises, copyrights, patents or other means of protecting intellectual property rights and/or interests in product or inventions. Consultant shall bear all costs arising from the use of patented, copyrighted, trade secret or trademarked documents, software, SaaS services, materials, equipment, devices or processes in connection with its provision of the Services and Work Product produced under this Agreement. In the event the use of any of the Work Product or any other deliverables hereunder by CITY is held to constitute an infringement and the use of any of the same is enjoined, CONSULTANT, at its expense, shall: (a) secure for CITY the right to continue using the Work Product and other deliverables by suspension of any injunction, or by procuring a perpetual license or licenses for CITY; or (b) modify the Work Product and other deliverables so that

they become non-infringing while remaining in compliance with the requirements of this Agreement. This covenant shall survive the termination of this Agreement.

6. Term and Termination: Unless sooner terminated as provided herein, the term of this Agreement shall commence upon the date it is fully executed, and shall continue in effect until the Project is accepted by CITY. This Agreement may be terminated by CITY upon the giving of a written "Notice of Termination" to CONSULTANT at least fifteen (15) days prior to the date of termination specified in said Notice. In the event this Agreement is so terminated, and provided CONSULTANT is not then in breach, CONSULTANT shall be paid on a pro-rata basis with respect to the percentage of the Project satisfactorily completed as of the date of termination. In no event, however, shall CONSULTANT receive more than the maximum specified in Section 3(a), above. CONSULTANT shall provide to CITY any and all documents, data, studies, schematics, as-builts, drawings, diagrams, models, photographs and reports, whether in draft or final form, prepared by CONSULTANT as of the date of termination. CONSULTANT may not terminate this Agreement except for cause.

7. Notices and Designated Representatives: Any and all notices, demands, invoices and written communications between the parties hereto shall be addressed as set forth in this section 7. The below named individuals, furthermore, shall be those persons primarily responsible for the performance by the parties under this Agreement:

CITY REPRESENTATIVE

CONSULTANT REPRESENTATIVE

Cindie Ryan/Gabriel Linares
1 Civic Center Circle
Brea, CA 92821

Steve Hollingsworth
1529 N. Batavia St, Suite 2
Orange, CA 92867

Any such notices, demands, invoices and written communications, by mail, shall be deemed to have been received by the addressee forty-eight (48) hours after

deposit thereof in the United States mail, postage prepaid and properly addressed as set forth above.

8. Insurance: The CONSULTANT shall not commence work under this contract until it has obtained all insurance required hereunder in a company or companies acceptable to CITY nor shall the CONSULTANT allow any subcontractor to commence work on its subcontract until all insurance required of the subcontractor has been obtained. The CONSULTANT shall take out and maintain at all times during the life of this contract the following policies of insurance:

(a) Workers Compensation insurance: Before beginning work, the CONSULTANT shall furnish to the CITY a certificate of insurance as proof that it has taken out full compensation insurance for all persons whom the CONSULTANT may employ directly or through subcontractors in carrying out the work specified herein, in accordance with the laws of the State of California. Such insurance shall be maintained in full force and effect during the period covered by this contract. Further, such policy of insurance shall provide that the insurer waives all rights of subrogation against CITY and its elected officials, officers, employees and agents.

In accordance with the provisions of Section 3700 of the California Labor Code, every contractor shall secure the payment of compensation to his employees. CONSULTANT, by executing this Agreement, certifies as follows:

“I am aware of the provisions of Section 3700 of the labor Code which require every employer to be insured against liability for workers’ compensation or to undertake self insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of work of this contract.”

(b) For all operations of the CONSULTANT or any subcontractor in performing the work provided for herein, insurance with the following minimum limits and coverage:

(1) Commercial General Liability (occurrence) - for bodily injury, death and property damage for products/completed operations and any and all other activities undertaken by the CONSULTANT in the performance of this Agreement.

(2) Comprehensive Automobile Liability (occurrence) - for bodily injury, death and property damage insuring against all liability arising out of the use of any vehicle.

(3) Professional Errors and Omissions Liability (if required by the RFP) - insuring against all liability arising out of professional errors and/or omissions, providing protection of at least two million dollars (\$2,000,000.00) for errors and/or omissions ("malpractice") of CONSULTANT in the performance of this Agreement. Such policy may be subject to a deductible or retention in an amount approved in writing by CITY. If a "claims made" policy is provided, such policy shall be maintained in effect from the date of performance of work or services on CITY's behalf until three (3) years after the date the work or services are accepted as completed. Coverage for the post-completion period may be provided by renewal or replacement of the policy for each of the three (3) years with written notice thereof to the CITY, or by a three (3) year extended reporting period endorsement which reinstates or extends all limits for the extended reporting period. If any such policy and/or policies have a retroactive date, that date shall be no later than the date of first performance of work or services on behalf of CITY. Re-

newal or replacement policies shall not allow for any advancement of such retro-active date. Each such policy or policies shall include a standard “notice of cir-cumstances” provision, and shall be subject to the requirements of subsections (1), (2), (5), (6), (7), (9), and (10) of Section 8 (c).

(5) Other required insurance, endorsements or exclusions as re-quired by the Request for Proposals, Exhibit “A”.

(6) The policies of insurance required in this Section 8(b) shall have no less than the following limits of coverage:

(i) \$2,000,000 (Two Million Dollars) for bodily injury or death;

(ii) \$2,000,000 (Two Million Dollars) for property damage;

(iii) The total of the limits specified in subsections (i) and (ii), above, where a combined single limit is provided.

(c) The policies of insurance required in subsections (1) and (2) of Section 8(b), above shall:

(1) Be subject to no deductible amount unless otherwise provided, or approved in writing by CITY;

(2) Be issued by an insurance company approved in writing by CITY, which is admitted and licensed to do business in the State of California and which is rated A/VII or better according to the most recent A.M. Best Co. Rating Guide;

(3) Name as additional insureds the CITY, its elected officials, offic-ers, employees, attorneys, volunteers, and agents, and any other parties, includ-ing subcontractors, specified by CITY to be included;

(4) Specify that it acts as primary insurance and that no insurance held or owned by the designated additional insureds shall be called upon to cover a loss under said policy;

(5) Specify that it applies separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability;

(6) Contain a clause substantially in the following words:

“It is hereby understood and agreed that this policy may not be canceled nor the amount of coverage thereof reduced until thirty (30) days after receipt by CITY of written notice of such cancellation or reduction of coverage as evidenced by receipt of a registered letter.”

(7) Specify that any failure to comply with reporting or other provisions of the required policy, including breaches of warranty, shall not affect the coverage required to be provided;

(8) Specify that the insurer waives all rights of subrogation against any of the named additional insureds; and

(9) Specify that any and all costs of adjusting and/or defending any claim against any insured, including court costs and attorneys' fees, shall be paid in addition to, and shall not deplete any policy limits.

(10) Otherwise be in form satisfactory to CITY.

(d) Prior to commencing performance under this Agreement, the CONSULTANT shall furnish the CITY with original endorsements, or copies of each required policy, effecting and evidencing the insurance coverage required by this Agreement. The endorsements shall be signed by a person authorized by the insurer(s) to bind coverage on its behalf. All endorsements or policies shall be re-

ceived and approved by the CITY before CONSULTANT commences performance. If performance of this Agreement shall extend beyond one (1) year, CONSULTANT shall provide CITY with the required policies or endorsements evidencing renewal of the required policies of insurance prior to the expiration of any required policies of insurance.

9. Indemnification.

9.1 Indemnity for Design Professional Services. In connection with its design professional services, and to the maximum extent permitted by law, CONSULTANT shall hold harmless and indemnify CITY, and its elected officials, officers, employees, servants, designated volunteers, and those CITY agents serving as independent contractors in the role of CITY officials (collectively, "Indemnitees"), with respect to any and all claims, demands, damages, liabilities, losses, costs or expenses, including reimbursement of attorneys' fees and costs of defense (collectively, "Claims" hereinafter), including but not limited to Claims relating to death or injury to any person and injury to any property, which arise out of, pertain to, or relate to in whole or in part to the negligence, recklessness, or willful misconduct of CONSULTANT or any of its officers, employees, subcontractors, or agents in the performance of design professional services under this Agreement.

9.2 Other Indemnities. In connection with any and all claims, demands, damages, liabilities, losses, costs or expenses, including attorneys' fees and costs of defense (collectively, "Damages" hereinafter) not covered by Section 9.1, and to the maximum extent permitted by law, CONSULTANT shall defend,

hold harmless and indemnify the Indemnitees with respect to any and all Damages, including but not limited to, Damages relating to or resulting from: (i) death or injury to any person and/or injury to any property; (ii) any liens and/or stop notices; (iii) violation of any local, State (including the California Labor Code), or federal law; and/or (iv) injuries or losses suffered by any third person due to breach of this Agreement, which directly or indirectly arise out of, pertain to, or relate to the acts or omissions of CONSULTANT or any of its officers, employees, subcontractors, or agents, in the performance of this Agreement, except for such loss or damage arising from the sole negligence or willful misconduct of the CITY or any of the Indemnitees, as determined by final arbitration or court decision or by the agreement of the parties. CONSULTANT shall defend the Indemnitees in any action or actions filed in connection with any such Damages with counsel of CITY's choice, and shall pay all costs and expenses, including all attorneys' fees and experts' costs actually incurred in connection with such defense. CONSULTANT's duty to defend pursuant to this Section 9.2 shall apply independent of any prior, concurrent or subsequent misconduct, negligent acts, errors or omissions of the Indemnitees.

The provisions of this Section 9 shall survive the termination of this Agreement.

10. Assignment and Subcontracting: No assignment of this Agreement or of any part or obligation of performance hereunder shall be made, nor shall any required performance be subcontracted, either in whole or in part, by CONSULTANT without the prior written consent of CITY. Subject to all other provisions of this Agreement, this prohibition shall not apply to CONSULTANT'S use of Front Side Solutions as a subcontractor.

11. Damages: In the event that CONSULTANT fails to complete the Project, including the provision of any and all deliverables required hereunder, to the reasonable satisfaction of CITY, on or before the Project Completion Date, or as may be extended by written agreement of the parties hereto, CONSULTANT shall pay to CITY, as liquidated damages and not as a penalty, the sum of One thousand and five hundred dollars dollars (\$1,500.00) per day for each day CONSULTANT is in default, which sum represents a reasonable endeavor by the parties to estimate a fair compensation for the foreseeable losses that might result from such a default in performance by CONSULTANT due to the difficulty in establishing actual damages resulting from such default. CONSULTANT shall not be subject to liquidated damages in the event timely completion delayed as a direct result of the unauthorized acts or omissions of the CITY, or by acts of God, acts of the public enemy, fire, flood, epidemic, or quarantine restrictions, for only for such time as CONSULTANT is actually and directly prevented from performing as a result of such acts or omissions.

12. Independent Contractor: CONSULTANT is retained by CITY only to the extent set forth in this Agreement, and the CONSULTANT's relationship to the CITY is that of an independent contractor. CONSULTANT shall be free to dispose of all portions of CONSULTANT's time and activities which CONSULTANT is not obligated to devote to the CITY in such a manner and to such persons, firms, or corporations as the CONSULTANT sees fit except as expressly provided in this Agreement. Neither the CITY nor any of its agents shall have control over the conduct of the CONSULTANT or any of the CONSULTANT's employees, except as set forth in this Agreement.

CONSULTANT shall not have the status of an employee under this Agreement, or be entitled to participate in any insurance, medical care, vacation, sick leave or other benefits provided for CITY's officers or employees. CONSULTANT shall have no power to incur any debt, obligation, or liability on behalf of CITY or otherwise act on behalf of the CITY as an agent. CONSULTANT shall not, at any time, or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of the CITY. CONSULTANT agrees to pay all required taxes on amounts paid to CONSULTANT under this Agreement, and to indemnify and hold CITY harmless from any and all taxes, assessments, penalties, and interest asserted against CITY by reason of the independent contractor relationship created by this Agreement. CONSULTANT shall fully comply with the workers' compensation law regarding CONSULTANT and CONSULTANT's employees. CONSULTANT further agrees to indemnify and hold CITY harmless from any failure of CONSULTANT to comply with applicable workers' compensation laws. CITY shall have the right to offset against the amount of any fees due to CONSULTANT under this Agreement any amount due to CITY from CONSULTANT as a result of CONSULTANT's failure to promptly pay to CITY any reimbursement or indemnification arising under this Section..

13. Governing Law and Venue: This Agreement shall be governed by and construed in accordance with the laws of the State of California. Venue for any legal action arising out this Agreement shall be the Superior Court of the County of Orange, California.

14. Attorneys' Fees: In the event any legal proceeding is instituted to enforce any term or provision of this Agreement, the prevailing party shall be enti-

tled to recover attorneys' fees, experts' fees, and all other costs of litigation from the opposing party in an amount determined by the court to be reasonable.

15. Entire Agreement: This Agreement supersedes any and all other agreements, either oral or in writing, between the parties with respect to the subject matter herein. Each party to this Agreement acknowledges that no representation by any party which is not embodied herein nor any other agreement, statement, or promise not contained in this Agreement shall be valid or binding. Any modification of this Agreement shall be effective only if it is in writing signed by all parties. In the event of any inconsistency between this document and any of the Exhibits, the provisions of this document shall govern over the Exhibits, and the provisions of Exhibit "A" shall govern over the provisions of Exhibit "B" in all respects.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first set forth above:

CONSULTANT



(two signatures required if corporation)

CITY

Mayor

ATTEST:

Acting City Clerk

EXHIBIT A
REQUEST FOR PROPOSALS



CITY OF BREA

COMMUNITY DEVELOPMENT DEPARTMENT

REQUEST FOR PROPOSALS

**Audiovisual Systems Equipment for
Council Chambers and Control Room.**

December 12, 2014

PROPOSAL SUBMITTALS: Responses to the Request for Proposal (RFP) are to be submitted to:

Gabriel Linares, PE., CBO
Building & Safety Division
Community Development Department
City of Brea
City Hall
1 Civic & Cultural Center
Brea, CA 92821-5732

Key RFP Dates

Issued:	December 12, 2014
Open Questions:	January 14, 2015
Proposal Due:	January 23, 2015

Table of Contents

<u>SECTION</u>	<u>PAGE</u>
I. Introduction	3
II. Schedule of Events	3
III. Project Description	3
IV. Scope of Work	4
V. Proposal Requirements	5
VI. General Requirements	7
VII. Consultant Evaluation & Selection Process	10
VIII. Professional Service Agreement Sample	12

PROPOSAL SUBMITTALS: Responses to the RFP are to be submitted to:

**Gabriel Linares, P.E., CBO
Building & Safety Manager
Community Service Department
City of Brea
1 Civic & Cultural Center
Brea, CA 92821-5732**

No later than 4:00 P. M. on January 23, 2015. Original and four (4) copies of the proposal shall be submitted in a sealed envelope and marked: "Audiovisual Systems Equipment." **Proposals received after the specified time will not be accepted and will be returned unopened.** Questions regarding this request may be directed to:

**Gabriel Linares, P.E., CBO
Phone: 714-990-7769
Email: gabriell@cityofbrea.net**

I. INTRODUCTION

The City of Brea, Building & Safety Division, Community Development Department, is requesting proposals from qualified Audio Visual Technology firms to provide a turnkey technology procurement services for the City of Brea Council Chambers. The Projects includes the City Council Chamber ADA and Audio/Video modernization. The contract is for the procurement of all audio visual hardware and software related to the Council Chambers meeting broadcast as depicted in the included plans and specifications.

II. SCHEDULE OF EVENTS

December 12, 2014	Issuance of Request for Proposals
January 23, 2015	Proposals due at City Hall by 4:00 P.M.
February, 2015	City Council Approval of Contract (estimate)

III. PROJECT DESCRIPTION

The Brea Civic Center was designed and constructed in the early 1980's. In the City's efforts to comply with the Americans Disabilities Act, the City of Brea developed construction drawings and specifications for the improvements of the Council Chambers. The improvements of the Council Chambers will consist of two phases working jointly. There will be a construction phase that includes the construction of a new seating platform for disabled access seats, a new entrance ramp, new dais, updated ceiling and acoustical panels, new speaking podiums and upgraded lobby with new interior finishes to chambers.

The other phase is a technology refresh within the Council Chambers and related broadcast control room. The goal of the technology refresh is to bring both spaces up to current technology levels that support a digital video environment and also to enhance the audio and video systems and environment within the main council room. The plans and specification documents provided will specifies the audiovisual systems installed in both the main Council Chambers and the remote broadcast control room.

IV. SCOPE OF WORK

Please review the plans and specification requirements for the audio visual replacements. The scope of work for the project may include but not be limited to the following:

A. Audio Visual Equipment (Council Chamber):

- i. **Audio visual equipment replacement** – The existing audio visual technology in the City Council Chambers will be replaced and improvements will be made to eliminate sound interference and re-verberation. Sound attenuation will be increased in the ceiling and at the perimeter of the City Council Chambers to provide for better sound quality to live audiences, TV broadcasting and online recordings. The control booth hardware will be replaced with current technology. The Chambers' original glass projector screen will be refurbished and new rear dual digital projectors will be included to restore the original intent of the screen with modern technology. These improvements will provide the City Council Chambers with new updated audio and visual enhancements that will correct existing issues and improve the visual presentations to the audience.

B. Voting Equipment and Control Panel Software and Programing:

- i. **Voting software/programing** – The new software will provide enhancements to the voting and audio controls, queue request for council motions. New software will be introduced to modernize the minute taking, panel voting reporting, staff report presentations and will also allow for custom features per City Staff.
- ii. **Training and Support-** To be provided per specs.

C. Audio Visual Equipment (Control Room):

- i. To be provided per specs and final approval per City.

D. Maintenance Support

- i. The selected bid shall include a 2 year min all inclusive maintenance contract for all of the equipment and software installation with an option to extend maintenance contract. Support shall be provided by the vendor not a subcontractor and shall be in person, by telephone, email, and the web as needed by the City.
- ii. On-Call emergency provision shall be included (with a response time estimate).

- iii. The Support policy shall be submitted to the City for review with the Bid proposal.
- iv. During an Owner specified emergency, vendor shall provide telephone support within 1 hour of a call requesting service.
- v. Once Basic Warranty has expired, provide options to extend warranty, support and software upgrades.

E. Training

- i. A minimum training schedule shall be provided and shall be conducted on site with live instructors.
- ii. Training shall include City IT staff, Directors, Communications and Marketing, City Clerk and other related staff.
- iii. Rates for additional training shall be provided.

F. Permits

- i. Obtain City approved Building Permit. Provide contractor information, workers comp information, and state license.
- ii. Obtain City Business License.

G. Mandatory Pre-Bid Meeting:

- i. A mandatory pre-bid meeting will be held on January 8, 2015; at 10:00 AM. The pre-bid meeting will be held in the City of Brea City Council Chambers on Level 1 – One Civic Center Circle, Brea, CA 92821.

H. Construction Documents

- i. Work with Architect and City to provide As-Built information.

I. Construction Stage

- i. Monitor construction schedule, visit construction site as required for progress and quality of work. Assist the engineer, contractor, and inspector with interpretation of the plans and specifications, analysis of changed conditions, development of corrective action, review of shop drawings and other submittals, and the review and negotiation of change orders. Prepare “as-built” drawings.
- ii. Replacement of A/V equipment, renovation of Council dais and room finishes, and replacement of seats and other work requiring relocation or canceling of Council meetings and other agency meetings from the Chambers, shall be limited to 45 calendar days, incorporating a time period of maximum of two regularly scheduled bi-monthly Council meetings.

V. PROPOSAL REQUIREMENTS

- A. Although no specific format is required by the City, this section is intended to provide guidelines to the consultant regarding features which the City will look for and expect to be included in the proposal.

1. Content & Format

The City requests that proposals submitted be organized and presented in a neat and logical format and be relevant to these services. Consultant's proposals shall be clear, accurate, and comprehensive. Excessive or irrelevant material will not be favorably received.

Proposals shall contain no more than 10 typed pages using a 10 point minimum font size, including transmittal/offer letter and resumes of key people, but excluding Index/Table of Contents, tables, charts, and graphic exhibits. The purpose of these restrictions is to minimize the costs of proposal preparation and to ensure that the response to the RFP is fully relevant to the project.

The proposal should include the following:

- Transmittal/offer letter.
- Page numbering.
- Index/Table of Contents.
- Approach.
- Team Organization including an organization diagram.
- Proposal breakdown.
- Inclusion of project manual requirements.
- Brief resumes of key staff.
- Schedule of Hourly Rates.

2. Approach

A description of the firm's approach and work program for a typical tenant area improvement project shall be included in this section. It should explain the technical approach, methodology, and specific tasks and activities that will be performed to address the specific issues and work items.

3. Team Organization

The purpose of this section is to describe the organization of the project team including subconsultants and key staff. A project manager and an

alternate project manager shall be named who shall be the prime contact and be responsible for coordinating all activities with the City. An organization diagram shall be submitted showing all key team members and illustrating the relationship between the City, the project manager, key staff, and subconsultants. There also should be a brief description of the role and responsibilities of all key staff and subconsultants identified in the team organization.

4. Statement of Qualifications- N/A, due to Pre-Qualification.

5. Schedule of Hourly Rates

The firm's schedule of hourly rates shall be included with the proposal.

The percentage mark up of reimbursable expenses, if any, shall also be specified in the proposal.

Price escalations during the contract term shall be approved in negotiations prior to a contract.

6. Statement of Offer & Signature

The Proposal shall contain a statement that the proposals are a firm offer for a 60-day period and signed by an individual authorized to act on behalf of the firm.

VI. GENERAL REQUIREMENTS

1. Insurance Requirements

The consultant shall take out and maintain at all times during the term of the contract, the insurance specified in the agreement and acceptable to the City. Insurance "Acceptable to the City" shall be defined as a company admitted (licensed) to write insurance in California and having a Best's Guide rating of not less than B+ VII The consultant shall furnish with the proposal proof of the following minimum insurance coverage. These minimum levels of coverage are required to be maintained for the duration of the project:

- A. General Liability Coverage - \$1,000,000 per occurrence for bodily injury and property damage. If Commercial General Liability Insurance or other form with a general limit is used, either the general ag-

gregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.

B. Professional Liability Coverage - \$1,000,000 per occurrence (note: A “claims made” policy is acceptable).

C. Worker’s Compensation Coverage : State statutory limits.

Deductibles, Self-Insurance Retentions, or Similar Forms of Coverage Limitations or Modifications, must be declared to and approved by the City of Brea.

All insurance policies required shall include, “The City of Brea, their officers, agents and employees as additional insured.

The consultant is encouraged to contact its insurance carriers during the proposal stage to ensure that the insurance requirements can be met if selected for negotiation of a contract agreement.

2. Standard Form of Agreement

The consultant will enter into an agreement with the City based upon the contents of the RFP and the consultant’s proposal. The City’s standard form of agreement is included as Attachment A. The consultant shall carefully review the agreement, especially with regard to the indemnity and insurance provisions, and include with the proposal a description of any exceptions requested to the standard contract. If there are no exceptions, a statement to that effect shall be included in the proposal.

3. Disclaimer

This RFP does not commit the City to award a contract, or to pay any costs incurred in the preparation of the proposal. The City reserves the right to extend the due date for the proposal, to accept or reject any or all proposals received as a result of this request, to negotiate with any qualified consultant, or to cancel this RFP in part or in its entirety. The City may require the selected consultant to participate in negotiations and to submit such technical, fee, or other revisions of their proposals as may result from negotiations.

4. Assigned Representatives

The City will assign a responsible representative to administer the contract, and to assist the consultant in obtaining information. The consultant also shall assign a responsible representative (project manager) and an alternate, who shall be identified in the proposal. The consultant's representative will remain in responsible charge of the consultant's duties from the notice-to-proceed through project completion. If the consultant's primary representative should be unable to continue with the project, then the alternate representative identified in the proposal shall become the project manager. The City's representative shall first approve any substitution of representatives or subconsultants identified in the proposal in writing. The City reserves the right to review and approve/disapprove all key staff and subconsultant substitution or removal, and may consider such changes not approved to be a breach of contract.

VII. CONSULTANT EVALUATION & SELECTION PROCESS

1. EVALUATION CRITERIA

City will evaluate the offers received based on the following criteria:

- iii. Qualifications of the Firm - technical experience in performing work of a similar nature; experience working with public agencies; strength and stability of the firm; and assessment by client references.
- iv. Proposed Team and Organization - qualifications of proposed Architect, Engineer and key personnel; logic of organization; and adequacy of labor commitment and resources to satisfactorily perform the requested services and meet the City's needs.
- v. Detailed Work Plan - thorough understanding of the City's requirements and objectives; logic, clarity, specificity, and overall quality of work plan.
- vi. Fee Proposal - reasonableness of proposed fees and competitiveness of the amount compared with other proposals.

2. EVALUATION PROCEDURE

An Evaluation Committee will be appointed to review all proposals. The committee will be comprised of City staff and may include outside personnel. The committee members will review and evaluate the proposals. The committee will recommend to the Director of Public Works the firm whose proposal is most advantageous to the City of Brea. The Director of Public Works will then forward its recommendation to the City Council for final action.

3. AWARD

The City of Brea may negotiate contract terms with the selected Offeror prior to award and expressly reserves the right to negotiate with several Offerors simultaneously. However, since the selection and award may be made without discussion with any Offeror, the proposal submitted should contain Offeror's most favorable terms and conditions.

City Council action will be requested by the City staff to award contract to the selected Offeror.

4. NOTIFICATION OF AWARD

Offerors who submit a proposal in response to this RFP shall be notified regarding the Offeror awarded a contract. Such notification shall be made within seven (7) days of the date the contract is awarded.

ATTACHMENTS

Attachment A ---Sample Professional Service Agreement
Attachment B --- AV Plans Specs
Attachment C ----AV Bid Manual

Attachment A
PROFESSIONAL SERVICES AGREEMENT

This Agreement is made and entered into this _____ day of _____, 2013, between the City of Brea, a Municipal Corporation (hereinafter referred to as "CITY") and _____ (hereinafter referred to as "CONSULTANT"),

A. Recitals

(i) CITY has heretofore issued its Request for Proposal pertaining to the performance of professional services with respect to the preparation of _____ ("Project" hereafter), a full, true and correct copy of which is attached hereto as Exhibit "A" and by this reference made a part hereof.

(ii) CONSULTANT has now submitted its proposal for the performance of such services, a full, true and correct copy of which proposal is attached hereto as Exhibit "B" and by this reference made a part hereof.

(iii) CITY desires to retain CONSULTANT to perform professional services necessary to render advice and assistance to CITY, CITY's Planning Commission, City Council and staff in preparation of Project.

(iv) CONSULTANT represents that it is qualified to perform such services and is willing to perform such professional services as hereinafter defined.

NOW, THEREFORE, it is agreed by and between CITY and CONSULTANT as follows:

B. Agreement

1. Definitions: The following definitions shall apply to the following terms, except where the context of this Agreement otherwise requires:

(a) Project: The preparation of _____ described in Exhibit "A" hereto including, but not limited to, the preparation of maps, surveys, reports, and documents, the presentation, both oral and in writing, of such plans, maps, surveys, reports and documents to CITY as required and attendance at any and all work sessions, public hearings and other meetings conducted by CITY with respect to the project.

(b) Services: Such professional services as are necessary to be performed by CONSULTANT in order to complete the Project.

(c) Completion of Project: The date of completion of all phases of the Project, including any and all procedures, development plans, maps, surveys, plan documents, technical reports, meetings, oral presentations and attendance by CONSULTANT at public hearings regarding the adoption of _____ as set forth in Schedule 1 of Exhibit "A" hereto.

2. CONSULTANT agrees as follows:

(a) CONSULTANT shall forthwith undertake and complete the Project in accordance with Exhibits "A" and "B" hereto and all in accordance with

Federal, State and CITY statutes, regulations, ordinances and guidelines, all to the reasonable satisfaction of CITY.

(b) CONSULTANT shall supply copies of all maps, surveys, reports, plans and documents (hereinafter collectively referred to as "documents") including all supplemental technical documents, as described in Exhibits "A" and "B" to CITY within the time specified in Schedule 1 of Exhibit "A". Copies of the documents shall be in such numbers as are required in Exhibit "A". CITY may thereafter review and forward to CONSULTANT comments regarding said documents and CONSULTANT shall thereafter make such revisions to said documents as are deemed necessary. CITY shall receive revised documents in such form and in the quantities determined necessary by CITY. The time limits set forth pursuant to this Section B2(b) may be extended upon written approval of CITY.

(c) CONSULTANT shall, at CONSULTANT's sole cost and expense, secure and hire such other persons as may, in the opinion of CONSULTANT, be necessary to comply with the terms of this Agreement. In the event any such other persons are retained by CONSULTANT, CONSULTANT hereby warrants that such persons shall be fully qualified to perform services required hereunder. CONSULTANT further agrees that no subcontractor shall be retained by CONSULTANT except upon the prior written approval of CITY.

3. CITY agrees as follows:

(a) To pay CONSULTANT a maximum sum of _____
(\$000.00) for the performance of the services required hereunder, plus a con-

tingency of _____ (\$000.00). This sum shall cover the cost of all staff time and all other direct and indirect costs or fees, including the work of employees, consultants and subcontractors to CONSULTANT. Payment to CONSULTANT, by CITY, shall be made in accordance with the schedule set forth below. CITY must receive a written request from CONSULTANT to use any of the contingency amount prior to performing any work that is outside the Project scope as defined in Exhibit "B". It will be the CITY's sole discretion to authorize the use of the contingency funds and the CITY must give this authorization to CONSULTANT in writing prior to the commencement of said work. Any work performed outside the Project scope as defined in Exhibit "B" that has not received prior written approval by CITY is assumed to have been performed in support of said Project and included within the not-to-exceed contract amount.

(b) Payments to CONSULTANT shall be made by CITY in accordance with the invoices submitted by CONSULTANT, on a monthly basis, and such invoices shall be paid within a reasonable time after said invoices are received by CITY. All charges shall be in accordance with CONSULTANT's proposal either with respect to hourly rates or lump sum amounts for individual tasks. Notwithstanding any provision herein or as incorporated by reference, (i) in no event shall the totality of said invoices exceed 95% of the individual task totals described in Exhibits "A" and "B" and (ii) further provided that in no event shall CONSULTANT,

or any person claiming by or through CONSULTANT be paid an aggregate amount in excess of the amount set forth in Section 3 (a).

(c) CONSULTANT agrees that, in no event, shall CITY be required to pay to CONSULTANT any sum in excess of 95% of the maximum payable hereunder prior to receipt by CITY of all final documents, together with all supplemental technical documents, as described herein acceptable in form and content to CITY. Final payment shall be made not later than 60 days after presentation of final documents and acceptance thereof by CITY.

(d) Additional services: Payments for additional services requested, in writing, by CITY, and not included in CONSULTANT's proposal as set forth in Exhibit "B" hereof, shall be paid on a reimbursement basis in accordance with the fee schedule set forth in said Exhibit "B". Charges for additional services shall be invoiced on a monthly basis and shall be paid by CITY within a reasonable time after said invoices are received by CITY.

4. CITY agrees to provide to CONSULTANT:

(a) Information and assistance as set forth in Exhibit "A" hereto.

(b) Photographically reproducible copies of maps and other information, if available, which CONSULTANT considers necessary in order to complete the Project.

(c) Such information as is generally available from CITY files applicable to the Project.

(d) Assistance, if necessary, in obtaining information from other governmental agencies and/or private parties. However, it shall be CONSULTANT's responsibility to make all initial contact with respect to the gathering of such information.

5. Ownership of Written Product:

(a) Unless otherwise agreed upon in writing, all reports, documents, or other original written material, including any original images, photographs, video files, digital files, and/or or other media created or developed for the CITY by CONSULTANT in the performance of this Agreement (collectively, "Written Product") shall be and remain the property of CITY without restriction or limitation upon its use or dissemination by CITY. All Written Product shall be considered to be "works made for hire", and all Written Product and any and all intellectual property rights arising from their creation, including, but not limited to, all copyrights and other proprietary rights, shall be and remain the property of CITY without restriction or limitation upon their use, duplication or dissemination by CITY. CONSULTANT shall not obtain or attempt to obtain copyright protection as to any of the Written Product.

(b) CONSULTANT hereby assigns to CITY all ownership and any and all intellectual property rights to the Written Product that are not otherwise vested in the CITY pursuant to subsection (a), above.

(c) CONSULTANT warrants and represents that it has secured all necessary licenses, consents or approvals to use any instrumentality, thing or component as to which any intellectual property right exists, including computer software, used in the rendering of the Services and the production of all Written Product produced under this Agreement, and that CITY has full legal title to and the right to reproduce the Written Product. CONSULTANT shall defend, indemnify and hold CITY, and its elected officials, officers, employees, servants, attorneys,

designated volunteers, and agents serving as independent contractors in the role of city officials, harmless from any loss, claim or liability in any way related to a claim that CITY's use of any of the Written Product is violating federal, state or local laws, or any contractual provisions, or any laws relating to trade names, licenses, franchises, copyrights, patents or other means of protecting intellectual property rights and/or interests in product or inventions. Consultant shall bear all costs arising from the use of patented, copyrighted, trade secret or trademarked documents, materials, equipment, devices or processes in connection with its provision of the Services and Written Product produced under this Agreement. In the event the use of any of the Written Product or other deliverables hereunder by CITY is held to constitute an infringement and the use of any of the same is enjoined, CONSULTANT, at its expense, shall: (a) secure for CITY the right to continue using the Written Product and other deliverables by suspension of any injunction, or by procuring a license or licenses for CITY; or (b) modify the Written Product and other deliverables so that they become non-infringing while remaining in compliance with the requirements of this Agreement. This covenant shall survive the termination of this Agreement.

6. Termination: This Agreement may be terminated by CITY upon the giving of a written "Notice of Termination" to CONSULTANT at least fifteen (15) days prior to the date of termination specified in said Notice. In the event this Agreement is so terminated, CONSULTANT shall be paid on a pro-rata basis with respect to the percentage of the Project completed as of the date of termination. In no event, however, shall CONSULTANT receive more than the maximum specified in paragraph 3(a), above. CONSULTANT shall provide to CITY any and all documents, data, studies, surveys, drawings, maps, models, photographs and re-

ports, whether in draft or final form, prepared by CONSULTANT as of the date of termination. CONSULTANT may not terminate this Agreement except for cause.

7. Notices and Designated Representatives: Any and all notices, demands, invoices and written communications between the parties hereto shall be addressed as set forth in this section 7. The below named individuals, furthermore, shall be those persons primarily responsible for the performance by the parties under this Agreement:

<u>CITY REPRESENTATIVE</u>	<u>CONSULTANT REPRESENTATIVE</u>
<u>NAME</u>	<u>CONSULTANT NAME</u>
<u>1 Civic Center Circle</u>	<u>Consultant Address</u>
<u>Brea, CA 92821</u>	<u>Consultant Address</u>

Any such notices, demands, invoices and written communications, by mail, shall be deemed to have been received by the addressee forty-eight (48) hours after deposit thereof in the United States mail, postage prepaid and properly addressed as set forth above.

8. Insurance: The CONSULTANT shall not commence work under this contract until it has obtained all insurance required hereunder in a company or companies acceptable to CITY nor shall the CONSULTANT allow any subcontract-

tor to commence work on its subcontract until all insurance required of the subcontractor has been obtained. The CONSULTANT shall take out and maintain at all times during the life of this contract the following policies of insurance:

(a) Workers Compensation insurance: Before beginning work, the CONSULTANT shall furnish to the CITY a certificate of insurance as proof that it has taken out full compensation insurance for all persons whom the CONSULTANT may employ directly or through subcontractors in carrying out the work specified herein, in accordance with the laws of the State of California. Such insurance shall be maintained in full force and effect during the period covered by this contract. Further, such policy of insurance shall provide that the insurer waives all rights of subrogation against CITY and its elected officials, officers, employees and agents.

In accordance with the provisions of Section 3700 of the California Labor Code, every contractor shall secure the payment of compensation to his employees. CONSULTANT, by executing this Agreement, certifies as follows:

“I am aware of the provisions of Section 3700 of the labor Code which require every employer to be insured against liability for workers’ compensation or to undertake self insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of work of this contract.”

(b) For all operations of the CONSULTANT or any subcontractor in performing the work provided for herein, insurance with the following minimum limits and coverage:

(1) Commercial General Liability (occurrence) - for bodily injury, death and property damage for products/completed operations and any and all other activities undertaken by the CONSULTANT in the performance of this Agreement.

(2) Comprehensive Automobile Liability (occurrence) - for bodily injury, death and property damage insuring against all liability arising out of the use of any vehicle.

(3) Professional Errors and Omissions Liability (if required by the RFP) - insuring against all liability arising out of professional errors and/or omissions, providing protection of at least **two million dollars (\$2,000,000.00)** for errors and/or omissions (“malpractice”) of CONSULTANT in the performance of this Agreement. Such policy may be subject to a deductible or retention in an amount acceptable to CITY and shall further be subject to the provisions of subsections (2) and (6) of

Section c, below. If a “claims made” policy is provided, such policy shall be maintained in effect from the date of performance of work or services on CITY’s behalf until three (3) years after the date the work or services are accepted as completed. Coverage for the post-completion period may be provided by renewal or replacement of the policy for each of the three (3) years or by a three (3) year extended reporting period endorsement which reinstates all limits for the extended reported period. If any such policy and/or policies have a retroactive date, that

date shall be no later than the date of first performance of work or services on behalf of CITY. Renewal or replacement policies shall not allow for any advancement of such retroactive date. Each such policy or policies shall include a standard "notice of circumstances" provision, and shall be subject to the requirements of subsections (1), (2), (5), (6), (7), and (9) of Section 8 (c).

(5) Other required insurance, endorsements or exclusions as required by the Request for Proposal.

(6) The policies of insurance required in this Section 8(b) shall have no less than the following limits of coverage:

(i) \$2,000,000 (Two Million Dollars) for bodily injury or death;

(ii) \$2,000,000 (Two Million Dollars) for property damage;

(iii) The total of the limits specified in subsections (i) and (ii), above, where a combined single limit is provided.

(c) The policies of insurance required in subsections (1) and (2) of Section 8(b), above shall:

(1) Be subject to no deductible amount unless otherwise provided, or approved in writing by CITY;

(2) Be issued by an insurance company approved in writing by CITY, which is admitted and licensed to do business in the State of California

and which is rated A/VII or better according to the most recent A.M. Best Co. Rating Guide;

(3) Name as additional insureds the CITY, its elected officials, officers, employees, attorneys and agents, and any other parties, including subcontractors, specified by CITY to be included;

(4) Specify that it acts as primary insurance and that no insurance held or owned by the designated additional insureds shall be called upon to cover a loss under said policy;

(5) Specify that it applies separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability;

(6) Contain a clause substantially in the following words:

"It is hereby understood and agreed that this policy may not be canceled nor the amount of coverage thereof reduced until thirty (30) days after receipt by CITY of written notice of such cancellation or reduction of coverage as evidenced by receipt of a registered letter."

(7) Specify that any failure to comply with reporting or other provisions of the required policy, including breaches of warranty, shall not affect the coverage required to be provided;

(8) Specify that the insurer waives all rights of subrogation against any of the named additional insureds; and

(9) Specify that any and all costs of adjusting and/or defending any claim against any insured, including court costs and attorneys' fees, shall be paid in addition to and shall not deplete any policy limits.

(10) Otherwise be in form satisfactory to CITY.

(d) Prior to commencing performance under this Agreement, the CONSULTANT shall furnish the CITY with original endorsements, or copies of each required policy, effecting and evidencing the insurance coverage required by this Agreement. The endorsements shall be signed by a person authorized by the insurer(s) to bind coverage on its behalf. All endorsements or policies shall be received and approved by the CITY before CONSULTANT commences performance. If performance of this Agreement shall extend beyond one (1) year, CONSULTANT shall provide CITY with the required policies or endorsements evidencing renewal of the required policies of insurance prior to the expiration of any required policies of insurance.

9. Indemnity for Design Professional Services.

9.1 In connection with its design professional services, CONSULTANT shall hold harmless and indemnify CITY, and its elected officials, officers, employees, servants, designated volunteers, and those CITY agents serving as independent contractors in the role of CITY officials (collectively, "Indemnities"), with respect to any and all claims, demands, damages, liabilities, losses, costs or expenses, including reimbursement of attorneys' fees and costs of defense (collectively, "Claims" hereinafter), including but not limited to Claims relating to death or injury to any person and injury to any property, which arise out of, pertain to, or relate to in whole or in part to

the negligence, recklessness, or willful misconduct of CONSULTANT or any of its officers, employees, subcontractors, or agents in the performance of its design professional services under this Agreement.

9.2 Other Indemnities. In connection with any and all claims, demands, damages, liabilities, losses, costs or expenses, including attorneys' fees and costs of defense (collectively, "Damages" hereinafter) not covered by this Section 9.1, CONSULTANT shall defend, hold harmless and indemnify the Indemnities with respect to any and all Damages, including but not limited to, Damages relating to death or injury to any person and injury to any property, which arise out of, pertain to, or relate to the acts or omissions of CONSULTANT or any of its officers, employees, subcontractors, or agents in the performance of this Agreement, except for such loss or damage arising from the sole negligence or willful misconduct of the CITY, as determined by final arbitration or court decision or by the agreement of the parties. CONSULTANT shall defend Indemnities in any action or actions filed in connection with any such Damages with counsel of CITY's choice, and shall pay all costs and expenses, including all attorneys' fees and experts' costs actually incurred in connection with such defense. CONSULTANT's duty to defend pursuant to this Section 9.2 shall apply independent of any prior, concurrent or subsequent misconduct, negligent acts, errors or omissions of Indemnities.

10. Assignment and Subcontracting: No assignment of this Agreement or of any part or obligation of performance hereunder shall be made, nor shall any required

performance be subcontracted, either in whole or in part, by CONSULTANT without the prior written consent of CITY.

11. Damages: In the event that CONSULTANT fails to submit to CITY the completed project, together with all documents and supplemental material required hereunder, in public hearing form to the reasonable satisfaction of CITY, within the time set forth herein, or as may be extended by written consent of the parties hereto, CONSULTANT shall pay to CITY, as liquidated damages and not as a penalty, the sum of _____ dollars (\$000.00) per day for each day CONSULTANT is in default, which sum represents a reasonable endeavor by the parties hereto to estimate a fair compensation for the foreseeable losses that might result from such a default in performance by CONSULTANT, and due to the difficulty which would otherwise occur in establishing actual damages resulting from such default, unless said default is caused by CITY or by acts of God, acts of the public enemy, fire, floods, epidemics, or quarantine restrictions.

12. Independent Contractor: CONSULTANT is retained by CITY only to the extent set forth in this Agreement, and the CONSULTANT's relationship to the CITY is that of an independent contractor. CONSULTANT shall be free to dispose

of all portions of CONSULTANT's time and activities which CONSULTANT is not obligated to devote to the CITY in such a manner and to such persons, firms, or corporations as the CONSULTANT sees fit except as expressly provided in this Agreement. Neither the CITY nor any of its agents shall have control over the conduct of the CONSULTANT or any of the CONSULTANT's employees, except as set forth in this Agreement.

CONSULTANT shall not have the status of an employee under this Agreement, or be entitled to participate in any insurance, medical care, vacation, sick leave or other benefits provided for CITY's officers or employees. CONSULTANT shall have no power to incur any debt, obligation, or liability on behalf of CITY or otherwise act on behalf of the CITY as an agent. CONSULTANT shall not, at any time, or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of the CITY. CONSULTANT agrees to pay all required taxes on amounts paid to CONSULTANT under this Agreement, and to indemnify and hold CITY harmless from any and all taxes, assessments, penalties, and interest asserted against CITY by reason of the independent contractor relationship created by this Agreement. CONSULTANT shall fully comply with the workers' compensation law regarding CONSULTANT and CONSULTANT's employees. CONSULTANT further agrees to indemnify and hold CITY harmless from any failure of CONSULTANT to comply with applicable workers' compensation laws. CITY shall have the right to offset against the amount of any fees due

to CONSULTANT under this Agreement any amount due to CITY from CONSULTANT as a result of CONSULTANT's failure to promptly pay to CITY any reimbursement or indemnification arising under this Section..

13. Governing Law and Venue: This Agreement shall be governed by and construed in accordance with the laws of the State of California. Venue for any legal action arising out this Agreement shall be the Superior Court of the County of Orange, California.

14. Attorneys' Fees: In the event any legal proceeding is instituted to enforce any term or provision of this Agreement, the prevailing party shall be entitled to recover attorneys' fees, experts' fees, and all other costs of litigation from the opposing party in an amount determined by the court to be reasonable.

15. Entire Agreement: This Agreement supersedes any and all other agreements, either oral or in writing, between the parties with respect to the subject matter herein. Each party to this Agreement acknowledges that no representation by any party which is not embodied herein nor any other agreement, statement, or promise not contained in this Agreement shall be valid and binding. Any modification of this Agreement shall be effective only if it is in writing signed by all parties. In the event of any inconsistency between this document and any of the Exhibits, the provisions of this document shall govern over the Exhibits, and the provisions of Exhibit A shall govern over the provisions of Exhibit B.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement
as of the day and year first set forth above:

CONSULTANT

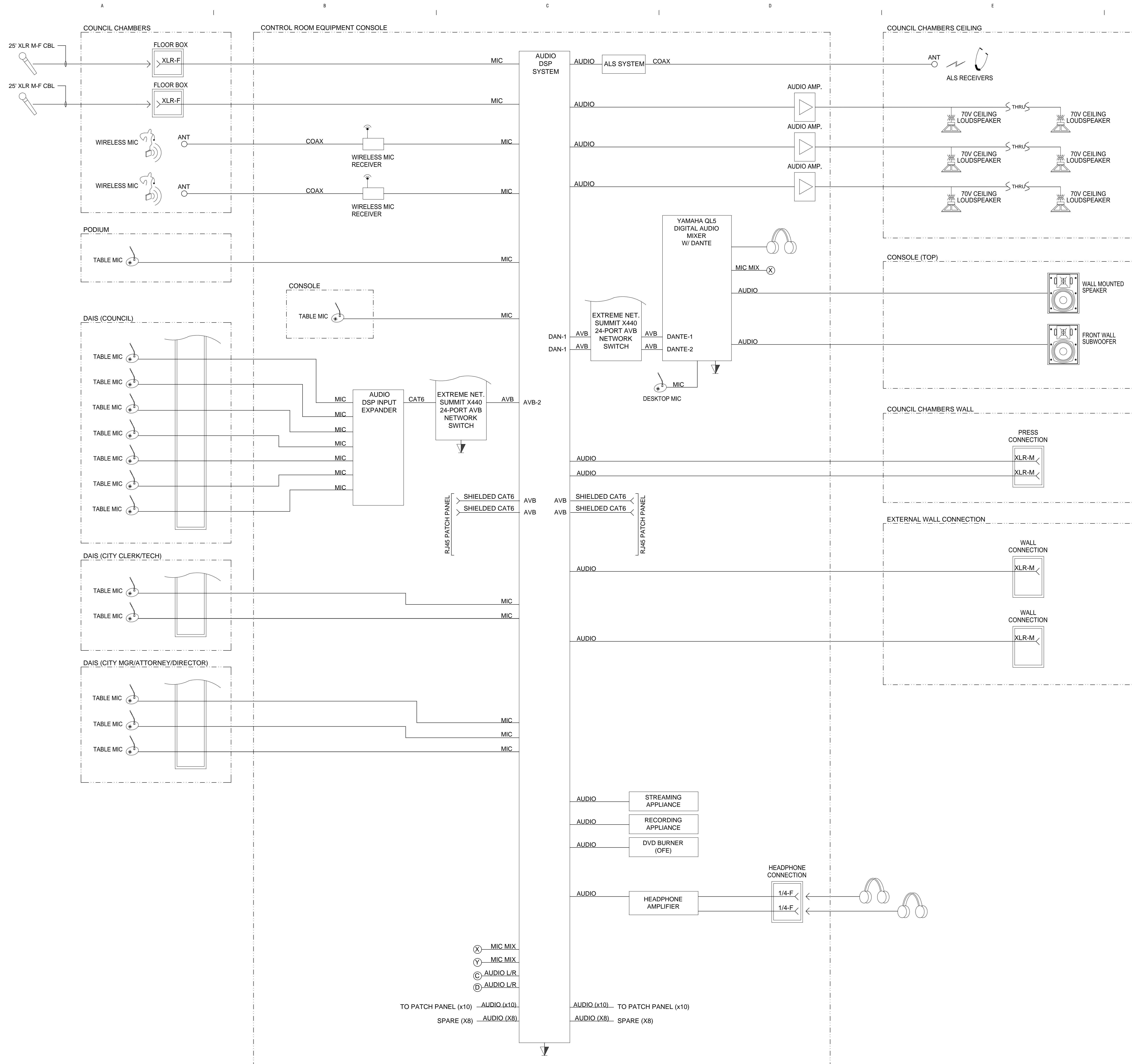
(two signatures required if corporation)

CITY

Mayor

ATTEST:

City Clerk



gonzález goodale architects

135 WEST GREEN ST
SUITE 200
PASADENA CA 91105
T 626 568 1428
F 626 568 8026

BREA CITY COUNCIL CHAMBERS RENOVATION

BREA CITY & CULTURAL CENTER
Project Address
1 CIVIC CENTER CIRCLE,
BREA, CA.

BID SET

The ideas and designs represented herein and this drawing, all prepared by GONZALEZ/GOODALE Architects, are for the use solely with respect to this project and GONZALEZ/GOODALE Architects shall retain all common law, statutory and other reserved rights including copyright and they shall not be used by others for any other purpose without written permission of GONZALEZ/GOODALE Architects.

client approval

principal in charge

issues / revisions

Issue Date	Description

VANTAGE

Vantage Technology Consulting Group
201 Continental Blvd, Suite 120
© Sepulveda/Culver 90245
310 536 7678 • fax 310 536 7677 • www.VantageTCG.com

drawing title

AUDIOVISUAL SIGNAL DIAGRAM: COUNCIL CHAMBERS

scale

NONE



project number

13700.00

date

10/03/2014

AV501B

Plot Date: 11/20/2014

File Path:

Attachment C
AV BID MANUAL

BID SET

PROJECT MANUAL

CITY OF BREA COUNCIL CHAMBERS

AUDIO/VISUAL TECHNOLOGY

Project No: 13700

PREPARED FOR:

CITY OF BREA
1 Civic Center Circle
Brea, CA 92821

November 20, 2014

SECTION 274100 AUDIOVISUAL SYSTEMS EQUIPMENT & INSTALLATION

PART 1 - GENERAL	2
1.1 Scope of Work	2
1.2 Definition of Terms	3
1.3 Project Description	5
1.4 Preliminary Schedule	5
1.5 Regulatory Requirements	5
1.6 Coordination of Related Work by Others	6
1.7 Audiovisual Integrator Qualifications	9
1.8 Personnel	9
1.9 References	10
1.10 Project / Site Conditions	10
1.11 Environmental Impact Considerations	11
1.12 Requirements Specific to This Project	11
1.01 Requirements Specific to This Project	11
1.13 Submittals	12
1.14 Warranty & Maintenance Support	22
1.15 Audiovisual System Functional Requirements	25
PART 2 - PRODUCTS	42
2.1 General	42
2.2 Substitutions	43
2.3 Software	44
2.4 Device Plates	45
2.5 Fixed Installation Cable	46
2.6 Connectors	47
2.7 Rack Enclosures & Accessories	48
2.8 Display Device Mounts	50
PART 3 - EXECUTION	51
3.1 Preparation	51
3.2 Installation	51
3.3 Quality Control	56
3.4 Substantial Completion Inspection	59
3.5 Final Acceptance	60
3.6 System Testing & Owner Acceptance Procedures	60
3.7 Training	63
3.8 Contract Close-out	63
3.9 Appendix A – AV System Functional Diagrams	64

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The work covered in this Section consists of furnishing all labor, material and services to install a complete audiovisual system as indicated on the project drawings and in these specifications. The intent of this specification is that the GC together with a duly qualified Audio Visual Integrator/ Audio Visual contractor shall be responsible for a complete installation and testing of the AV systems.
- B. Delivery of the work described in this Specification shall include, but not be limited to, the following Basic Services:
1. Engineering and Design: The Audiovisual Integrator shall provide all system engineering and design necessary to develop the complete systems described herein. Engineering and Design shall include preparation of all necessary electronic schematics, hardware drawings, systems diagrams, schedules and lists. Additionally, final system design and configuration with the Owner, as well as on site audiovisual coordination and infrastructure installation review with the General Contractor is required.
 2. Assembly: The Audiovisual Integrator shall procure and assemble all hardware and equipment (both CFCI and OFCI), and any additional materials as required to deliver a completely functioning Audiovisual Systems.
 3. Software Programming: The Audiovisual Integrator shall perform all required software setup, configuration, and programming required to develop a complete operating system in accordance with this Specification, including all control logic and push button component faceplate or interface programming.
 4. Installation: The Audiovisual Integrator shall install all equipment, cable, wiring, connectors, plates and other material at the Project site per the Integrator's approved designs. The Audiovisual Integrator shall install any owner furnished equipment identified in this document and calibrate it to work with the integrated systems.
 5. Testing and Adjustment: The Audiovisual Integrator shall perform all tests and adjustments, furnish all test equipment necessary and perform all work required to properly configure the systems and to verify their performance in accordance with the information in this Specification and the Integrator's approved engineered designs. Completed Testing check-lists will be provided to the CM for review and approval by the Audiovisual Consultant.
 6. Acceptance Testing: Prior to Owner acceptance and hand-over of the completed Audiovisual Systems, the Audiovisual Integrator shall demonstrate the operation of the complete systems, including all individual devices and specified control functions. Both subjective and objective tests may be required by the Owner to determine compliance with the information in this Specification and the Integrator's approved designs. Prior to the Audiovisual Consultant performing their system acceptance, com-

pleted Integrator testing reports will be provided showing all systems are in complete operation.

7. Training: The Audiovisual Integrator shall provide technical training of Owner's staff, instructing them on Audiovisual Systems operation, maintenance and troubleshooting.
8. Warranty: The Audiovisual Integrator shall warranty the Audiovisual Systems in accordance with the terms of this Specification.

1.2 DEFINITION OF TERMS

A. Definitions of the terminology used in this Specification are as follows:

1. Owner or Client: shall refer to The City of Brea (The City), or their designated representative.
2. Architect: shall refer to Gonzalez Goodale Architects.
3. Project/Construction Manager (CM): shall refer to The City.
4. General Contractor (GC): Contractor, shall refer to the lowest responsive GC awarded the construction contract.
5. Contractor: shall refer to the General Contractor and any of its sub-contractors.
6. Bidder: shall refer to any party proposing to provide the services and material delineated in this Specification
7. Bid: shall refer to a Bidder's proposal to provide the services and material delineated in this Specification
8. Audiovisual Consultant (Audiovisual Consultant, Consultant): shall refer to Vantage Technology Consulting Group
9. Audiovisual Integrator (Audiovisual Contractor): The awarded contractor for this scope of services.
10. Audiovisual Specification (Specification): shall refer to the complete set of designs, performance and delivery requirements delineated within this document and all referenced documents
11. Audiovisual System (AV System): shall refer to the complete compliment of equipment, software and other material that upon completion of assembly, installation and configuration provides the full functionality and technical performance delineated in this Specification
12. Audiovisual Equipment (AV Equipment): shall refer to any and all individual equipment items and OFCI equipment items installed as a part of the Audiovisual System

13. Work: Design and provision the Audiovisual Systems and associated equipment, software and services for the Project
14. Construction Documents: shall include all documentation associated with the design and general construction of the Project, including this Specification
15. Provide: Supply, deliver, install, test, configure, label, and commission.
16. Manufacturer: shall refer to the original manufacturer of any equipment provided as part of the Work
17. Commissioning Date: shall refer to the date at which a system is formally accepted by the Owner
18. OFCI: Owner Furnished, Contractor installed.
19. CFCI: Contractor Furnished, Contractor installed.

1.3 PROJECT DESCRIPTION

A. Project Identification

The City of Brea Council Chambers Renovation
Brea, California

B. Project Description

1. The City of Brea is performing a technology refresh within their Council Chambers and related broadcast control room to bring both spaces up to current technology levels that support a digital video environment and also to enhance the audio and video systems and environment within the main council room. This document specifies the audiovisual systems installed in both the main Council Chambers and the remote broadcast control room.

C. Additive and/or Deductive Alternates

The Project may include some areas, equipment, systems and/or functionality to be bid incrementally in order to allow the Owner, at their discretion, to include or exclude the designated Alternates within the contracted scope of Work. The following identifies and generally describes these Additive and/or Deductive Alternates. Additional detailed requirements for Additive and/or Deductive Alternates may be described elsewhere in this Specification.

1. There are no Additive or Deductive Alternates on the project.

1.4 PRELIMINARY SCHEDULE

A preliminary schedule has not been developed at this time. The actual Schedule for delivery of the work shall be agreed between the GC and the Audiovisual Contractor prior to commencement of Work.

1.5 REGULATORY REQUIREMENTS

A. The Audiovisual Integrator shall obtain any permits and shall pay all fees required by public agencies having jurisdiction over the Work.

B. All products and materials provided shall be listed by Underwriters Laboratory (UL) and shall bear the UL label intended for the purpose specified and indicated. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels.

C. All equipment and installations under this Specification shall conform to the following:

1. ANSI/NFPA 70 - National Electrical Code.
2. ANSI/IEEE C2 - National Electrical Safety Code
3. TIA/EIA Standards 568-B, 569 and 607

4. IEEE/ANSI 142-2007 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
- D. The Audiovisual Integrator and their employees shall perform all work in compliance with current Occupational Safety and Health Administration (OSHA) guidelines and regulations and other safety and health requirements as may be mandated by the Owner, the General Contractor or other authorities.
- E. The Audiovisual Integrator shall have a thorough knowledge of governing codes and standards in effect and having jurisdiction over the Project. Lack of awareness of any of the relevant codes and standards will not be accepted as a reason for non-compliance.
- F. The Audiovisual Integrator shall be responsible for providing cable and materials that comply with applicable codes and requirements of regulating bodies. The cost for these materials shall be included in the Bid price, as the Owner shall not accept change orders for changes in materials.

1.6 COORDINATION OF RELATED WORK BY OTHERS

- A. The Audiovisual Integrator shall coordinate with the General Contractor and other construction trades to ensure proper integration and operation of the Audiovisual Systems with the complete Project designs, building systems and all other elements of the Project. The Audiovisual Integrator shall coordinate with, General Contractor and complete project Construction Documents to help facilitate effective coordination of the work with the work of other trades.
- B. Some components of the complete Audiovisual Systems will be provided by the GC, its sub-contractors or the owner. It shall be the responsibility of the Audiovisual Integrator to coordinate with all parties whose work impacts the Audiovisual Integrator's work to ensure the complete coordination and successful implementation of the Audiovisual Systems. Related work by GC shall include, but may not be limited to, the following:
 1. Millwork and Cabinetry: All millwork and cabinetry modifications required to accommodate the installation of Audiovisual Systems, equipment and related cabling and connections, except as may be individually identified in the Specification, shall be provided by General Contractor.
 2. Owner Furnished Equipment (OFE): Some equipment that will become a part of or connect to the Audiovisual Systems may be provided by the Owner and shall be designated as Owner Furnished Equipment (OFE). Owner Furnished Equipment shall be provided by the Owner and supplied to the Audiovisual Integrator for connection, installation and/or integration into the Audiovisual Systems as delineated in the Audiovisual System designs and these Specifications. This may include new or existing equipment. The Audiovisual Integrator shall be responsible for coordinating with the Owner to ensure that all Owner Furnished Equipment is fully operational and compatible with other Audiovisual Equipment and that it is made available to the Audiovisual Integrator in a timeframe that does not delay the Audiovisual Integrator's work.

3. Information Technology Systems: Unless otherwise specified, all data networking cabling and active electronics shall be provided The City as needed. The Audiovisual Integrator shall be responsible for coordinating with the Owner or the Owner's designated representative regarding connections between the Audiovisual Systems and the Owner's data network, including all client/server computing and peripherals, Internet, digital video storage and other data/media distribution systems.
4. Paging and life safety: When required, interfacing the Audiovisual System(s) to the paging or life safety systems may be required. The Audiovisual Integrator shall be responsible for coordinating with the Contractor or the Owner's designated representative regarding connections between the Audiovisual Systems and the Paging or Life Safety system.

C. Electrical (AC) Power Service and Connections

1. Technical Power Service: All electrical panels, power receptacles, lighting fixtures, dimmers, lighting controls, and interconnecting wiring shall be supplied by General Contractor.
2. The Audiovisual Integrator shall extend AC power circuits and insulated ground wires into each equipment rack. This work must be done by a qualified electrician, licensed in the jurisdiction of this project, and under direction from the Audiovisual Integrator.

D. Low Voltage Cable Containment

1. Low voltage cable containment, including raceways, conduits and junction boxes, required to support Audiovisual System devices and interconnecting cabling shall be as specified in the Construction Documents and shall be provided the General Contractor.
2. Upon commencement of work on the Project the Audiovisual Integrator shall review the Construction Documents to confirm that the infrastructure provided is sufficient to accommodate the Audiovisual Systems to be installed. Any conflicts or issues must immediately be brought to the attention of General Contractor and the Audiovisual Consultant.
3. The Audiovisual Integrator shall provide blank cover plates or panels for all floor, wall and ceiling boxes that are dedicated to the Audiovisual Systems but do not have devices and/or connectors at the time of Audiovisual System commissioning. Colors and types shall be coordinated with the Architect. Devices and plates for other trades (HV power, voice/data, and security) within the AV floor boxes are by the contractor.

E. Low Voltage Cabling and Termination

1. All audio, video, control and other low voltage cabling associated with the Audiovisual System shall be provided, installed and terminated by the Audiovisual Integrator utilizing the cable containment infrastructure (e.g. conduit, raceways, junction boxes, etc.) provided by contractor as noted on the Construction Documents.

2. The Audiovisual Integrator shall provide all patch cords and other cable assemblies required to connect Audiovisual Equipment to voice/data outlets and any other required system or network inputs or outputs.
3. Where cable installation is required, this will include wall and/or floor jacks, plates and terminations at all room devices, and service loops at patch bay locations shall be provided by the Audiovisual Integrator.

F. Equipment Mounting and Support

1. Structural support for ceiling mounted video projectors, wall mounted monitors and other Audiovisual Equipment shall be provided the General Contractor as noted and detailed in the Construction Documents. The Audiovisual Integrator shall coordinate with the General Contractor and other trades as necessary to ensure compatibility of the structural supports provided the General Contractor with the Audiovisual Equipment provided by the Audiovisual Integrator.
2. The Audiovisual Integrator shall install all Audiovisual Equipment, including display mounts, as indicated in this Specification and the Construction Documents. The Audiovisual Integrator shall verify location and structural suitability before attaching equipment and mounts. Any variations from the drawings and specifications or any question of structural integrity shall be brought to the attention of the General Contractor, the Architect and Audiovisual Consultant before installing the equipment.

G. Audiovisual System Connections to Building Systems and Controls

1. Building systems and controls provided by the GC or Owner that may be interconnected to the Audiovisual System shall include environmental controls, fire and life safety, and security systems. Where required, interconnection between these systems and the Audiovisual System is designated in these Specifications and in the Construction Documents, including requirements for low voltage interface electronics. The Audiovisual Integrator shall verify that all required system components and interfaces are specified and provided in order to enable the functional performance described in this Specification.
2. The Audiovisual Integrator shall coordinate with the General Contractor to verify that all devices and controls to be interconnected to the Audiovisual System are functioning properly prior to commencing interconnection to the Audiovisual Equipment.
3. The Audiovisual Integrator shall investigate all hardware and software control conflicts between the building systems and the Audiovisual Equipment before interconnecting the building systems. Report any conflicts, potential or existing, to the Audiovisual Consultant, in writing, before interconnecting the systems. Damage caused to any base building systems due to the improper connection of Audiovisual Equipment shall be the sole responsibility of the Audiovisual Integrator.
4. The Audiovisual Integrator shall select and install the appropriate cable type to facilitate device communication from the Audiovisual Equipment to interconnected building systems.

5. The Audiovisual Integrator shall coordinate with the General Contractor to verify proper operation of the connected Audiovisual Equipment and the building systems after interconnecting the systems.

1.7 AUDIOVISUAL INTEGRATOR QUALIFICATIONS

- A. Audiovisual Integrator shall have a minimum of three (3) years experience with the design, engineering, assembly, installation and support of Audiovisual Systems of similar or greater complexity to those identified in this Specification and shall have been operating under the same business name for a minimum of three (3) years.
- B. The Audiovisual Integrator shall be able to provide the necessary professional design, engineering, fabrication, installation, and project management personnel to execute the Work and to guarantee a complete, functional system in compliance with the intent of this Specification.
- C. The Audiovisual Integrator shall be factory certified to sell, install, program, and service all audiovisual system components over \$500 in value.
- D. The Audiovisual Integrator shall be licensed with all agencies having jurisdiction over the Work.
- E. The Audiovisual Integrator shall maintain permanent fabrication, service and support facilities within (100) miles of the Project site.
- F. The Integrator shall be bondable at 100% of contract value.
- G. The Integrator will be DM-E certified through Crestron Electronics and will retain current certifications for appropriate DM conditions (either engineering and/or installation depending on requirement) for key implementation personnel or sub-contractors to the Integrator.

1.8 PERSONNEL

- A. The Audiovisual Integrator shall confirm explicitly that the personnel who shall be employed to carry out the Work are suitably trained and experienced in the management and execution of a project of this nature, and in the installation and maintenance of equipment of the type being provided in order to carry out all Work in a competent manner.
- B. All Audiovisual Integrator personnel conducting Work on-site shall be required to complete all safety training required by the projects General Contractor or Owner.
- C. As a minimum requirement for this Bid, the Lead Engineer or Project Manager from the Audiovisual Integrator shall have a CTS (Certified Technology Specialist) certificate from ICIA.
- D. All Work associated with the Project shall be undertaken by the Integrator. Subcontracting any of the Work shall only be allowed with the prior written agreement of the Owner. Each Audiovisual Integrator shall, as a part of their Bid, clearly indicate any parts of the Work that they propose to sub-contract to another entity.

1.9 REFERENCES

The following documents provide information regarding audiovisual industry “best practices,” including commonly accepted standards for design, installation, and performance of integrated audiovisual systems. The technical quality of the Audiovisual Integrator’s work and the resulting performance of the Audiovisual Systems installed in the Project will generally be measured against the standards and practices delineated in these References.

- A. Audiovisual Best Practices: The Design and Integration Process for the AV and Construction Industry, Timothy Cape and Jim Smith; Fairfax, VA; International Communications Industries Association, 2005
- B. ASTM Task Group E33.04C, Acoustical Environment in the Open-Plan Office, Atlas-Soundolier, Addendum, May 1994
- C. Dashboard for Controls Design Reference, InfoComm International®
<http://www.infocomm.org>
- D. Dashboard for Controls Integrators Guide, InfoComm International®
<http://www.infocomm.org>

1.10 PROJECT / SITE CONDITIONS

- A. Refer to Division 1 of the Construction Documents for coordination with other trades on this project.
- B. Coordinate all access to the site at all times with the General Contractor.
- C. Adhere to the safety standards established by the General Contractor while performing work on site.
- D. All employees of the Audiovisual Integrator shall wear identification clearly indicating the Audiovisual Integrator’s company name while on site.
- E. All employees of the Audiovisual Integrator shall comply with rules and policies established by the Owner and/or the General Contractor.
- F. All vehicles of the Audiovisual Integrator or employees shall be parked in areas designated by the Owner and/or the General Contractor.
- G. The Audiovisual Integrator will store equipment in a manner that will not interfere with the work of the GC or its sub-contractors, or Owner. Coordinate secured storage on site with the General Contractor.
- H. Do not install equipment in dusty conditions or allow dust to accumulate in or on installed Audiovisual Equipment.
- I. Protect all work and equipment from damage by others.
- J. Protect all existing work-in-place by others from damage by the Audiovisual Integrator, the Audiovisual Integrator’s agents and/or sub-contractors, or any employees or vendors.

The Audiovisual Integrator will be solely responsible for any/all damage to work-in-place by others.

- K. Keep areas around and inside of each piece of equipment and each rack free from dust, dirt and debris throughout the project. Equipment that is not properly maintained during installation shall be replaced at no cost to the Owner before final payment is made to the Audiovisual Integrator.
- L. All Audiovisual Integrator equipment and materials and all owner furnished equipment turned over to the Integrator stored at the Audiovisual Integrator's facility(s) or stored and/or installed at the Project site will remain the property of the Audiovisual Integrator unless ownership is legally transferred and accepted in writing by the Owner. The Audiovisual Integrator shall be solely responsible for the protection of all equipment from damage, theft or vandalism regardless of cause, until the work described herein is accepted by the Owner at the time of Final Checkout.

1.11 ENVIRONMENTAL IMPACT CONSIDERATIONS

- A. The Audiovisual Integrator is encouraged to utilize environmentally sustainable materials and work practices wherever possible in the delivery of the Work.
- B. Audiovisual Integrator is expected to supply documentation on in-house policies for recycling and environmental offset goals. This may consist of (but not be limited to):
 - 1. Local sourcing of materials to minimize transportation impact.
 - 2. Utilizing materials and processes that minimize waste and environmental impact.
 - 3. Work with manufactures and suppliers with established business practices that minimize environmental impact and promote sustainability.
 - 4. In-house and on-site recycling plans.
 - 5. In-house and on-site hazardous material disposal plans.
 - 6. On-site installation team car-pooling.
 - 7. Environmental education and policy promotion policies to employees, suppliers.
 - 8. Encouraging active participation of employees and others in environmental practices in both the work place as well as in daily lives.
 - 9. ISO 9000:2001 and/or ISO 14001 certification(s).
 - 10. Internal monitoring and evaluation processes.

1.12 REQUIREMENTS SPECIFIC TO THIS PROJECT

1.01 Requirements Specific to This Project

- A. All programming and video/audio system commissioning will be done through an approved and certified third party group as a sub-contractor to the AV Integrator. An example firm with experience and certifications is Front Side Solutions, etc. (contact information listed below).
- B. Services to include (but not be limited to within agreed scope of services to AV Integrator):
 - 1. Control panel Graphic User Interface (GUI) design and submittals
 - 2. Audio panel and DSP layout and programming GUI design and submittals
 - 3. AV system control programming and testing for all scope functionality
 - 4. Digital-based systems implementation, testing and commissioning
 - 5. Final system commissioning & testing
 - 6. Audio tuning in DSP for all audio related items
- C. Qualifications for firm/personnel:
 - 1. 10 years programming experience of Crestron and AMX systems.
 - 2. Similar project experience - Include 3 projects using AMX solutions on this scale.
 - 3. Client references – include three client references from similar projects.
 - 4. Must live within 100 miles of project site.
 - 5. Must be recognized by both AMX and BiAmp as an authorized 3rd party resource.
Reference link: <http://www.biamp.com/training/resources.aspx>
 - 6. Certifications:
 - a. InfoComm CTS / CTS-D
 - b. Cisco/Tandberg
 - c. RGB Spectrum
 - d. BiAmp (Tesira)
 - e. AMX and Crestron programming certified (CAIP)
 - f. AMX digital design & installation certified
- D. Contact information:

Darryl Lovato
Front Side Solutions, Inc.
Direct: 714.914.5295
Corporate: 714.484.9486
Fax: 714.867.0450
darryl@frontsidesolutions.com

1.13 SUBMITTALS

- A. General Submittal Requirements

1. A submittal package consists of all items (forms, lists, drawings, etc.) specified for that submittal.
2. All specified items for each submittal shall be provided at the same time. Partial or incomplete submittals will be rejected.
3. Product Submittals shall be issued no sooner than six (6) months prior to scheduled substantial completion date of the building.
4. Unless directed otherwise in writing by the Audiovisual Consultant, the Audiovisual Integrator is not authorized to proceed with the acquisition, assembly or installation of any systems or components until all required submittals have been approved by the Audiovisual Consultant. Any acquisition, assembly or installation of any systems or components without Audiovisual Consultant's approval will be subject to removal at the Audiovisual Integrator's expense.
5. The Audiovisual Integrator shall coordinate with Audiovisual Consultant prior to the delivery of each submittal to obtain the proper quantities of submittals to each recipient.
6. Unless otherwise instructed, the Audiovisual Integrator shall provide three copies of all submittals.
7. Product cut sheets shall be submitted electronically on one compact disc with a separate "table of contents" listing all of the cut sheets included.
8. Product cut sheets shall accompany all requests for product substitutions.
9. Audiovisual Consultant will notify the Audiovisual Integrator if any sample products are required for fit or finish coordination. Samples shall be provided by the Audiovisual Integrator upon request and at no additional cost to the Owner.
10. Drawing Formatting Requirements
 - a. Shop Drawings shall be numbered consecutively and shall accurately and distinctly present the following information:
 - (i) Title Sheet
 - (ii) Single-Line/Block Diagrams showing signal relationships of all controls and devices within the system.
 - (iii) Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
 - b. Formatting of shop drawings and other drawing submittals shall include the following:
 - (i) Title Block with;

- (ii) Project name and address, Project Number and Drawing Name.
 - (iii) Sequential number of submittal
 - (iv) Date of submittal
 - (v) Name and address of the Audiovisual Integrator
 - (vi) Drawing Scale
 - (vii) Critical dimensions at accurate scale
 - (viii) Submittal date and space for revision dates.
 - (ix) Identification of equipment, product or material.
 - (x) Name of Supplier / Manufacturer.
 - (xi) Physical dimensions, clearly identified, where applicable.
 - (xii) Specification references.
 - (xiii) Identification of deviations from the Contract Documents, if necessary.
 - (xiv) Audiovisual Integrator 's stamp, initialed or signed, dated and certifying to review of submittal, certification of field measurements and compliance with Contract.
- c. The Audiovisual Integrator's drawings shall clearly identify the specific equipment make and model number(s) as well as specific Audiovisual System configuration and installation requirements as noted below.
- (i) Type fonts must be legible (minimum 1/16" on 11x17 prints) and must be exportable to .DWG or .DXF format.
 - (ii) Plans indicating Audiovisual Equipment layouts shall be scaled to be not less than 1/8" = 1'-0". Details for particular equipment mounting shall be scaled to be not less than 1/4" = 1'-0".
 - (iii) Background CAD files (in .DWG format) of the building will be made available to the Audiovisual Integrator if requested.
 - (iv) Audiovisual Consultant assumes no responsibility for errors and/or omissions due to electronic translation of CAD file formats.
 - (v) Prior to being issued electronic Project documents the Audiovisual Integrator shall warrant in writing that any electronic files given to the Audiovisual Integrator for use on the Project will be used only

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

for the Project, and that any intellectual property originated, copyrighted and/or owned by others is for use only on this Project.

- (vi) Any building plans or drawings originated by others and reproduced by the Audiovisual Integrator in their documentation shall be labeled with “Audiovisual Integrator Shop Drawing” and the names and stamps of others shall be removed.

11. All submitted drawings shall include information listed in Appendix A – AV System Functional Diagrams
12. Refer to the Audiovisual Systems drawing package for functional system diagrams and additional system configuration specifications.
13. Use the architectural audiovisual infrastructure constructions plans and specifications for reference (obtainable through Construction Manager or Architect).
14. Weekly Status Reports
 - a. The Audiovisual Integrator shall provide weekly progress updates to the Architect and Audiovisual Consultant. Weekly Status Reports shall be submitted as directed by the CM via faxed hard copy or electronic means (i.e. email). Issuance of Weekly Status Reports shall commence from the date of the first submittal delivery and shall continue until contract closeout.
 - b. The Weekly Status Report shall not be used as an official means of communicating Project issues. It does not replace any part of a required submittal, request for information, proposed change order, report of field conditions, schedule issues, etc. No official response will be given to the Weekly Status Report.
 - c. A representative of the Audiovisual Integrator shall attend the weekly construction meeting at the job site. This representative shall be fully knowledgeable in all aspects of the Project and the Audiovisual Integrators work and shall have the authority to make binding commitments on behalf of the Audiovisual Integrator.

B. Project Commencement Submittals

Immediately upon award of contract and authorization to proceed with the Work, the Audiovisual Integrator shall commence initial planning and coordination. Project Commencement Submittals required upon commencement of the Work shall include, but not be limited to, the following:

1. Project Plan

- a. Provide a complete and detailed Schedule for the Audiovisual Integrator’s work describing the major tasks, sequence of work, submittals and other critical milestones. At a minimum the tasks noted in the Schedule shall include all required submittals, rack assembly and shop testing, on-site cable installation, periodic shop and site visits, on-site equipment installation, testing and commissioning, Substantial Completion and Project Completion. Indicate

the sequence of installation and completion by room and/or system. The Schedule shall also include anticipated dates of acquisition of major equipment and their installation milestones.

- b. Provide a complete listing of the Audiovisual Integrator's project team, including the names and all contact information (email address, cell phone, etc.) for all personnel assigned to the Project. At a minimum this Project Team Directory shall include the Audiovisual Integrator's executive in charge of the Project as well as the Project Manager, Lead Engineer and Lead Installer. Include names and contact information for all sub-contractors.

2. Listing of Long Lead Time Equipment

- a. The Audiovisual Integrator shall submit a list of long-lead items including OFCI items. These are items that may be necessary to order ahead of the submittal and approval sequence in order to avoid adversely impacting the project schedule. Do not include equipment that will be ordered within the scheduled submittal and approval process.
- b. The Audiovisual Integrator shall use reasonable judgment in determining which products are legitimate long-lead items. Failure to include an item that may require long procurement lead time shall not relieve the Audiovisual Integrator of responsibility for furnishing the item to meet the agreed Schedule.

3. Sample Drawing

- a. The Audiovisual Integrator shall present to the Audiovisual Consultant a Sample Drawing illustrating the Audiovisual Integrator's standard drawing conventions and detail methodology for system engineering and other shop drawings. The intent of the Sample Drawing submittal is to ensure that the general format and nature of the Audiovisual Integrator's shop drawings complies with the expected standards of professionalism prior to the Audiovisual Integrator developing and submitting the complete documentation for the Project.
- b. The Audiovisual Integrator shall submit two (2) sets of sample drawings for Staff Development Conference Classroom 211 (reference drawing AV501). Include all information required in Paragraph 1.13A.10.

C. Engineering Submittals

The Audiovisual Integrator shall present documentation delineating the complete requirements for Audiovisual System engineering, fabrication, assembly, installation, commissioning and testing. Engineering Submittals shall be presented to the Audiovisual Consultant for review, comment and approval prior to commencing further work. Engineering Submittals shall include, but not limited to, the following:

1. Equipment List (to be submitted in the form of Appendix A)
2. Audiovisual System Shop Drawings

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- a. At a minimum, Shop Drawings shall include the following:
 - (i) Single-line system design diagrams
 - (ii) Equipment rack elevations
 - (iii) Custom fabrication drawings
 - (iv) Wiring diagrams of all equipment, with types and model numbers specified under these Contract Documents.
 - (v) Fully dimensioned housing and mounting drawings, including information on finishes.

- b. Additionally, Audiovisual System Shop Drawings shall include the following:
 - (i) Drawings, diagrams or other information providing evidence of Audiovisual System design compatibility with the architectural, infrastructure and building systems designs delineated in the Project Construction Documents
 - (ii) Critical points of coordination with other trades
 - (iii) Specific notation of critical field measurements at accurate scale
 - (iv) Identification of specific products and materials used
 - (v) Cross references for all related Construction Documents (e.g. drawings, detail numbers, specification sections, etc)
 - (vi) Reference to room numbers and room names where Audiovisual Systems are to be installed

- c. All sheets shall be the same size, oriented the same direction, and shall be bound, not folded. All information required in Paragraph 1.13A.10 and corrections provided in the approved sample drawing shall be included.

D. Control System Software Submittals

1. Control System Software consists of the following two primary components:
 - a. Control System Graphical User Interface (GUI)
 - b. Control System Processor Software

2. In order to develop Control System Software that is functional and understandable by the intended users it will be necessary for the Audiovisual Integrator to provide “working” copies of software for review and comment by the Owner and the Project team as it is being developed.

3. The software programming process must be an iterative process that includes a minimum of three (3) iterative submittals prior to first beneficial use. The following table is provided to help facilitate the software development process:

Deliverable	Notes	Due
Initial Submittal	Listing of individual device control functions GUI logic flow diagram Static touch panel layouts Initial labeling of button panels	Due no later than one week after return of approved shop drawings
First Beta Review	Dynamic touch panel Layouts including page flips, pop-ups, feedback, etc to show operational relationships between pages	Due no later than two weeks after return of approved Initial Submittal
Second Beta Review	Interface updates and revisions Test of loaded working system (in shop or on site)	Due no later than three weeks after return of approved First Beta Review submittal
Implementation / On-site Testing	Loading of live code into working systems	Prior to Substantial Completion
Completion	Follow-up programming review and minor modifications based on user feedback	60 days after Final Acceptance

E. Substantial Completion Submittals

Substantial Completion of the Audiovisual System installation shall be the point at which all Audiovisual Equipment has been installed, programmed, configured and initially tested to confirm proper operation. The point of Substantial Completion shall be as mutually agreed between the Audiovisual Integrator and the Audiovisual Consultant following discussion and observation. At the point of agreed Substantial Completion, the Audiovisual Integrator shall submit the following:

1. Testing Report

- a. Perform electrical and electronic tests and present documented results as noted in Paragraph 3.3C and 3.3D. Provide results to Audiovisual Consultant before scheduling the Preliminary Checkout.
- b. Submit test results in a table format stating test description, acceptable result value and measured value (result). Clearly show all values not in acceptable value ranges.

2. Preliminary Project Record Documents Submittal

- a. Upon Substantial Completion the Audiovisual Integrator shall submit Preliminary Project Record Documents to the Audiovisual Consultant. Preliminary Project Record documents shall be submitted prior to the Preliminary Checkout.

- b. Preliminary Project Record Documents shall include:
 - (i) Corrected/updated shop drawings
 - (ii) Updated Equipment List in the form of Appendix A
 - (iii) Half-size drawings modified to reflect the actual installation conditions
 - (iv) CD-ROM with manufacturers' operation manuals arranged alphabetically and current drawings in .DWG format
- c. Consultant's Preliminary Checkout will be scheduled after the Preliminary Project Record Documents and Test Reports have been approved.

F. Final Acceptance Submittals

Prior to Final Acceptance the Audiovisual Integrator shall submit the following:

1. Hardcopy Project Record Documents

- a. Product Information Binders which shall consist of all product literature, manuals, software and other material provided by equipment manufacturers with the Audiovisual Equipment. Material shall be assembled in the binders with section dividers and a table of contents.
- b. Warranty documentation including warranty start and end dates for each individual piece of equipment provided.
- c. Explanation of procedures for obtaining telephone support and on site service during Audiovisual Integrator's warranty period.
- d. Recommended dates for the preventive maintenance service calls.
- e. Final Equipment List with itemized listing by room/system, including serial number for each item.
- f. Electrical and electronic test results.
- g. Key schedule with three copies of each key required for operation of the systems, equipment racks, etc.
- h. One (1) half-size set of all Audiovisual System design drawings revised to reflect "as-built" conditions.
- i. One (1) full-size set of all Audiovisual System design drawings revised to reflect "as-built" conditions.

2. Electronic documentation on CD-ROM(s) to include:

- a. Back-up of Audiovisual Control System software code (e.g. user interface software and control processor program). Un-compiled source code shall be submitted in both soft copy and printed out in hard copy documentation. Copies (hard and soft) of the software are to be included in the systems manuals.
- b. Copies of all custom or purpose-created software, including original source code.
- c. All software shall be written with remark statements to document function of sub-routines, macro's and program requirements.
- d. All control, DSP and specific device application software.
- e. All final software configuration and final set-up settings.
- f. Final equipment list with warranty and serial number information.
- g. Record Drawings in PDF format.
- h. Record Drawings in .DWG format.

G. Submittal Checklist

The checklist below is intended to aid the Audiovisual Integrator in the compilation of the various submittals required for the Project.

ITEM / QTY DUE PER SUBMITTAL	Project Kickoff		Design	Substantial Completion		Project Complete
	Project Plan	Long Lead Items	Full Project	Test Reports	Prelim Project Record	Final Project Record
Project Schedule	3					
Team Contact Information	3					
Long Lead Equipment List		3				
Sample Drawing Set						
Complete, Current Equipment List			3		1	3
Test Results Report				1		3
Checkout Checklists				1		3
Complete, Current Full-Size Drawing Set			3			3
Complete, Current Half-Size Drawing Set					1	3
Warranty Statement						3
Owner's Manual (Hardcopies)						3
All Control Code (GUI & Program) on CD					1	3
All Drawings (.pdf & .dwg) on CD					1	3
All Owner's Manuals on CD						3
Equipment List w/Serial Numbers & Warranty Expiration Dates on CD						3
Equipment Application Software on CD						3
All Equipment Keys						<i>ALL</i>

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

1.14 WARRANTY & MAINTENANCE SUPPORT

A. Basic Warranty

1. Basic Warranty provided by the Audiovisual Integrator shall include repair or replacement for TWO years from Final Acceptance on all Audiovisual Equipment provided (including products having a manufacturer's warranty of less than one year) and all Audiovisual Integrator workmanship. Basic Warranty shall be provided at no additional cost, except in case of obvious abuse. Consumable items such as lamps, batteries, tapes, etc. are not covered by Basic Warranty. Manufacturers' warranties on Audiovisual Equipment of more than one year shall remain in force beyond the Audiovisual Integrator's Basic Warranty period.
2. During the Basic Warranty period the Audiovisual Integrator shall:
 - a. Provide telephone support within 4 hours of a call requesting service.
 - b. Provide on-site support within 24 hours of a call requesting service not corrected by telephone support.
 - c. Repair or replace faulty items within 72 hours of on-site service or within manufacturers' specific repair program whichever is quicker.
3. Audiovisual Integrator shall not involve the Owner with removing, re-installing equipment, shipping or receiving equipment being repaired under Basic Warranty, nor shall the Owner be responsible for any shipping or freight charges associated with any item under warranty.
4. Audiovisual Consultant and the Owner shall be copied with all paperwork related to any and all warranty work during the Basic Warranty period.
5. The Basic Warranty period will commence no sooner than the date of first beneficial use by the Owner and no later than the date of contract closeout.

B. Day-One Support

1. As part of the warranty, training and installation completion, the Audiovisual Integrator will provide on-site presence on the first day of critical move-in and operation to support the staff and instructors in equipment use. This date will be coordinated with the Owner and the CPM for reasonable staffing requirements. Typically, this will require one certified technician to be present to resolve and issues that may arise and to provide basic operational support in the early usage stages. Programming support should be on stand-by to help resolve more complex issues as they arise.
2. All programming resources (code, software, configuration files, etc.) should be made available to on-site technicians

C. Preventative Maintenance

1. Within the term of the two-year Basic Warranty period the Audiovisual Integrator shall provide, at no additional cost, periodic Preventative Maintenance on the installed Audiovisual System to ensure proper ongoing maintenance and operation.
2. A minimum of four (8) Preventive Maintenance visits (4 per year) shall be provided.
3. Preventative Maintenance shall include, but not be limited to, the following:
 - a. Adjustments to video projectors; checking projector lamp life and replacing lamps (using only spare lamps provided under this contract) if usage exceeds 85% of projector manufacturer's lifecycle rating. Maintaining blending alignment and color / brightness balancing.
 - b. Periodic cleaning of screen and optics (lenses)
 - c. Checking audio system settings: Reviewing all inbound and outbound audio levels (recording, City feeds, etc.), checking ALS and wireless microphone systems and microphone audio levels.
 - d. Checking camera and production system presets and settings.
 - e. Verify all video signals and routing are intact. Verify feeds to recorder, streaming, press connection and feed to City.
 - f. Reviewing control system functionality
 - g. Any other maintenance and adjustments necessary to ensure that the Audiovisual System is in proper working order
4. Any problems or issues noted by the users or other Owner representatives shall be documented and completely resolved at each of the scheduled visits.
5. Preventative Maintenance Schedule
 - a. 90 days (± 15 days) after the commencement of the Warranty Period.
 - b. 180 days (± 15 days) after the commencement of the Warranty Period.
 - c. 270 days (± 15 days) after the commencement of the Warranty Period.
 - d. 20 days (± 10 days) before the end of the Warranty Period.

D. Extended Warranty

1. The Audiovisual Integrator shall provide an optional Extended Warranty that covers the terms in both the Basic Warranty and Preventative Maintenance sections but will extend those services beyond the first year coverage.

2. The Audiovisual Integrator shall provide price-break pricing for extending into the second, third, fourth and fifth consecutive years of system operation as well as a per annum renewal for extending after the initial year of coverage.
3. This pricing is included as an option to the Owner.

E. Extended Warranty

The Audiovisual Integrator may elect to propose to the Owner the offer of Extended Warranty coverage for the Audiovisual Systems. Extended Warranty shall be any optional warranty services offered by the Audiovisual Integrator and accepted by the Owner that expand on and complement the Basic Warranty coverage required by this Specification. Any provisions of Extended Warranty coverage shall not release the Audiovisual Integrator from responsibility for performance of all requirements under the Basic Warranty coverage.

F. Software Support

The Audiovisual Integrator shall also offer an annual Software Maintenance contract. This shall cover all software provided as part of this system and/or written for this system, and shall include both routine upgrades to applications and operating systems, as well as any modifications to software that may be required by the Owner. The Software Maintenance contract shall commence immediately after expiration of the warranty period and continue for three years. Maintenance visits will be four times per year and shall be scheduled to coincide with the periodic system maintenance of the system (See next section for terms of the Warranty).

1.15 AUDIOVISUAL SYSTEM FUNCTIONAL REQUIREMENTS

A. General

1. Acceptable products are listed below categorized by type of equipment. Quantities are listed for movable, portable or loose equipment, and other selected entries. Where quantities are not listed, refer to the system drawings and provide quantities as necessary to deliver the specified functionality.
2. All products shall be new and under manufacturer's warranty at the time of installation. B-stock, previously installed, refurbished or used equipment shall not be provided on this project.
3. Manufacturers/vendors of some specified Audiovisual Equipment may provide "master quotes" specific to this Project. The Audiovisual Integrator shall be responsible for providing all Audiovisual Equipment required to deliver the specified functionality, including any items that may be missing from manufacturer/vender master quotes.
4. Where the Specification lists several manufacturers for a major item, or group of items, the Audiovisual Integrator shall provide all of those items from one manufacturer (i.e. all Type A loudspeakers shall be brand "X" not a combination of brands "X" and "Y").
5. The Audiovisual Integrator shall provide all options, accessories and hardware necessary to meet the functionality of the design even if all components are not specifically listed (i.e. rack mount kits, separate or additional power supplies, input modules, transformers, special or longer power cords, AV adapters or break-out cables, etc.).
6. All projection screens shall be coordinated with Owner Facilities Dept. for high voltage power connection. The Audiovisual Integrator shall clean and adjust existing screens and connect to with new low voltage interfaces as required.
7. Computer (VGA) interface cabling shall be provided by the Audiovisual Integrator as part of the Audiovisual Systems. The Audiovisual Integrator shall provide all cabling necessary to connect wall and rack mounted computer and laptop audio and video interfaces to Owner Furnished (OFE) laptop and desktop computers as specified in this document including extension patch cords for integrated network pass-through adapters.
8. The Audiovisual Integrator shall be responsible for providing all miscellaneous material required to provide the complete integration of all computer equipment into the Audiovisual System and into the architectural environment. With the aim of providing clear and simple user connection of computers to the Audiovisual Systems, the Audiovisual Integrator shall observe the following requirements:
 - a. The Audiovisual Integrator shall securely attach any applicable interface electronics in a position that provides easy access for connection of signal cables as well as adjustments and service of the electronics by system

maintenance personnel. No loose equipment will be accepted unless specifically directed otherwise.

- b. All computer video connections at the end user positions (e.g. laptop connections shall utilize standard VGA-type (15-pin HD) signal connections and HDMI connections unless indicated otherwise on the dwgs.
 - c. Where necessary, the Audiovisual Integrator shall provide breakout cable(s) to convert the computer output connections to the appropriate input connections at the computer interface, switcher or other designated device.
 - d. Computer interface connections shall accommodate audio signal connections with corresponding computer video signals.
 - e. Provide any required extension patch cords for integrated network pass-through adapters on computer workstation interfaces or connector panels.
 - f. Clearly label all connection points and cables.
 - g. All power and signal cables shall be neatly routed and dressed with removable tie straps (e.g. Velcro) or other means for securing loose cables when not connected or not in use.
9. Model numbers listed are believed to be current and correct as of the preparation of this specification. All equipment shall be current models as of the time of installation. Should listed models become obsolete, they shall be replaced with the manufacturers' direct or recommended replacement.
10. The Audiovisual Integrator shall coordinate with the Owner for the settings of the OFCI tuners/set-top-boxes (within this project scope) to make appropriate settings for the equipment including (but not limited to):
- a. Power Saving Mode – OFF
 - b. Resolution – 1080P
11. Master Quote information
- a. Refer to current version of AMX master quote for specific project pricing.
 - b. Refer to current version of Panasonic master quote for specific project pricing on complete main projection (standard and ultra-short throw), TV and video wall display solution.
 - c. Refer to current programming/commissioning master quote from Front Side Solutions.

B. Council Chambers

1. The Council Chambers will be used for general public presentations and official City meetings. Audiovisual capabilities in the room will support the use of audio, video and computer based media for official presentations via two blended ceiling mounted widescreen projectors and support for a third centered projector on an existing large rear projection screen. Audio reproduction shall be by using ceiling recessed speakers for presentation materials and audience voice support. Media sources will be located in a dedicated and secure AV equipment rack located within the dedicated Broadcast Control Room on a separate floor. An existing secondary ceiling projector and locking ceiling mount and existing ceiling projection screen will provide support when the room is used for general public events.
2. Local digital sources and dais support will be accommodated in a small dais equipment rack. Within the rack, an OFCI dedicated PC is supported by an HDMI connection as well as equipment to support digital content distribution to the multiple dais monitors. Additional sources and support equipment will be remotely located in the Broadcast Control Room upstairs including provisions for a secondary OFCI dedicated PC, Blu-Ray / DVD player and an OFCI HD CATV tuner.
3. Video processing shall be via a 32x32 digital switcher attached to the network. All base processing and control support equipment will be located in the upstairs Control Room.
4. Control processor will be attached to client network and assigned a dedicated IP address (in coordination with the IT department). An included network 24-port router will be used to support multiple devices through the limited data ports.
5. Four new motorized pan/tilt/zoom/focus (PTZF) HD cameras and mounts will be included for broadcasting and recording sessions. These will replace the three existing cameras and motorized pan-tilt heads.
6. Digital sources will also be accommodated with both the rack and in the podium connections. Auxiliary connections at the podium surface will facilitate the connection of OFE portable laptop computers using HDMI or DVI-D outputs (as well as VGA). Within the rack, the included Blu-Ray / DVD player is supported by an HDMI connection. Provisions for an OFCI dedicated PC is to be connected to the digital equipment within the rack and a supplied shelf and shall be as a presentation source as well as to support voting functions and the blended projection image calibration feature. The PC will be configured to include a dual DVI output to accommodate extended desktop through the remote digital switch and into windowing processor. This will include support for a Bluetooth wireless keyboard and mouse via an included USB extender running from the rack to the ceiling projector.
7. The images will be mapped to the projection surface with built-in projector image blending functions and automatically calibrated with a ceiling black & white camera tying back to the OFCI PC with loaded calibration software. The control system will have an "Auto-Calibrate" button to perform the configuration to re-align the projectors to each other and to the screen to accommodate periodic image shift.

8. The critical nature of the projected images requires stability in the ceiling mounted projectors. Vibration isolation pads or other means will be required at the overhead mounts to the structure to help prevent resonance from the above floor affecting the combined projected images.
9. Video (and source audio) routing shall be via a digital video matrix switcher attached to the network. The switcher shall accommodate both digital and analog video sources (both in twisted pair extended signals and native / local connections) and shall output in both local HDMI and twisted pair extended signals to sync/display devices.
10. Two digital to analog transcoding devices will be used to accommodate Apple computer encrypted signals to being distributed and shall be connected in line between both the recording and steaming appliance's content input and the video matrix switch output(s).
11. Control processor will be attached to client network and assigned a dedicated IP address (in coordination with The City's IT department). An included network router will be used to support multiple devices through the limited data ports. The digital-audio signal processor (DSP) will have an analog phone line tied to a separate phone/communications port for telephone conference bridging use within the room.
12. Control of room shall be provided via a table mounted 20" wired desktop touch control panel, multiple desktop 4" touch screens for voting and local microphone control at the dais, a 6" wired touch panel for the Mayor position at the dais for expanded Mayoral functions and a separate 4" control panel at the podium for basic room functions during non-City meetings (locked out during Council sessions). All media sources and display devices will be controlled through the control processor. Control port expansion cards/modules will be included to accommodate all necessary devices to ensure proper turn-key system control of all AV components within the room. Control panel GUI will be coordinated with The City to work with the standard color pallet and preferred functional layout for control pages. Legacy GUI pages are available upon request. Control will include parallel connections for existing projection screen and shall integrate a new low voltage controller to interface with the wall switch as applicable. Control will include selection and control of multiple sources and routing to multiple destinations and windowing preset layouts. Control programming will include the hooks for all functionality through a remote management system (AMX RMS) as well as parallel GUIs for both X-Panel (PC) and iPad control and operation.
13. Voting will be included as a secondary component to the base control system and shall be done via 4" control panels at the primary dais Board positions including buttons for "Yes", "No" and "Abstain". Also included on the voting panel will be the individual local microphone "Mute" button that will allow local privacy for side-bar conversations. The voting results shall be recorded to a networked computer data base that shall include the voter's name and results for each agenda item voted on. These results shall be brought into a graphical page as part of the control system and can be displayed on the screen through the control/video system graphical interface and overlay (as a routable source to be displayed, recorded and sent).

14. The Digital audio Signal Processor (DSP) will be configured to accommodate the microphones (wired & wireless), audio sources and tele/video-conference signals (both mic level and line level). The DSP will be connected to the network for both control & remote configuration. Echo cancellation will be included and configured for all conferencing applications. Testing will be done Levels will be equalized between outbound mic and source audio. Complete testing shall be and all levels will be equalized between outbound mic and source audio to and from codec. A mono output will be used for both ALS feed and for audio recording and streaming/broadcasting. Testing will occur to ensure speaker zones and recording/outbound levels are properly controlled based on room source audio and voice support.
15. Audio support in the room shall be via new ceiling mounted 70 volt speakers (replacing the existing ceiling speakers) for voice reinforcement and presentation/program audio. Integrated RF-based assistive listening system (ALS) equipment for ADA support is provided within the rack with an extension antenna into the room. Closed captioning for all display devices will be accommodated through local source device (DVD, etc.) as required and shall be toggled on/off via display source menu. Voice lift/room reinforcement (if required by room size) and video / audio conferencing audio will be through ceiling speakers.
16. Two wireless combination handheld/lapel microphones will be included to be used for mobile presenters or for audience pass-around use. Wireless microphone antennas shall be extended from the Broadcast Control Room into the main Council Room. Ten wired desktop 18" gooseneck microphones at the key designated dais position. Four wired handheld microphones shall be included with 48" tall adjustable microphone stands and 25' extension cables for special presentation use. At the podium, a wired 18" gooseneck microphone and shock mount will be included for standing presenters. A pressure-zone ceiling microphone will be installed in the main Council room for use with audio conferencing or recording within that room to help with ambient noise detection and echo cancellation. All microphones will be type to shield resistant from radio frequency interference such as GSM cell phone signals. An RF-based integrated assisted listening system will be included to accommodate ADA requirements. This will include 10 wireless receiver units each with an over-the-ear adapter, 10 inductive loop lanyard adapters (for hearing-aid use), rechargeable batteries, RF antenna extension, a charging case(s) to accommodate all portable receivers and signage for ADA placement. Wireless ALS antennas shall be extended from the Broadcast Control Room into the main Council Room for maximum support and signal strength.
17. Equipment cabinets in the control room shall be emptied of their existing equipment and will be repopulated with the planned reused legacy equipment and the new equipment as part of this scope. All removed equipment that will not be repurposed shall be relocated to a separate storage space in coordination with the Owner. All planned repurposed legacy equipment shall be cleaned and re-secured in the racks in the new determined positions. All existing (unrequired) wiring shall be removed and racks cleaned ready for the new equipment installation. Within the existing racks, new quiet forced air fan cooling and intake/exhaust fans to accommodate 1,500 BTU/Hr for video processing equipment and computers shall be included. Racks shall include both surge protection and power distribution. Power, data and AV cabling/services shall be brought into the rack from the wall and connected. Cabinets

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

shall house the following central components (amplifiers, wireless equipment, etc.) and audiovisual processing and control equipment:

- a. Audiovisual digital matrix switcher
- b. Base control processor
- c. Digital audio signal processor and surround sound processor
- d. Wireless microphone receivers and ALS transmitter
- e. OFE 24-port network switch
- f. Audio amplifiers
- g. Media sources (PC, Blu-Ray / DVD)
- h. Misc. support equipment for control and video system

18. Specific equipment to this room will be:

- a. Projection Screen: Existing large rear projection screen shall be cleaned on both sides as best as possible.
- b. Projector (primary): Provide two side-by-side blended Panasonic PT-DZ870UK 8,500 ANSI lumen projectors. Projector to include Ethernet network connection with wired networking, RS232 serial control and HDCP compliant digital port (DVI/HDMI) provisioned for computer signals (WUXGA: 1920x1200 minimum). Specify and include appropriate (2) long-throw lensing for planned projector screen throw from ceiling mounts per drawing AV401. Provide uploaded logo per client for projector standby state when source selection is absent.
- c. Projector Mounting: Provide structural Uni-strut custom mounting solution to secure the two (up to three with one future centered projector) to the ceiling with proper anchorage and bracing to prevent sway and to support up to 200 lbs. Mounting structure and mounting hardware to be painted matte black.
- d. Image Blending Software: Provide software from Scalable Displays for image blending and mapping to rear projection screen. Include active camera system at projector location and screen mapping configuration software for auto-image calibration tied to control system (connected to a service PC via USB).
- e. Projector (secondary): Integrate with existing projector and connect to RS232 serial control port and HDCP compliant digital port (DVI/HDMI).
- f. Flat Panel Display (Entry): Install one 50"-55" 1920x1080p LCD/LED TV Include IR/serial control and security locking method to mount.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- g. Flat Panel Display (Podium Face): Install one 42" 1920x1080p LCD/LED TV Include IR/serial control and security locking method to mount.
- h. Wall/Podium TV Mount: Provide two Premier Mounts #P4263T or equivalent that will accommodate flat panel display(s) for room.
- i. Wall Input Panel: Provide (2) White custom wall input / output panels and appropriate pass-through/bulkhead connection plates for HDMI & VGA + 3.5mm audio as well as with HD-SDI (BNC) connections, XLR connections and Shielded RJ45 connections back to patch panels and video/audio switcher(s) in the Broadcast Control Room.
- j. Digital Signal/HDMI Transmitters/Receivers: Provide AMX #AVB-TX-MULTI-DXLINK or AVB-DWP-TX-MULTI-DXLINK as required for front wall or podium connections. Provide AMX #AVB-RX-MULTI-DXLINK scaling receiver at projector or flat panel display locations to fit all outbound resolutions to screen aspect ratio. As applicable, provide Power over Ethernet injectors for remotely powering receivers and transmitters.
- k. Universal HDMI Adapter Assembly: Provide three Liberty #DL-AR adapter ring assembly clamped to the table HDMI cable. Assembly to include DisplayPort, Mini DisplayPort, Mini HDMI, Micro HDMI, DVI-D. Assembly to include the additional options for both the Apple 30pin and Apple Thunderbolt adapters.
- l. Camera: Provide four new Vaddio #999-9910-000 RoboSHOT HD PTZ broadcast cameras. Provide camera control the camera. . Provide 4 new mating Vaddio Quick-Connect Universal camera control unit (CCU) to be rack mounted. Connect to production switcher base and existing camera controller.
- m. Camera Mount: Provide wall mounting shoe for signal transmission to Vaddio CCUs.
- n. Transcoding Device: Provide three HD-Fury3 or Kanex ATV Pro digital to analog transcoding device on content DVI input to accommodate the sending of digital-based Apple computing and tablet devices (Mac Book, iPad, etc.). One transcoder shall be used at the existing analog projector for the display of new digital signals.
- o. Podium Microphones: Provide (1) black Shure MX418 with the locking socket wired into the podium (per position indicated on the manufacturer podium drawing). Route all cabling down and through podium to remote DSP equipment. Include with logic support for illuminating ring.
- p. Dais Discussion Microphones: Provide (11) Shure MX418/C gooseneck microphone with locking base. Route all cabling through dais to remote DSP equipment. Include with logic support for illuminating ring.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- q. Ceiling Microphone: Provide one white Crown PTZ-LL pressure zone microphones. Mount in ceiling to single gang connection box.
- r. Ceiling Speakers: Provide 32 Atlas #FAP42T or approved 70v equivalent from JBL, Extron, QSC or Tannoy. To be white in color and shall include structural attachment per architectural details along with all included accessories. Speakers to reside in existing ceiling positions and are replacing the legacy speakers.
- s. Audio Amplifier (ceiling): Provide Crown CTs series or approved multi-channel equivalent for appropriately driving the multi-zoned 70V ceiling speakers in room.
- t. Wireless Microphones: Provide two Shure QLXD124/85 (or equal) wireless digital microphones combination (handheld/lapel) kits integrated into rack. Place extended antennas into each room as required for optimal signal transmission.
- u. ALS Equipment: Provide 216MHz range RF transmitter/receiver set for installed condition consisting of antenna(s) as required, microphone transmitter, 4 wireless portable receivers and spare ear buds, rechargeable batteries and charging case. Use Listen #LS-04-216 (or equal). Use antenna extensions for front wall mounting into each room as required. Include lanyard
- v. Bluetooth USB Device: Provide Bluetooth USB 2.0 (or higher) receiver unit at the Dais City Clerk position main and connect back to (through switcher) OFE dedicated PC. Provide Logitech DiNovo series wireless Bluetooth mouse & keyboard combination set and pair to Bluetooth receiver and OFE PC. Ensure proper room coverage when keyboard/mouse are used at the dais.
- w. Input Connection Well: Provide at both podium and City Clerk position AMX HydraPort #HPX-600 with power, data and video connections within the furniture mounted flip-up well.
- x. Speaking Timer: Provide D'SAN Limiter series system #PRO-2000BT with remote signal light at podium, video time clock software for City Clerk PC and base timer control for mayor position.
- y. Blu-Ray / DVD Player: Provide Sony #BDP-S590 or equivalent from Panasonic or Toshiba.
- z. PC: Install two OFCI PCs on included 2RU shelf.
- aa. HD Tuner: Install OFCI CATV/SATV HD tuner on included 2RU shelf.
- bb. Network switch: One OFCI PoE Ethernet 10/100/1000 POE switch for rack equipment. Coordinate with the City of Brea IT department for switch installation and setup and VLAN provisioning.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- cc. Equipment Rack (Podium): Provide SRSR-2-12 from Middle Atlantic pull-out and pivot type to be secured within podium. Include forced air fan and intake/exhaust system in each bay for cooling of video processing equipment and computers. Provide 12 rack-unit tall with PDU. Include all rack rails, power distribution, hardware, shelves and blank / vent RU panels as required for complete system equipment installation. Fan to be Middle Atlantic #QFAN & GUARD and shall have one fan installed per bay to evacuate the heated air from the rear of the podium. Provide thermal sensing to activate fan system(s) as required.
- dd. Circuit Protection/Power Distribution: Provide (2) Surge-X #SX2120 power conditioner or equivalent from Middle Atlantic in both podium and in control booth equipment rack. Provide in-rack power distribution as required for all devices.

19. Refer to drawing AV501 for signal flow diagram. Refer to drawing AV401 for room plan and equipment positioning.

C. Broadcast Control Room

1. The Control Room will be used for the master control of all distributed audiovisual signals. Monitoring and operation will be performed on an OFE extended technical console that shall be equipped with new monitoring displays, control switcher, audio mixer, camera preview monitors and audio reference speakers. Audio and video production switchers will be used for production management of inbound and outbound feeds.
2. As the existing control room racks and console has existing system equipment, the legacy equipment will be pulled out with any un-used items not required for the new system deployment to be set aside for discarding or repurposing. Any equipment that will be re-used shall be cleaned and submitted (as required) to manufacturer for re-certification and calibration. Equipment to be tagged for reuse shall be (but not limited to):
 - a. Tightrope Player (recently re-commissioned to year 2020)
 - b. DVD Recorder
 - c. Swagit Server
 - d. AT&T U-Verse Box
 - e. Time Warner Box
3. Master control of the audiovisual system in the Control Room will be provided via a 20" video-enabled desktop touch control panel for advanced operation. This touch panel will serve as the user-interface with the audiovisual system and will be custom programmed with easy-to-navigate screen layouts, presets and intuitive graphics for system control and status confirmation (e.g. audio volume level). The control system will accommodate device control for all of the equipment listed above. A net-

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

work based virtual control panel emulator will be included for additional parallel control (X-Panel) via a web-browser session on a computer.

4. The base control processor, 32x32 digital video matrix switcher and audio DSP will be centrally controlled and located within the Control Room racks (see section 1.15B).
5. Remote camera control will be done through in-rack camera control units bussed together with a camera joystick controller.
6. Patch bays for LAN/CobraNet/Digital-Video, video and audio signals will be included and shall include sufficient patch cables for interconnection.
7. Specific equipment to this room will be:
 - a. Overhead Ladder Rack: Provide & secure to wall 1" x 12" wide black cable ladder and wall brackets for cable management to racks. Refer to drawing AV406 for layout.
 - b. Vertical Wall Ladder Rack: Provide & secure to wall 1" x 12" wide black cable ladder and wall brackets for cable management to racks. Refer to drawing AV406 for layout.
 - c. Recording Appliance: Provide Panasonic AG-HPD24 HD-capable capture recorder. Attach to network and configure with the Client Facilities / IT departments for content FTP.
 - d. Network Streaming Appliance: Provide Epiphan #VGADVI Broadcaster Pro multisource AV network streaming device.
 - e. Touch Panel Interface: Provide two AMX #TPI-PRO-DVI-4 as required to accommodate Elo touch panel for graphics overlay and AMX control interfacing. Provide video connections back to matrix switcher to accommodate video overlay and interactive annotation capabilities. Use also for voting tally display page on projected and recorded/sent image(s) with TPI output brought back into the digital matrix router.
 - f. Control Processing: Provide NI-4100 or other appropriate base control processor from AMX that will satisfy the control elements and parameters of the system including the control and operation of separate room modes and control panels for the divided space. Use all related expansion devices, cards, power supplies, etc. to satisfy system requirements. Control system will be attached to campus network and to AMX's RMS (Remote Management Suite) for remote management. All program hooks will be included to accommodate. Include control provisions for lighting interfacing and screen LV control. Include Ethernet CAT6 patch cable to Owner network. Devices to be used will include (but not limited to):
 - (i) Serial/IR/Relay port expander(s) as required

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- (ii) AxLink port expander or buss strip
 - (iii) 4GM memory upgrade (if required for program criteria)
 - (iv) CC-NIRC for IR device control
- g. Lighting controls (as applicable per room). Coordinate final configuration with architect at project kick-off. Provide all related AMX control expansion devices, cards, power supplies, etc. to satisfy system requirements.
- h. Audio Digital Signal Processing (DSP) equipment: Provide Biamp Tesira series card frame (or equal) and I/O cards as required. Include echo-cancellation support, and network interface. Include Dante interface to connect to audio mixing console. Include AVB/CobraNet bussing support if required within local room to expand DSP I/O and chassis/frames. One spare input card and one spare output card are included to support future paging system ties. Include Ethernet CAT6 patch cable to Owner network. Cards to be used will include (but not limited to):
- (i) DSP-2 (total A/R)
 - (ii) SIC-4 (total A/R)
 - (iii) SOC-4 (total A/R)
 - (iv) SIC-4 (total A/R)
 - (v) SAC-4 (total A/R)
 - (vi) STC-2 (total A/R)
 - (vii) SVC-2 (total A/R)
 - (viii) AVB-1 (total A/R)
 - (ix) DAN-1 (total A/R)

Include Biamp Tesira #EX-IN & #EX-OUT units bussed audio expanders at dais to accommodate microphones and City Clerk audio connections.

DSP programming will consist of tuning and equalizing all I/O levels and verifying all origin/destination routing and cross-points. A PC-web based GUI will be developed for the control of all I/O levels and settings. This will emulate mixing console functions and will be primarily run in the main room but shall not be limited to that location. Source level adjustments to accommodate (but not be limited to):

- (x) All local desk, wall & wireless microphones
- (xi) All local speaker output levels

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- (xii) Gain, bass/treble, mix levels adjustments
- (xiii) Voice conference bridge GUI control (dial-pad, connect/hang-up, etc.)

Acceptable approved equivalent from Polycom or BSS Soundweb.

- i. Digital Matrix Signal Switcher: Provide AMX Enova series DGX32X32 card frame with redundant power supply (or equal) # DGX32-ENC and appropriate combination of digital and analog video I/O cards. Include Ethernet shielded CAT6 patch cable to Owner network. I/O cards required per plans (but not limited to):
 - (i) ENOVADGX32-VI-HDMI
 - (ii) ENOVADGX32-VI-DVI
 - (iii) ENOVADGX32-VI-DXLINK
 - (iv) ENOVADGX32-VO-HDMI
 - (v) ENOVADGX32-VO-DXLINK
 - (vi) ENOVADGX32-AUD-INS-EXT
- j. Control panel: Provide black ELO #E382790 22-inch 16:9 desktop Touch-monitor wired touch control panel. Connect to AMX control processor via USB (with USB extender as required). Coordinate directly with the Owner for desired GUI layout based on client standards for operation. Control buttons and graphical page-flips to include functions as required (but not limited to):
 - (i) Welcome - Start-up /power down
 - (ii) Source selection and preview window and projector routing screen as applicable (but not limited to):
 - (a) Local PCs / media server(s)
 - (b) Laptop
 - (c) Blu-Ray / DVD player (with transport controls)
 - (d) Camera & Control / Presets
 - (e) Voice conference bridge GUI control (dial-pad, connect/hang-up, etc.)
 - (f) Tuners

- (g) Voting tallies page
- (h) Auxiliary Floor Connections – Laptop (VGA, HDMI, audio)
- (i) Auxiliary Wall Connections – Laptop (VGA, HDMI, audio)
- (j) Auxiliary Feeds from/to Remote Rooms
- (k) Routing selected to/from remote displays and connections
- (l) Projector/Display Image Mute (separate from audio)
- (iii) Audio routing control:
 - (a) Control Room sources to auxiliary monitor speakers
 - (b) Control Room mics to auxiliary monitor speakers (Lobby, etc.) for presentation overflow

Basic level controls for source & mics (Note: Expanded level controls to be done through more comprehensive DSP user interface / mock mixing console)

- (iv) Room controls as applicable (but not limited to):
 - (a) Individual screen control (raise/lower)
 - (b) Mic (separate from source) gain up/down/mute
 - (c) Program (separate from mic) gain up/down/mute
 - (d) Audio select
 - (e) Closed Captioning toggle
 - (f) Source preview / cueing and “take” selection
 - (g) Digital Signage external source/display routing
 - (h) Projection screen
 - (i) Lighting control
 - (j) Technical / Advanced page including extended audio level control options, etc. as applicable (password protected)

- (v) Special / advanced controls will include (but not limited to):
 - (a) Aux inbound & outbound source audio levels & recording levels
 - (b) Manual audio and video crosspoints override
 - (c) Touch Panel Annotation and on/off toggle
 - (d) All local desk, wall & wireless microphones
 - (e) All local speaker output levels
 - (f) Gain, bass/treble, mix levels adjustments
 - (g) Projector lamp hours used / estimated remaining
 - (h) ALL FUNCTION hooks for AMX RMS.
 - (i) GUI emulation for computer control (X-Panel & iPad app)
 - (j) Helpdesk request
 - (k) GUI emulation for computer control
 - (l) Current local time clock display

- k. Touch Panel Interface: Provide AMX #TPI-PRO-DVI-4 as required to accommodate Elo touch panel for graphics overlay and AMX control interfacing. Provide video connections back to matrix switcher to accommodate video overlay and interactive annotation capabilities.

- l. Touch Panel Security Lock: Provide two locking cable monitor tether from Kensington or equal.

- m. HDMI Scaler: Provide Crestron #HD-SCALER or approved equal from AMX, Extron or Kramer Electronics as required.

- n. USB Extender: Provide USB 2.0 (or higher) twisted pair extender HRT # U2-160 or Smart Technologies #CAT5-XT to connect the interactive projector to the OFE dedicated PC for bi-directional interactive communication.

- o. Bluetooth USB Device: Provide Bluetooth USB 2.0 (or higher) receiver unit at projector/display receiver and connect back to (through switcher) OFE dedicated PC. Provide Logitech DiNovo series wireless Bluetooth mouse & keyboard combination set and pair to Bluetooth receiver and OFE PC. Ensure proper room coverage when keyboard/mouse are used at table.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- p. Microphone: Provide one Shure MX418 with desktop base wired into the control room desk.
- q. Patch Panel (twisted pair, digital video/CobraNET): Include one 24 port shielded CAT6 patch panel in main equipment rack with all room connections (RJ-45) home-run to for patch connections. Include one 24 port shielded CAT6 patch panel with RJ45 bulkhead (pass-thru) connectors. Include 30 shielded CAT6 patch cords, 3' long, green. Label patch-pays with P-Touch label for each destination in room. Include 2 shielded CAT6 patch cords, 3' long, Orange and 1 additional orange patch cord 10' long for CobraNet connection & routing. Label patch-pays with P-Touch label for each destination in room. Use L-Com # DCP110C6-24S or approved equivalent.
- r. Patch Bay (audio): Include 24 port patch panels (qty as required) in main equipment rack with all room XLR connections home-run to for patch connections / tie-lines. These are to be normaled 1/4" stereo type. Include one 24 port patch panel in main equipment rack with connections as required to DSP and wall plates. Use Neutrik #NYS-SPP-L or approved equivalent.
- s. Patch Bay (video): Include 24/48 port BNC patch bay with cabling coax 75 ohm to each corresponding connection on "F" connector patch panel. Terminate with premade cabling using Canare BNC to "F" connector links between panel/bay. Use Canare DVJB series model #24DV-2U.
- t. Patch Panel Cables: Provide all required patch bay cables and cable management (hangers, cable loops, cable ties) as required per design.
- u. Wired Handheld Microphone. Two handheld microphones Shure #SM58 or equal from Audio Technica, etc. Provide (2) 10', (6) 25' and (2) 50' extension XLR cables.
- v. Blu-ray / DVD Player: Provide (1) standard Blu-ray / DVD player from Toshiba or approved equivalent. All Blu-ray and standard DVD playback must be from HDMI output. Unit to be mounted within shelving to facilitate easy access to all controls and clear access to IR receiver for control of device.
- w. Audio Amplifiers: Provide appropriate rated 70v amplifiers for zoned spaces from Extron, QSC or Crown unless covered by local rooms.
- x. HDMI/SDI Converters: Provide Data Video #DAC-8 (HD/SD-SDI to HDMI Converter) and #DAC-9 (HDMI to HD/SD-SDI Converter) as required by design.
- y. Bluetooth USB Device (Media Server): Provide Bluetooth USB 2.0 (or higher) receiver unit at projector signal receiver and connect back to (through switcher if available) Media Server PC(s). Provide Logitech DiNovo series wireless Bluetooth mouse & keyboard combination set and pair to Bluetooth receiver and OFE PC. Ensure proper room coverage when keyboard/mouse are used at remote display locations.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- z. Circuit Protection/Power Distribution: Provide (4) Surge-X #SX2120 power conditioner or equivalent from Middle Atlantic in both podium and in control booth equipment rack. Provide in-rack power distribution as required for all devices.
- aa. Touch Panel Security Lock: Provide two locking cable monitor tether from Kensington or equal.
- bb. Equipment Rack (Control Room): Clean and outfit four OFE full-height gangable metal cabinets to residing within room with PDU and other new support equipment (see Section 2.8 for reference). Exhaust fans on top or front to be included as needed to properly cool equipment within enclosure.
- cc. Production Switcher: Provide Broadcast Pix Flint series #1000 system with #500 Panel production switcher console and rack mounted base unit with all appropriate options per design.
- dd. Digital Audio Mixing Console: Provide Yamaha #QL5 thirty-two channel digital mixing console connected to the audio DSP system and to Dante for best audio control.
- ee. Production Monitor: Provide four 1080p 20" diagonal rack mounted monitors for production monitoring.
- ff. Reference Video Monitor: Provide 3 rack-mounted dual 7" HD display signal reference monitors from Data Video #TLM-702HD.
- gg. Audio Recorder: Provide Marantz #DN700r for audio capture and connect to network. Provide 8GB SD card for recording capture media.
- hh. Network Streaming Appliance: Provide one Epiphan #VGADVI Broadcast-er Pro multisource AV network streaming device.
- ii. Studio monitor: Provide 2 Behringer #CE500A speakers per console (4 total) or equal from Anchor Audio for reference speakers.
- jj. Headphones: Provide a pair of attached to headphone amplifier. Use Sony #MDR-7509HD or equal from Sennheiser, Shure, etc.
- kk. Multi-Channel Headphone Amplifier: Provide two Behringer #HA-400, Kramer Electronics #VM-50HN or other equal for Technical Console reference audio connections.
- ll. Cabling: Provide (20) 6' CATV "F" connector patch cords, (20) 3' BNC patch bay cords, (20) 3' quarter-inch stereo phono patch bay cords, (20) 6' CAT6 patch cords, (15) 25' power cords and (15) 6-outlet surge power strips as well as all other required cabling and patch cords per design.
- mm. AVB Network switch: One Extreme Networks #Summit X440 24-port (or sized as required) PoE Ethernet 10/100/1000 POE switch for rack equip-

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

ment. Coordinate with City of Brea IT department for switch installation and setup on Client network and VLAN provisioning. If VLAN provisioning is not possible or will not accommodate both AVB and Dante audio networks, use two smaller (8-port) X440 series switches.

8. Refer to drawing AV501 for signal flow diagram.
9. Refer to proposed rack layout on drawing AV501F.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Acceptable products are listed below categorized by type of equipment. Quantities are listed for movable, portable or loose equipment, and other selected entries. Where quantities are not listed, refer to the system drawings and provide quantities as necessary to deliver the specified functionality.
- B. All products shall be new and under manufacturer's warranty at the time of installation. B-stock, previously installed, refurbished or used equipment shall not be provided on this project.
- C. Manufacturers/vendors of some specified Audiovisual Equipment may provide "master quotes" specific to this Project. The Audiovisual Integrator shall be responsible for providing all Audiovisual Equipment required to deliver the specified functionality, including any items that may be missing from manufacturer/vender master quotes.
- D. Where the Specification lists several manufacturers for a major item, or group of items, the Audiovisual Integrator shall provide all of those items from one manufacturer (i.e. all Type A loudspeakers shall be brand "X" not a combination of brands "X" and "Y").
- E. The Audiovisual Integrator shall provide all options, accessories and hardware necessary to meet the functionality of the design even if all components are not specifically listed (i.e. rack mount kits, separate or additional power supplies, input modules, transformers, special or longer power cords, AV adapters or break-out cables, etc.).
- F. All projection screens are by the General Contractor. The Audiovisual Integrator shall review all screen and projector specifications and confirm that they are compatible with all other elements of the Audiovisual Systems being provided by the Audiovisual Integrator and the overall function and operation of the facility, prior to the commencement of work.
- G. The Audiovisual Integrator shall coordinate with the Architect, General Contractor and any designated subcontractors or suppliers as required to ensure that all control panels, connector panels and other Audiovisual Equipment to be provided by the Owner or the Audiovisual Integrator and installed in any millwork or furniture are fully compatible and coordinated with the material provided by others. This shall include, but not be limited to, the installation of cable passages, grommets, Audiovisual Equipment (e.g. microphones, control panels, connector panels).
- H. Computer (VGA) interface cabling shall be provided by the Audiovisual Integrator as part of the Audiovisual Systems. The Audiovisual Integrator shall provide all cabling necessary to connect wall and rack mounted computer and laptop audio and video interfaces to Owner Furnished (OFE) laptop and desktop computers as specified in this document including extension patch cords for integrated network pass-through adapters.
- I. The Audiovisual Integrator shall be responsible for providing all miscellaneous material required to provide the complete integration of all computer equipment into the Audio-

visual System and into the architectural environment. With the aim of providing clear and simple user connection of computers to the Audiovisual Systems, the Audiovisual Integrator shall observe the following requirements:

1. The Audiovisual Integrator shall securely attach any applicable interface electronics in a position that provides easy access for connection of signal cables as well as adjustments and service of the electronics by system maintenance personnel. No loose equipment will be accepted unless specifically directed otherwise.
 2. All computer video connections at the end user positions (e.g. laptop connections shall utilize standard VGA-type (15-pin HD) signal connections.
 3. Where necessary, the Audiovisual Integrator shall provide breakout cable(s) to convert the 15-pin HD computer output connections to the appropriate input connections at the computer interface, switcher or other designated device.
 4. Computer interface connections shall accommodate audio signal connections with corresponding computer video signals.
 5. Provide any required extension patch cords for integrated network pass-through adapters on computer workstation interfaces or connector panels.
 6. Clearly label all connection points and cables.
 7. All power and signal cables shall be neatly routed and dressed with removable tie straps (e.g. Velcro) or other means for securing loose cables when not connected or not in use.
- J. Model numbers listed are believed to be current and correct as of the preparation of this Section. All equipment shall be current models as of the time of installation. Should listed models become obsolete, they shall be replaced with the manufacturers' direct or recommended replacement.

2.2 SUBSTITUTIONS

- A. The acceptability of a proposed substitution to a specified Audiovisual Equipment item shall be considered under the following terms listed in the "Substitutions" column of the equipment list spreadsheet (Appendix A):
1. The term "No Substitutions" shall denote that only the listed product(s) are acceptable and no substitutions will be considered or approved.
 2. The term "Or Equal as Approved" shall denote that equivalent products will be considered as alternatives to the specified products pending approval from Audiovisual Consultant.
 3. The term "Or Equal" shall denote that functionally equivalent products shall be acceptable without written approval by Audiovisual Consultant.

- B. Where a specified item has been discontinued by the manufacturer and/or replaced by a new model, Audiovisual Consultant may require submission of the new model for evaluation prior to acceptance as a substitute.
- C. Where a manufacturer is listed as “comparable” but a specific model number is not indicated, the comparable products must meet all the listed specifications as a minimum, and the primary specified product (manufacturer and model number) shall be used as the basis of design.
- D. Product substitution is allowed only by expressed written consent of Audiovisual Consultant.
- E. The Audiovisual Integrator shall be fully responsible for making a substitute product match the requirements, description and functionality of the originally specified product regarding all options, accessories and external interface requirements.

2.3 SOFTWARE

A. General

1. The Audiovisual Integrator may retain intellectual rights to the operating software.
2. The Owner shall be granted a license in perpetuity for use.
3. All source code becomes the exclusive property of the Owner.
4. All source code changes must be fully documented. Updated programming (compiled and un-compiled hard and soft copy versions of code) must be updated and located at all equipment rack locations and for all equipment manuals.
5. Source code changes and/or additional programming will be warranted by the vendor for a period of 1 year with the Audiovisual Integrator responsible for any required diagnosis and repair.
6. All manufacturer’s software operating system updates, bug fixes, patches, etc., shall be installed as part of the periodic system maintenance of the system during the warranty period.
7. An acceptance test will be performed at commissioning during which the software and any additional code changes or upgrades must perform accurately and be error free.

B. Audiovisual System Control Software

1. Audiovisual System Control Software shall facilitate operation and/or status monitoring of all designated Audiovisual Equipment.
2. Graphical user interface (GUI) designs for all Audiovisual System control touch panels developed in accordance with the guidelines of the InfoComm International®

“Dashboard for Controls Design Reference” and “Integrators Guide” for layout and flow principals.

3. Graphical User Interface designs shall conform to Owner’s graphic standards and guidelines for use of logos or other graphical treatments.
4. Coordinate and integrate requirements for lighting control presets with control panel scene recall where appropriate.
5. Coordinate and integrate requirements for motorized window covering and screen controls.
6. Set up of all video windowing software in multi-image processors whether in stand-alone units or within video projectors.
7. Set up of Codecs in coordination with the Owner’s videoconference and/or network support staff including any specific networking or line provisioning.
8. Coordinate with Client for all required IP address range and info for AV networked devices and supply any specific requirements for network parameters (MDO for switches, multicast for streaming, bandwidth and port settings for videoconferencing, etc.). Configure and record all final IP address information and supply final listing of devices and their information to Client IT Department.
9. Configuration of all networked AV devices with appropriate settings and instruction on how to access remotely for support of management. Tie all control system and networked AV peripherals into main Client or specific management software package (either included in this scope or existing system) for remote control, management and support.

2.4 DEVICE PLATES

- A. NEMA “gang-type” device and cover plates shall be standard (or “jumbo” size as required) with color and finish as specified by the Architect.
- B. Device plates other than NEMA “gang-type” plates shall be 1/8" aluminum or 1/16" stainless steel or other material/finish as specified by the Architect.
- C. All device plates shall be sized to fully cover the mounting box and rough opening.
- D. All text and graphics shall be engraved. Colors and type font shall be as specified by the Architect.
- E. Detailed shop drawings of device plates and panels showing all finishes, dimensions, labeling and cutout information shall be submitted prior to fabrication.
- F. Blank cover plates shall be provided at all wall, floor and ceiling boxes that do not have device plates installed. Material/finish shall be as specified by Architect.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- G. At ceiling mounted video projector locations and other “non-connectorized” plates, provide a secured grommet in ceiling tile or a grommetted hole in a blank plate. Acceptable: ProCo Plateworks® / Captain NEMA® or comparable by RCI, Wireworks, Whirlwind, Panel Authority, Panel Crafters, custom by Audiovisual Integrator.

2.5 FIXED INSTALLATION CABLE

- A. The cable types listed in the table below are specified for fixed installation within the base-building raceway and within fixed equipment racks. Unless specifically noted elsewhere, these are NOT acceptable for flexible cables used within lecterns or credenzas or for connection of portable equipment.
- B. Where plenum rated cables required, plenum equivalents shall meet the same performance characteristics as non-plenum cables listed below
- C. All speaker cable shall be sized by the Audiovisual Integrator to produce less than 1dB of loss in the speaker/cable circuit.
- D. All video cable shall be sized by the Audiovisual Integrator to meet the criteria listed in Paragraph 3.3 D. 6.
- E. The Audiovisual Integrator shall select the UTP cable type (Cat 5, Cat5e, Cat6, MediaT-wist, etc.) for correct operation of AV over UTP equipment.

Signal Type	Description	Acceptable Mfgs
Audio (analog line/mic level)	Shielded twisted pair, 22 AWG	Belden 9451, Liberty 22-1P-EZ
Audio (digital)	110 ohm, Low Capacitance STP	Belden 1800B, Liberty 24 1p DIG-AUDIO
Audio Speaker Level, constant voltage	Stranded 18 AWG	Belden 5300UP, Liberty 18-2C
Audio Speaker Level 8 ohm, short run	Stranded 16 AWG	Belden 5200UP, Liberty 16-2C-TTP
Audio Speaker Level 8 ohm, medium run	Stranded 14 AWG	Belden 5100UP, Liberty 14-2C-TTP
Audio Speaker Level 8 ohm, long run	Stranded 12 AWG	Belden 5000UP, Liberty 12-2C-TTP
Audio Speaker Level 8 ohm, long run	Stranded 10 AWG	Belden 5T00UP, Liberty
Bundled RGBHV with optional control and audio pairs	Composite cable with mini hi-res coax	Belden, Extron, Liberty with video, audio, control elements as required
Baseband Video	RG-59	Belden 1505A
CATV Trunk Line	RG-11U Quad Shield	Belden 7731A
CATV Drop Line	RG-59U Quad Shield	Belden 9100, Liberty RG59-CCS
Control (Cresnet, Axlink)	STP 22 AWG UTP 18 AWG	Liberty LLinX-U, Belden 1502P or control system mfg certified equal
Control (serial, dry contact, etc)	Varies	Belden, Liberty, West Penn

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

Fiber for data transport	Varies	Client std mfg and type (MM/SM)
Fiber for AV signal transport	Varies	Client std mfg and type (MM/SM)
UTP for media transport (non IP)	CAT 5e or CAT 6 as req	Cat 5e- Belden 1701A Cat 6-1874A (orange jacket)
UTP for control (non IP)	CAT 5e or CAT 6 as req	Cat 5e- Belden 1701A Cat 6-1874A (orange jacket)
UTP for control (IP based)	CAT 5e or CAT 6 as req	Client std mfg and data color
UTP (IP transport)	CAT 5e or CAT 6 as req	Client std mfg and data color
UTP (Network cabling/patch cords)	CAT 5e or CAT 6 as req	Client std mfg and data color
UTP (Network crossover)	CAT 5e or CAT 6 as req	Client std mfg and data color (red if no Client standard exists)
Lectern, credenza, cart and portable cables:	Use highly flexible, pre-made or molded cables. Select AWG, number of conductors, pairs and/or shield as required depending on specific function	Extron or Liberty as required
Other Cable Types not listed		Cable shall be submitted for approval prior to installation
Digital video / HDBase-T / AVB	Proprietary vendor bundled cable	AMX DXLink or plenum ver.
Digital video / HDBase-T / AVB	Proprietary vendor cable	AMX DXLink or plenum ver. or approved Shielded CAT6 equivalent - Configure in system for type.
Digital video Fiber	Proprietary vendor cable	AMX DXLink or plenum ver. or approved equivalent
HDMI	High speed HDMI cable	AMX, Crestron, Extron or acceptable equivalent for distance reqd.
Note: Substitutions must be submitted for approval however CommScope, Canare, West Penn, and Extron cables are generally acceptable provided the cable meets or exceeds the performance of those cables shown above.		

2.6 CONNECTORS

Connector Type	Acceptable Mfg and Model
1/4 Inch Cable Connectors	Neutrik "NP" Series or comparable product by Switchcraft.
BNC Cable Connectors	3 piece, true 75Ω crimp type. (Must be compatible with cable type.) Kings, Liberty, Extron, Canare, ADC, Trompeter, Cambridge
F Cable Connectors	True 75Ω crimp type. (Must be compatible with cable type.)

	Gilbert, Trompeter, T&B
Loudspeaker Cable Connectors	Neutrik Speakon NL4FC or NL8FC
XLR Cable Connectors	Neutrik "X" series or comparable product by Switchcraft
RCA Cable Connectors	Canare RCAP-C*, Liberty Z400 Series
Recessed BNC Panel Connectors	Neutrik NBB75DFIB or comparable product by Canare for rack panels or wall plates (recessed).
Non-recessed BNC Panel Connectors	Neutrik NBB75FI or comparable product by Canare (with insulating washers) for floor boxes (non-recessed).
RJ-45 (Data) Panel Connectors for non IP Signals	Neutrik NE8FAV-Y110 or comparable product by Canare for rack panels or wall plates (recessed).
RJ-45 (Data) Panel Connectors for LAN	All LAN Jacks must match client standard mfg and color
Electrical/Electronic Hardware	<p>Telco 66-type punch blocks are not acceptable. All materials located in plenum spaces must be plenum-rated.</p> <p>Phoenix UK, USK series or comparable product by Cinch, Beau for terminal barrier strips; provide marker strips.</p> <p>ADC ICON series or comparable product by AVP, Switchcraft for split ring punch blocks; provide marker strips.</p> <p>Trimm 426J-3 or comparable product by ADC for x-mas trees; provide identification strips.</p>
Digital video / HDBase-T / AVB	AMX DXLink connector type. Shielded RJ45 for Shielded CAT6 grade (match to cable type – must match at both ends and be configured in system for type).
Digital video Fiber SC	AMX DXLink SC Fiber connector type or approved equiv.

2.7 Rack Enclosures & Accessories

- A. Gang-able rack enclosures shall be used in locations where two or more racks are grouped together. Height and quantity as indicated on drawings. Unless otherwise specified, the enclosure depth shall be 36" minimum. Finish shall be black powder coat. Acceptable: Middle Atlantic series WRK, or comparable by CPI, Atlas Sound, Lowell, or Stantron.
- B. Provide the accessories noted below for each gang-able rack enclosure. All accessories shall be from the same manufacturer as the rack enclosure.
 1. Side panels (for end racks of each group of racks)
 2. Cable chase (as required)
 3. Vented top and solid rear door
 4. Grounding stud in top rear of rack
 5. Forced air ventilation configured for equipment and heat loads

6. Full height rear mounting rails
 7. Full height solid copper bus bar bonded to rack
 8. Rack work light
 9. Horizontal lacing bars (as required)
 10. Seismic base and support
 11. Switched & circuit protected vertical power strip(s)
- C. Stand-alone rack enclosures shall be used in locations where single racks are specified. Height and quantity as indicated on drawings. Unless otherwise specified, the enclosure depth shall be 32.5" minimum. Finish shall be black powder coat. Acceptable: Middle Atlantic series WRK-SA, or comparable by Atlas Sound, Lowell, or Stantron
- D. Provide the accessories noted below for each stand-alone rack enclosure. All accessories shall be from the same manufacturer as the enclosure.
1. Solid top and solid rear door
 2. Grounding stud in top rear of rack
 3. Forced air ventilation configured for equipment and heat loads
 4. Full height rear mounting rails
 5. Full height solid copper bus bar bonded to rack
 6. Rack work light
 7. Horizontal lacing bars (as required)
 8. Caster base or seismic base
 9. Switched & circuit protected vertical power strip(s)
- E. Slide-out rack enclosures shall be used in locations where single racks are located within millwork. The height and quantity shall be as indicated on drawings. Acceptable: Middle Atlantic series SRSR-2-X (X = # of RU applicable), or comparable by Atlas Sound, Lowell, or Stantron. Confirm and coordinate the total height available within millwork or cabinetry for total number of rack-units (RUs) to fit.
- F. Provide the accessories noted below for each slide-out rack. All accessories shall be from the same manufacturer as the rack enclosure.
1. Grounding stud in top rear of rack
 2. Full height rear mounting rails

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

3. Full height solid copper bus bar bonded to rack
 4. Forced air ventilation configured for equipment and heat loads
 5. Horizontal lacing bars (as required)
 6. Switched & circuit protected horizontal power management
- G. Wall mounted rack enclosures shall be used where indicated on drawings. The height and quantity shall be as indicated on drawings. The depth shall be a minimum of 22" with a black finish. Acceptable: Middle Atlantic series DWR, or comparable by Atlas Sound, Lowell, or Stantron.
- H. Provide the following accessories for each wall mounted rack. All accessories shall be from the same manufacturer as the rack enclosure.
1. Grounding stud in top rear of rack.
 2. Full height solid copper bus bar bonded to rack.
 3. Horizontal lacing bars (as required).
 4. Forced air ventilation configured for equipment and heat loads
 5. Switched & circuit protected horizontal power management

2.8 DISPLAY DEVICE MOUNTS

- A. Provide wall or ceiling mounts as required for all flat screen displays
- B. Wall mounts for flat screen displays shall provide vertical and horizontal position adjustment, and tilt and swivel adjustment. Acceptable: Chief Universal PRO Series with 15 degree tilt frame unless otherwise shown on drawings
- C. All video projector mounts and ceiling mounted flat panel mounts shall provide infinite projector adjustment up to 30° pitch, 30° roll and 360° yaw. Acceptable: Draper Accuset series mounts or comparable product by Chief, DaLite, or Premier unless otherwise shown on drawings.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before commencing the Audiovisual Integrator shall verify proper completion of the following work by others:
1. All low voltage cable containment and other infrastructure, including, but not limited to, the following:
 - a. Junction boxes and conduit installed per drawings and specifications.
 - b. Conduit stub-outs finished appropriately to prevent cable abrasion.
 - c. Pull boxes installed per NEC based on total number of turns and angles and on linear feet of conduit.
 - d. Pull strings installed in all conduits.
 - e. Cable tray installed and accessible as specified.
 2. All line voltage (120VAC) electrical power services, including verification of service levels, circuiting, grounding and other critical criteria.
 3. Fixed millwork and furniture systems.
- B. Confirm with the General Contractor and the Owner that all work performed by others that impacts the work of the Audiovisual Integrator and the Audiovisual System installation has been completed satisfactorily. Also confirm that any remaining work to be completed will not adversely affect the work of the Audiovisual Integrator of the Audiovisual System installation and/or performance.
- C. Provide written notification of any problems impacting the Audiovisual Integrator's work to Audiovisual Consultant. Failure of the Audiovisual Integrator to notify the Architect and/or Audiovisual Consultant in a timely manner of incomplete, inadequate, unfinished or otherwise unacceptable pre-requisite work by other trades in the base-building infrastructure will not relieve the Audiovisual Integrator of the responsibility to complete the work under this contract.

3.2 INSTALLATION

- A. General
1. All equipment and enclosures described in this Specification shall be installed plumb and square unless specifically detailed otherwise.
 2. All Audiovisual Equipment, except that designated as movable, portable or loose equipment, shall be secured and permanently attached to racks or other appropriate

rigid surface in a manner which will require the use of a tool (e.g.: screw driver, nut driver, etc.) for removal.

3. All Audiovisual Equipment installed in a manner or location that may visually impact the finished appearance or functionality of any part of the facility shall be coordinated and approved by the Architect and/or the Audiovisual Consultant prior to installation.
4. All Audiovisual Equipment supports shall meet or exceed the load requirements of the intended application with a minimum safety factor of five times the actual load.
5. Provide support structure and hardware with a SAE Grade 8 load rating (min.).
6. Secure all external hanging devices (speakers, cameras, etc.) with 3/16" diameter stainless steel cable tether to main wall/ceiling attachment point for secondary seismic support.

B. Equipment Racks

1. Electrical power distribution

- a. Provide labels on receptacles indicating branch panel and circuit number.
- b. See drawings for details of power raceway entering and mounting inside rack.
- c. Power loads on outlet strips should be equalized for even load distribution.
- d. Power cable attachment to outlet strips should be secured with remaining slack cabling bundled and secured leaving only enough to remove from outlet when serviced.

2. Provide a full height, technical ground bus bar in each vertical equipment rack, mount adjacent to the power raceway and electrically bonded to rack.

3. Install rack mounted equipment as indicated on the approved Audiovisual Shop Drawings, and make all connections within the racks before delivery to job site.

4. Provide vents or blank panels in unused equipment spaces.

C. Conduit and Raceways

1. Where cabling transitions from the building distribution infrastructure into equipment racks, provide strain relief and insulation as necessary to protect the cables.

2. Segregate cabling within conduits by signal and cable types.

3. Do not exceed 40% fill in conduits.

D. Cable Dressing

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

1. Cable dressing shall be considered from a maintenance standpoint. Suitable service loops shall be provided to allow removal of equipment, or to extend equipment that is mounted in the rack on rack slides. Where there is no rear access to the rack mounted equipment, this requirement shall be carefully addressed, and cabling shall be of sufficient length to enable the removal and replacement of any individual piece of equipment with all others in place.
2. It is expected that the Audiovisual Integrator will fabricate some portions of the systems off-site. Pre-wiring is acceptable provided that the pre-wired assembly can easily be transported to its final location without complication, and without risk of cable or equipment damage. Use of intermediate connections for inter-rack cables is not acceptable.
3. Equipment specified as "Future" shall be accommodated with cables installed and routed normally, with the un-terminated end being labeled, sealed in a plastic bag, and tagged appropriately.
4. The Audiovisual Integrator shall be responsible for determining the proper length of all cables whether manufactured on or off the job site.
5. The Audiovisual Integrator shall determine the desired method of securing cables. All of the following requirements must be met by the system:
6. Plastic cable ties are the preferred method of cable lacing. Lay-in systems are not acceptable except as applied to a horizontal cable tray.
7. Wires and cable shall be installed in a neat and orderly fashion, with like cable types following similar paths. Groups of cables shall be neatly combed and harnessed. Harnessed groups of cables shall be anchored at suitable intervals to reduce and relieve wire strain, especially strain on connections. Adequate service loops shall be provided at all cable endpoints.
8. Some rack-mounted equipment utilizes slide assemblies for front extension while in operation. For this type of mounting, additional, carefully dressed service loops on all cables shall be provided and installed with spring operated cable retractor assemblies to gather and recoil the service loop.
9. For all schemes of cable routing, no point in the path shall be subjected to a bend radius of less than eight (8) times the cable diameter, or minimum cable bend radius specified by the manufacturer.
10. Captive cables shall not be laced in such a manner as to prevent removal of the equipment to which they are captive.
11. Wires and cables shall be segregated according to signal type. In addition, audio cable shall be subdivided into three (3) classes: microphone level circuits, line level circuits, and speaker level circuits.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

12. Microphone level audio circuits shall be kept at least three inches (3") from any other type of parallel signal circuits and at least six inches (6") from any parallel AC power circuits.
13. Speaker level audio circuits shall be kept a minimum of three inches (3") from line level audio and AC power circuits. All other signal circuits shall be kept at least three inches (3") away from any parallel AC power circuits.
14. Where circuits of different types must cross, they shall do so at right angles and then return to the above required separations in as short a distance as possible.
15. Conductors, wires, and cables shall be continuous between termination points. Splices are not acceptable.
16. Cable tie and lacing installation shall be accomplished using hand tools specifically designed to apply proper tension to the cable tie, and to cut the end off flush with no protruding sharp edges. The Audiovisual Integrator's field supervisor shall spot check assemblies using cable ties both visually and by touch, thereby detecting any sharp edges of improperly cut cable ties. Install cable ties on all cable runs of two or more cables that are not supported by raceway, cable tray, or other means. Place cable ties approximately six inches (6") apart. Do not use more cable ties than are necessary for a neat installation. Cable ties shall not be applied with excessive force that may damage or deform sensitive and fragile cables.
17. Rack mounting rails shall not be used for cable lacing. Lacing bars and/or tie mount bases mounted to cabinets or console shall be provided where appropriate.

E. Labeling

1. Provide permanent, self-adhesive, engraved labels on the following (use 1/8 inch letters with contrasting core):
 - a. Front panel of rack mounted equipment to indicate system designation and/or functionality (e.g. Automixer 3, Press Feed, ADA, Speech Amp-Zone A, etc.).
 - b. Terminals (all types) to indicate system designation and/or functionality.
2. Provide permanent, self-adhesive labels on the back of rack mounted equipment to indicate system designation and/or functionality. Text shall be identical to equipment front panels noted above; however, labels for equipment back panels do not need to be rigid, engraved labels.
3. Identification "Vanity Panels" may be used and located at the top most panel location of each equipment rack to identify the Audiovisual Integrator as well as the Audiovisual Consultant.
4. Provide engraved text or graphics directly on the following (use 1/8 inch letters with contrasting paint fill):

- a. Receptacle plates and panels.
 - b. Rack panels.
 - 5. Provide heat-shrink labels on both ends of all installed cabling. Use self-adhesive wire numbers under clear heat-shrink, direct-printed heat-shrink or direct-printed self-adhesive wrap-around.
 - 6. Provide printed tags 6 inches from the male connector end on all portable cables.
 - 7. Do not indicate the Audiovisual Integrator's name on movable, portable or loose equipment, control panels or wall plates.
 - 8. Text, graphics and colors used on labels visible on finished surfaces visible to Audiovisual System end-users must be approved by Audiovisual Consultant before fabrication of labeling, plates or other labeled items.
- F. Wiring
- 1. Do not make any in-line wire splices unless specifically approved and noted.
 - 2. Use only wire pulling lubricants specified by the wire manufacturer.
 - 3. Provide grommets or chase nipples at cable entry where conduit is not installed.
 - 4. Provide cable anchors for any cable or cable bundle \geq 1 inch diameter. Do not use self sticking adhesive cable anchors.
 - 5. Provide a service loop for each cable that connects to equipment in racks or AV furniture.
 - 6. All cables to or from a movable lectern, cart, or desk or lectern shall be highly flexible cable, specifically designed by the manufacturer to be flexed repeatedly. Permanent installation type of cable is not acceptable for this application.
 - 7. Do not install HD-SDI cable or Category type cables with plastic wire ties. Use soft Velcro based cable ties located at random distances apart.
- G. Service and segregation of installed cables:
- 1. Refer to AV Drawing package for standard wiring termination and labeling details, standard cable segregation requirements and any special condition wiring details.
- H. Terminations
- 1. Use crimping tools recommended by the termination manufacturer. Use ratcheting crimp tools for spade lugs and Molex connector pins.
 - 2. Provide insulated spade lugs for screw terminals, two lugs per terminal maximum.
 - 3. Conductors in phoenix type connectors shall not be tinned.

4. Use properly sized spade lugs for cable gauge and screw size.
5. Terminate conductors with proper mating connectors.
6. Audio shield/drain wires shall not be connected to the connector body at any time.
7. Only one cable or set of wires should be installed into any single connector; do not loop cable in and out of a connector. Provide a terminal block to parallel any audio signal wiring.
8. Dual channel audio circuits using 5-pin XLR-type connectors should be made using a dual twisted pair type cable (Canare Star Quad, ProCo Ameriquad, or equivalent).
9. If multiple connection types are available on a given piece of equipment, the screw terminal type (including phoenix type) should be used as first choice, with XLR connections used as second choice, and other connectors as last choice.
10. Maintain proper polarity when wiring components and loudspeakers.
11. Provide vertically mounted 1/2 inch plywood or 1/8 inch thick blank panels for mounting terminal strips. Do not mount terminal strips on the bottom of racks. Do not connect field cabling directly to rack mounted equipment without approval.
12. When using BNC cable, use only true 75 Ohm BNC cable end connectors designed for the intended coaxial cable required. Apply connectors with a crimp die certified for use with the intended coaxial cable and BNC. Feed thrus must also strictly maintain 75 Ohms.
13. For HD-SDI, do not use any connectors or feed-thrus not specifically rated through 1.5 GHz digital bit rate.

3.3 QUALITY CONTROL

- A. Using the necessary test equipment, record and report to Audiovisual Consultant the results of all tests called for under this heading and as noted elsewhere.
- B. Correct or replace at no expense to the Owner any component that does not meet the manufacturer's specifications or indicated performance during any test.
- C. AV System Shop Tests:
 1. DC Resistance - Record the DC resistance of each rack chassis to the chassis of each rack mounted component. Verify resistance to be $<1\Omega$. If impedance for any piece of equipment is $>1\Omega$, troubleshoot and address the problem, then retest and record results.
 2. Audio Systems – For each system, set equipment to unity gain (microphone preamplifiers at 40dB gain) and test all system audio inputs to normally configured system electronic outputs (not speakers). Record frequency response noting test device and source used, source input levels and system output levels. Measured frequency re-

sponse shall meet or exceed manufacturer's specification for all individual units in the signal path. Measured signal level shall not exceed +/-1dB within the 80 Hz to 20 kHz bandwidth.

3. Audio Equipment – If the audio system tests reveal problems with the equipment or system wiring or installation, the Audiovisual Integrator shall troubleshoot all individual equipment inputs to equipment outputs until the problem is determined and resolved. Then retest system inputs to system outputs per paragraph above and record results.
4. Video Systems – For each room system, test all system inputs to normally configured system outputs with commercially pre-recorded, calibrated source media. Record video gain, response and noise noting test device and source used, source input levels and system output levels.
5. Video Equipment – If the video system tests reveal problems with the equipment or system wiring/installation, the Audiovisual Integrator shall troubleshoot all individual equipment inputs to equipment outputs until the problem is determined and resolved. Then retest system inputs to system outputs per paragraph above and record results.
6. RF Systems – Test each system input to system outputs for all equipment supplied under this contract. Record output level and slope of each RF video system under test conditions. Use the following signals and device settings:
 - a. Test signal of 1 V p-p, 75% color bars at input to modulators.
 - b. All modulators connected and set to 2dB below maximum output.
7. RF Equipment - If the RF system tests reveal problems with the equipment or system wiring/installation, the Audiovisual Integrator shall troubleshoot all individual equipment inputs to equipment outputs until the problem is determined and resolved. Then retest system inputs to system outputs per paragraph above and record results.
8. Digital / HDMI Equipment – Follow current manufacturer required testing procedures for specific digital-based equipment. Test and verify using both a laptop with DisplayPort or HDMI support and with an appropriate test generator such as a Sencore MP500 (www.sencore.com).

D. AV Systems Site Tests (at each AV equipment rack or group of racks) –

1. Test the following before connecting any AV equipment to 120VAC circuits -
 - a. Voltage between technical systems isolated ground and bonded non-isolated ground.
 - b. Voltages between hot/neutral, hot/ground and neutral/ground.
2. After all AV equipment is installed and connected to all 120VAC circuits and IG conductors, record the current on isolated ground conductors. Current in excess of

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

2mA in any IG conductor is unacceptable. Troubleshoot, resolve and retest until current is <2mA and record final results.

3. Test and record continuity of all cables and test for shorts between conductors and from conduits to conductors.
4. Record the impedance of all loudspeaker circuits.
5. Audio Systems absolute system polarity - Verify for all room input to room output audio paths as a part of systems tests, such that:
 - a. Positive acoustic pressure at the front of all microphones creates a positive voltage at the positive terminal of all line outputs and a positive acoustic pressure at all loudspeakers.
 - b. Positive voltage at the positive terminal of all line inputs creates a positive voltage at the positive terminal of all line outputs and a positive acoustic pressure at all loudspeakers.
6. Video Systems - Measure all video paths from all in-room sources to all in-room displays.
 - a. Record gain, response and noise of each NTSC video system with all video circuits terminated with $75 \Omega \pm 1 \Omega$ under test conditions. Use the settings noted for video equipment in Paragraph 3.3 C.
 - b. Signal loss through any signal path shall not exceed 3dB at 400 MHz.
 - (i) Video line drivers or peaking amplifiers shall be added to meet this criterion.
 - (ii) Video line drivers or peaking amplifiers shall be added only when signal loss due to cable length exceeds this criterion and cannot be corrected by selecting a lower loss cable.
 - (iii) Video line drivers or peaking amplifiers shall be adjusted to provide the least amount of correction to bring the signal within this criterion.
7. RF Cable - Measure all RF circuits under test conditions. Record output level and slope of each site installed RF cable. Measure each output using the following test signals:
 - a. +6dBmV RF input level (modulated color bars) at lowest and highest rated channel for system.
8. RF Systems - Each system input to system outputs at the closest and farthest tap on each cable run per floor. Record output level and slope of each RF video system under test conditions. Use the following signals and device settings:

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- a. Test signal of 1 V p-p, 75% color bars at input to modulators.
 - b. All modulators with gain controls connected and set to 3dB below maximum output.
9. Using a network analyzer with a fixed bridge, configured to 75 ohms, perform a S11 reflection measurement. Verify that each cable run maintains return loss, up to the clock frequency (1.485 GHz), greater than 20db. HD-SDI cable runs include all passive devices (e.g., connectors, feed-thrus, patches and patch cables). Identify each run link (including passive devices) and report values on shop drawings. Refer to SMPTE 292M, "Television-bit-serial Digital Interface for High-Definition Television Systems" SMPTE Journal., 107:849, Sept. 1998. See also "High Definition Cabling and Return Loss" in SMPTE Journal, January 2001.
10. Surround System Testing: Use appropriate microphone sensing equipment to test and configure surround sound levels, processor configuration and speaker positioning.
11. Digital / HDMI Testing – Follow current manufacturer required commissioning procedures for specific digital-based equipment used including (but not limited to): BlueRay™ or HDMI based DVD players, computing equipment with digital (DisplayPort, HDMI, etc.) outputs, digital based media switchers or processing equipment, distribution systems, encoders/decoders, transmitters / receivers & display equipment.
 - a. Test and verify resolutions using both a laptop with DisplayPort or HDMI support and with a laptop computer (using appropriate EDID information) and an appropriate test generator such as a Sencore MP500 (www.sencore.com), Extron VTG-400 or other appropriate testing equipment.
 - b. Configure digital media switcher and/or end devices with all appropriate device resolutions and matching equipment EDID tables. Resolutions to support include (but not be limited to): 800x600,, 1024x768, 1280x960, 1280x1024x 1360x768x 1280x768, 1280x800, 1440x900, 1600x1200, 1080p, 480p, 720p.

3.4 SUBSTANTIAL COMPLETION INSPECTION

- A. Prior to the Substantial Completion Inspection, the Audiovisual Integrator must verify that he is prepared for the checkout session by filling out a checklist for each room based on field verification. This completed checklist must be faxed or emailed to Audiovisual Consultant before checkout.
- B. During Substantial Completion Inspection the Audiovisual Integrator will verify quality of workmanship, labeling, proper power/signal grounding and overall equipment performance. Audiovisual Consultant will also verify audio setup and equalization and projector adjustments and will test all basic AV system operations. Audiovisual Consultant will prepare a punch list of items the Audiovisual Integrator must address before Final Checkout.

AUDIOVISUAL SYSTEMS EQUIPMENT AND INSTALLATION

- C. Substantial Completion Inspection will be scheduled after the documentation provided is approved.
- D. The Audiovisual Integrator's Project Manager or a senior technician who is familiar with the system and the control system programmer shall assist Audiovisual Consultant during the Substantial Completion Inspection. The tests will consist of a thorough test, set-up, adjustments and evaluation of all system performance and functionality. Include 16 hours on site for these tests.
- E. Following the Substantial Completion Inspection, Audiovisual Consultant will create a punch list of deficiencies that must be corrected by the Audiovisual Integrator within 7 calendar days. The Audiovisual Integrator must provide documentation indicating that the punch list deficiencies have been corrected no later than 7 calendar days after Substantial Completion Inspection.

3.5 FINAL ACCEPTANCE

- A. Prior to the Final Acceptance inspection, the Audiovisual Integrator must verify that he is prepared for the checkout session by again filling out the following checklist verifying that all systems are operational, as well as all punch list items from the Preliminary Checkout Session have been addressed and corrected. This completed checklist, one for each room, must be faxed or emailed to Audiovisual Consultant before checkout.

3.6 SYSTEM TESTING & OWNER ACCEPTANCE PROCEDURES

- A. Installation Testing and Adjustment
 1. The Audiovisual Integrator shall perform all tests and adjustments, shall furnish all test equipment necessary and perform all work required to verify performance of the system in accordance with these Specifications. When these initial tests and adjustments are completed, the Audiovisual Integrator shall notify the Owner that the systems are in compliance with the Specifications and are ready and complete for Acceptance Tests. The scope of this work includes, but is not limited to the following:
 2. The acceptance testing process shall reference this Specification for specific system requirements. There are two distinct procedures in the overall acceptance testing process outlined in this section, the Substantial Completion and the Final Acceptance. Often times, punch lists and incomplete elements will preclude considering the first review of the systems to be the final acceptance of the systems. Typically, final acceptance occurs only after all punch lists are completed and the owner has had some time to work the systems (after the systems are substantially complete), final documentation is given to the owner, and all training is performed.
 3. Additionally, the Owner shall retain the right to hire a consultant to test the technology systems. Delays to this consultant caused by incomplete work, improper wiring or inoperative equipment may result in consultant's time being billed to the Audiovisual Integrator at current consulting rates. In the event further adjustments are required, or defective equipment is to be repaired or replaced, tests shall be suspended or continued at the option of the Owner.

B. Substantial Completion

1. AV system substantial completion acceptance testing will consist of verifying overall system functionality, internal rack functions and wiring, external device functions and terminations, device operation, and completion of the Audiovisual Integrators testing procedures . The owner and Audiovisual Consultant will spot check the systems installed by the Audiovisual Integrator in accordance with the standards and practices delineated in the Specification documentation. The following requirements will be considered the basis for establishing substantial completion of the AV Systems.
2. Provide as-built equipment list.
3. Provide redlined design drawings, rack layouts, spreadsheets, and any other relevant and current documentation.
4. Integrator's Punch list: Provide an internally constructed punch list of known devices, cables, or systems that are incomplete. Audiovisual Consultant and the owner will construct another punch list after the substantial completion acceptance testing is performed that is based on the inspection and the Audiovisual Integrator's internally constructed list.
5. Test, adjust, balance, equalize and calibrate all equipment (including OFE) as required for optimum quality. Establish and tabulate normal settings for all level controls. These settings shall be recorded in the maintenance manual for reference.
6. Signal and Cable Testing and Documentation: Provide documentation on the point to point testing of all Fiber, CAT6, Audio, Video Inter-Room and Cabling, provided by the Audiovisual Integrator. The following will be tested for each of the respective category of cable and/or signal types:
 - a. Audio: continuity, polarity, sound check
 - b. Speaker: impedance, polarity, proper zoning, buzz & rattle (frequency sweep), sound check, signal quality.
 - c. Video: signal continuity, proper routing.
 - d. Control: continuity & confirmation of control capability between designated control locations and control processors.
 - e. Data/Cat6: Bandwidth testing
7. Quality of Installation: The areas around the racks and consoles should be free of debris and excess wires. Racks, consoles, and equipment should be free from dirt and grease.
8. Labeling and Terminations: All devices, including floor boxes, racks, termination panels, components, closets, panels, and cables should be terminated and labeled ac-

ording to the Integrator's engineered plans. Visual spot-checking of wire dressing and terminations will be performed during the Acceptance Testing procedure.

9. The Owner's technical staff shall be involved in recommending hardware and software system settings. The Integrator shall be responsible for providing the test equipment for the tests.

10. System Functional Completion Requirements:

- a. The owner is encouraged to bring in specific testing and operation scenarios that the Integrator may run through.
- b. The individual areas of the building and the corresponding audiovisual shall be tested for compliance with system functional descriptions described in the Technology Systems Performance Specification.

11. System Technical Performance Completion

- a. Individual sub-system components of the integrated AV Systems shall meet or exceed the technical performance defined in the Technology Systems Specification. Testing of the performance of these systems is the responsibility of the Integrator and shall include:
- b. During the Acceptance Testing procedure, each system will be spot checked to verify systems integration and inter-system operability. For instance, a laptop and/or microphone should be able to be plugged into an interface, and the audio routed to a desired speaker zone.
- c. The Audiovisual Integrator shall supply any necessary testing equipment for Acceptance Testing including a continuity checker, laptop computers with software, patch cables, and video test equipment. Also, video signal must be able to be routed, patched, and scaled or scan converted.

12. Architectural Integration Completion

- a. The Integrator shall be responsible for ensuring that the Audiovisual Systems are fully compatible with the architectural designs, equipment, fabrications and conditions described in the Audiovisual Systems Performance Specification.

C. Final Acceptance

1. The following items have been identified as items or systems that will not be required for substantial completion, but will be required for final acceptance of the systems:
 - a. Completion of the Substantial Completion checklist
 - b. Final Interface Design of control system screens (if applicable) and software provided to owner.

- c. Audio EQ and final levels
- d. Completion of all consultant and owner checklists
- e. All Training performed
- f. Final Software Configurations
- g. Review of maintenance agreement documentation, contact information, and procedures with the owner.
- h. Final As-Built Systems Documentation including spreadsheets, software, and drawings (in final CAD format)
- i. Final network device listing and IP address allocation and information.

3.7 TRAINING

- A. The Audiovisual Integrator shall provide sufficient training for the Owner's designated staff to become proficient in the general operation, routine maintenance, troubleshooting, and other basic system support functions. This training shall include up to 4 sessions of training totaling 12 hours by the Audiovisual Integrator or the equipment manufacturer. This training shall include a session or sessions that are focused on the Owner's designated technical staff and also a session or sessions that focus on the administrative and/or instructional staff. Training of end users will be provided by the Owner's technical staff.
- B. Times of day for training must be coordinated with Client availability including evening hours if requested for least disruption to Client day time operations.

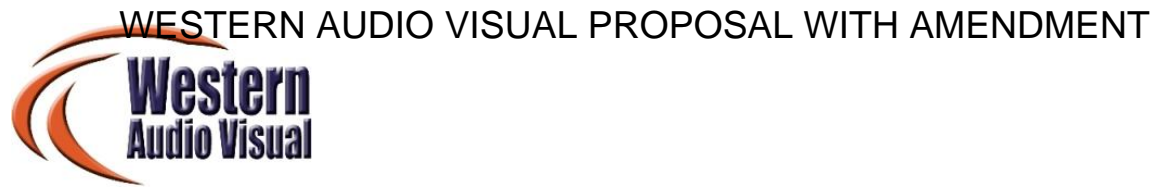
3.8 CONTRACT CLOSE-OUT

- A. Contract Closeout will be based on completion of Final Checkout, acceptance of Project Record Documents and Completion of Using Agency Training.
- B. Audiovisual Consultant has allowed 6 hours for Preliminary Checkout, 12 hours for Final Checkout, and 8 hours for Owner Training. If the Consultant is unable to perform his duties work within this allocation due to errors, omissions or inaccuracies by the Audiovisual Integrator, the Owner reserves the right to hold the Audiovisual Integrator responsible for additional costs incurred by the Owner for additional review by the Consultant.

3.9 APPENDIX A – AV SYSTEM FUNCTIONAL DIAGRAMS

- A. Refer to the Audiovisual Systems drawing package for functional system diagrams and additional system configuration specifications.
- B. Use the architectural audiovisual infrastructure constructions plans and specifications for reference (obtainable through Construction Manager or Architect).

EXHIBIT B



March 3, 2015

Gabriel Linares
City of Brea
1 Civic Center Circle
Brea, CA 92821

RE: Audiovisual Systems Equipment for Council Chambers and Control Room, Revision B

Dear Mr. Linares,

Per our meeting held on February 20th, please find our updated Bid Response with the following discussed changes:

- Addition of (12) Ergotron Desk Arm Mounts for the individual preview monitors at the Dais
- Inclusion of a 7" Touch Panel at the Mayor's position at the Dais, to replace the 4.3" originally specified.

Statement of Compliance

The Price includes all Engineering, Project Management, Installation, Programming, Equipment, Training and Post-Installation Support, as well as the inclusion of all applicable Taxes and Freight Charges for the following specified systems:

- Council Chambers
- Broadcast Control Room

Audiovisual Systems Base Bid Price

Western Audio Visual's Price to furnish and install the Audiovisual Systems is **Three Hundred Forty-Seven Thousand, Two Hundred Two Dollars and Ninety-Three Cents (\$347,202.93)**, including all taxes, freight charges and Bond Costs, as detailed in the Pricing Summary.

This proposal is valid for 60 Days.

Sub-Contractor

Per the Bid Specifications, Western Audio Visual will utilize Front Side Solutions for the Control System Programming.



Proposed Terms

Monthly Progress Payments based on work performed and equipment ordered.

Warranty and Preventative Maintenance

The AV Systems are warranted against all defects of materials and workmanship, as a system, as well as individual components, for period of **Two (2) Years** after date of acceptance, or first used (whichever comes first). If individual manufacturers, warranty their equipment for a longer period, the manufacturer's warranty will apply.

Optional Extended Warranty and Preventative Maintenance (Years 2-5)

- Per Year Price of \$3,074
- Discounted Price if Multiple Years are Purchased of \$2,612.90

Western Audio Visual specializes in the design, sale, installation and maintenance of multimedia display systems. Western Audio Visual and its Team have been providing turnkey audiovisual system solutions to the corporate, industrial, government and educational marketplace for 20 years. Western Audio Visual is authorized to provide and install all components specified in this RFP.

Thank you for your time and consideration and please feel free to call me if you have any questions or need further information at (714) 693-7800.

Sincerely,

Steve M. Hollingsworth
Western Audio Visual



Project Pricing Summary

PROJECT NAME: City of Brea													DATE: 3/3/2015		
ROOM	EQUIPMENT	ENGINEERING, DRAFTING & DSP	PROJECT MANAGEMENT	AV INSTALL	TRAINING	SUB-CONTRACT TOTALS (Front Side Solutions)	PREVENTATIVE MAINTENANCE (2-Year)	G&A	ELECTRONIC WASTE RECYCLING FEE	SHIPPING AND HANDLING	BOND	PRE-TAX TOTAL	TAX	TOTAL	
Council Chambers	\$ 71,772.00	\$ 5,340.00	\$ 2,784.00	\$ 13,456.00	\$ 464.00	\$ 25,197.92	\$ 1,044.00	\$ 1,076.58	\$ 56.00	\$ 3,757.21	\$ 3,041.54	\$ 127,989.25	\$ 6,042.34	\$ 134,031.59	
Broadcast Control Room	\$ 137,404.00	\$ 7,476.00	\$ 2,784.00	\$ 13,920.00	\$ 464.00	\$ 25,197.92	\$ 2,030.00	\$ 2,061.06	\$ 31.00	\$ 7,193.98	\$ 3,041.54	\$ 201,603.50	\$ 11,567.84	\$ 213,171.34	
Total	\$ 209,176.00	\$ 12,816.00	\$ 5,568.00	\$ 27,376.00	\$ 928.00	\$ 50,395.84	\$ 3,074.00	\$ 3,137.64	\$ 87.00	\$ 10,951.20	\$ 6,083.08	\$ 329,592.76	\$ 17,610.18	\$ 347,202.93	



City of Brea

Submitted by:

Western Audio Visual

Date: 3/3/2015
Revision: B

Item	Qty	Manuf	Model	Description	Unit Price	Ext Price
Council Chambers						
1	2	Panasonic	PT-DZ870ULK	8500 Lumen DLP Projector, NO LENS	13,114.00	26,228.00
2	2	Panasonic	ET-DLE150	1.3 - 1.9 :1 Zoom Lens	1,930.00	3,860.00
3	2	Chief	VCMU	Heavy Duty Universal Projector Mount	266.00	532.00
4	2	Chief	CMA110	8" (203 mm) Ceiling Plate	39.00	78.00
5	1	Samsung	DB55D	55IN LED 1920X1080 5000:1 VGA DVI-D HDMI 8MS 3YR WARR TAA	979.00	979.00
6	1	Samsung	DB40D	40IN LED 5000:1 1920X1080 VGA DVI-D HDMI 8MS 3YR WARR TAA	546.00	546.00
7	2	Premier	P4263T	Tilting Low-Profile Mount for Flat-Panels up to 175 lb	58.00	116.00
8	36	Tannoy	8001 4230	CVS4 Ceiling Speaker	77.00	2,772.00
9	4	Vaddio	999-9917-000	RoboSHOT 30 QCCU System	4,701.00	18,804.00
10	1	Vaddio	999-5700-000	ProductionVIEW Precision Camera Controller	1,677.00	1,677.00
11	12	Viewsonic	VX2252MH	22IN LCD FULL HD 50M:1 VX2252MH DVI HDMI SPKR	156.00	1,872.00
12	12	Ergotron	45-241-026	LX Desk Mount LCD Arm	132.00	1,584.00
13	13	Shure	MX415/C	15" Shock-Mounted Gooseneck, Cardioid, includes surface mount preamplifier	219.00	2,847.00
14	1	Shure	MX412D/C	12" Desktop Gooseneck Condenser Microphone	221.00	221.00
15	2	Shure	QLXD124/85	Bodypack and Vocal Combo Wireless System	1,209.00	2,418.00
16	1	Shure	UA844SWB	Wideband UHF Four-Way Active Antenna Splitter and Power Distribution System	367.00	367.00
17	2	Shure	UA830USTV	In-Line Antenna Amplifier for Remote-Mounting	125.00	250.00
18	2	Shure	SM58-CN	Cardioid Dynamic, includes 25' XLR to XLR Cable	92.00	184.00
19	1	Atlona	AT-HDDA-8	1 x 8 HDMI Distribution Amplifier	492.00	492.00
20	2	Atlona	AT-HDDA-4	1 x 4 HDMI Distribution Amplifier	271.00	542.00
21	2	Atlona	AT-HDDA-2	1 x 2 HDMI Distribution Amplifier	189.00	378.00
22	2	AMX	FG560-01-S	6 Module Connection Ports	184.00	368.00
23	1	AMX	MISC.	Hydraport Accessories	499.00	499.00
24	1	ELO	E382790	22" LED LCD Touchscreen Monitor - 16:9 - 5 ms	466.00	466.00
25	2	Icron	RG2212	USB 2.0 Dual port Cat 5e 100 meter extender	402.00	804.00
26	1	Western AV	LOT	Miscellaneous Materials, Cabling and Connectors	2,888.00	2,888.00
System 1 Equipment Sub-Total:						71,772.00



City of Brea

Submitted by:

Western Audio Visual

Date: 3/3/2015
Revision: B

Item	Qty	Manuf	Model	Description	Unit Price	Ext Price
Broadcast Control Room						
1	1	Biamp	Tesira SERVER-IO AVB	Tesira DSP server with up to 48 channels of I/O, 1 AVB-1 network card and 1 DSP-2 card	3,859.00	3,859.00
2	4	Biamp	Tesira SIC-4	Tesira 4 channel mic/line input card	186.00	744.00
3	4	Biamp	Tesira SOC-4	Tesira 4 channel mic/line output card	164.00	656.00
4	1	Biamp	Tesira DSP-2	Tesira DSP card with two DSPs	440.00	440.00
5	1	Biamp	TesiraFORTÉ AVB CI	TesiraFORTÉ DSP fixed I/O server with 12 analog inputs, 8 analog outputs, 8 channels configurable USB audio, 128 x 128 channels of AVB, and Sona™ Acoustic Echo Cancellation (AEC) technology	1,942.00	1,942.00
6	1	Biamp	TesiraFORTÉ AVB TI	TesiraFORTÉ DSP fixed I/O server with 12 analog inputs, 8 analog outputs, 8 channels configurable USB audio, 128 x 128 channels of AVB, Sona™ Acoustic Echo Cancellation (AEC) technology and standard telephone interface	2,099.00	2,099.00
7	1	Biamp	NG GS724T AVB V4	Netgear@24-port Gigabit Smart Switch with AVB software loaded, 2 SFP GBIC fiber slots, and rack mount kit – V4	734.00	734.00
8	1	Biamp	Tesira EX-LOGIC	Tesira PoE logic expander with 16 logic GPIO	330.00	330.00
9	1	Biamp	PH POE36U-1AT-R	PHIHONG Gigabit PoE+ Injector	76.00	76.00
10	1	Listen Technologies	LS-03-072-01	Performance FM System	1,058.00	1,058.00
11	6	Listen Technologies	LR-400	Portable Display FM Receiver	107.00	642.00
12	10	Listen Technologies	LA-166	Neck Loop	38.00	380.00
13	6	Listen Technologies	LA-164	Ear Speaker	10.00	60.00
14	1	Listen Technologies	LA-311-01	16-Unit Portable FM Product Charging/Carrying Case	401.00	401.00
15	10	Listen Technologies	LA-362	Rechargeable AA NiMH Batteries (2)	7.00	70.00
16	1	QSC	CX204V	4 channels, 200 watts/ch at 70V Power Amplifier	1,010.00	1,010.00
17	1	Yamaha	01V96i	40-channel Stereo 24-bit/96kHz Digital Recording Console with USB audio streaming	2,519.00	2,519.00
18	1	Yamaha	DANTE-MY16-AUD	Audinate 16 Channel Dante Network In Out Card	1,036.00	1,036.00
19	1	JBL	LSR4326P?PAK	LSR4326P (x2) and LSR4300 Accessory Kit (x1).	844.00	844.00
20	1	Presonus	HP4	4-channel Headphone Monitor with 150 mWatts at 51 Ohms	137.00	137.00
21	3	Shure	SRH840	Professional Monitoring Headphone	147.00	441.00
22	4	SurgeX	SX-2120	2RU, 15 Outlet, 20A, 2 Switched Banks of 6	532.00	2,128.00
23	1	Middle Atlantic	SRSR-4-12	12-Space Slide Out Rack	413.00	413.00
24	1	Middle Atlantic	MISC.	Miscellaneous Rack Materials	1,969.00	1,969.00
25	2	ViewZ	VZ-097RCR-D	Dual 9.7" Commercial Grade Rack-Mount LED Backlit IPS CCTV Monitor (Black)	741.00	1,482.00
26	1	AMX	FG1060-32	Enova@ DGX 32 Enclosure	9,398.00	9,398.00
27	3	AMX	FG1010-310	DXLink™ Multi-Format Transmitter Module	683.00	2,049.00
28	9	AMX	FG1010-500	DXLink™ HDMI Receiver Module	814.00	7,326.00
29	3	AMX	FG2275-112	TPI-PRO-DVI-2, 2 Multi-Format Inputs	4,200.00	12,600.00
30	4	AMX	FG1058-540	Enova@ DGX HDMI Input Board	993.00	3,972.00
31	1	AMX	FG1058-600	Enova@ DGX DVI Input Board	993.00	993.00
32	2	AMX	FG1058-570	Enova@ DGX DXLink™ Twisted Pair Input Board	1,313.00	2,626.00
33	5	AMX	FG1058-550	Enova@ DGX HDMI Output Board	1,313.00	6,565.00
34	3	AMX	FG1058-580	Enova@ DGX DXLink™ Twisted Pair Output Board	1,313.00	3,939.00
35	2	AMX	FG1058-705	Enova@ DGX Audio Insert / Extract Board	788.00	1,576.00
36	8	AMX	FG2265-07	MST-431 4.3" Modero S@ Series Tabletop Touch Panel	680.00	5,440.00
37	1	AMX	FG2265-06	MST-701 7" Modero S Series Table Top Touch Panel	1,048.00	1,048.00
38	9	AMX	FG423-83	PoE Injector	63.00	567.00
39	1	AMX	FG2106-04	NetLinx@ NX Integrated Controller	2,415.00	2,415.00



City of Brea

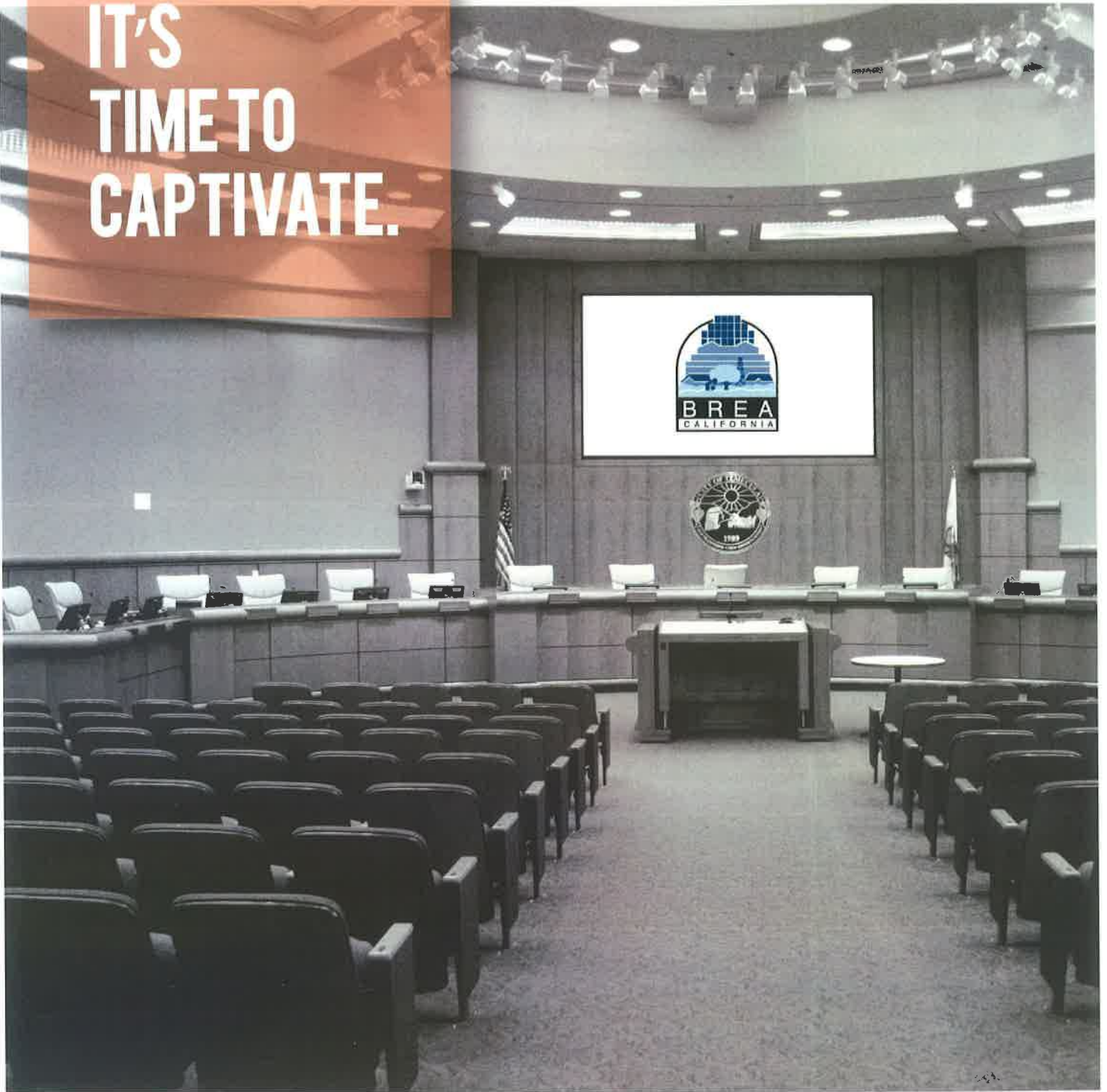
Submitted by:

Western Audio Visual

Date: 3/3/2015
Revision: B

Item	Qty	Manuf	Model	Description	Unit Price	Ext Price
40	4	AMX	FG423-46	13.5 VDC, 4.4 A Power Supply	79.00	316.00
41	1	ELO	E382790	22" LED LCD Touchscreen Monitor - 16:9 - 5 ms	466.00	466.00
42	1	Kramer	VM-80V	1:8 Composite/SDI/s-Video Distribution Amplifier	217.00	217.00
43	1	Kramer	VM-1610	1:10 Balanced Stereo Audio Distribution Amplifier	488.00	488.00
44	2	Blackmagic Design	Smartview Duo	Dual 8 inch 3 RU SDI/HD-SDI/3G-SDI monitoring with central software control	494.00	988.00
45	1	Blackmagic Design	SmartScope Duo 4K	Dual 8" 3 RU SDI/HD-SDI/3G-SDI/6G-SDI monitoring with built in scopes for technical waveform monitoring	993.00	993.00
46	1	Blackmagic Design	CONVMSYNC	Sync Generator	295.00	295.00
47	2	Blackmagic Design	CONVMASA4K	Mini Converter SDI to Analog 4K	295.00	590.00
48	2	Blackmagic Design	CONVMBSH4K	Mini Converter 6G-SDI to HDMI 4K	295.00	590.00
49	2	Cables to Go	40714	PRO HDMI TO VGA AND AUDIO ADAPTER CONVERTER	48.00	96.00
50	1	Epiphan	VGADVI Broadcaster	Audio and Video Streaming Device	1,680.00	1,680.00
51	1	AJA	Ki Pro Rack	Rackmount file-based recorder/player	3,496.00	3,496.00
52	1	AJA	KI-STOR750-USB	750GB KiStor USB3 Storage Drive	436.00	436.00
53	1	Denon	DN700R	Network Audio Recorder	839.00	839.00
54	2	TV One	C2-2855	CORIO2 Universal Scaler	2,385.00	4,770.00
55	1	Broadcast Pix	Granite	Production Switcher	22,575.00	22,575.00
56	1	Broadcast Pix	CP500	500 Control Panel	2,972.00	2,972.00
57	4	Viewsonic	VX2252MH	22" LED LCD Monitor - 2 ms	156.00	624.00
58	1	Blackbox	JPM816A	Patch Panel, RJ45	536.00	536.00
59	2	Bittree	B64T-2WTHD	SDI Patch Panel	1,045.00	2,090.00
60	2	Bittree	B96DC-HNOBT/E3-M2OU12B	Patch Panel, Audio Stereo	1,045.00	2,090.00
61	12	Bittree	VPCM2400-75	Video Patchcord, 24" Mini WECO, Black	16.00	192.00
62	20	Bittree	BPC2400-110	TT Patchcord, 24", Black	13.00	260.00
63	1	Crestron	AM-100	AirMedia™ Presentation Gateway	840.00	840.00
64	1	Sony	BDPS5200	Streaming 3D Wi-Fi Built-In Blu-ray Player - Black	93.00	93.00
65	1	Western AV	LOT	Miscellaneous Materials, Cabling and Connectors	2,888.00	2,888.00
				System 2 Equipment Sub-Total:		137,404.00
				TOTAL EQUIPMENT COST:		209,176.00

IT'S
TIME TO
CAPTIVATE.



Audiovisual Systems Equipment
for Council Chambers and Control Room





**Audiovisual Systems
Equipment for Council
Chambers and Control
Room**

Prepared by:



1592 N. Batavia Street
Suite 2
Orange, CA 92867
(714) 637-7272 ph
(714) 637-7330 fax
www.wav1.com

1	Statement of Compliance
2	Pricing Template
3	Client Recap
4	Equipment List
5	Company Profile
6	Key Personnel
7	Systems Approach
8	Schedule of Hourly Rates



January 23, 2015

Gabriel Linares
City of Brea
1 Civic Center Circle
Brea, CA 92821

RE: Audiovisual Systems Equipment for Council Chambers and Control Room

Dear Mr. Linares,

Thank you for the opportunity to submit our Bid Response for the above referenced project based on the Invitation for Bid Documents provided, inclusive of Addendums 1 and 2.

Statement of Compliance

The Price includes all Engineering, Project Management, Installation, Programming, Equipment, Training and Post-Installation Support, as well as the inclusion of all applicable Taxes and Freight Charges for the following specified systems:

- Council Chambers
- Broadcast Control Room

Audiovisual Systems Base Bid Price

Western Audio Visual's Price to furnish and install the Audiovisual Systems is **Three Hundred Forty-Four Thousand, Nine Hundred Fifty-Five Dollars and Thirty-Nine Cents (\$344,955.39)**, including all taxes, freight charges and Bond Costs, as detailed in the Pricing Summary.

This proposal is valid for 60 Days.

Sub-Contractor

Per the Bid Specifications, Western Audio Visual will utilize Front Side Solutions for the Control System Programming.



Proposed Terms

Monthly Progress Payments based on work performed and equipment ordered.

Warranty and Preventative Maintenance

The AV Systems are warranted against all defects of materials and workmanship, as a system, as well as individual components, for period of **Two (2) Years** after date of acceptance, or first used (whichever comes first). If individual manufacturers, warranty their equipment for a longer period, the manufacturer's warranty will apply.

Optional Extended Warranty and Preventative Maintenance (Years 2-5)

- Per Year Price of \$3,074
- Discounted Price if Multiple Years are Purchased of \$2,612.90

Western Audio Visual specializes in the design, sale, installation and maintenance of multimedia display systems. Western Audio Visual and its Team have been providing turnkey audiovisual system solutions to the corporate, industrial, government and educational marketplace for 20 years. Western Audio Visual is authorized to provide and install all components specified in this RFP.

Thank you for your time and consideration and please feel free to call me if you have any questions or need further information at (714) 693-7800.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Steve M. Hollingsworth', is written over a light blue horizontal line.

Steve M. Hollingsworth
Western Audio Visual

**AUDIOVISUAL SYSTEMS ITEMIZED PRICING SHEET
CITY OF BREa COUNCIL CHAMBERS RENOVATION**

11/20/2014

Room Description/Name	Room #	Arch. Dwg # (Ref.)	System Dwg # (Ref.)	Units	Total Equip Cost	Total Installation Labor	Extended
Council Chambers	-	AV401	AV501	1	\$ 70,188.00	\$ 49,338.74	\$ 119,526.74
Broadcast Control Room	-	AV401	AV501	1	\$ 137,036.00	\$ 53,927.46	\$ 190,963.46
Bond							\$ 6,083.08
Shipping		-	-	1			\$ 10,849.25
Sales Tax		-	-	1			\$ 17,532.86

TOTAL \$ 344,955.39



Project Pricing Summary

PROJECT NAME: City of Brea												DATE:	1/23/2015	
ROOM	EQUIPMENT	ENGINEERING, DRAFTING & DSP	PROJECT MANAGEMENT	AV INSTALL	TRAINING	SUB-CONTRACT TOTALS (Front Side Solutions)	PREVENTATIVE MAINTENANCE (2-Year)	G&A	ELECTRONIC WASTE RECYCLING FEE	SHIPPING AND HANDLING	BOND	PRE-TAX TOTAL	TAX	TOTAL
Council Chambers	\$ 70,188.00	\$ 5,340.00	\$ 2,784.00	\$ 13,456.00	\$ 464.00	\$ 25,197.92	\$ 1,044.00	\$ 1,052.82	\$ 56.00	\$ 3,674.52	\$ 3,041.54	\$ 126,298.80	\$ 5,909.00	\$ 132,207.80
Broadcast Control Room	\$ 137,096.00	\$ 7,475.00	\$ 2,784.00	\$ 13,920.00	\$ 464.00	\$ 25,197.92	\$ 2,030.00	\$ 2,055.54	\$ 31.00	\$ 7,174.73	\$ 3,041.54	\$ 201,210.73	\$ 11,536.86	\$ 212,747.59
Total	\$ 207,284.00	\$ 12,815.00	\$ 5,568.00	\$ 27,376.00	\$ 928.00	\$ 50,395.84	\$ 3,074.00	\$ 3,108.36	\$ 87.00	\$ 10,849.25	\$ 6,083.08	\$ 327,509.53	\$ 17,445.86	\$ 344,955.39



City of Brea

Submitted by:

Western Audio Visual

Date: 1/23/2015
Revision: A

Item	Qty	Manuf	Model	Description	Unit Price	Ext Price
Broadcast Control Room						
1	1	Biamp	Tesira SERVER-IO AVB	Tesira DSP server with up to 48 channels of I/O, 1 AVB-1 network card and 1 DSP-2 card	3,859.00	3,859.00
2	4	Biamp	Tesira SIC-4	Tesira 4 channel mic/line input card	186.00	744.00
3	4	Biamp	Tesira SOC-4	Tesira 4 channel mic/line output card	164.00	656.00
4	1	Biamp	Tesira DSP-2	Tesira DSP card with two DSPs	440.00	440.00
5	1	Biamp	TesiraFORTÉ AVB CI	TesiraFORTÉ DSP fixed I/O server with 12 analog inputs, 8 analog outputs, 8 channels configurable USB audio, 128 x 128 channels of AVB, and Sona™ Acoustic Echo Cancellation (AEC) technology	1,942.00	1,942.00
6	1	Biamp	TesiraFORTÉ AVB TI	TesiraFORTÉ DSP fixed I/O server with 12 analog inputs, 8 analog outputs, 8 channels configurable USB audio, 128 x 128 channels of AVB, Sona™ Acoustic Echo Cancellation (AEC) technology and standard telephone interface	2,099.00	2,099.00
7	1	Biamp	NG GS724T AVB V4	Netgear®24-port Gigabit Smart Switch with AVB software loaded, 2 SFP GBIC fiber slots, and rack mount kit – V4	734.00	734.00
8	1	Biamp	Tesira EX-LOGIC	Tesira PoE logic expander with 16 logic GPIO	330.00	330.00
9	1	Biamp	PH POE36U-1AT-R	PHIHONG Gigabit PoE+ Injector	76.00	76.00
10	1	Listen Technologies	LS-03-072-01	Performance FM System	1,058.00	1,058.00
11	6	Listen Technologies	LR-400	Portable Display FM Receiver	107.00	642.00
12	10	Listen Technologies	LA-166	Neck Loop	38.00	380.00
13	6	Listen Technologies	LA-164	Ear Speaker	10.00	60.00
14	1	Listen Technologies	LA-311-01	16-Unit Portable FM Product Charging/Carrying Case	401.00	401.00
15	10	Listen Technologies	LA-362	Rechargeable AA NiMH Batteries (2)	7.00	70.00
16	1	QSC	CX204V	4 channels, 200 watts/ch at 70V Power Amplifier	1,010.00	1,010.00
17	1	Yamaha	01V96i	40-channel Stereo 24-bit/96kHz Digital Recording Console with USB audio streaming	2,519.00	2,519.00
18	1	Yamaha	DANTE-MY16-AUD	Audinate 16 Channel Dante Network In Out Card	1,036.00	1,036.00
19	1	JBL	LSR4326P?PAK	LSR4326P (x2) and LSR4300 Accessory Kit (x1).	844.00	844.00
20	1	Presonus	HP4	4-channel Headphone Monitor with 150 mWatts at 51 Ohms	137.00	137.00
21	3	Shure	SRH840	Professional Monitoring Headphone	147.00	441.00
22	4	SurgeX	SX-2120	2RU, 15 Outlet, 20A, 2 Switched Banks of 6	532.00	2,128.00
23	1	Middle Atlantic	SRSR-4-12	12-Space Slide Out Rack	413.00	413.00
24	1	Middle Atlantic	MISC.	Miscellaneous Rack Materials	1,969.00	1,969.00
25	2	ViewZ	VZ-097RCR-D	Dual 9.7" Commercial Grade Rack-Mount LED Backlit IPS CCTV Monitor (Black)	741.00	1,482.00
26	1	AMX	FG1060-32	Enova® DGX 32 Enclosure	9,398.00	9,398.00
27	3	AMX	FG1010-310	DXLink™ Multi-Format Transmitter Module	683.00	2,049.00
28	9	AMX	FG1010-500	DXLink™ HDMI Receiver Module	814.00	7,326.00
29	3	AMX	FG2275-112	TPI-PRO-DVI-2, 2 Multi-Format Inputs	4,200.00	12,600.00
30	4	AMX	FG1058-540	Enova® DGX HDMI Input Board	993.00	3,972.00
31	1	AMX	FG1058-600	Enova® DGX DVI Input Board	993.00	993.00
32	2	AMX	FG1058-570	Enova® DGX DXLink™ Twisted Pair Input Board	1,313.00	2,626.00
33	5	AMX	FG1058-550	Enova® DGX HDMI Output Board	1,313.00	6,565.00
34	3	AMX	FG1058-580	Enova® DGX DXLink™ Twisted Pair Output Board	1,313.00	3,939.00
35	2	AMX	FG1058-705	Enova® DGX Audio Insert / Extract Board	788.00	1,576.00
36	9	AMX	FG2265-07	MST-431 4.3" Modero S® Series Tabletop Touch Panel	680.00	6,120.00
37	9	AMX	FG423-83	PoE Injector	63.00	567.00
38	1	AMX	FG2106-04	NetLinx® NX Integrated Controller	2,415.00	2,415.00
39	4	AMX	FG423-46	13.5 VDC, 4.4 A Power Supply	79.00	316.00
40	1	ELO	E382790	22" LED LCD Touchscreen Monitor - 16:9 - 5 ms	466.00	466.00



City of Brea

Submitted by:

Western Audio Visual

Date: 1/23/2015
Revision: A

Item	Qty	Manuf	Model	Description	Unit Price	Ext Price
41	1	Kramer	VM-80V	1:8 Composite/SDI/s-Video Distribution Amplifier	217.00	217.00
42	1	Kramer	VM-1610	1:10 Balanced Stereo Audio Distribution Amplifier	488.00	488.00
43	2	Blackmagic Design	Smartview Duo	Dual 8 inch 3 RU SDI/HD-SDI/3G-SDI monitoring with central software control	494.00	988.00
44	1	Blackmagic Design	SmartScope Duo 4K	Dual 8" 3 RU SDI/HD-SDI/3G-SDI/6G-SDI monitoring with built in scopes for technical waveform monitoring	993.00	993.00
45	1	Blackmagic Design	CONVMSYNC	Sync Generator	295.00	295.00
46	2	Blackmagic Design	CONVMASA4K	Mini Converter SDI to Analog 4K	295.00	590.00
47	2	Blackmagic Design	CONVMBSH4K	Mini Converter 6G-SDI to HDMI 4K	295.00	590.00
48	2	Cables to Go	40714	PRO HDMI TO VGA AND AUDIO ADAPTER CONVERTER	48.00	96.00
49	1	Epiphan	VGADVI Broadcaster	Audio and Video Streaming Device	1,680.00	1,680.00
50	1	AJA	Ki Pro Rack	Rackmount file-based recorder/player	3,496.00	3,496.00
51	1	AJA	KI-STOR750-USB	750GB KiStor USB3 Storage Drive	436.00	436.00
52	1	Denon	DN700R	Network Audio Recorder	839.00	839.00
53	2	TV One	C2-2855	CORIO2 Universal Scaler	2,385.00	4,770.00
54	1	Broadcast Pix	Granite	Production Switcher	22,575.00	22,575.00
55	1	Broadcast Pix	CP500	500 Control Panel	2,972.00	2,972.00
56	4	Viewsonic	VX2252MH	22" LED LCD Monitor - 2 ms	156.00	624.00
57	1	Blackbox	JPM816A	Patch Panel, RJ45	536.00	536.00
58	2	Bittree	B64T-2WTHD	SDI Patch Panel	1,045.00	2,090.00
59	2	Bittree	B96DC-HNOBT/E3-M2OU12B	Patch Panel, Audio Stereo	1,045.00	2,090.00
60	12	Bittree	VPCM2400-75	Video Patchcord, 24" Mini WECO, Black	16.00	192.00
61	20	Bittree	BPC2400-110	TT Patchcord, 24", Black	13.00	260.00
62	1	Crestron	AM-100	AirMedia™ Presentation Gateway	840.00	840.00
63	1	Sony	BDPS5200	Streaming 3D Wi-Fi Built-In Blu-ray Player - Black	93.00	93.00
64	1	Western AV	LOT	Miscellaneous Materials, Cabling and Connectors	2,888.00	2,888.00
System 2 Equipment Sub-Total:						137,036.00
TOTAL EQUIPMENT COST:						207,224.00



City of Brea

Submitted by:

Western Audio Visual

Date: 1/23/2015
Revision: A

Item	Qty	Manuf	Model	Description	Unit Price	Ext Price
Council Chambers						
1	2	Panasonic	PT-DZ870ULK	8500 Lumen DLP Projector, NO LENS	13,114.00	26,228.00
2	2	Panasonic	ET-DLE150	1.3 - 1.9 :1 Zoom Lens	1,930.00	3,860.00
3	2	Chief	VCMU	Heavy Duty Universal Projector Mount	266.00	532.00
4	2	Chief	CMA110	8" (203 mm) Ceiling Plate	39.00	78.00
5	1	Samsung	DB55D	55IN LED 1920X1080 5000:1 VGA DVI-D HDMI 8MS 3YR WARR TAA	979.00	979.00
6	1	Samsung	DB40D	40IN LED 5000:1 1920X1080 VGA DVI-D HDMI 8MS 3YR WARR TAA	546.00	546.00
7	2	Premier	P4263T	Tilting Low-Profile Mount for Flat-Panels up to 175 lb	58.00	116.00
8	36	Tannoy	8001 4230	CVS4 Ceiling Speaker	77.00	2,772.00
9	4	Vaddio	999-9917-000	RoboSHOT 30 QCCU System	4,701.00	18,804.00
10	1	Vaddio	999-5700-000	ProductionVIEW Precision Camera Controller	1,677.00	1,677.00
11	12	Viewsonic	VX2252MH	22IN LCD FULL HD 50M:1 VX2252MH DVI HDMI SPKR	156.00	1,872.00
12	13	Shure	MX415/C	15" Shock-Mounted Gooseneck, Cardioid, includes surface mount preamplifier	219.00	2,847.00
13	1	Shure	MX412D/C	12" Desktop Gooseneck Condenser Microphone	221.00	221.00
14	2	Shure	QLXD124/85	Bodypack and Vocal Combo Wireless System	1,209.00	2,418.00
15	1	Shure	UA844SWB	Wideband UHF Four-Way Active Antenna Splitter and Power Distribution System	367.00	367.00
16	2	Shure	UA830USTV	In-Line Antenna Amplifier for Remote-Mounting	125.00	250.00
17	2	Shure	SM58-CN	Cardioid Dynamic, includes 25' XLR to XLR Cable	92.00	184.00
18	1	Atlona	AT-HDDA-8	1 x 8 HDMI Distribution Amplifier	492.00	492.00
19	2	Atlona	AT-HDDA-4	1 x 4 HDMI Distribution Amplifier	271.00	542.00
20	2	Atlona	AT-HDDA-2	1 x 2 HDMI Distribution Amplifier	189.00	378.00
21	2	AMX	FG560-01-S	6 Module Connection Ports	184.00	368.00
22	1	AMX	MISC.	Hydraport Accessories	499.00	499.00
23	1	ELO	E382790	22" LED LCD Touchscreen Monitor - 16:9 - 5 ms	466.00	466.00
24	2	Icron	RG2212	USB 2.0 Dual port Cat 5e 100 meter extender	402.00	804.00
25	1	Western AV	LOT	Miscellaneous Materials, Cabling and Connectors	2,888.00	2,888.00
System 1 Equipment Sub-Total:						70,188.00



City of Brea

Submitted by:

Western Audio Visual

Date: 1/23/2015
Revision: A

Item	Qty	Manuf	Model	Description	Unit Price	Ext Price
Council Chambers						
1	2	Panasonic	PT-DZ870ULK	8500 Lumen DLP Projector, NO LENS	13,114.00	26,228.00
2	2	Panasonic	ET-DLE150	1.3 - 1.9 :1 Zoom Lens	1,930.00	3,860.00
3	2	Chief	VCMU	Heavy Duty Universal Projector Mount	266.00	532.00
4	2	Chief	CMA110	8" (203 mm) Ceiling Plate	39.00	78.00
5	1	Samsung	DB55D	55IN LED 1920X1080 5000:1 VGA DVI-D HDMI 8MS 3YR WARR TAA	979.00	979.00
6	1	Samsung	DB40D	40IN LED 5000:1 1920X1080 VGA DVI-D HDMI 8MS 3YR WARR TAA	546.00	546.00
7	2	Premier	P4263T	Tilting Low-Profile Mount for Flat-Panels up to 175 lb	58.00	116.00
8	36	Tannoy	8001 4230	CVS4 Ceiling Speaker	77.00	2,772.00
9	4	Vaddio	999-9917-000	RoboSHOT 30 QCCU System	4,701.00	18,804.00
10	1	Vaddio	999-5700-000	ProductionVIEW Precision Camera Controller	1,677.00	1,677.00
11	12	Viewsonic	VX2252MH	22IN LCD FULL HD 50M:1 VX2252MH DVI HDMI SPKR	156.00	1,872.00
12	13	Shure	MX415/C	15" Shock-Mounted Gooseneck, Cardioid, includes surface mount preamplifier	219.00	2,847.00
13	1	Shure	MX412D/C	12" Desktop Gooseneck Condenser Microphone	221.00	221.00
14	2	Shure	QLXD124/85	Bodypack and Vocal Combo Wireless System	1,209.00	2,418.00
15	1	Shure	UA844SWB	Wideband UHF Four-Way Active Antenna Splitter and Power Distribution System	367.00	367.00
16	2	Shure	UA830USTV	In-Line Antenna Amplifier for Remote-Mounting	125.00	250.00
17	2	Shure	SM58-CN	Cardioid Dynamic, includes 25' XLR to XLR Cable	92.00	184.00
18	1	Atlona	AT-HDDA-8	1 x 8 HDMI Distribution Amplifier	492.00	492.00
19	2	Atlona	AT-HDDA-4	1 x 4 HDMI Distribution Amplifier	271.00	542.00
20	2	Atlona	AT-HDDA-2	1 x 2 HDMI Distribution Amplifier	189.00	378.00
21	2	AMX	FG560-01-S	6 Module Connection Ports	184.00	368.00
22	1	AMX	MISC.	Hydraport Accessories	499.00	499.00
23	1	ELO	E382790	22" LED LCD Touchscreen Monitor - 16:9 - 5 ms	466.00	466.00
24	2	Icron	RG2212	USB 2.0 Dual port Cat 5e 100 meter extender	402.00	804.00
25	1	Western AV	LOT	Miscellaneous Materials, Cabling and Connectors	2,888.00	2,888.00
System 1 Equipment Sub-Total:						70,188.00



OUR COMPANY PROFILE

IT'S TIME
TO CAPTIVATE

Western Audio Visual (WAV) is a design-build audiovisual firm specializing in the design, engineering, installation, and service of corporate audiovisual systems. Our team is made up of highly recognized industry veterans with over 30 years of experience integrating solutions within Executive Boardrooms, Conference Rooms, Corporate Auditoriums, Training Rooms, Video Conferencing Suites, and Command/Control Centers throughout Southern California. Starting with AV budgeting exercises and following through to post installation support, the Western Audio Visual team is well equipped to take any project from it's design stage to final installation.



WWW.WAV1.COM

While Western Audio Visual is primarily a Southern California Based Company, our coverage extends north to the Central California Region and East to Nevada and Arizona.

ORANGE/LA COUNTY



1592 Batavia Street, Suite 2
Orange, CA 92867



(714) 637-7272



(714) 637-7330

SAN DIEGO COUNTY



6353 Corte del Abeto, Suite 106
Carlsbad, CA 92011



(760) 438-1200



(760) 438-0066



OUR SERVICES

Western Audio Visual is a Full Service Systems Integration Company providing the Design, Engineering, Installation and Service of sophisticated Audio Visual Systems.

Providing turnkey solutions for:

- * **BOARDROOMS & CONFERENCE ROOMS**
- * **TRAINING ROOMS & CLASSROOMS**
- * **COMMAND & CONTROL CENTERS**
- * **AUDITORIUMS & LECTURE HALLS**
- * **VIDEO CONFERENCING CENTERS**
- * **COUNCIL CHAMBERS**
- * **THEATERS**



AV INSTALLATION & TRAINING

Our staff of highly trained technicians ensures our clients receive the utmost quality & professionalism during the installation phase. With a focus on constantly improving, Western AV technicians hold certifications with all major manufacturers. Leveraging years of experience with an unmatched attention to detail, our staff of dedicated technicians are well equipped to perform at a high level. Upon completion of each installation, a certified Western AV trainer will host end user training sessions. These training sessions give clients the ability to use the AV systems in a comfortable, stress free environment. Once complete, our clients will have all the tools necessary to present, collaborate, and communicate using the most up to date audiovisual technology.

DESIGN : BUDGETING : NEEDS ANALYSIS

The first step in any new audiovisual project is identifying the functionality required while creating a realistic AV budget to work from. Western AV's team of design specialists works with each client to define the needs of individual users and ultimately, configure what technology is needed to create collaborative, easy-to-use, future proof meeting spaces.

PROJECT MANAGEMENT

Western AV understands that up front planning and coordination throughout a project will ensure its ultimate success. A PMP certified project manager will be assigned to every new project. Our project managers oversee all aspects of the installation from communicating infrastructure with various trades (architects, general contractors, etc.) to scheduling the installation team and ensuring all systems are installed on time and within budget.

SERVICE & CUSTOMER SUPPORT

Western AV understands the importance of limiting downtime related to any installation and our team of Service professionals are available 24/7 to support our clients when the need arises. In addition to technical support, parts replacement and equipment repair, Western AV's service team offers a variety of customized Preventative Maintenance Plans to safeguard your audiovisual investment. Some of the Customer Support Services that we provide are:



Direct phone numbers with all phones forwarded to individual cell phones for a better access to Western's personnel.



Complete Training Sessions tailored to specific end-users requirements.



Organized and complete system documentation with every system.



24-Hour Technical Support with all Maintenance and Service Plans.



Standard and Customized Maintenance and Warranty Service Programs.



JAY SCHELLIN

GENERAL MANAGER

In 1986, Mr. Schellin started J*O*S Projection Systems, Inc. which provided Integrated System Solutions to a diverse clientele. Some of these clients included: NASA, JPL, Intel, Hughes, Motorola, Northrop, Charles Schwab, as well as all Branches of the Military. With offices in Los Angeles, San Diego, and Phoenix, J*O*S primarily served the Southwestern U.S. In 1998, J*O*S was acquired by the largest A/V company in the U.S. to transition them into the System Integration business. As part of the sale Mr. Schellin remained on board till 2001 as Vice-President, Systems Integration Group. Mr. Schellin is an alumnus of Pepperdine University, where in his senior year he was drafted by the Oakland Athletics. His career with the Athletics lasted a brief 3 years at which time he began his career outside athletics in the mainframe division of National Semiconductor. Mr. Schellin left National Semiconductor in 1986 to start J*O*S Projection Systems, Inc.



STEVE HOLLINGSWORTH

PROJECT PRINCIPLE, DMC-D

With a Business Administration degree from San Diego State University, Steve began his career with the San Diego Padres as a Project Manager in the Stadium Operations Department, acting as a liaison between the Padres, Major League Baseball, the City of San Diego and Service America. Steve has been involved with the Audio Visual industry since 1994. He has worked as a System Designer, Salesperson, Project Manager and Regional Manager in the industry. He started out with J.O.S. Projection Systems in 1994 and was part of the group that was acquired by MCSi in 1998. While there he ran the most successful region in the company. His experience working on large, high profile projects has impressed industry peers as well as clients. Due to his broad technical knowledge, Steve has the ability to solve complex integration challenges. The key phrase "Experience is Golden" certainly applies to him, and gives his clients the greatest benefit of all. The biggest compliment anyone can get is repeat customers. Steve has continued to do business with many of his first clients from 1994. Some of these clients are: Northrop Grumman, National University, Biogen Idec, Allergan, Cal State Fullerton, SAIC, US Navy, IBM, Conexant, HBO, Intuit.



ERIK WILSON

DIRECTOR OF ENGINEERING
CTS-D, DMC-E

With an AA degree in Electronics, Erik has more than 17 years of industry experience with a specialization in Control Room Displays utilizing edge blending. He has traveled all over the world for British Petroleum designing and fine tuning these systems. He started his career in the A/V industry with Ampro in Florida before moving to California and working with J.O.S. Projection Systems. He has performed many different jobs in the Audio Visual world including- final setup technician for CRT projectors, Service Technician, Project Manager, System Designer, System Sales, Engineer and currently Director of Engineering. He has many certifications including those from Biamp, Crestron, Christie, AMX, Panasonic as well as others. Erik also holds a CTS-D certification from InfoComm International. He has designed many high profile projects including: ConAgra Foods, Intel, Nobel Biocare, UCLA School of Medicine, Allergan, DWP, SDG&E, City of Victorville, Unocal, and Genentech. He specializes in projects ranging from \$750,000 to \$2,000,000. Erik is considered by many in our industry as one of the top engineers in the country.



PHILLIP ALDERSON

ENGINEER CTS, DMC-D

Phillip has 14 years of experience in the Audio Visual industry. During which time he has had many different job functions such as Installation Supervisor, Project Manager, Field Engineer and Sales Engineer. His certifications range from Clearone, Lutron, Extron, AMX, Scala and Polycom. He has been a part of projects ranging from Corporate, Government, Higher Education, as well as Performing Arts. Some of these projects were for Taco Bell, Herbalife and various colleges throughout Southern California.



SHELBY TOAL

PROJECT MANAGER, PMP, DMC-D

Shelby has 12 years of experience in the Audio Visual industry. Before joining the Audio Visual industry, Shelby was a Sergeant in the Marine Corp. for 6 years. He started his career at MCSi and has worked for a couple other large Integration companies before arriving at Western Audio Visual. He is Sr. Project Manager designated as the training coordinator for all new hires. His experience is full range starting with simple systems and the past 7 years spent on all large scale projects. Some of these projects include: Herbalife-LA Live (\$1.5 million), Taco Bell (\$1 million), UCLA Medical Center, USC Medical Center, Mayo Hospital, City of Hope, Cal State Univ., Dominguez Hills, UC Irvine.



KEVIN MAHKORN

SERVICE MANAGER, DMC-D

Kevin started in the industry in 2007 working as a Project Coordinator. Kevin worked directly with the project management & engineering teams on all new & existing projects. His attention to detail, knowledge of installation requirements in the field and coordination with end users made Kevin an integral part of the technical services department. In 2009 Kevin was promoted to Service Manager where he was tasked with building and maintaining a fully functioning service department. During that time Kevin received great praise from clients & colleges by providing outstanding service and support. Kevin has a loyal following of customers that have followed him through his career. He is recognized by many of our industry suppliers as the top in his field and have continued to steer their service business Kevin's way since it has had such a positive effect on their business. Kevin has worked on many high profile projects such as: Taco Bell corporate headquarters, Herbalife LA Live, Metlife, WATG, Intuit, Children's Hospital Los Angeles, Citrus College, Cerritos College and Bank of America.



JEFF SCHELLIN

**PROGRAMMER - AMX-ACE CERTIFIED
CRESTRON, DMC-D**

Jeff has worked in the Audio Visual industry since 1989 starting out with J.O.S. Projection Systems. He has performed many different functions on the Integration side from System Designer, System Sales, Project Manager, Programmer and Director of Programming. When at MCSi he managed and trained all the programmers. He is a certified programmer on Crestron and AMX systems (ACE Certification). Some of his projects include: State Farm Insurance, Biogen Idec, Cal Trans District 12 Traffic Management Center, TRW, Northrop Grumman, American Red Cross, US Air Force, City of Carlsbad, Unocal, Allergan, Genentech, Conexant, and UCI Traffic Management Center, City of Victorville, City of Hesperia, City of Murrieta.



MARK BLINDAUER

**SENIOR INSTALLATION TECHNICIAN
DMC-T, DMC-E, CTS-I**

Mark has over 14 years of experience in the Audio Visual industry. He started in the rental/staging world, and then moved into the integration side. He has numerous certifications including, CTS, CTS-I, Crestron DMC-T. He is Western Audio Visual's project closer.

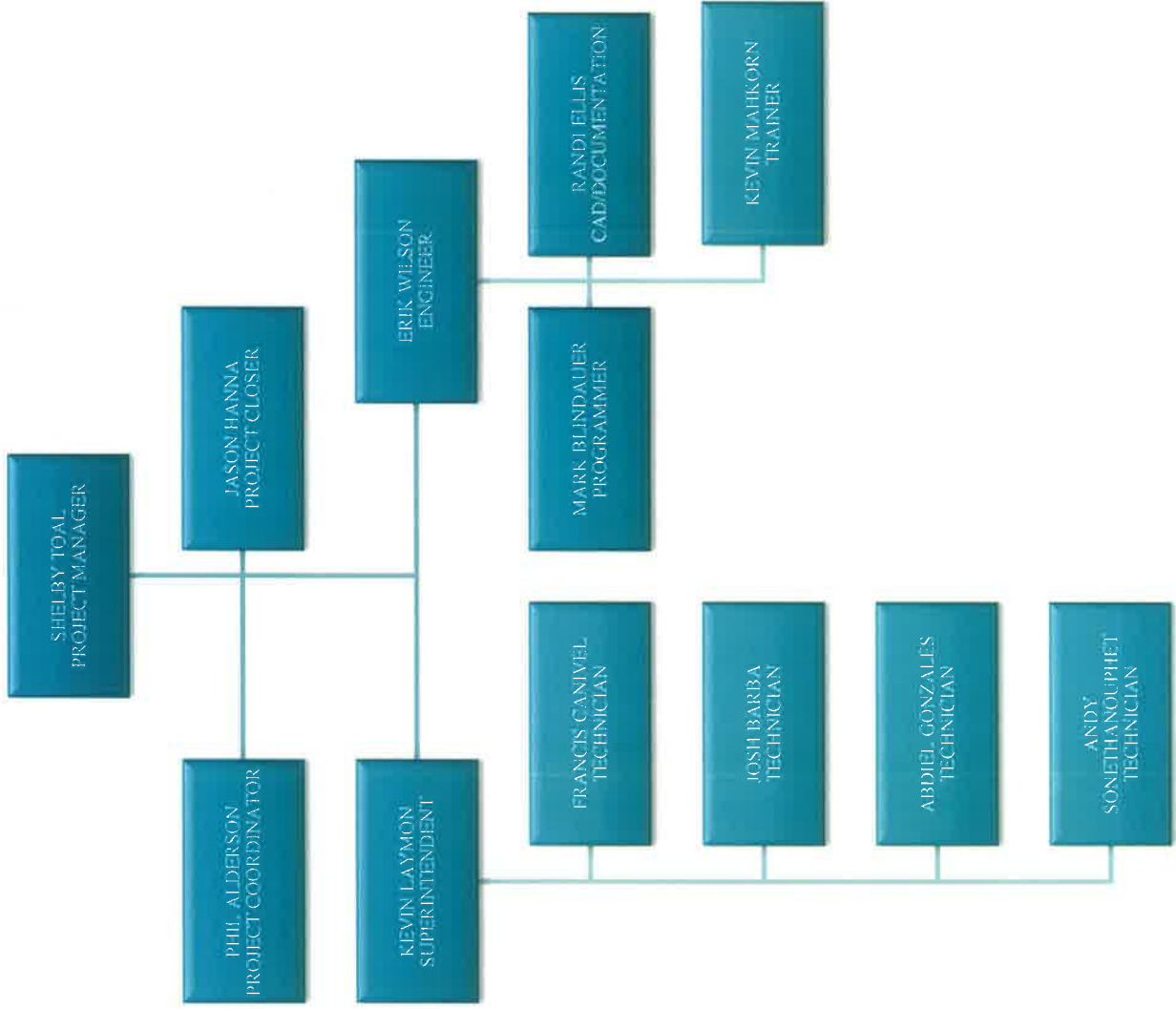


RAY STEVENS

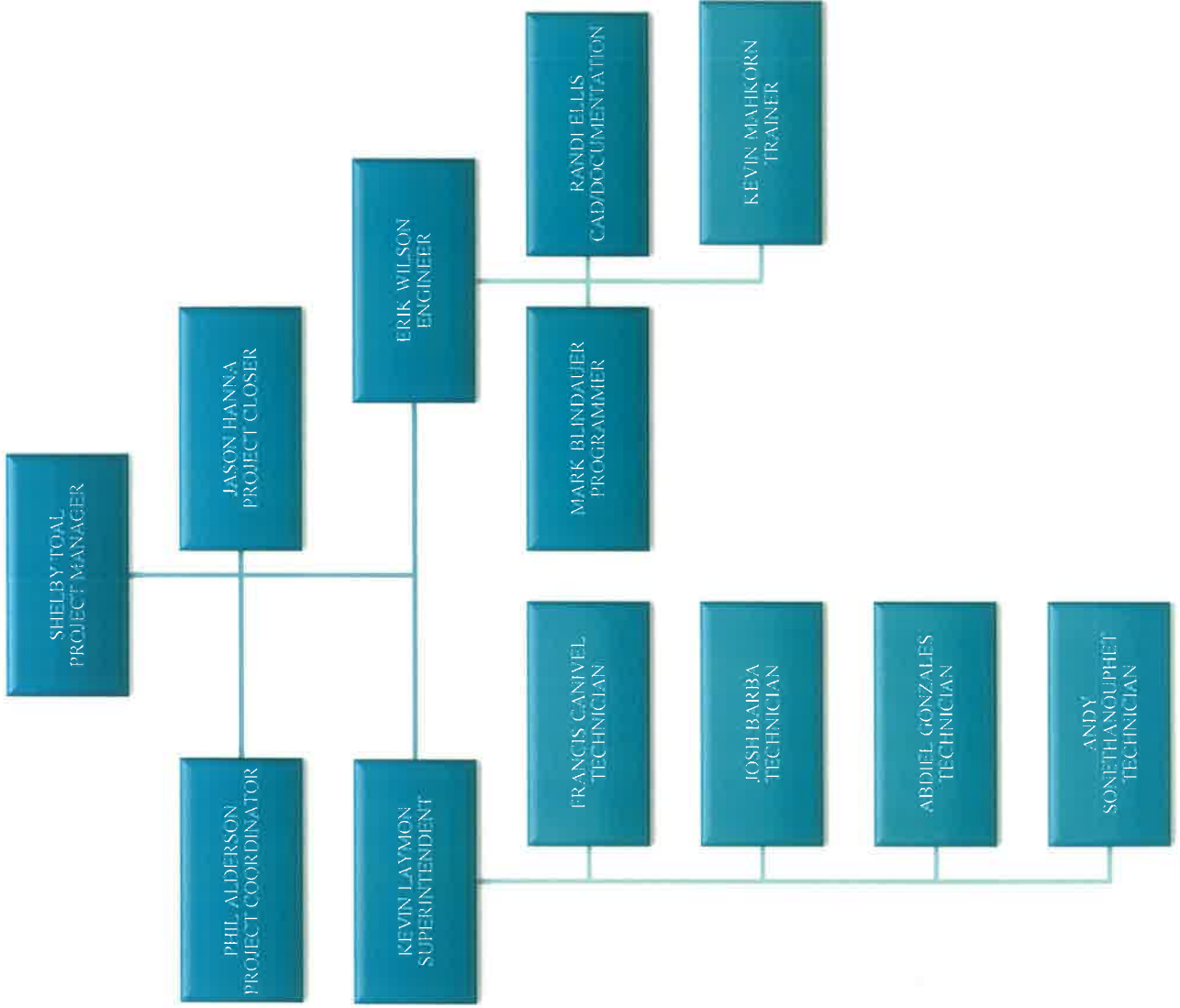
SERVICE TECHNICIAN, DMC-D

Ray started in the Audio Visual industry in 1998 as an Engineering assistant. He has performed many job functions over the 14 years. Some of these roles were Installation technician, service coordinator, inside sales and Project Management. Ray holds certifications for Crestron Programming, Crestron DMC-D, Hilti, OSHA. Some of his clients include: Intuit, American Career College, Citrus College, Southwestern Law, Irvine Ranch Water District.

CITY OF BREA - Proposed Project Team



CITY OF BREa - Proposed Project Team





Western Audio Visual Systems Project Approach

Western Audio Visual approach to every project is very systematic and is based on the following Milestones:

- **Project Initiated:** Contract Documents have been reviewed and are complete. Contract information has been acquired, system functions and flow have been defined, schedule has been decided and the project team has begun to understand the scope.
- **Submissions Completed:** Signal and flow diagrams, rack elevations, panel details, projection details, function lists, infrastructure details (as applicable) and list of major items and equipment are submitted for approval.
- **Initial Procurement Completed:** Long lead items, installer items, equipment and hardware necessary to begin wiring and installation effort.
- **Engineering/ Programming Completed:** Wiring details, programming, configuration tables, etc., are complete.
- **Final Procurement Completed:** Equipment necessary for electrical testing and staging in the shop. This constitutes the bulk of the equipment costs.
- **Site conditions checked and verified:** All power, conduit, boxes, support structures, penetrations and other infrastructure items have been inspected for conformance to specifications.
- **Installer Items Delivered:** Electrical contractor items which include materials such as cable, connector plates, screens, loudspeaker back boxes, projector mounts, plasma mounts, etc.
- **On site AV wiring completed:** All AV wire has been pulled and labeled; is coiled and stored to minimize damage
- **Racks Complete, Systems Staged:** Site conditions emulated; signal flow and control system functionality are checked; shop tests are complete; drawings updated



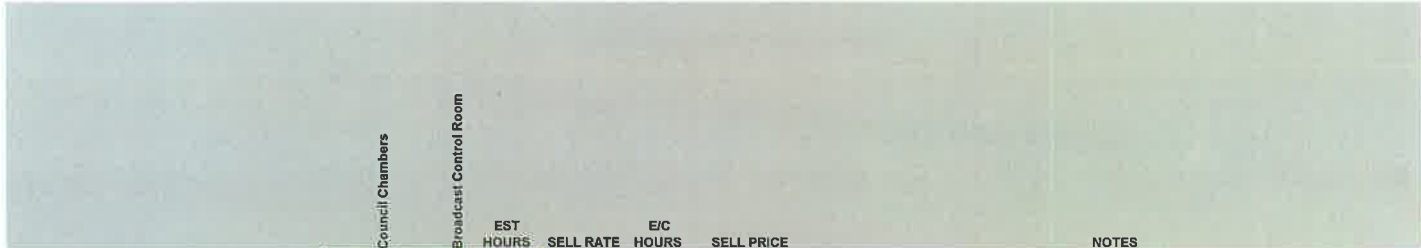
- **Rack Systems Shipped:** The staged system is carefully disassembled, packed, and sent to the jobsite.
- **Systems Installed and Operational:** Systems have been delivered, wired & terminated, tested and functional; internal punch list generated and completed; systems test reports submitted. Systems are ready for consultant/client review
- **Acceptance Testing and Consultant Review Completed:** Punch list items have been completed; all portable equipment and OFE equipment has been delivered and set up; Operation manuals have been delivered
- **User Training Completed:** Users and technicians have been trained on operation and maintenance
- **Service Turnover Completed:** WAV Service Manager or his/her representative is introduced to the client, all necessary information has been turned over so that the service department can begin maintaining the system throughout the warranty period.
- **Project Completed:** System has been accepted, As-builts, Owner's Manuals, related documentation delivered; reports are completed and filed.



LABOR ESTIMATE WORKSHEET

Client: City of Brea

Date: 01/23/15
Project # 0



		Council Chambers	Broadcast Control Room	EST HOURS	SELL RATE	E/C HOURS	SELL PRICE	NOTES
E	CONCEPT DESIGN			0	\$ 89.00		\$ -	
E	SUBMISSIONS	8	8	16	\$ 89.00		\$ 1,424.00	
E	ENGINEERING	12	12	24	\$ 89.00		\$ 2,136.00	
E	FIELD SUPERVISION	8	16	24	\$ 89.00		\$ 2,136.00	
E	FIELD PROJECT MEETINGS	4	4	8	\$ 89.00		\$ 712.00	
E	ARCHITECT MEETING			0	\$ 89.00		\$ -	
E	CLIENT MEETING TIME	4	4	8	\$ 89.00		\$ 712.00	
E	INTERNAL MEETING TIME			0	\$ 89.00		\$ -	
E	DRAFTING-IN-HOUSE	16	32	48	\$ 89.00		\$ 4,272.00	
E	DSP PROGRAMMING	8	8	16	\$ 89.00		\$ 1,424.00	
	Engineering & Drafting Totals	60	84	144			\$ 12,816.00	
P	PROGRAMMING			0	\$ 84.00		\$ -	
	Programming Totals	0	0	0			\$ -	
S	SHOP ASSEMBLY/FABRICATION			0	\$ 58.00		\$ -	
S	STAGING AND PACKING			0	\$ 58.00		\$ -	
	Shop Totals	0	0	0			\$ -	
PRM	IN-HOUSE PROJECT MGMT TIME	40	40	80	\$ 58.00		\$ 4,640.00	
PRM	ON-SITE PROJECT MGMT TIME	8	8	16	\$ 58.00		\$ 928.00	
	Project Management Totals	48	48	96			\$ 5,568.00	
I	HANG PROJECTORS/CAMERAS	36		36	\$ 58.00		\$ 2,088.00	
I	INSTALL SPEAKERS	36		36	\$ 58.00		\$ 2,088.00	
I	PULL WIRE	40	32	72	\$ 58.00		\$ 4,176.00	
I	TERMINATE WIRE	40	56	96	\$ 58.00		\$ 5,568.00	
I	INSTALL RACKS	16		16	\$ 58.00		\$ 928.00	
I	REMOVE EXISTING SYSTEM	24	72	96	\$ 58.00		\$ 5,568.00	
I	SET IN PLACE		16	16	\$ 58.00		\$ 928.00	
I	INSTALL PLATES	16	16	32	\$ 58.00		\$ 1,856.00	
I	TEST	16	40	56	\$ 58.00		\$ 3,248.00	
I	PUNCHLIST/DEBUGGING	8	8	16	\$ 58.00		\$ 928.00	
I	INTERNAL MEETING TIME			0	\$ 58.00		\$ -	
I	TRAVEL TIME			0	\$ 58.00		\$ -	
	Installation Totals	232	240	472			\$ 27,376.00	
T	TRAINING	8	8	16	\$ 58.00		\$ 928.00	
T	PREPARE TRAINING MANUAL			0	\$ 58.00		\$ -	
	Training Totals	8	8	16			\$ 928.00	
PM	PREVENTIVE MAINTENANCE	18	35	53	\$ 58.00		\$ 3,074.00	
W	WARRANTY SERVICE ESTIMATE			0	\$ 58.00		\$ -	
	PM/Warranty Totals	18	35	53			\$ 3,074.00	
SUB	SUB CONTRACT:ELECTRICAL			0	\$ -		\$ -	
SUB	SUB CONTRACT:PROGRAMMING	181.28	181.28	362.56	\$ 139.00		\$ 50,395.84	
SUB	SUB CONTRACT:OTHER			0	\$ -		\$ -	
	Sub-Contractor Totals	181.28	181.28	362.56			\$ 50,395.84	
							\$ 100,157.84	