

JOHNSON COUNTY

KANSAS

Library

**Board Report
May 12, 2016**

IF YOU REQUIRE ANY ACCOMMODATION (I.E. QUALIFIED INTERPRETER, HEARING ASSISTANCE, ETC) IN ORDER TO ATTEND THIS MEETING, PLEASE NOTIFY THE CENTRAL RESOURCE LIBRARY AT (913) 826-4600 NO LATER THAN 48 HOURS PRIOR TO THE SCHEDULED COMMENCEMENT OF THE MEETING.

AGENDA

JOHNSON COUNTY LIBRARY BOARD OF DIRECTORS
REGULAR MEETING, MAY 12, 2016
CENTRAL RESOURCE LIBRARY
CARMACK MEETING ROOM
4:00 P.M.

- I. Call to Order
- II. Citizen Comments
- III. Remarks
 - A. Members of the Johnson County Library Board of Directors
 - 1. Recognition of outgoing board chair, Neil Shortlidge
 - B. Pam Robinson, Board Chair
 - C. Friends of the Library, Lindsay Mohn
 - D. Susan Mong, Executive Director, Johnson County Library Foundation
 - E. Jim Allen, Liaison, Board of County Commissioners
- IV. Reports
 - A. Board Counsel – Fred Logan
 - B. County Librarian Report
 - 1. Finances and Statistics – Nicki Neufeld5
 - 2. Strategic Plan – Sean Casserley
 - a) Projects – Scott Sime
 - b) Tanner Colby program update – Angel Dew
 - 3. Comprehensive Library Master Plan
 - a) Public Art Policy – Brad Reinhardt
 - b) Update: Monticello – Scott Sime16
 - 4. Updates – Sean Casserley
 - a) Capital Improvement Plan/Capital Replacement Plan (CIP/CRP)
 - b) City of Overland Park Development Committee meeting
- V. Consent Agenda
 - A. Action Items:
 - 1. Minutes of the April 14, 2016 Library Board meeting22
 - B. Information Items
 - 1. Summary of New and/or Renewed Contracts35
 - 2. Financial and Personnel
 - a) The County Librarian and the Finance Director certify those payment vouchers and personnel authorizations for March 2016 were handled in accordance with library and County policy.
 - b) The March 2016 Revenue and Expenditure reports produced from the County’s financial system reflect the Library’s revenues and expenditures

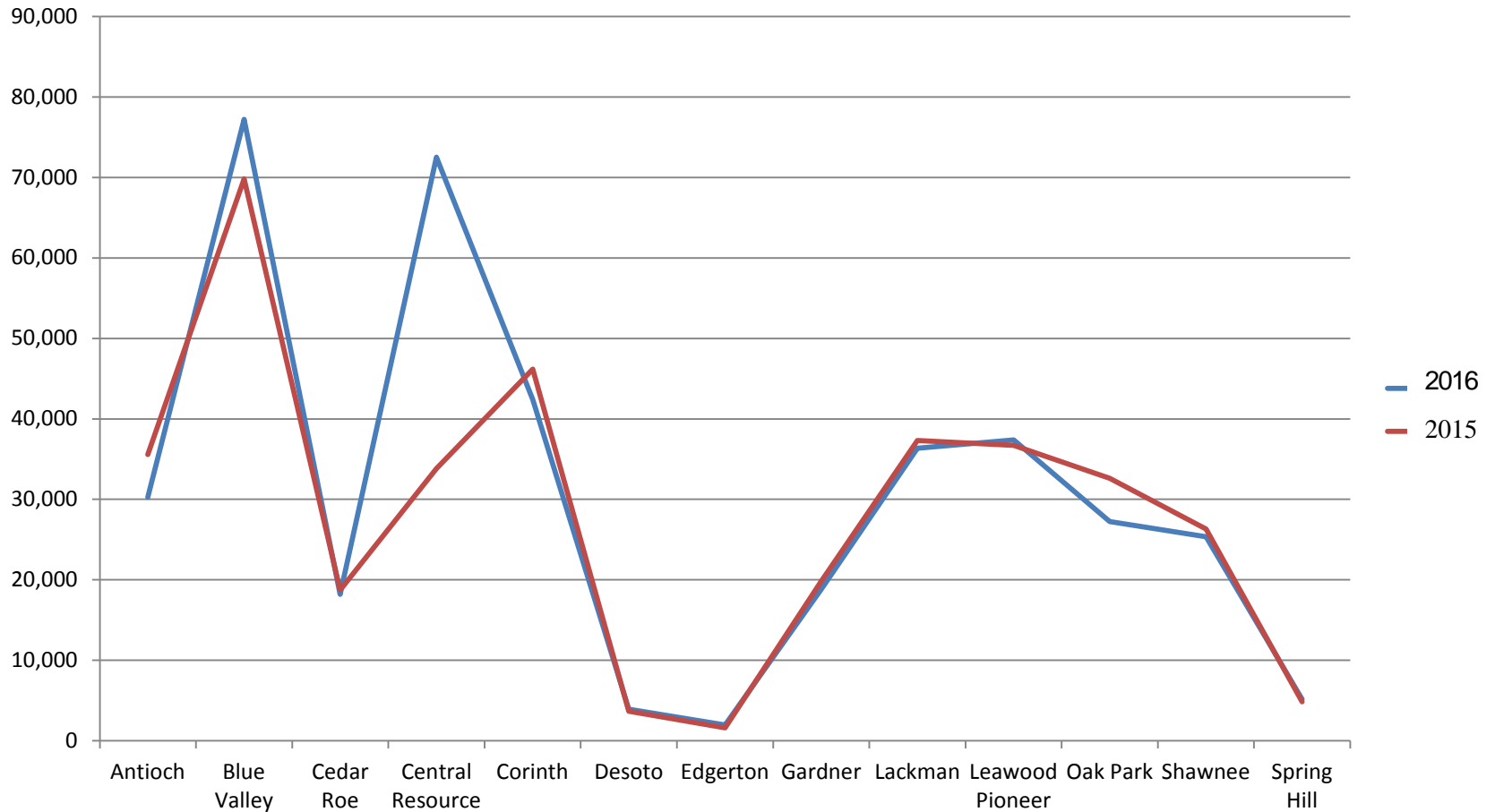
C. Gift Fund Report	
1. Treasurer's Report	36
VI. Old Business	
A. Consideration of contract for central A/V	37
VII. Adjournment	
5:30 p.m. Joint meeting of the Board of County Commissioners and Library Board of Directors	

County Librarian's Report

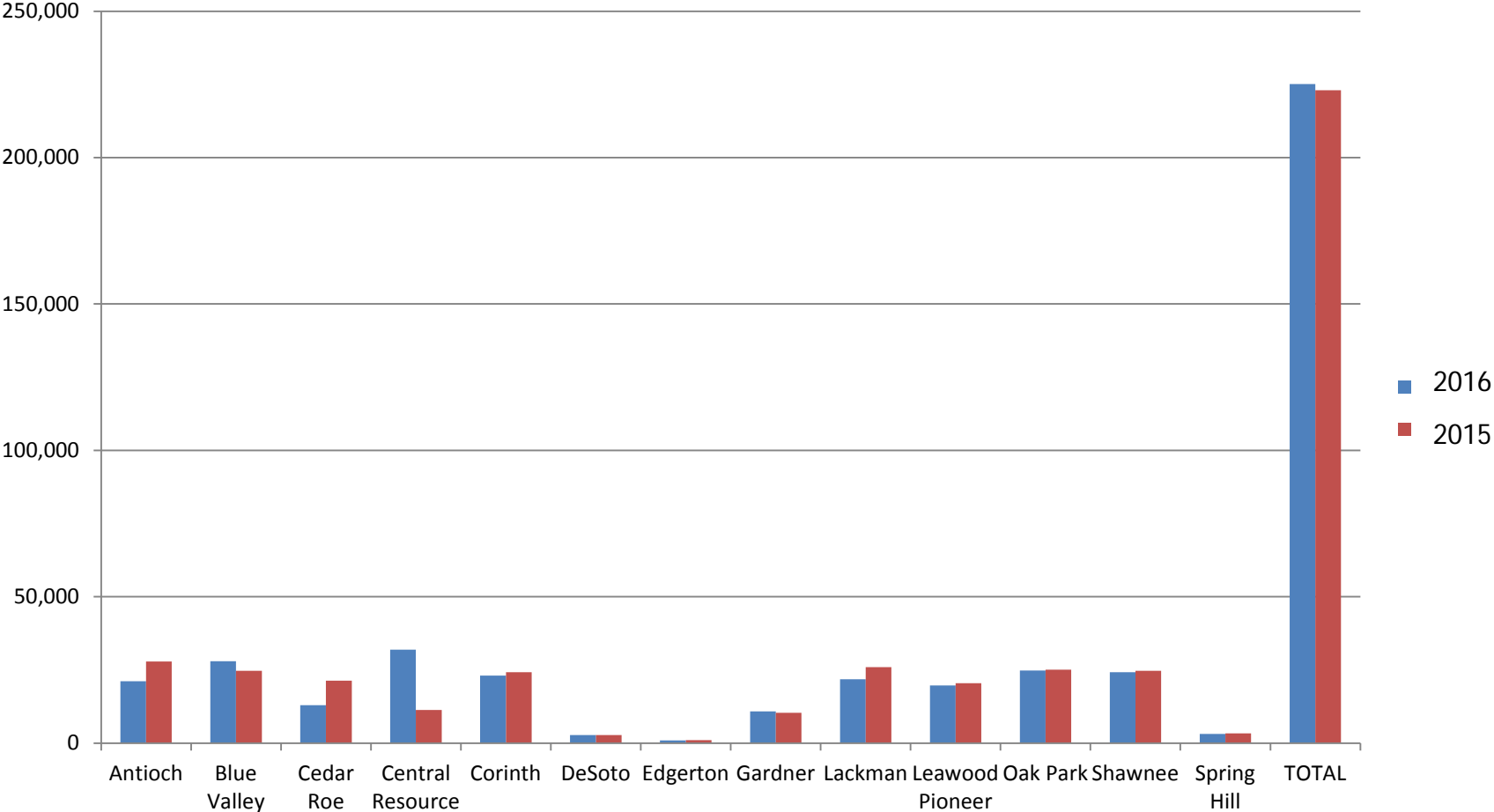
Presented May 12, 2016



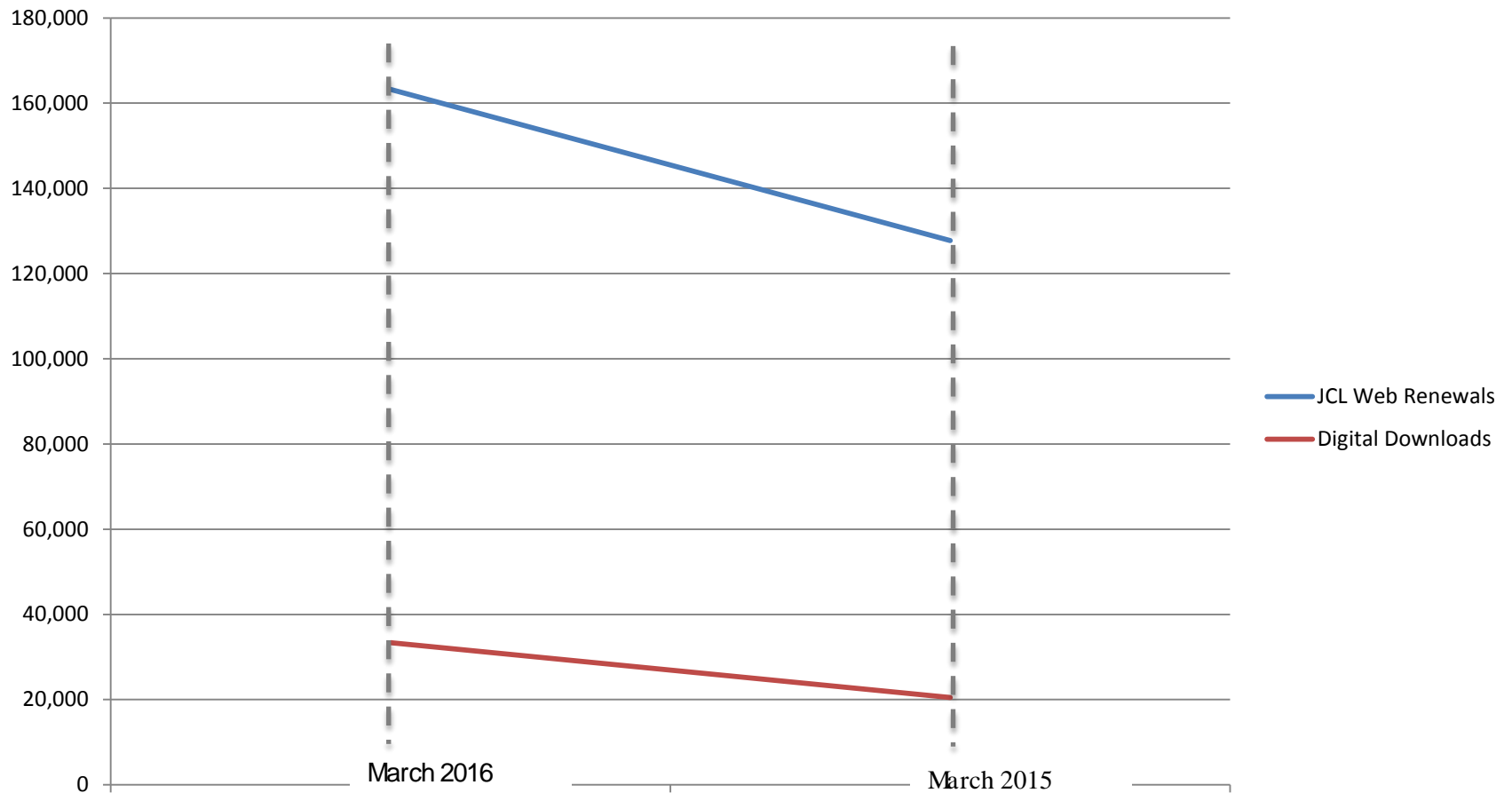
Circulation by Branch: March



Branch Visits: March



Circulation, Electronic: March



JOHNSON COUNTY LIBRARY: Summary of Expenditures by Cost Category (.75 Increase Only)
March 2016
25% Year Lapsed

OPERATING FUND	Programs	2016 Year to Date	2016 Budget	% Program Expended
	Revenue		4,256,044	
	Administrative Services			
	Information Technology			
	Collection Development			
	Branch/Systemwide Services			
	Transfer to Capital Projects			
	Interfund Transfers			
TOTAL OPERATING FUND EXPENDITURES		\$0	\$0	
TOTAL .75 INCREASE FUNDS REMAINING OPERATING		\$0	\$4,256,044	
SPECIAL USE FUND				
	Revenue:		1,000,000	
	Expenses:			
	Contractual Services (General Maintenance)			
	Commodities (Capital Equipment)			
	Transfer to Debt Payment			
	Transfer to Debt Payment - CLMP			
	Transfer to Capital Projects			
TOTAL SPECIAL USE FUND EXPENDITURES		\$0	\$0	
TOTAL .75 INCREASE FUNDS REMAINING SPECIAL USE		\$0	\$1,000,000	
TOTAL .75 INCREASE FUNDS REMAINING ALL FUNDS		\$0	\$5,256,044	

Scheduled Replacement Account

<u>REVENUE</u>	<u>REVENUE RECEIVED TO DATE</u>
2011 Operating Fund Transfer	360,175.00
2012 Operating/SU Fund Transfer	642,934.00
2013 Operating/SU Fund Transfer	551,250.00
2014 Operating/SU Fund Transfer	330,566.00

Total Revenue 1,884,925.00

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014/2015/2016</u>
Concrete Work - Antioch	28,900.00			
Grounds & Concrete Work - Blue Valley	43,800.00			
Furnishings and Equipment	19,538.42	104,730.19	12,960.81	2,077.93
Vehicle Replacement	26,476.00	38,362.71		9,000.00
Shawnee Roof Replacement	10,797.60	1,200.10		
Painting Lights & Improvements - CRL		1,470.00	80,511.00	9,060.00
CRL Parking Lot Improvements	82,951.00			1,705.00
Monticello Vending Solution Design		9,482.50		
Site Improvements - AN & CRL	4,414.00		687.50	
Drainage Repairs - Corinth	4,730.00			
Roof & Window & Fire System Replacement - C	8,400.00	3,724.00	118,071.10	31,420.99
Carpet/Tile Replacement - Blue Valley	6,433.00			
Parking Lot Maintenance - Cedar Roe			15,040.00	
Copier Replacement - Creative Services	11,415.00			
Parking Lot Repair - Gardner	4,063.03			
Parking Lot Repair & Boiler Replace - Antioch	33,180.00			91,193.27
Remove bookcases/Painting - CO Meeting & Reading Rooms		2,750.00	1,575.00	
Painting & Security upgrades- Oak Park		2,810.00		1,554.00
Painting/Furnishings Gardner		1,880.00	5,976.26	
Carmack Room Blinds	6,994.00			
Office Remodel / Security upgrade LE		5,650.00		8,043.00
Security System Upgrade - Blue Valley		8,138.00		
Blind Replacement & Furnish - OP		1,958.68	14,651.03	
HVAC Improvements - Antioch		108,235.97		
Concrete Repairs - Shawnee		24,750.00	5,875.00	
Handicap Ramp / landscape- Gardner		3,275.00		
Office Remodel - Blue Valley	24,000.00	11,650.00		
Electrical & Security Camera Installation - CR	664.00	16,701.24	24,360.00	
Roof Repairs - Corinth		39,483.20		
Stack Moving for Carpet Replacement - CRL		8,370.00		
Emergency Lighting & Electrical work - CRL		8,750.00	62,123.00	15,476.01
Carpet Replacement - AN & SSB furnishings		13,577.00	1,839.85	
Carpet Replacement - Shawnee		48,312.25		
Leawood Sorter Installation		54,167.13	5,318.84	
Retaining Walls - Corinth		13,825.00		
HVAC Improvements - Corinth		13,800.00		
HVAC Improvements - Shawnee		15,285.00		
Edgerton Environmental Sampling		712.80		
Carpet & Security System Improvement - Lackman		898.00	815.00	1,520.00
Entryway Handrail Repair - Corinth		250.00		
Fence Repair - Antioch		3,700.00		
Rear Entry Modifications - Antioch		1,375.00	725.00	
Electrical Upgrades/Furnishings - Lackman		5,304.00	6,513.16	
Circulation Area Remodel - Shawnee		11,250.00		
Grounds BV/ Remodel & Landscape			22,875.50	5,625.00
LE Cabinet Heater w/ T-Stat option			1,586.56	
Security Improvements DE/ED/SH			9,594.00	
Carpet/Furnishing CO			11,012.47	
CRL Furnishings/Painting/Carpet			39,591.66	19,126.26
Architectural Services - CRL-Roof Repair			9,961.25	12,030.12
Shawnee Interior Renovation/Remove Door Frame				11,081.99
Lackman Carpet/Furnishings				4,305.40
Concrete replacement - Cedar Roe				4,969.00
Masonry Repair - Shawnee				6,468.00
Water Heater Install CRL				5,850.00
Passenger Vehicles				30,763.25
Shawnee Electrical Project Cat5, etc				7,455.00
Corinth repairs and replacements				4,150.00
CRL Flooring				4,351.00
Computer Stations at Shawnee				14,599.43
Interior Painting at Antioch				9,719.50
Millcreek Shelter Assembly and Install				8,776.00
Plumbing at Corinth - New Gas Line				7,465.00
Commuiter and Study Room Furniture AN				43,200.40
Digging parking lot for drainage pipe, backfill - COR				3,600.00
Curb Replacement Corinth				8,400.00
Paint metal roof Mill Creek Collection				1,700.00
Seal the north wall				27,580.00
Seal the north wall				2,900.00
Carpet Cedar Roe				58,515.00
Adjustable desks tech serv				12,598.40
Civil Engineering				10,000.00
Landscaping at Oak Park				6,080.00
	<u>316,756.05</u>	<u>585,827.77</u>	<u>451,663.99</u>	<u>502,358.95</u>

Budget Remaining \$ 28,318.24

JOHNSON COUNTY LIBRARY TOTAL REVENUE REPORT

March 2016
25% of Year Lapsed

REVENUE ALL FUNDS	2016 Year to Date	2016 Budget	% Budget Year to Date	% Budget YTD Prior Year
Ad Valorem	15,636,897	27,316,085	57%	57%
Ad Valorem Delinquent	430,793	379,423	114%	95%
Motor Vehicle	601,554	2,300,787	26%	27%
Library Generated - Copying/Printing	23,874	95,401	25%	35%
Library Generated - Overdues / Fees	168,690	754,290	22%	34%
Sale of Library Books	12,500	50,000	25%	50%
Misc Other	0	340,753	0%	11%
Library Generated - Other Charges	4,741	11,402	42%	2%
Investment	42,079	50,884	83%	24%
Unencumbered Balance Forward	0	10,000	0%	0%
Recreational Vehicle Tax	5,033	7,411	68%	22%
Commercial Vehicle Tax	34,708	39,407	88%	0%
Heavy Trucks Tax	2,001	3,173	63%	180%
Rental Excise Tax	12,532	26,764	47%	54%
State and Federal Grants	0	240,058	0%	36%
TOTAL REVENUE	\$16,975,402	\$31,625,838	54%	42%

JOHNSON COUNTY LIBRARY: Summary of Expenditures by Cost Category
March 2016
25% Year Lapsed

OPERATING FUND	2016	2016	% Program
Programs	Year to Date	Budget	Expended
Administrative Services	1,167,648	5,022,119	23%
Information Technology	642,015	2,165,039	30%
Collection Development	941,767	3,288,711	29%
Branch/Systemwide Services	2,964,375	12,779,341	23%
Risk Management Charges	21,017	84,066	25%
Grants *	299	240,058	0%
Transfer to Capital Projects		699,000	0%
Interfund Transfers (CLMP)		4,256,044	0%
TOTAL OPERATING FUND EXPENDITURES	\$5,737,121	\$28,534,378	20%

* Includes expenditures for 2016 calendar year only. The life of the grant may cover more than one year.

SPECIAL USE FUND	2016	2016	% Budget
	Year to Date	Budget	Expended
Contractual Services (General Maintenance)	0	16,305	0%
Commodities (Capital Equipment)	0	192,564	0%
Transfer to Debt Payment	0	979,435	0%
Transfer to Capital Projects	0	903,156	0%
Capital Outlay (CLMP)	0	1,000,000	0%
TOTAL SPECIAL USE FUND EXPENDITURES	\$0	\$3,091,460	0%

TOTAL EXPENDITURES	\$5,737,121	\$31,625,838	18%
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JOHNSON COUNTY LIBRARY: Summary of Expenditures by Type
March 2016
25% Year Lapsed

ALL FUNDS	Categories	2016 Year to Date	2016 Budget	% Categories Expended
	Salaries and Benefits	3,460,785	15,208,624	23%
	Contractual Services	1,792,133	4,130,326	43%
	Commodities	462,887	4,125,129	11%
	Risk Management Charges	21,017	84,066	25%
	Capital / Maintenance / Repair	0	699,000	0%
	Transfer to Debt Payment	0	979,435	0%
	Transfer to PBC Capital Leases	0	903,156	0%
	Grants	299	240,058	0%
	CLMP	0	5,256,044	0%
		\$5,737,121	\$31,625,838	18%

JOHNSON COUNTY LIBRARY

GRANTS MONTHLY REPORT

GRANTS*	Expenditures through 1/31/2016	Source	Received	Expend By	Expenditures	Grant Award	Budget Remaining
	2014 Check up and Check Out	State	Jul-14		\$2,015.23	\$5,250.00	\$3,234.77

*Includes all expenditures and revenues over the life of the grant. (Includes multiple years due to the grants crossing fiscal years).

Monticello Land Acquisition

REVENUE	TO DATE	BUDGET
Library Fund Transfer	\$100,000	\$100,000
Bond Sale Proceeds	\$710,000	\$710,000
TOTAL REVENUE	\$810,000	\$810,000

EXPENDITURES	TO DATE	BUDGET REMAINING
Earnest Money for Land Purchase	\$50,000.00	
Land Purchase	\$713,778.64	
Engineering	\$7,015.00	
Site Survey	\$1,900.00	\$37,306.36
TOTAL EXPENDITURES	\$772,693.64	\$37,306.36

Expenditure of Friends of the JCL Donations 2016

<i>Expenditure Details</i>	<i>Payee</i>	<i>Current Month</i>	<i>YTD</i>
Volunteer Recognition		\$0.00	\$240.00
Advertising/Promotion		\$0.00	\$0.00
Collection Materials		\$0.00	\$0.00
Professional Development/Staff Recognition		\$692.73	\$998.05
Technology/Recruitment Consulting & Expenses		\$0.00	\$0.00
Card Services		\$0.00	\$0.00
Homework Help and Tudor.com		\$0.00	\$0.00
Summer Reading Club/Elementia		\$0.00	\$0.00
Other Library Programming		\$0.00	\$0.00
MidAmerica Regional Council		\$0.00	\$0.00
Board Travel Expences		\$0.00	\$0.00
Miscellaneous		\$0.00	\$0.00
Total Expenditures		\$ 692.73	\$ 1,238.05

Monticello Library

Update – May 2016



Updates

- BOCC/ PBC
- Public Input results
- Schematic Design
- Timeline

BOCC/ PBC Update

- Briefing sheets presented to BOCC and PBC for project authorization
- Board action on 5/5
- Great Library collaboration with County Facilities, Legal, and Budget Office

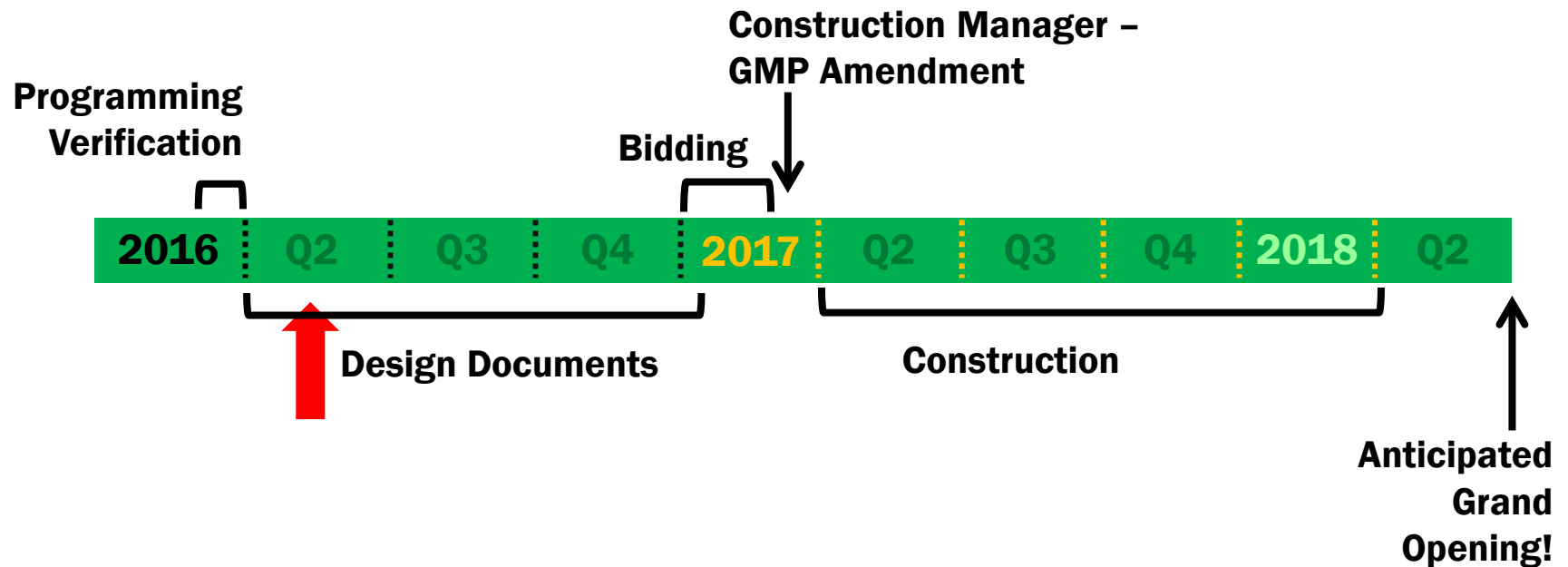
Public Input

- Over 50 people at our first Public Input meeting!
- Many great comments, validation of progress so far
- Looking forward to more public engagement opportunities as project develops

Schematic Design Update

- Good feel for size/scale of areas, and working on placement
- Moving from block diagrams to conceptual layouts
- Collaborating with Architects, County FAC, Construction Manager, and Library staff, City of Shawnee

(anticipated) Timeline Update



**MINUTES JOHNSON COUNTY LIBRARY BOARD
REGULAR MEETING
April 14, 2016
Central Resource Library
4:00 p.m.**

BOARD: Nancy Hupp, John Nelson, JR Riley, Pam Robinson, Amy Ruo, Neil Shortlidge, Mitra Templin

BOARD ATTORNEY: Fred Logan

BOCC: Jim Allen

FRIENDS OF THE LIBRARY: Rebecca Phillips

STAFF: Michelle Beesley, Sean Casserley, Monica Duffield, Cindy Frazer, Kristin Holdman-Ross, Christopher Leitch, Jennifer Mahnken, Thomas Maillioux, Kim Masoner, Susan Mong, Nicki Neufeld, Brian Oertel, Michelle Olsen, Kinsley Riggs, Michaela Scruggs, Mary Shortino, Scott Sime, Kari Sime, Tricia Suellentrop, Lorée Terry

Neil Shortlidge called the meeting to order at 4:00 p.m.

CITIZEN COMMENTS

There were none.

BOARD OF DIRECTORS COMMENTS

Nancy Hupp commented that she just returned from the Public Libraries Association (PLA) conference. She was thrilled with the quality of the conference and highlights included meeting author CJ Box and attending the publisher's dinner for audiobook readers. She thanked the Friends of the Library and Johnson County Library Foundation for providing the financial support for Library Board members to attend professional conferences.

JR Riley also attended the PLA conference and agreed with Ms. Hupp's comments.

Pam Robinson recently attended the State of the County address. She appreciated the comments made by Chairman Eilert.

Neil Shortlidge thanked Mitra Templin for her dedicated service to the Library Board. Ms. Templin was presented with a framed certificate and a book. *Food of Life: Ancient Persian and Modern Iranian Cooking and Ceremonies* that will be added to the collection in her honor.

FRIENDS OF THE LIBRARY

Rebecca Phillips announced that 2016 is the 60th anniversary of the Friends of the Library Organization. The organization launched on October 22nd, 1954.

This month internet sales totaled \$11,791 with a total of 638 items sold. Bookstore sales totaled \$12,221.

In honor of National Library Month, all Friend's members receive 20% of their purchases.

Ms. Phillips presented the Bookmark Design contest winners. The twelve winning bookmarks were selected from over 430 entries received. Each of the 2016 winners received a modest cash prize, a set of their bookmarks and a poster of the winning bookmark designs.

Winners of the 2016 Bookmark Design contest:

- Preschool-Kindergarten: Genevieve Griffiths
- Grades 1-2: Georgia Boyd
- Grades 3-4: Ava Whitaker
- Grades 3-4: Maddy Przbylinski
- Grades 5-6: Jacob Metzner
- Grades 5-6: Caroline Hanson
- Grades 7-8: Addie Raine
- Grades 7-8: Jane Gurley
- Grades 9-12: Katie Boyd
- Adults: Wendy Lawrence
- Adults: Paul Lemon
- Adults, Senior category: Claudia "Sue" Forbes

Report of the nominating committee:

Ms. Hupp and Mr. Riley presented the recommended slate of officers to the Library Board.

Chair: Pam Robinson

Vice Chair/Secretary: John Nelson

Treasurer: JR Riley

JOHNSON COUNTY LIBRARY FOUNDATION

Susan Mong shared that the Central Resource Library hosted the Hispanic Chamber event this morning. It was a great event and relationships were formed. Ms. Mong thanked Johnson County Library staff members Christine Peterson and Joseph Keehn for supporting the event.

The combined TriBoard and elementia event is approaching. The TriBoard event is an annual gathering of the members of the Library Board, Foundation Board and Friends Board. This year, we will also welcome the three Boards from the Olathe Public Library to strengthen that relationship.

The Boards will join the public for the elementia program and a dessert reception.

Ms. Mong highlighted the Foundation's May breakfast for donors. Members of the Library Board are invited to attend and bring current and potential community partners.

The Library Lets Loose is the name of the Foundation's fall fundraising event that will be held October 15th at the Central Resource Library. *The Library Lets Loose* will be held in place of the Pinnacle Awards this year. It will be a festival type event and will provide many experiences around every corner of the Library for guests to enjoy.

The Foundation has welcomed Shawnee Mission Health and The Roasterie as sponsors for this event.

Ms. Mong gave an update to the Board on the Outdoor project that was presented to the Library Board two years ago. The project has been postponed until fall due to a number of circumstances, including the decreased capacity of a partner organization.

Ms. Mong thanked Erwin Abrams for representing the Foundation Board at the Library Board meeting.

Mr. Casserley thanked Ms. Mong, Mr. Keehn, Mr. Leitch and Ms. Peterson for welcoming the Hispanic Chamber into the Library. He agreed that many excellent connections were made.

Ms. Mong stated that the Library has a strong relationship with the Hispanic community, as an example there are two Hispanic Girl Scout troops in the area and one meets weekly at our Oak Park branch. The musicians that performed during the event have been highlighted in our Listen Local blog and the event was catered by Café 29.

BOARD OF COUNTY COMMISSIONER REPORT

Commissioner Allen reported that the sales tax collection for the county will be reduced this year. The estimate for the 2017 budget is for 3 million less in sales tax receipts. Commissioner Allen believes it may be in part because of the increase in state sales tax and the ability for Johnson County residents to do their shopping out of state.

The proposed tax lid was not supposed to go into effect until 2018. Commissioner Allen shared that there is currently a bill that, if passed, would put the tax lid into effect in January 2017. The Commissioners are watching to see the final version of the bill. There are some things that are positive within the bill; some public safety departments may be exempt from the tax lid. Commissioner Allen stated that we won't know the impact the tax lid might have on Johnson County until we see the final proposal. Commissioner Allen believes the tax lid will cause a greater impact on the smaller cities and counties.

The Commission is starting the budget process and may face some challenges dependent on the landscape.

Mr. Shortlidge shared that he has heard that something will be changed, but we do not know what.

BOARD COUNSEL REPORT **Lenexa Land Conveyance**

Mr. Logan reviewed the Lenexa land conveyance with the Library Board and the associated pre-design agreement with PGAV.

In the wake of the approval of the mill levy increase and the Comprehensive Library Master Plan (CLMP) the Board of County Commissioners has provided direction to accelerate the Library projects. Mr. Logan praised the collaboration among all the parties to move forward with the projects in an efficient manner.

The Library is moving ahead with planning for the Lenexa City Center project. Steps are being taken to prepare the project to go before the Board of County Commissioners sitting as the Public Building Commission (PBC) for approval.

An MOU was previously approved by the Library Board and Lenexa City Council and ratified by the Board of County Commissioners.

The property conveyance agreement tracks closely to the Lenexa MOU that was approved by the Library Board in December. The city council will review it and approve it on April 19th. After approval by the city council, the Library will enter a 180 day due diligence period for the Library to conduct an investigation of the property to confirm the site will work for a branch library.

Mr. Logan addressed the “bridging” agreement with PGAV that provides pre-design services that will allow us to answer our questions about the site.

PGAV is the existing architect for the City of Lenexa on the Civic Center project. Mr. Logan emphasized that PGAV is being retained for pre-design services only. The PBC will make the call if there is a competitive process for the services.

The agreement before the Library Board has been vetted by the County Managers office and the Chair of the Commission.

Mr. Logan stated that some work has been done in anticipation of entering into the due diligence period, including contracting for survey services and ordering a title commitment.

If the site is appropriate the Library will take a conveyance from the City of Lenexa and accept the property at the end of the 180 days.

At the close of the CIP presentation, Mr. Logan will ask the Library Board to approve a motion that directs staff to submit the CIP proposals to the Commission for review and asking that the commission adopt a resolution of intent on the issuance of bonds. A formal resolution will also be adopted later.

Mr. Logan mentioned that on page four of the agreement, at the end of paragraph two, there is an indemnification provision. Mr. Logan instructed that the Library Board should make a motion to insert the indemnification provision before the last sentence.

The purpose of the amendment is to preserve our position under the Kansas Tort Claims Act and the Kansas Budget Law.

The amendment reads: ...Provided, however, that the parties agree that JCL shall have no obligation to indemnify City for acts for which JCL would otherwise be immune under the Kansas Tort Claims Act (K.S.A. 75-6104 et seq.), and amendments thereto, nor will the indemnity obligations set forth herein act as a waiver of JCL’s protections under such provisions, and further that any liability of JCL shall be subject to the liability limitations under K.S.A. 75-6105, and amendments thereto. Additionally, and notwithstanding anything set forth herein to the contrary, the parties specifically agree that the terms of this section, and the terms of this Agreement, shall be subject to and limited by the Kansas Cash Basis Law (K.S.A. 10-1101 et seq.), and amendments thereto, and the Kansas Budget Law (K.S.A. 75-2935 et seq.), and amendments thereto.

MOTION: Nancy Hupp moved to insert the amendment.

SECONDED: John Nelson

Motion Passed unanimously.

Mr. Nelson asked if there is another indemnification measure. Mr. Logan responded that there is not. The indemnification has been included in case of third party liability.

Bridging Document with PGAV –

Mr. Logan reviewed the proposed agreement with PGAV Architects for predesign architectural services. In order for the Library to complete the investigation of the Lenexa site within 180 days it will have to contract for architectural and engineering services. PGAV has been doing the architectural work on the Lenexa Civic Center project. Due to the accelerated timeline it makes sense to enter into an agreement with PGAV.

Mr. Nelson asked if there was a phase one completed on the property conveyance agreement. Mr. Logan said a phase one was completed and there were no identified problems.

Ms. Hupp asked if Georgia Sizemore will be dedicated to the Library projects.

Mr. Casserley responded that Ms. Sizemore will be primarily focused on Library Capital projects. She will work on site at the Library and will collaborate with her County Team. She does have obligations to the County Facilities team as well.

Motion on the Conveyance agreement

MOTION: Nancy Hupp moved that the Library Board of Directors approve the conveyance agreement.

SECONDED: Amy Ruo

Motion Passed unanimously.

MOTION: Mitra Templin moved that the Library Board of Directors approve the agreement with PGAV Architects.

SECONDED: John Nelson

Motion Passed unanimously.

Mr. Logan stated that the officials with the City of Lenexa have been responsive and excellent.

Mr. Logan explained the Capital Improvement Plan (CIP) motions that will be discussed in the New Business section of the meeting.

An amendment will be completed for the 2016 Capital Improvement Plan and the 2017 CIP will be approved. Mr. Logan will also ask the Library Board to approve a motion added to the agenda under VII. C.: The consideration of submission of the 2017 CIP Projects to the Public Building Commission and request for PBC adoption of a resolution of intent to issue bonds.

The suggested motion: I move that the staff be authorized to submit the CIP projects to the Public Building Commission for financing consideration and that the PBC be requested to adopt a resolution of intent to issue bonds on approved projects.

The motion was suggested by Bond Counsel and County Legal Counsel, Don Jarrett. This is not legally required, but a good idea to come from the Library Board as a request.

BUDGET

COUNTY LIBRARIAN REPORT

Budget update

Finance Director, Nicki Neufeld, reported on the reconciliation of the .75 Mill Levy Increase. The .75 Mill Levy Increase remains at its previous balance for February. Revenue at the end of February is at 49% for the year, which is as expected. Expenditures for the year are at 12% overall.

STRATEGIC PLAN

Summary of the Survey of County Citizens

Mr. Casserley reported on the results of the County Citizens survey completed by the ETC Institute.

Citizen surveys are implemented by the county every 2 years to help us identify community priorities, assess county performance over time and gather input from residents to help County leaders make decisions. 1,513 surveys were completed and the confidence level of the report is 95%.

Mr. Casserley shared that the Library come first in overall satisfaction with county services in Johnson County. The Library was first in overall satisfaction with County Services as compared to the U.S. and other Large Communities. The Library also came in first the category of familiarity with County Services.

In the listing of County Services that are most important to provide, the Library placed in the top four.

In the satisfaction and importance matrix the Library scores high in both importance and satisfaction.

Mr. Casserley concluded that residents of Johnson County appreciate the Library. The County is moving in the right direction and Johnson County is setting the standard for service delivery compared to other U.S. communities.

Mr. Casserley thanked the Board of County Commissioners for their leadership and direction.

Meeting with the City of Overland Park

Mr. Casserley reported on a recent meeting with City of Overland Park to discuss the Memorandum of Understanding. The MOU will be brought to the development council for approval, if approved it will then move to the city council for approval.

After approval next steps will include creating a city and Library team to begin architect and landscape architect selection. This work will continue throughout the year.

Comprehensive Library Master Plan

Library Project Coordinator, Scott Sime, introduced the Monticello Team to the Library Board. Assistant Facilities Manager, Dean Allman, Project Manager, Georgia Sizemore, Library Facilities Manager, Mike Heffernan, Branch Manager, Kinsley Riggs and County Project Manager, Janice Phillips.

Progress update:

The team has been working on programming and schematic design. Library staff, County budget, County facilities and staff from the City of Shawnee have been working collaboratively to determine what functions and spaces need to be at the Monticello location, to what scale and with what adjacencies.

The team is working on a two level solution for the building.

Monticello Public Input Session

An in person session for public input is being held at the Shawnee Library next Tuesday night at 6:00 p.m. We have received over 200 online comments via our Monticello location page.

Mr. Sime shared that we learned that a middle school teacher has given her students our form as writing prompt; we look forward to receiving their ideas.

We have publicized the forum through several media outlets including the Library website, County Public Information Office; notify JoCo text system and the Shawnee Dispatch. The City of Shawnee recently lost their Public Information Officer and we look forward to collaborating with that office in the future.

Ms. Templin asked if we have reached out the Sisters of Charity to ask about additional land.

Mr. Sime responded that after conferring with Mr. Logan we learned that the negotiations the first time were so protracted and cumbersome that we have decided to move forward with what we have.

Mr. Casserley reported that within the last two years the Library reached out to the legal firm representing the Sisters of Charity and the asking price for under an acre of land was over \$250,000.

Materials Handling Feasibility Study

Circulation Manager, Michelle Olsen, introduced herself to the Library Board. Ms. Olsen is serving as project manager for the Materials Handling Feasibility Study.

The materials handling feasibility study came from a recommendation in the Comprehensive Library Master Plan (CLMP) to consider our materials handling practices. We decided to look at how we move our materials through all of our locations with a critical eye on increasing materials handling efficiencies, quicker delivery of content to patrons, challenging institutional assumptions and lowering costs.

We are looking at the entire life-cycle of material movement from initial purchase, to circulation, and weeding from our collection and eventual donation to the Friends.

Ms. Olsen shared that the current timeline was developed in part by speaking with outside institutions to help define project scope. In January the team researched potential consultants. The team has

contacted some consultants and initiated a Q & A. They have asked for proposals by the end of the month.

It's critical to have answers about our materials handling as we design for Monticello, Lenexa and Blue Valley. The materials handling information will inform our processes.

The team anticipates a project kickoff by the end of May with a completed analysis and recommendation in August and a report and recommendation to the Library Board in September.

Ms. Templin asked if there was much interest from non-library consultants. Ms. Olsen responded that there wasn't much interest from consultants outside the Library field. There has been some interest from process engineering firms and the team hopes to see a proposal from that field.

Ms. Hupp and Mr. Nelson are serving as Board Liaisons to the project.

Two proposals have been received; the team hopes to receive at least three.

Ms. Robinson asked if an assumption the team is working from is that the amount of Library materials will remain consistent in the next 5 to 10 years.

Ms. Olsen stated that in the initial scope the assumption was made that in the future the amount of materials will remain what they are now. Collections Manager, Adam Wathen, clarified that the project team has asked the consultants to include proposals with various scalability models built into the solution. Studies show right now that publication has not declined and is actually diversifying with more titles on the market.

Ms. Robinson shared that a trend survey has been completed by digital district that shows for the first time a decrease in demand among students for physical books. Middle school to elementary age students prefers digital.

Ms. Olsen stated that we hope the consultant will bring that data to the table.

The Project Team members include: Jennifer Mahnken, Adam Wathen, Jason Barnes, Michelle Olsen, Matt Hammes, Tad Twidwell, Scott Sime, Nancy Hupp and John Nelson.

Staff area at Central

Mr. Casserley shared a plan for renovation of the staff area at the Central branch. The goal of the renovation is to consolidate the Web, IT and Communication departments that all report to the Customer Experience Manager. We have worked with County Facilities and Clark Enersen on the project.

The project has centered on the goals of improving materials handling in the building, improving physical adjacencies between relevant department and digital and physical content coordination.

Also considered are areas that need to be secured including technical services, IT and the data center.

Mr. Casserley shared the existing space and identified where the areas that make sense to be adjacent are currently located. The proposed layout considers the best layout to improve efficiencies.

Mr. Casserley informed the Library Board that this project can be paid for out of reserves. It is a process that the Library has been considering the last 24 months.

Mr. Nelson asked how the studio will be used.

Mr. Casserley responded that the studio is the space for a vinyl printer, paper storage, a laminating machine, large format printer and other production materials. A large workbench would be included in the space to lay out work.

Mr. Nelson asked if this is the last of the major projects for Central.

Mr. Casserley stated he does foresee more renovations at Central. When we considered everything that needs updating and renovations for Central the cost was over 4 million dollars. Because of the cost the projects have been spread over several years. The roof and parking lot still need to be updated.

Mr. Nelson asked if there are efficiencies to be gained by doing the roof at the same time as the staff area.

Mr. Casserley responded that there are not.

Volunteer Luncheon

The theme is "We Love You". It starts at noon, Friday, April 15th at the Shawnee Town Hall.

CONSENT AGENDA

Minutes of the March 10, 2016 meeting.

MOTION: Mitra Templin

SECONDED: JR Riley

MOTION CARRIED UNANIMOUSLY

OLD BUSINESS

Consideration of renewal of the MOU with JCCC Adult Education

Associate Director of Branch Services, Jennifer Mahnken, presented a renewal of the Memorandum of Understanding with Johnson County Community College Adult Education program. JCCC has utilized two of our libraries to offer GED and ESL services.

The largest change is that JCCC will not need one of the spaces this year due to decreased enrollment.

Ms. Templin asked why the Oak Park location was selected not to be used. Ms. Mahnken believes the choice was made due to proximity to the Central Resource Library and that the majority of programming occurs in the dedicated space at the Antioch branch.

MOTION: Amy Ruo moved that the Library Board approve the renewal of the MOU with JCCC Adult Education.

SECONDED: Nancy Hupp

MOTION CARRIED UNANIMOUSLY

NEW BUSINESS

Consideration to amend the Johnson County Library Capital Improvement Plan for 2016

Mr. Casserley stated that approval of the CIP is an annual process. Last year the Library mirrored the 2015 plan as a placeholder for 2016 because the Comprehensive Library Master Plan had not yet been approved. This year we would like to consider amending the 2016 CIP Project plan to include authorization of the Central Department Innovation and Consolidation, Monticello Library, new Lackman Library at Lenexa Civic Center and Blue Valley Library Renovation and Expansion projects and materials handling study.

Mr. Casserley stated his recommendation is for the Library Board to approve the amendment of the 2016 Capital Improvement Plan.

Ms. Robinson asked if the CIP money for Blue Valley is for design or design-build.

Mr. Casserley stated that some money will be spent in 2016 for the conceptual design. If we amend the 2016 CIP we can start working with Finance department and move forward by making it a project. Money can then be allocated into the project line.

Mr. Nelson asked if the logistics center is for the study alone. Mr. Casserley confirmed it is for the study only.

Ms. Robinson asked how long Monticello has been on a CIP request.

Mr. Logan said it was on the CIP request for 10 years, but Monticello and Blue Valley may not be analogous. He stated that with the mill levy increase and the encouragement to move forward with an accelerated project timeline no one is talking about a protracted timeline for Blue Valley.

MOTION: Nancy Hupp moved that the Library Board amend the 2016 CIP project plan to include the Central staffing space consolidation, Monticello Library, new Library at Lenexa Civic Center, Blue Valley Renovation and logistics center and to submit a request that the BoCC authorize these projects in the amounts depicted in the 2017 CIP request and the CRP.

SECONDED: Mitra Templin

MOTION CARRIED UNANIMOUSLY

Consideration of Johnson County Library Capital Improvement Plan for the 2017 budget

Mr. Casserley presented the Capital Improvement Plan for the 2017 budget to the Library Board.

The 2017 project plan includes the annual replacement request. Mr. Casserley stated that when he started as County Librarian in 2012 the annual request was \$300,000 and did not vary from year to year. Since then we've completed an audit with our Facilities Manager to fully understand our needs and the number has increased.

This plan includes the cost for Monticello, new Library at Lenexa Civic Center, Blue Valley Library Renovation and Expansion and the Logistics Center.

MOTION: Pam Robinson moved that the Library Board authorize the 2017 CIP/CRP project plan to be included in the budgeting process for the fiscal year 2017.

SECONDED: Amy Ruo

MOTION CARRIED UNANIMOUSLY

The consideration of submission of the 2017 CIP Projects to the Public Building Commission and request for PBC adoption of a resolution of intent to issue bonds

Mr. Casserley presented the consideration of submission of the 2017 CIP projects to the Public Building Commission and request for PBC adoption of a resolution of intent to issue bonds.

Mr. Logan stated that this motion was developed with Bond Counsel and County Counsel to authorize staff to submit the request to the PBC.

MOTION: John Nelson moved that the Library Board authorize staff to submit the CIP projects to the Public Building Commission for financing consideration and that the PBC be requested to adopt a resolution of intent to issue bonds on approved projects.

SECOND: Nancy Hupp

MOTION CARRIED UNANIMOUSLY

The consideration that the Library Board approves the one time use of Library reserves for the Central Library staffing space consolidation plan

If approved this motion will allow Mr. Casserley to go before the Board of County Commissioners with a request for additional resources.

It is recommended that the Library Reserves maintain a balance of between 5-10% of operating costs.

Mr. Casserley stated that the current Library reserves can accommodate this project. The anticipated total project costs would not exceed 1.7 million lowering the library reserve balance to 3.7 million.

Since 2012 the Library has been building up reserves by gaining efficiencies in staffing and other efficiencies. This was done with the knowledge that infrastructure was deteriorating and limited resources.

Mr. Shortlidge stated that doing this would enable us to have sufficient reserves to retain the AAA bond rating.

MOTION: Mitra Templin moved that the Library Board approve the one time use of reserves in the amount of \$1.7M to fund construction costs related to renovating the back offices at Central to accommodate Web, IT, and Communication, Collections, Interlibrary Loan and Tech Services departments; and to improve the staff break room and delivery/courier workflow.

SECOND: Nancy Hupp

MOTION CARRIED UNANIMOUSLY

Consideration of closing the Central Resource branch to hold the Pinnacle Awards on site

Closing the Library on October 15th will allow the Foundation the time to set up the space and bring in a new audience. Mr. Casserley supports this endeavor.

The closure will be communicated as we communicate Holiday closings; through signs, website, social media and word of mouth. We will also work to reroute patrons to branches in close proximity.

The reason for a closure will be an event.

Ms. Templin stated that she likes the idea to moving the event to the Library.

Mr. Casserley shared that there is the benefit that more people will be able to attend. There are cost savings on the event space and it allows us to highlight our Library.

In response to a question from Ms. Hupp, Mr. Casserley clarified that the Pinnacle Awards have been re-imagined and refreshed for the Foundation's 20th anniversary this year. It will still be a fundraiser.

Ms. Mong explained that it will not be a sit-down dinner event.

Commissioner Allen suggested that in future years we might consider holding events in the Heritage Center.

MOTION: Pam Robinson moved that the Library Board approve the request of the Foundation to close the Central Resource Library on 10/15/2016 for the setup of the annual Pinnacle Awards.

SECOND: Mitra Templin

MOTION CARRIED UNANIMOUSLY

Ms. Templin took an opportunity to thank everyone in Johnson County to allow her to serve on the Library Board. She thanked the County Commissioners for appointing her to the Library Board. Reflecting on the first meeting she attended the Board was discussing closing Libraries and 27 key positions that were unfilled. The County and the Library have come so far during her two terms of service. The staff, counsel, Commission and County Librarian have all been fabulous. Ms. Templin thanked everyone for allowing her to serve and she expressed her gratitude for being able to see the changes that eight years has made for this Library.

Election of Officers

Nancy Hupp, representing the nominating committee presented the slate of officers for Board approval:

Chair: Pam Robinson

Vice Chair/Secretary: John Nelson

Treasurer: JR Riley

MOTION: Nancy Hupp moved that the Library Board adopt the slate of officers.
SECOND: Mitra Templin

MOTION CARRIED UNANIMOUSLY

Mr. Shortlidge adjourned the meeting at 5:56 p.m.

DATE _____

SECRETARY _____
Pam Robinson

CHAIRMAN _____
Neil Shortlidge

SIGNED _____
Sean Casserley

JOHNSON COUNTY LIBRARY

**SUMMARY OF NEW AND/OR
RENEWED CONTRACTS
Mar-16**

VENDOR	DESCRIPTION	AMOUNT
Cengage	Online database: Gale Artemis Literary Sources	\$33,189.66
Cengage	Online database: Demographics Now	\$17,797.50
Cengage	Online database: Gale Biography in Context	\$20,055.85
Mergent	Online database: Global Reach	\$18,700.00
KC Improv	Development and Training	\$1,800.00
Ebsco	Online Database	\$24,000.00
ACS	Central Resource - Return Fan	\$6,207.00
BiblioCommons	Combined Catalog	\$12,409.00
BiblioCommons	Summer Reading	\$8,398.74
	Total	\$142,557.75

SIGNED:

Finance Director

**JOHNSON COUNTY LIBRARY
GIFT FUND
TREASURER'S REPORT**
Period: MAR-2016

		Receipts	Payments	Balance
	Opening cash balance			\$141,335.02
	Add Receipts	\$171.89		
	Less Payments		\$5,688.01	
	Ending Cash balance			\$135,818.90
	Less Liabilities		\$37,832.60	
	Unobligated cash balance			\$97,986.30

APPROVED: _____

TREASURER: _____

Briefing Sheet

To: JCL Library Board
From: Sean Casserley, County Librarian
Date: May 12, 2016

Issue: Consider approving award of contract with Midwest Presentations, Inc., dba CCS Presentation Systems to provide Central's rooms with AV capabilities.

Background: Library staff, along with representation from County Facilities, have worked with Avant Acoustics to develop a detailed design for AV systems to be installed at Central Resource Library. The Library desires to award the work to CCS. This work would furnish Central's Carmack and Logan rooms, Training Lab, twelve-person conference rooms, and 6-person study rooms with AV systems.

Some of the cost for this project will be funded by Donor support, some will be funded by remaining CBU project funds, and the balance will be funded by Central operating funds.

The AV package includes:

- Carmack Room. Projectors, AV inputs, flat-panel displays, microphones, telephone dial-in capability, and assisted hearing technology,
- Logan Room. Projector, AV inputs
- Training Lab. Projector, AV inputs, microphones, assisted hearing technology, video capture capability
- 12- and 6-person rooms. Flat-panel display, AV inputs
- Gallery Space. Speaker functionality restored in Gallery space

Alternatives: 1) Approving the award of contract to Midwest Presentations, Inc., dba CCS Presentation Systems. 2) Not approving the award of contract with Midwest Presentations, Inc., dba CCS Presentation Systems.

Legal Review: Fred Logan

Budget Approval: Nicki Neufeld

Recommendation: Approve the award of contract to Midwest Presentations, Inc., dba CCS Presentation Systems, with the allocation of funding to be determined by Library staff.

Suggested Motion: I move that the Library Board approve the award of contract to Midwest Presentations, Inc., dba CCS Presentation Systems, with the allocation of funding to be determined by Library staff.

**JOHNSON COUNTY LIBRARY
AUDIO-VISUAL SYSTEMS CONTRACT**

THIS CONTRACT is made this _____ day of _____, 2016, by and between THE BOARD OF DIRECTORS OF THE JOHNSON COUNTY LIBRARY, a public body corporate of the State of Kansas, hereinafter called the OWNER, and the following named contractor, hereinafter referred to as the SYSTEMS CONTRACTOR:

MIDWEST PRESENTATIONS, INC. dba CCS PRESENTATION SYSTEMS,
a Kansas for-profit corporation
7820 Barton
Lenexa, Kansas 66214

WITNESSETH, that the Owner and the Systems Contractor for the consideration hereinafter stated agree as follows:

ARTICLE 1
THE WORK

The Systems Contractor shall furnish all the materials, labor, tools and transportation, and perform all of the work necessary to complete the following project (the Work):

Furnishing and installing audio-visual systems in the Johnson County Central Resource Library in accordance with the Systems Contractor's revised proposals dated May 4, 2016 (collectively referred to as the Proposal) and the Owner's specifications, drawings, and diagrams set forth in a document entitled "Johnson County Central Resource Library, Section 27 41 00 – Audio-Visual Systems" (the Specifications), and as further required by the Contract Documents hereinafter described and listed.

A. The Systems Contractor represents to Owner that it has the experience, skill, and expertise to perform the Work in the manner required by this Contract and the Proposal and the Specifications.

ARTICLE 2
THE CONTRACT DOCUMENTS

The Contract Documents consist of this Contract; the Standard Library Contract Addendum, which is incorporated in this Contract; the Systems Contractor's Proposal, which is attached to this Contract and incorporated herein by reference as Exhibit A; the Specifications, which are attached to this Contract and incorporated herein by reference as Exhibit B; and all modifications (the Modifications) issued after execution of this Contract. Said documents form the contract between the parties, and all are as fully a part of this Contract as if attached hereto or repeated herein. The following is a listing by title of the Contract Documents, except for Modifications issued after execution of this Contract:

- The Standard Library Contract Addendum, which is incorporated in this Contract at pages 4-5, and which shall be separately executed by the Systems Contractor.
- The Systems Contractor's two revised proposals for the "Johnson County Central Resource Library Audio Visual Systems" dated the 4th day of May, 2016 (collectively referred to as the Proposal).

- The specifications, drawings, and diagrams issued by the Owner in a document entitled “Johnson County Central Resource Library, Section 27 41 00 – Audio-Visual Systems,” and dated March, 2016 (the Specifications).

ARTICLE 3
CONTRACT SUM

The Owner shall pay to the Systems Contractor in warrants of Johnson County, Kansas for performance of the Work required by the Contract Documents, subject to additions and/or deductions by Modification as provided by the Contract Documents, the following sum (the Contract Sum): One Hundred Seventy-Five Thousand and 00/100 Dollars (\$175,000.00).

ARTICLE 4
PAYMENTS

The Owner shall make payments to the Systems Contractor on account of the Contract Sum by way of a purchase order issued by the Owner in the amount of \$50,000, and the balance of \$125,000 in the manner prescribed by Article 4 of this Contract. The Systems Contractor shall periodically invoice the Owner for work performed and costs incurred. In reviewing invoices, the Owner may seek the assistance of its acoustical consultant, Avant Acoustics, LLC (the Acoustical Consultant), and experts on the staff of Johnson County Facilities Management to assure that the Work is proceeding in the manner contemplated by the Contract Documents. Five percent (5%) of the Contract Sum shall be withheld pending final inspection.

ARTICLE 5
ACCEPTANCE AND FINAL PAYMENT

Upon receipt of written notice that the Work is ready for final inspection and acceptance, the Owner shall cause its Acoustical Consultant and experts on the staff of Johnson County Facilities Management to promptly make such inspection, and if upon such inspection, the Work is found to be acceptable to the Owner under the Contract, the Owner shall promptly issue final payment of the balance of the Contract Sum to the Systems Contractor.

Before issuance of final payment, the Systems Contractor shall submit evidence satisfactory to the Owner that all payrolls, materials bills, and other indebtedness connected with the Work have been paid.

ARTICLE 6
TIME OF COMMENCEMENT AND COMPLETION

The Systems Contractor shall commence the Work required by the Contract Documents within ten (10) consecutive calendar days after the date of Owner’s issuance of written notice to proceed with the Work. The Systems Contractor shall diligently and continuously perform the Work until it is completed.

ARTICLE 7
PARTIES BOUND

The terms and conditions of this Contract and the Contract Documents shall be binding upon and inure to the benefit of the Owner and the Systems Contractor and their respective heirs, personal representatives, successors and assigns.

IN WITNESS WHEREOF the parties hereto have executed this Contract the day and year first above written.

OWNER:

BOARD OF DIRECTORS OF THE
JOHNSON COUNTY LIBRARY

By: _____
Pamela Robinson
Chair

Attest:

By: _____
John Nelson
Secretary

SYSTEMS CONTRACTOR:

MIDWEST PRESENTATIONS, INC.
dba CCS PRESENTATION SYSTEMS:

By: _____

Name: _____

Title: _____

STANDARD LIBRARY CONTRACT ADDENDUM

The following terms and conditions are hereby made a part of the foregoing Contract between the Owner and Systems Contractor. These terms and conditions are made applicable to the foregoing Contract pursuant to the terms of ARM 50-30-25, "Contracts." In the event that any terms and conditions set forth below are in conflict with any terms and conditions set forth in the foregoing Contract, the terms and conditions set forth in this Addendum shall control.

Governing Law. This Contract shall be governed by the laws of the State of Kansas. In the event that the parties hereto are unable to resolve any controversy or claim arising out of, or relating to, this Contract or the making, performance or interpretation of it without resort to the courts, the parties agree that exclusive jurisdiction and venue over such matter shall be in the District Court of Johnson County, Kansas.

Entire Contract. This Contract represents the entire agreement between the Owner and the Systems Contractor with respect to services required hereunder and supersedes any and all previous understandings, whether oral or written, between the Owner and the Systems Contractor regarding the same.

Assignment. The Systems Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or any of its rights and obligations hereunder without the prior written consent of the Owner, but in no event shall such consent relieve the Systems Contractor from its obligations under the terms of this Contract.

Non-appropriation. Notwithstanding anything contained in the Contract to the contrary, it is understood and agreed by the parties hereto that the Owner is obligated only to pay periodic payments or monthly installments under this Contract as may lawfully be made from funds budgeted and appropriated for such purpose during the Owner's then current budget year (i.e., January 1 to December 31) or from funds made available from any lawfully operated, revenue producing source. Should the Board of County Commissioner of Johnson County, Kansas (County) or the Owner fail to budget, appropriate or otherwise make available funds for payments due under the Contract in any budget year, the Contract shall be deemed terminated on the last day of the then current budget year for which appropriations were received, without penalty or expense to the County or the Owner, of any kind whatsoever, except as to the portions of the recurring charges, if any, herein agreed upon for which funds shall have been appropriated and budgeted or are otherwise made available. The Owner agrees to provide the Systems Contractor sixty (60) days prior written notice of such non-appropriation, if any.

Contract Status. This Contract does not constitute a hiring by either party. It is understood and agreed by the parties hereto that the Systems Contractor shall be deemed an independent contractor, and not an employee of the Owner or of Johnson County, Kansas government for any purposes, including, but not limited to, the application of the Federal Insurance Contribution Act, the Social Security Act, the Federal Unemployment Tax Act, the provisions of the Internal Revenue Code, the State income tax code and third party liability claims, and that this Contract shall be deemed an independent contract for services. This Contract shall not be construed or considered to be a partnership or joint venture, and the Owner shall not be liable for any obligations incurred by the Systems Contractor unless specifically authorized in writing. The Systems Contractor shall not act as an agent of the Owner or of Johnson County, Kansas government, ostensibly or otherwise, nor bind the Owner in any manner, unless specifically authorized to do so in writing.

Licensure; Insurance. It is understood and agreed by the Owner and the Systems Contractor that the Systems Contractor, at Systems Contractor's own cost and expense, and for the duration of this Contract, shall be appropriately licensed to perform the services required hereunder and shall be responsible for maintaining such licensure and/or certifications, if any, that may be required to perform such services and shall be responsible for procuring and maintaining sufficient professional and commercial general liability insurance coverage appropriate and applicable to the purpose and scope of this Contract and that meets the requirements of the Risk Management office of Johnson County, Kansas. The Systems Contractor agrees to immediately supply the Owner with proof of any such license, certification and/or insurance coverage upon written request of the Owner.

Term; no automatic renewal. The term, if any, of this Contract shall be as set forth in the foregoing Contract. There shall be no automatic renewal of this Contract.

Good Standing. The Systems Contractor shall be authorized to do business and in good standing in the State of Kansas during the term of this Contract.

Non-Discrimination and Equal Opportunity. The Systems Contractor agrees to not discriminate on the basis of race, religion, sex, creed, national origin, handicap, marital status, or veteran's status in its operation, management and employment practices and with respect to availability and accessibility of products and services to the public. The Systems Contractor agrees to comply with all applicable laws of the State of Kansas and of the United States of America, regarding such non-discrimination and equality of opportunity.

Notices. Any notices, bills, invoices, reports, payment or correspondence required or permitted by or from one party to the other under this Contract shall be made in writing, delivered personally, or by United States mail, postage prepaid to the following addresses, or on the location as either party may from time to time designate:

OWNER:

JOHNSON COUNTY LIBRARY
9875 W. 87th Street
Overland Park, Kansas 66212
Attn: Sean T. Casserley

SYSTEMS CONTRACTOR:

MIDWEST PRESENTATIONS, INC. dba
CCS PRESENTATION SYSTEMS
7820 Barton
Lenexa, KS 66214
Attn: Joe Fandel

Approved by Systems Contractor:

By: _____
Name: _____
Title: _____



Kansas City Office
7820 Barton
Lenexa, KS 66214

913-948-6666
913-948-6667 Fax

JOHNSON COUNTY LIBRARY

Prepared For: **Johnson County Kansas Facilities Management Department**
111 South Cherry Street
Suite 2100
Olathe, KS 66061

Project: Johnson County Central Resource Library Audio Visual Systems
Date: ~~04/04/2016~~ **REVISED 05/04/2016**

COMPANY OVERVIEW

CCS Presentation Systems is committed to partnering with Johnson County Library to create a more engaging and meaningful environment through the use of audiovisual technology. The majority of our clients are repeat clients because CCS gets the job done right the first time. As 2013's Integrator of the Year in the US and Canada, we are confident that we will meet the needs of Johnson County Library.

CCS Presentation Systems has the dedication and ability to respond quickly to any change orders that may arise. Our team is committed to partnering with Johnson County Library to ensure the project is executed smoothly. The specialization and depth of audiovisual services offered by CCS, including design, installation and training, will continue to help make the Johnson County Central Resource Library second to none.

Please feel free to contact CCS Presentation Systems directly regarding any proposal questions. We look forward to sharing our leading audiovisual services with you.

SCOPE OF WORK

Provide new and functional audio-visual equipment per consultant specifications in the Central Resource Library for the following locations:

- Carmack Room 120
- Training Room 118
- Large Conference Room 219
- Medium Conference Rooms 117, 118, 201
- Small Conference Rooms 202, 203, 204, 205, 206, 207, 215
- Portable Equipment

CCS Presentation Systems Design Review

- After reviewing all associated specifications and drawings presented we propose a few simple substitutions to the system. The following substitutions will not impact the functionality of the systems:
 - Carmack Room 120, Changes & Alterations
 - Type 1 Video Extenders were specified in the system drawings. The type 1 extender only has HDMI. The drawings show RGBHV & audio also being required. We changed our proposal to utilize the Type 2 extender for the 5 floorbox locations.
 - In order to remotely power the Crestron endpoints, we included a DM-PSU-16 power supply to inject power over DM via the 8x8 matrix.
 - Audio processor specified is a 12 input unit. Section 2.4-C. (TesiraForte VI) The drawings reflect 21 inputs required for this space. To meet the requirements of the room, we substituted the Biamp TesiraForte AVB VI. We added an EX-MOD expansion chassis, with 3 Tesira EEC-4, 4-ch input cards with on board AEC. AVB requires a network switch which is AVB compliant. We also included a Netgear switch with the AVB license factory loaded.
 - The Chief RPAU projector mount, cannot carry the size/weight of the Digital Projection projector. We substituted a Chief VCMU heavy duty mount.
 - Large Conference Room 219, Changes & Alterations
 - No 8 Ohm power amplifier was specified in the equipment list. (2.4-D) In the system drawing, an 8 Ohm amplifier is required. We proposed this system utilizing an Extron XPA 1002 Plus, 2 channel, 8 Ohm power amplifier.
 - Bid Pricing reflects all system/equipment changes

CCS Presentation Systems Installation, Testing & Sign-Off

- CCS will install all equipment and wiring in accordance with manufacture's written instructions, and with recognized industry practices to insure that equipment complies with requirements and serves intended purpose.
- CCS will coordinate with other work as necessary including library staff and schedules.
- Installation will comply with requirements of the National Electrical Code.
- CCS will test all AV Systems upon completion of installation to the satisfaction of the Architect, Owner and authorities having jurisdiction.



Crestron Matrix and Endpoints

Manufacturer	Part Number	Description	Qty
Crestron	DM-TX-200-C-2G	Wall Plate DigitalMedia 8G+ Transmitter 200	5
Crestron	DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+ Receiver & Room Controller w/Scaler	4
Crestron	DM-MD8X8	8x8 DigitalMedia Switcher	1
Crestron	DMC-4K-C	HDBaseT Certified 4K DM 8G+ Input Card for DM Switchers	5
Crestron	DMC-4K-HD	4K HDMI Input Card for DM Switchers	2
Crestron	DMC-4K-CO-HD	2-Channel HDBaseT Certified 4K DM 8G+ Output Cardfor DM Switchers	2
Crestron	DMC-4K-HDO	2-Channel 4K Scaling HDMI Output Card for DM Switchers	1
Crestron	DM-PSU-16	16-Port PoDM Power Supply for DM-MD8X8	1

Audio Equipment

Manufacturer	Part Number	Description	Qty
Biamp	TesiraFORTE AVB VI	Digital Signal Processor with 12 in 8 out analog connections, AVB digital connection, and VoIP connection	1
Biamp	EX-MOD	3-card expansion chassis	1
Biamp	Tesira EEC-4	4-Ch, ic/Line expansion card with on board AEC	3
Biamp	NG GS724T AVB	24 Port Network switch with AVB license factory installed	1
Biamp	Tesira EX-LOGIC	16 Logic port control expansion device	1
Atlas	FAP8CXT	2-way compression driver coax in ceiling loudspeaker	15
Extron	XPA 2002	2Ch, 200 Watts Per Channel, 70v Power Amplifier	1
Listen	LT-800	Stationary RF Transmitter	1
Listen	LA-123	Remote Antenna	1
Listen	LA-326	Rack Mount Kit	1

Video Equipment

Manufacturer	Part Number	Description	Qty
Aurora	Vtune Pro 4K	4K Capable Rack Mount Tuner	1
NEC	E805	80" 1080p commercial display	2
Digital Projection	112-339	E-Vision WUXGA 8000 Lumen WUXGA projector	2
Digital Projection	112-501	1.72 - 2.27 : 1 Lens for E-Vision 8000 Projector	2

Microphones

Manufacturer	Part Number	Description	Qty
Shure	MX418S/C	18" Gooseneck Cardioid Desktop Mic w/Preamp	15
Shure	A412MWS	Locking Metal Windscreen	15
RF Venue	DFINW	Wallmount white diversity antenna for any UHF wireless mic	1
Shure	RPW116	Wireless SM87A Cartridge	2
Shure	WL183	Lavalier Condenser Microphone for Carmack Bodypack	2



Rack			
Manufacturer	Part Number	Description	Qty
Middle Atlantic	WR-37-32	37SP, Roll Out Rotating Rack	1
Middle Atlantic	BR1	1U Brush Panel	1
Middle Atlantic	PDS-615R	Rackmount Power, 6 Outlet, 15A, 6-Step Sequencing	1
Middle Atlantic	MW-4QFT-FC	4.5" Fan Panel	1
Middle Atlantic		Blank Panels, Vent panels, Lace Bars, PDW, & Shelves	1
Middle Atlantic		Barrier Strips	1
Panduit	DP246X88TGY	DP6A UTP Rackmount Patch Panel (Flat)	1

Control System			
Manufacturer	Part Number	Description	Qty
Crestron	TST-902	8.7" Wireless Touch Screen	1
Crestron	TST-902-DSW	Wall Dock for TST-902	1
Crestron	CEN-RFGW-EX-PWE	inFINET EX & ER Wireless Gateway w/PoE Injector	1
Crestron	CEN-WAP-1500	High Power Dual-Band Wireless Access Point	1
Crestron	Pro3	3-Series Control System	1
Cisco	2960S-24PD-L	Catalyst, 24-Port PoE, Layer 2 network switch	1

Cables, Connectors, Hardware			
Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1
Chief	VCMU	Heavy Duty Universal Projector Mount	2
Chief	LTM1U	Large Fusion Micro-Adjustable Tilt Wall Mount	2
Crestron	CBL-HD-12	Crestron® Certified HDMI® Interface Cable, 12 ft	5
Crestron	CBL-AUDIO-12	Crestron® Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	5
Crestron	CBL-VGA-12	Crestron® Certified Computer VGA Interface Cable, 12 ft	5
Crestron	DM-CBL-8G-P-SP500	DigitalMedia 8G Cable, plenum, 500 ft spool	1

Labor		
Provider	Part Number	Description
CCS	Installation	
CCS	Project Management	
CCS	Testing/ Sign-Off	
CCS	Design	
CCS	Programming	System Programming

Tax	TBD
Total	\$ 29,167.11



Video Equipment

Manufacturer	Part Number	Description	Qty
Crestron	DMP53-200-C	3-Series DM Presentation System 200	1
Crestron	DM-TX-200-C-2G	Wall Plate DM 8G+ Transmitter 200	1
Crestron	DM-RMC-4K-SCALER-C	4K DM 8G+ Receiver & Room Controller w/Scaler	1
Vaddio	999-6986-000	Clearview HD-20SE QDVI Camera System	1
Crestron	Capture HD	High-Definition Capture Recorder	1
NEC	NP-P452H	4500 Lumen WUXGA projector	1
Extron	HDMI 101 Plus	HDMI Cable Equalizer	1

Audio Equipment

Manufacturer	Part Number	Description	Qty
Listen	LT-800	Stationary RF Transmitter	1
Listen	LA-123	Remote Antenna	1
Listen	LA-326	Rack Mount Kit	1
Shure	MX418D/C	18" Gooseneck Cardioid Desktop Microphone	1
Shure	A412MWS	Locking Metal Windscreen	1
Shure	QLXD14/83	Wireless bodypack system with WL183 lavalier	1
Shure	UA850	50ft BNC-BNC RG8X/U, 50 ohm Antenna Cable	3
Atlas	FAP82T	2-Way 8" In ceiling loudspeaker	9

Rack

Manufacturer	Part Number	Description	Qty
Middle Atlantic	MFR-1227	12U, 27" Deep furniture rack, Owner selects finish	1
Middle Atlantic	PDS-615R	Rackmount Power, 6 Outlet, 15A, 6-Step Sequencing	1
Middle Atlantic		Rack Shelves and Blank Panels	1

Control System

Manufacturer	Part Number	Description	Qty
Crestron	TSW-1050-B-S	10.1" Touch Screen, Black Smooth	1
Crestron	TSW-1050-TTK-B-S	Tabletop Kit for TSW-1050 & TSW-1052, Black Smooth	1



Cables, Connectors, Hardware			
Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1
Chief	RPAUW	Universal Projector Mount (WHITE)	1
Chief	CMA345	Structural Ceiling Plate	1
Chief	CMA340	Projector Stabilization Kit for Columns	1
Crestron	CBL-HD-12	Crestron® Certified HDMI® Interface Cable, 12 ft	1
Crestron	CBL-AUDIO-12	Crestron® Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	1
Crestron	CBL-VGA-12	Crestron® Certified Computer VGA Interface Cable, 12 ft	1

Labor			
Provider	Part Number	Description	
CCS	Installation		
CCS	Project Management		
CCS	Testing/ Sign-Off		
CCS	Design		
CCS	Programming	System Programming	
CCS	Programming	iPad Integration	

Tax	TBD
Total	\$ 10,594.80



Video Equipment			
Manufacturer	Part Number	Description	Qty
Crestron	HD-EXT4-C	HDMI HDBaseT Extender Kit	1
Crestron	DM-TX-200-C-2G	Wall Plate DigitalMedia 8G+® Transmitter 200	1
Crestron	DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+® Receiver & Room Controller w/Scaler	1
Crestron	DMPS3-4K-150-C	3-Series 4K DigitalMedia Presentation System 150	1
NEC	NP-P452H	4500 Lumen WUXGA projector	1

Audio Equipment			
Manufacturer	Part Number	Description	Qty
KSI	8081-CSD	2-way, Ceiling grid mounted loudspeaker	2
Extron	XPA 1002 Plus	2Ch, 100 Watts Per Channel, 8-Ohm Power Amplifier	1

Rack			
Manufacturer	Part Number	Description	Qty
Middle Atlantic	MFR-1227	12U, 27" Deep furniture rack, Owner selects finish	1
Middle Atlantic	PDS-615R	Rackmount Power, 6 Outlet, 15A, 6-Step Sequencing	1
Middle Atlantic		Rack Shelves and Blank Panels	1

Crestron Cabling			
Manufacturer	Part Number	Description	Qty
Crestron	CBL-HD-12	Crestron® Certified HDMI® Interface Cable, 12 ft	2
Crestron	CBL-AUDIO-12	Crestron® Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	2
Crestron	CBL-VGA-12	Crestron® Certified Computer VGA Interface Cable, 12 ft	1
Crestron	CBL-HD-3	Crestron Certified HDMI Interface Cable, 3 ft	2
Crestron	CBL-AUDIO-3	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 3 ft	1

Control System			
Manufacturer	Part Number	Description	Qty
Crestron	TSW-752-B-S	7" Touch Screen, Black Smooth	1
Crestron	TSW-750-TTK-B-S	Tabletop Kit for TSW-750 & TSW-752, Black Smooth	1



Cables, Connectors, Hardware

Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1
Chief	RPAUW	Universal Projector Mount (WHITE)	1
Chief	CMA345	Structural Ceiling Plate	1
Chief	CMA340	Projector Stabilization Kit for Columns	1
Panduit		Panduit Cat6 Wall Plate & Patch Cables	1

Labor

Provider	Part Number	Description
CCS	Installation	
CCS	Project Management	
CCS	Testing/ Sign-Off	
CCS	Design	
CCS	Programming	System Programming

Tax	TBD
Total	\$ 3,345.50



Video Equipment

Manufacturer	Part Number	Description	Qty
Crestron	HD-EXT4-C	HDMI HDBaseT Extender Kit	3
NEC	E655	65" 1080p commercial display	3
Chief	LTM1U	Large Fusion Micro-Adjustable Tilt Wall Mount	3
Crestron	CBL-HD-12	Crestron Certified HDMI Interface Cable, 12 ft	3
Crestron	CBL-AUDIO-12	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	3
Crestron	CBL-HD-3	Crestron Certified HDMI Interface Cable, 3 ft	3
Crestron	CBL-AUDIO-3	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 3 ft	3

Cables, Connectors, Hardware

Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1

Labor

Provider	Part Number	Description
CCS	Installation	
CCS	Project Management	
CCS	Testing/ Sign-Off	
CCS	Design	
CCS	Programming	System Programming

Tax	TBD
Total	\$ 3,177.18



Video Equipment			
Manufacturer	Part Number	Description	Qty
Crestron	HD-EXT4-C	HDMI HDBaseT Extender Kit	7
NEC	E505	50" 1080p commercial display	7
Chief	MTM1U	Medium Fusion Micro-Adjustable Tilt Wall Mount	7
Crestron	CBL-HD-12	Crestron Certified HDMI Interface Cable, 12 ft	7
Crestron	CBL-AUDIO-12	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	7
Crestron	CBL-HD-3	Crestron Certified HDMI Interface Cable, 3 ft	7
Crestron	CBL-AUDIO-3	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 3 ft	7

Cables, Connectors, Hardware			
Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1

Labor			
Provider	Part Number	Description	
CCS	Installation		
CCS	Project Management		
CCS	Testing/ Sign-Off		
CCS	Design		
CCS	Programming	System Programming	

Tax	TBD
Total	\$ 3,122.40



Assisted Listening			
Manufacturer	Part Number	Description	Qty
Listen	LR-400	Portable Display RF Receiver	10
Listen	LA-165	Headphones	10
Listen	LA-166	Neck Loop	2

Audio Equipment			
Manufacturer	Part Number	Description	Qty
ProCo	EXMN-10	10' XLR Mic Cable	5
ProCo	CCS-EXMN-25 + XXR-2	25ft long with red color band on male XLR	5
K&M	27195	Tripod Boom Mic Stand	3
Rat Testers	ST-XLR-SS	Rat Sniffer-Sender XLR Test Set	1

Labor		
Provider	Part Number	Description
CCS		Project Management
CCS		Testing/ Sign-Off

Tax	TBD
Total	\$ 593.01



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JOHNSON COUNTY LIBRARY

Prepared For: **The Board of Directors of the Johnson County Library**
111 South Cherry Street
Suite 2100
Olathe, KS 66061

Project: Johnson County Central Resource Library Audio Visual Systems

Date: ~~04/04/2016~~ **REVISED 05/04/2016**

COMPANY OVERVIEW

CCS Presentation Systems is committed to partnering with Johnson County Library to create a more engaging and meaningful environment through the use of audiovisual technology. The majority of our clients are repeat clients because CCS gets the job done right the first time. As 2013's Integrator of the Year in the US and Canada, we are confident that we will meet the needs of Johnson County Library.

CCS Presentation Systems has the dedication and ability to respond quickly to any change orders that may arise. Our team is committed to partnering with Johnson County Library to ensure the project is executed smoothly. The specialization and depth of audiovisual services offered by CCS, including design, installation and training, will continue to help make the Johnson County Central Resource Library second to none.

Please feel free to contact CCS Presentation Systems directly regarding any proposal questions. We look forward to sharing our leading audiovisual services with you.

SCOPE OF WORK

Provide new and functional audio-visual equipment per consultant specifications in the Central Resource Library for the following locations:

- Carmack Room 120
- Training Room 118
- Large Conference Room 219
- Medium Conference Rooms 117, 118, 201
- Small Conference Rooms 202, 203, 204, 205, 206, 207, 215
- Portable Equipment

CCS Presentation Systems Design Review

- After reviewing all associated specifications and drawings presented we propose a few simple substitutions to the system. The following substitutions will not impact the functionality of the systems:
 - Carmack Room 120, Changes & Alterations
 - Type 1 Video Extenders were specified in the system drawings. The type 1 extender only has HDMI. The drawings show RGBHV & audio also being required. We changed our proposal to utilize the Type 2 extender for the 5 floorbox locations.
 - In order to remotely power the Crestron endpoints, we included a DM-PSU-16 power supply to inject power over DM via the 8x8 matrix.
 - Audio processor specified is a 12 input unit. Section 2.4-C. (TesiraForte VI) The drawings reflect 21 inputs required for this space. To meet the requirements of the room, we substituted the Biamp TesiraForte AVB VI. We added an EX-MOD expansion chassis, with 3 Tesira EEC-4, 4-ch input cards with on board AEC. AVB requires a network switch which is AVB compliant. We also included a Netgear switch with the AVB license factory loaded.
 - The Chief RPAU projector mount, cannot carry the size/weight of the Digital Projection projector. We substituted a Chief VCMU heavy duty mount.
 - Large Conference Room 219, Changes & Alterations
 - No 8 Ohm power amplifier was specified in the equipment list. (2.4-D) In the system drawing, an 8 Ohm amplifier is required. We proposed this system utilizing an Extron XPA 1002 Plus, 2 channel, 8 Ohm power amplifier.
 - Bid Pricing reflects all system/equipment changes

CCS Presentation Systems Installation, Testing & Sign-Off

- CCS will install all equipment and wiring in accordance with manufacture's written instructions, and with recognized industry practices to insure that equipment complies with requirements and serves intended purpose.
- CCS will coordinate with other work as necessary including library staff and schedules.
- Installation will comply with requirements of the National Electrical Code.
- CCS will test all AV Systems upon completion of installation to the satisfaction of the Architect, Owner and authorities having jurisdiction.



Crestron Matrix and Endpoints

Manufacturer	Part Number	Description	Qty
Crestron	DM-TX-200-C-2G	Wall Plate DigitalMedia 8G+ Transmitter 200	5
Crestron	DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+ Receiver & Room Controller w/Scaler	4
Crestron	DM-MD8X8	8x8 DigitalMedia Switcher	1
Crestron	DMC-4K-C	HDBaseT Certified 4K DM 8G+ Input Card for DM Switchers	5
Crestron	DMC-4K-HD	4K HDMI Input Card for DM Switchers	2
Crestron	DMC-4K-CO-HD	2-Channel HDBaseT Certified 4K DM 8G+ Output Cardfor DM Switchers	2
Crestron	DMC-4K-HDO	2-Channel 4K Scaling HDMI Output Card for DM Switchers	1
Crestron	DM-PSU-16	16-Port PoDM Power Supply for DM-MD8X8	1

Audio Equipment

Manufacturer	Part Number	Description	Qty
Biamp	TesiraFORTE AVB VI	Digital Signal Processor with 12 in 8 out analog connections, AVB digital connection, and VoIP connection	1
Biamp	EX-MOD	3-card expansion chassis	1
Biamp	Tesira EEC-4	4-Ch, ic/Line expansion card with on board AEC	3
Biamp	NG GS724T AVB	24 Port Network switch with AVB license factory installed	1
Biamp	Tesira EX-LOGIC	16 Logic port control expansion device	1
Atlas	FAP8CXT	2-way compression driver coax in ceiling loudspeaker	15
Extron	XPA 2002	2Ch, 200 Watts Per Channel, 70v Power Amplifier	1
Listen	LT-800	Stationary RF Transmitter	1
Listen	LA-123	Remote Antenna	1
Listen	LA-326	Rack Mount Kit	1

Video Equipment

Manufacturer	Part Number	Description	Qty
Aurora	Vtune Pro 4K	4K Capable Rack Mount Tuner	1
NEC	E805	80" 1080p commercial display	2
Digital Projection	112-339	E-Vision WUXGA 8000 Lumen WUXGA projector	2
Digital Projection	112-501	1.72 - 2.27 : 1 Lens for E-Vision 8000 Projector	2

Microphones

Manufacturer	Part Number	Description	Qty
Shure	MX418S/C	18" Gooseneck Cardioid Desktop Mic w/Preamp	15
Shure	A412MWS	Locking Metal Windscreen	15
RF Venue	DFINW	Wallmount white diversity antenna for any UHF wireless mic	1
Shure	RPW116	Wireless SM87A Cartridge	2
Shure	WL183	Lavalier Condenser Microphone for Carmack Bodypack	2



Rack

Manufacturer	Part Number	Description	Qty
Middle Atlantic	WR-37-32	37SP, Roll Out Rotating Rack	1
Middle Atlantic	BR1	1U Brush Panel	1
Middle Atlantic	PDS-615R	Rackmount Power, 6 Outlet, 15A, 6-Step Sequencing	1
Middle Atlantic	MW-4QFT-FC	4.5" Fan Panel	1
Middle Atlantic		Blank Panels, Vent panels, Lace Bars, PDW, & Shelves	1
Middle Atlantic		Barrier Strips	1
Panduit	DP246X88TGY	DP6A UTP Rackmount Patch Panel (Flat)	1

Control System

Manufacturer	Part Number	Description	Qty
Crestron	TST-902	8.7" Wireless Touch Screen	1
Crestron	TST-902-DSW	Wall Dock for TST-902	1
Crestron	CEN-RFGW-EX-PWE	infiNET EX & ER Wireless Gateway w/PoE Injector	1
Crestron	CEN-WAP-1500	High Power Dual-Band Wireless Access Point	1
Crestron	Pro3	3-Series Control System	1
Cisco	2960S-24PD-L	Catalyst, 24-Port PoE, Layer 2 network switch	1

Cables, Connectors, Hardware

Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1
Chief	VCMU	Heavy Duty Universal Projector Mount	2
Chief	LTM1U	Large Fusion Micro-Adjustable Tilt Wall Mount	2
Crestron	CBL-HD-12	Crestron® Certified HDMI® Interface Cable, 12 ft	5
Crestron	CBL-AUDIO-12	Crestron® Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	5
Crestron	CBL-VGA-12	Crestron® Certified Computer VGA Interface Cable, 12 ft	5
Crestron	DM-CBL-8G-P-SP500	DigitalMedia 8G Cable, plenum, 500 ft spool	1

Labor

Provider	Part Number	Description
CCS	Installation	
CCS	Project Management	
CCS	Testing/ Sign-Off	
CCS	Design	
CCS	Programming	System Programming

Tax
Total

TBD
\$ 72,918.29



Video Equipment

Manufacturer	Part Number	Description	Qty
Crestron	DMPS3-200-C	3-Series DM Presentation System 200	1
Crestron	DM-TX-200-C-2G	Wall Plate DM 8G+ Transmitter 200	1
Crestron	DM-RMC-4K-SCALER-C	4K DM 8G+ Receiver & Room Controller w/Scaler	1
Vaddio	999-6986-000	Clearview HD-20SE QDVI Camera System	1
Crestron	Capture HD	High-Definition Capture Recorder	1
NEC	NP-P452H	4500 Lumen WUXGA projector	1
Extron	HDMI 101 Plus	HDMI Cable Equalizer	1

Audio Equipment

Manufacturer	Part Number	Description	Qty
Listen	LT-800	Stationary RF Transmitter	1
Listen	LA-123	Remote Antenna	1
Listen	LA-326	Rack Mount Kit	1
Shure	MX418D/C	18" Gooseneck Cardioid Desktop Microphone	1
Shure	A412MWS	Locking Metal Windscreen	1
Shure	QLXD14/83	Wireless bodypack system with WL183 lavalier	1
Shure	UA850	50ft BNC-BNC RG8X/U, 50 ohm Antenna Cable	3
Atlas	FAP82T	2-Way 8" In ceiling loudspeaker	9

Rack

Manufacturer	Part Number	Description	Qty
Middle Atlantic	MFR-1227	12U, 27" Deep furniture rack, Owner selects finish	1
Middle Atlantic	PDS-615R	Rackmount Power, 6 Outlet, 15A, 6-Step Sequencing	1
Middle Atlantic		Rack Shelves and Blank Panels	1

Control System

Manufacturer	Part Number	Description	Qty
Crestron	TSW-1050-B-S	10.1" Touch Screen, Black Smooth	1
Crestron	TSW-1050-TTK-B-S	Tabletop Kit for TSW-1050 & TSW-1052, Black Smooth	1



Cables, Connectors, Hardware

Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1
Chief	RPAUW	Universal Projector Mount (WHITE)	1
Chief	CMA345	Structural Ceiling Plate	1
Chief	CMA340	Projector Stabilization Kit for Columns	1
Crestron	CBL-HD-12	Crestron® Certified HDMI® Interface Cable, 12 ft	1
Crestron	CBL-AUDIO-12	Crestron® Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	1
Crestron	CBL-VGA-12	Crestron® Certified Computer VGA Interface Cable, 12 ft	1

Labor

Provider	Part Number	Description
CCS	Installation	
CCS	Project Management	
CCS	Testing/ Sign-Off	
CCS	Design	
CCS	Programming	System Programming
CCS	Programming	iPad Integration

Tax	TBD
Total	\$ 26,487.00



Video Equipment			
Manufacturer	Part Number	Description	Qty
Crestron	HD-EXT4-C	HDMI HDBaseT Extender Kit	1
Crestron	DM-TX-200-C-2G	Wall Plate DigitalMedia 8G+® Transmitter 200	1
Crestron	DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+® Receiver & Room Controller w/Scaler	1
Crestron	DMPS3-4K-150-C	3-Series 4K DigitalMedia Presentation System 150	1
NEC	NP-P452H	4500 Lumen WUXGA projector	1

Audio Equipment			
Manufacturer	Part Number	Description	Qty
KSI	8081-CSD	2-way, Ceiling grid mounted loudspeaker	2
Extron	XPA 1002 Plus	2Ch, 100 Watts Per Channel, 8-Ohm Power Amplifier	1

Rack			
Manufacturer	Part Number	Description	Qty
Middle Atlantic	MFR-1227	12U, 27" Deep furniture rack, Owner selects finish	1
Middle Atlantic	PDS-615R	Rackmount Power, 6 Outlet, 15A, 6-Step Sequencing	1
Middle Atlantic		Rack Shelves and Blank Panels	1

Crestron Cabling			
Manufacturer	Part Number	Description	Qty
Crestron	CBL-HD-12	Crestron® Certified HDMI® Interface Cable, 12 ft	2
Crestron	CBL-AUDIO-12	Crestron® Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	2
Crestron	CBL-VGA-12	Crestron® Certified Computer VGA Interface Cable, 12 ft	1
Crestron	CBL-HD-3	Crestron Certified HDMI Interface Cable, 3 ft	2
Crestron	CBL-AUDIO-3	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 3 ft	1

Control System			
Manufacturer	Part Number	Description	Qty
Crestron	TSW-752-B-S	7" Touch Screen, Black Smooth	1
Crestron	TSW-750-TTK-B-S	Tabletop Kit for TSW-750 & TSW-752, Black Smooth	1



Cables, Connectors, Hardware			
Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1
Chief	RPAUW	Universal Projector Mount (WHITE)	1
Chief	CMA345	Structural Ceiling Plate	1
Chief	CMA340	Projector Stabilization Kit for Columns	1
Panduit		Panduit Cat6 Wall Plate & Patch Cables	1

Labor			
Provider	Part Number	Description	
CCS	Installation		
CCS	Project Management		
CCS	Testing/ Sign-Off		
CCS	Design		
CCS	Programming	System Programming	

Tax	TBD
Total	\$ 8,363.75



Video Equipment

Manufacturer	Part Number	Description	Qty
Crestron	HD-EXT4-C	HDMI HDBaseT Extender Kit	3
NEC	E655	65" 1080p commercial display	3
Chief	LTM1U	Large Fusion Micro-Adjustable Tilt Wall Mount	3
Crestron	CBL-HD-12	Crestron Certified HDMI Interface Cable, 12 ft	3
Crestron	CBL-AUDIO-12	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	3
Crestron	CBL-HD-3	Crestron Certified HDMI Interface Cable, 3 ft	3
Crestron	CBL-AUDIO-3	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 3 ft	3

Cables, Connectors, Hardware

Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1

Labor

Provider	Part Number	Description
CCS	Installation	
CCS	Project Management	
CCS	Testing/ Sign-Off	
CCS	Design	
CCS	Programming	System Programming

Tax	TBD
Total	\$ 7,942.90



Video Equipment			
Manufacturer	Part Number	Description	Qty
Crestron	HD-EXT4-C	HDMI HDBaseT Extender Kit	7
NEC	E505	50" 1080p commercial display	7
Chief	MTM1U	Medium Fusion Micro-Adjustable Tilt Wall Mount	7
Crestron	CBL-HD-12	Crestron Certified HDMI Interface Cable, 12 ft	7
Crestron	CBL-AUDIO-12	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 12 ft	7
Crestron	CBL-HD-3	Crestron Certified HDMI Interface Cable, 3 ft	7
Crestron	CBL-AUDIO-3	Crestron Certified Mini-TRS Stereo Audio Interface Cable, 3 ft	7

Cables, Connectors, Hardware			
Manufacturer	Part Number	Description	Qty
Covid	Cables/Connectors	Lot, Cables and Connectors	1
CCS	Hardware	Installation Supplies	1

Labor			
Provider	Part Number	Description	
CCS	Installation		
CCS	Project Management		
CCS	Testing/ Sign-Off		
CCS	Design		
CCS	Programming	System Programming	

Tax	TBD
Total	\$ 7,806.00



Assisted Listening			
Manufacturer	Part Number	Description	Qty
Listen	LR-400	Portable Display RF Receiver	10
Listen	LA-165	Headphones	10
Listen	LA-166	Neck Loop	2

Audio Equipment			
Manufacturer	Part Number	Description	Qty
ProCo	EXMN-10	10' XLR Mic Cable	5
ProCo	CCS-EXMN-25 + XXR-2	25ft long with red color band on male XLR	5
K&M	27195	Tripod Boom Mic Stand	3
Rat Testers	ST-XLR-SS	Rat Sniffer-Sender XLR Test Set	1

Labor		
Provider	Part Number	Description
CCS		Project Management
CCS		Testing/ Sign-Off

Tax	TBD
Total	\$ 1,482.06



Carmack Room 120	\$	72,918.29
Training Room 218	\$	26,487.00
Large Conference Room 219	\$	8,363.75
Medium Conference Rooms 117, 118, 201	\$	7,942.90
Small Conference Rooms 202, 203, 204, 205, 206, 207, 215	\$	7,806.00
Portable Equipment	\$	1,482.06

The Board of Directors of the Johnson County Library Total: Tax TBD \$ 125,000.00

SECTION 27 41 00 - AUDIO-VISUAL SYSTEMS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. This section pertains to the audio-visual systems to be furnished and installed in the Johnson County Central Resource Library Remodel. (B4073.a).
- B. It is the purpose of this specification to require the furnishing of highest quality materials, equipment, and workmanship. The work shall be in accordance with this specification and in conformity with the designs, layouts, and descriptions shown on the drawings.
- C. Any and all structural, mounting, or rigging details on the drawings are shown for concept only. It shall be the responsibility of the Systems Contractor to employ the services of a qualified Structural Engineer to be responsible for the design of the details to be employed. Shop drawings and calculations of all such details shall be submitted to the Architect for review.
- D. Unless noted otherwise on the drawings, the work shall include everything necessary or incidental to complete the installation EXCEPT wire raceway (including conduit), raceway fittings, outlet boxes, pull boxes, terminal cabinets, 120 volt AC power circuits, and insulated ground cables. Such excluded equipment has been furnished and installed by the project Electrical Contractor. Record drawings for these systems are available upon request. Field verify all infrastructure.
- E. The Systems Contractor shall furnish and install all loudspeaker back boxes (loudspeaker enclosures).
- F. The Systems Contractor shall cooperate with all other contractors engaged in this project and shall coordinate the installation of the audio-visual systems so that all work will proceed in a manner which is in the best interests of the Owner.

1.2 ALTERNATES

- A. This scope does not include any alternates.

1.3 EXISTING CONDITIONS

- A. This facility is an existing structure under renovation. A majority of the renovations are complete and the facility is open for business. It shall be the responsibility of each bidder to verify all conditions and dimensions which pertain to this work.

1.4 DEFINITION OF TERMS

- A. The term "Owner" shall refer to Johnson County; 111 S. Cherry Street; Olathe, KS 66061; phone (913) 715-1100; facsimile (913) 715-1130.
- B. The term "Acoustical Consultant" shall refer to AVANT ACOUSTICS, LLC.; Consultants in Acoustics and Audio Visual Communications; 14827 W. 95th Street; Lenexa, KS 66215; phone (913) 888-9111; facsimile (913) 888-9193.
- C. The term "Systems Contractor" shall refer to the person, persons, or company who or which contracts for the performance of the audio-visual system work specified herein.

1.5 CONTRACTOR QUALIFICATIONS

- A. The Systems Contractor must be a "Systems Contractor" who regularly engages in the furnishing and installation of commercial and industrial audio-visual systems.
- B. The Systems Contractor must maintain a suitably staffed and equipped service organization and must regularly offer maintenance services for systems of this type and size.
- C. At the request of the Owner, the Systems Contractor shall demonstrate to the satisfaction of the Architect and Acoustical Consultant that the Systems Contractor has
 - 1. Adequate plant and equipment to pursue the work properly and expeditiously;
 - 2. Adequate staff and technical experience;
 - 3. Suitable financial status to meet the obligations of the work.
- D. Any other contractor, who intends to bid on this work as the prime contractor and does not otherwise meet the requirements of the "Contractor Qualifications" paragraph(s) above, shall employ the services of a "Systems Contractor" who does meet the requirements noted above and who shall furnish the audio and video equipment; shop fabricate the equipment racks and subassemblies; make all audio, video and control connections to equipment and equipment racks in the AV equipment room; make all connections to remote mixer controls and microphone connection panels; and continuously supervise the installation and connections of all audio-visual system cable and equipment.
- E. A subcontractor so employed as the "Systems Contractor" must be acceptable to the Architect and the Acoustical Consultant and shall be identified on the Bid Proposal Form.

1.6 SUBMITTALS

- A. The Systems Contractor shall submit an electronic set of the following Shop Drawings per the schedule listed below for review by the Owner and the Acoustical Consultant on a portable hard drive, flash drive, or CD-ROM. Refer to the General and Special Conditions for additional set(s) which may be required.
 - 1. Prior to proceeding with the work
 - a. A complete list of ALL equipment and materials which are to be furnished. Accompanying the list shall be manufacturers' specification or cut sheets for all sound system equipment (e.g. microphones, audio program source equipment, power amplifiers, loudspeakers), audio-visual equipment (e.g. projectors, program source equipment, monitors, video processing equipment), AV control equipment (e.g. touchpanels, system controllers, interface/control cards), and any other MAJOR items of equipment.

2. Prior to proceeding with respective portions of work
 - a. Art work, drawings, and listings indicating proposed nameplate nomenclature and arrangements for control panels, patch panels, connection plates, floor boxes and nameplates prior to fabrication as described elsewhere in these specifications.
 - b. Details of proposed loudspeaker suspension including attachment methods, weights, and suspension locations approved by the Systems Contractor's Structural Engineer.
 - c. Details showing projector/television/plasma display mounting.
 - d. Front panel layouts for all equipment racks and AV lecterns, prior to installation, reflecting equipment and labels to be used.
 - e. Mounting schemes for all external input/output transformers, potentiometers, and control switches.
 - f. Diagrams for AC power low voltage control switching, indicating distribution and sequencing of AC circuits for both on and off cycles.
 - g. Control system layout.
 - h. Custom furniture and/or custom millwork.
 - i. Details and descriptions of any other aspect of the audio-visual system which must differ from the drawings due to field conditions or due to the selected equipment to be furnished.
 3. As otherwise noted on the drawings and/or as noted herein.
- B. Approved shop drawings and equipment instruction brochures, including schematic diagrams for all amplifiers and other electronic devices, shall be present at the job site during the period set aside for final system test and equalization.
 - C. Notebooks of operating instructions shall be prepared as described elsewhere in the specifications.

PART 2 - PRODUCTS

2.1 GENERAL

- A. It is the intention of these specifications to provide complete and properly operating audio-visual systems. The major items of equipment shall be furnished in the quantity indicated by the audio-visual system diagrams on the drawings or in the quantity as specified herein. (Refer to the Portable Equipment Quantity list at the end of the specifications.) However, any minor item of equipment or hardware that may not be specifically shown on the drawings or specified herein but required for proper audio-visual system operation or installation shall be furnished by the Systems Contractor.
- B. All equipment and material shall be new and shall be suitable for continuous operation.
- C. In any case, where a specific specification has not been included herein or shown on the drawings for any item that is required, the Systems Contractor shall furnish only the best quality equipment or material consistent with the quality of other specified equipment and material.
- D. Where the specifications list several manufacturers for a particular major item of equipment such as power amplifiers or loudspeakers, the Systems Contractor shall supply all of that item of equipment from one manufacturer.

2.2 SUBSTITUTIONS

- A. Where a specific piece of equipment has been discontinued and/or replaced by a new model, submission of the new model or a suitable item as applicable may be required by the Acoustical Consultant for evaluation prior to acceptance.
- B. If substitute equipment is allowed by written consent, the Systems Contractor shall be completely responsible for the use of such equipment, including suitability with the equalization process to be employed. The Systems Contractor shall replace all such equipment with equipment listed by type number in the specifications if there is any evidence of equipment instability or unsuitability.
- C. Costs of any required evaluation and testing of substitute equipment shall be paid by the Systems Contractor.
- D. Any use of substitute equipment shall be at no extra cost to the Owner.
- E. Proposed substitute equipment shall be specifically noted in submittals as "substitution" with a footnote stating the reason for the substitution.
- F. Offerors proposing to furnish an "or equal" product must furnish all descriptive material necessary to demonstrate the acceptability of such product. The Acoustical Consultant shall be the sole determiner as to whether the proposed "or equal" product is suitable for use in work based upon review of the descriptive materials furnished.

2.3 EXISTING EQUIPMENT

- A. All existing equipment that is to be considered Owner Furnished is listed as follows. See drawings for exact location of equipment in systems.
 - 1. One (1) Samsung BD-C6900 BluRay DVD Player.
 - 2. Two (2) Shure ULX Handheld Transmitters.
 - 3. Two (2) Shure ULX Beltpack Transmitters.
 - 4. Four (4) Shure ULXP4 Wireless Microphone Receivers for Carmack Room system.
 - 5. One (1) Shure UA844 Wireless Microphone System Antenna Distribution System for Carmack Room system (requires new remote antennas).

2.4 SOUND SYSTEM EQUIPMENT

- A. General
 - 1. As shown on the drawings and described in these specifications, the Sound System installation work will include the following
 - a. Audio-playback system in Large Conference Room 219.
 - b. Sound reinforcement system in Training Room 218.
 - c. Sound reinforcement system in Carmack Room 120.
 - d. **Reconnecting loudspeaker circuits to new connection plate in Gallery system. This item is not shown on the drawings. Plate and circuit are existing.**
- B. Microphones
 - 1. Type 1 Microphone, condenser cardioid, 18 inches, gooseneck type, desktop stand, with programmable switch and LED indicator, with metal windscreen.
 - a. Shure Microflex MX418D/C, with A412MWS locking metal windscreen.

2. Type 2 Microphone, condenser cardioid, 18 inches, gooseneck type, with mute switch and LED indicator, with metal windscreen, and with shock mount adapter.
 - a. Shure Microflex MX418S/C, with A412MWS locking metal windscreen.
3. Type 3 Microphone, condenser cardioid, 18 inches, gooseneck type, with mute switch and LED indicator, with metal windscreen, and with shock mount adapter.
 - a. Shure Microflex MX418S/C, with A412MWS locking metal windscreen.
 - b. Use included shock mount for installing microphone on lectern surface.
4. Microphone Extension Cables, factory fabricated units using Neutrik connectors; black cable with color coded strain relief on male connector only. ProCo.
 - a. Type 1, 25 feet long (coded red).
 - b. Type 2, 50 feet long (coded blue).
 - c. Type 3, 75 feet long (coded white).
 - d. Type 4, 10 feet long (no color).
5. Microphone Cable Tester, sender and receiver units, LED status indication.
 - a. Audio Control Industrial Rat Pack Cable Tester.
6. Microphone Floor Stand, tripod-style weighted base, with telescoping boom attachment, matte black finish with microphone clip as required to mount Type 2 Microphone.
 - a. Atlas Sound TB3664; or
 - b. Konig & Meyer 27195; or
 - c. Ultimate Support Pro-T-T; or
 - d. Approved equal.
7. Type 1 Wireless Microphone System, UHF, true diversity operation, with handheld transmitter with cardioid microphone element, metal body, with LCD information screen, IR sync, with rack mount kit and power supply as required.
 - a. Sennheiser Evolution G3 Series units listed below; or
 - 1) EM 100 receiver.
 - 2) SKM 100-835 handheld microphone/transmitter, with two sets of alkaline batteries.
 - b. Shure QLXD Series units listed below; or
 - 1) QLXD4 receiver.
 - 2) QLXD2/B87A handheld microphone/transmitter, with two sets of alkaline batteries.
 - c. Furnish and install manufacturer's remote antennas with coaxial cable as required for permanently mounted receivers.
 - d. Provide a different operating frequency for each wireless microphone transmitter/receiver pair, free from interference, in the UHF Band on an unused channel per FCC regulations. Assist the Owner in licensing these transmitter(s) as required.
8. Type 2 Wireless Microphone System, UHF, true diversity operation, with bodypack receiver, no gain control on the outside of the case, metal body, with LCD information screen, IR sync, with balanced line level adapter cable, and with rack mount kit and power supply as required.
 - a. Sennheiser Evolution G3 Series units listed below; or
 - 1) EM 100 receiver.
 - 2) SK 100 G3 body-pack transmitter, with two sets of alkaline batteries.
 - 3) ME 2 omnidirectional lapel microphone.
 - 4) Two (2) factory or custom fabricated 3-foot long locking 1/8" Phone Plug to 1/8" Phone Plug with passive resistor summing network.
 - b. Shure QLXD Series units listed below; or
 - 1) QLXD4 receiver.

- 2) QLXD1 body-pack transmitter, with two sets of alkaline batteries.
 - 3) WL183 omnidirectional lapel microphone.
 - 4) Two (2) factory or custom fabricated 3-foot long TA4F connector to 1/8" Phone Plug with passive resistor summing network.
 - c. Furnish and install manufacturer's remote antennas with coaxial cable as required for permanently mounted receivers.
 - d. Provide a different operating frequency for each wireless microphone transmitter/receiver pair, free from interference, in the UHF Band on an unused channel per FCC regulations. Assist the Owner in licensing these transmitter(s) as required.
9. Wireless Handheld Microphone Cartridge for Existing Handheld Transmitter in Carmack Room system.
- a. Shure SM87A.
 - b. Provide one for each existing wireless handheld microphone system shown on the drawings.
10. Wireless Lapel Microphone for Existing Lapel Transmitter in Carmack Room system.
- a. Shure WL183.
 - b. Provide one for each existing wireless handheld microphone system shown on the drawings.
11. Antenna Splitter, for wireless microphone system UHF antenna, active operation, same manufacturer as Wireless Microphone System chosen above.
- a. Sennheiser USASA1/NT; or
 - b. Shure UA844-SWB.
12. Antenna Amplifier, active operation, with surface mounting hardware, same frequency range as Wireless Microphone System chosen above.
- a. Sennheiser AB-3; or
 - b. Shure UA830SWB.
- C. Audio Mixers and Processors
1. Audio Processor, multiple balanced switchable mic/line level inputs and outputs as shown on the drawings, with drag and drop type software configurable processing enabling parametric broadband and narrowband filters, audio delays, gain control, and mixing of audio signals, with multiple configurable logic inputs and outputs, ability to store program on DSP and connected computer, ability to download stored and current programming from DSP, manufacturer's programming shall allow manipulation of signal processing entities by use of computer keyboard without mouse.
 - a. Biamp TesiraFORTE with EX-LOGIC.
- D. Power Amplifiers
1. Type 1 Power Amplifier, 200 watts nominal at 70 volts.
 - a. Extron XPA 2001.
 2. Type 2 Power Amplifier, two channel, 200 watts nominal per channel at 70 volts.
 - a. Extron XPA 2002.

E. Loudspeaker Assemblies

1. Type 1 Ceiling Loudspeaker, two-way design, directional firing, ceiling grid mounted, for stereo playback
 - a. KSI 8081-CSD.
2. Type 2 Ceiling Loudspeaker, two-way design with nominal 8-inch woofer and separate tweeter with high power crossover, with integral or pre-install metal back can, ceiling mounting hardware, and baffle, with internal transformer and front mounted tap selector, low impedance rating, and minimum 89 dB sensitivity, minimum frequency response of 100-12k Hz +/- 3dB, with manufacturer's tile bridge or support rails where installed in T-bar ceilings. Loosely, but completely, fill each enclosure with lightweight glass fiber insulation. Factory paint all baffles to match adjacent ceiling and as approved by the Owner.
 - a. Atlas Sound FAP82T; or
 - b. Community D8.
3. Type 3 Ceiling Loudspeaker, 8-inch nominal coaxial; integral high-frequency compression driver or dual-concentric transducer; 80Hz – 12KHz minimum frequency response (+/- 3dB); 92dB sensitivity (1W/1M); with 60-watt minimum line matching transformer (7.5, 15, 30, 60-watt taps); metal enclosure; with baffle (except as noted below); with manufacturer's or custom adjustable tile bridge or support rails/channels as required for installation and attachment to structure
 - a. Atlas Sound FAP8CXT.
4. Only the latest versions of the loudspeakers in the above paragraphs shall be furnished. The manufacturer and Systems Contractor shall ascertain that each loudspeaker furnished does not "squawk" or "rattle" when energized with one-third octave bands of pink noise at a nominal input power of two watts.
5. Where front baffle is of the pull-off type and loudspeakers are to be suspended, fasten grille cloth baffle to front of loudspeaker with four cup washers and flat head screws painted to match the grille cloth.

F. Wireless Hearing Assistance Systems – Radio Frequency

1. Radio frequency wireless hearing assistance systems, all components of the same manufacturer
 - a. Listen Corporation; or
 - b. Williams Sound Corporation.
2. Base Station Transmitter, frequency selectable, with remote antenna, coaxial cable, power supply and rack mount kit as required.
 - a. Listen LT-800 with LA-123 remote antenna; or
 - b. Williams PPA T35 with ANT 029 remote antenna.
3. Personal Receiver, frequency selectable, headphone output, with volume control, compatible with Base Station Transmitter chosen.
 - a. Listen LR-400 receiver, with alkaline batteries; or
 - b. Williams PPA R35-8N alkaline batteries.
4. Lightweight Headphones
 - a. Listen LA-165; or
 - b. Williams HED 021.

5. Neck Loop Transducers
 - a. Listen LA-166; or
 - b. Williams NKL 001.
6. Provide a different operating frequency for each wireless hearing assistance transmitter system, free from interference, per FCC regulations Part 74, Subpart H. If required, assist the Owner in licensing these transmitter(s).

2.5 AUDIO-VISUAL SYSTEM EQUIPMENT

A. General

1. As shown on the drawings and described in these specifications, the Audio-Visual System installation work will include the following
 - a. Audio-Visual Presentation system in Large Conference Room 219.
 - b. Audio-Visual Presentation system and audio/video recording system in Training Room 218.
 - c. Audio-Visual Presentation system in Carmack Room 120.

B. Video Cameras

1. Camera, high-definition color 1/3-inch Exmor camera head, nominal 20x optical zoom, nominal 2.39megapixels, with HDMI/DVI output; with pan/tilt/zoom operation; compatible with inverted operation
 - a. Vaddio HD-20SE
 - b. Provide the Vaddio camera extension and wall mounting bracket for each Video Camera.

C. Computer Interfaces and Line Drivers

1. Type 1 Video Extender, HDMI and stereo audio input, with CATx output; HDCP complaint; floor box or wall/floor mount form factor
 - a. Crestron HD-TX4-C.
 - b. Provide one 12' HDMI cable, one 12' audio cable, one DisplayPort Adapter and one Type 1 Digital Video Adapter with each Extender.
2. Type 1 Video Receiver, CATx input and HDMI and stereo audio output; HDCP complaint; surface mount form factor
 - a. Crestron HD-RX4-C.
3. Type 2 Video Extender; HDMI, RGBHV, and stereo audio input, with DigitalMedia 8G output; HDCP complaint; floor box or wall mount form factor
 - a. Crestron DM-TX-200-C-2G Series.
 - b. Provide one 12' HDMI cable, one 12' RGBHV/audio cable, one DisplayPort Adapter and one Type 1 Digital Video Adapter with each Extender.
4. Type 2 Video Receiver; Digital Media 8G input; with internal digital scaler; with HDMI, de-embedded line level audio output, serial control and Ethernet output; USB extension where shown on drawings; HDCP complaint; surface mount form factor
 - a. Crestron RMC-4K-Scaler-C.

D. AV Program Source Equipment

1. HDTV Tuner, with 125 channel access, with NTSC/QAM/ATSC tuning capabilities, HDMI, RGB/component, composite video and stereo audio outputs, RS-232 control.
 - a. Aurora V-Tune Pro 4K.
2. Video Recorder; hardware appliance for audio and video internal recording, built-in video scaling and audio mixing, analog and digital inputs, local outputs for monitoring, with MMC memory card slot and USB port with 16GB MMC card included.
 - a. Crestron CAPTURE HD.

E. Switchers and Distribution Equipment

1. Type 1 Digital Video Switcher; DigitalMedia, with digital and analog video inputs as shown on the drawings, Ethernet and serial control, with internal Ethernet switch, HDCP complaint, integral control system processor, rack mount, compatible with transmitters and receivers with control accessories and power supply as required.
 - a. Crestron DMPS3-4K-150-C.
2. Type 2 Digital Video Switcher; DigitalMedia, with digital and analog video inputs as shown on the drawings, Ethernet and serial control, with internal Ethernet switch, HDCP complaint, integral control system processor, rack mount, compatible with transmitters and receivers with control accessories and power supply as required.
 - a. Crestron DMPS3-200-C.
3. Type 3 Digital Video Switcher, video inputs and outputs as shown on the drawings, audio inputs and outputs as shown on the drawings, HDCP compliant, constant EDID communication and storage, front panel controls and IP configurable using A/V control system, with rack mount hardware as needed.
 - a. Crestron DM-MD8x8 with necessary I/O cards.

F. Video Processing

1. Video Converter, DVI video input compatible with resolutions up to 1920x1200, composite video output in NTSC format, front panel controls, with rackmount kit and power supply.
 - a. TVOne C2-2100A.
2. HDMI Equalizer; HDMI input and output; active cable equalization; HDCP compliant; extends HDMI signal transmission up to 50 feet; with power supply and mounting hardware as required.
 - a. Extron HDMI 101.
 - b. Install cable equalizer at the end of any HDMI cable run over 25 feet.
3. DVI Equalizer; DVI input and output; active cable equalization; HDCP compliant; extends DVI signal transmission up to 50 feet; with power supply and mounting hardware as required.
 - a. Type 1 Extron DVI 101.
 - b. Type 2 Extron DVI DL 101.
 - c. Install cable equalizer at the end of any DVI cable run over 25 feet.

G. Projectors and Monitors

1. Type 1 Flat Panel Display; LCD type; 16:9 aspect ratio; 1080p; HDCP compliant; nominal 50-inch diagonal; with built in loudspeakers where shown; with multiple computer, HDMI, DVI, component video, composite video, and audio inputs; RS232 remote controllable
 - a. NEC E505.
2. Type 2 Flat Panel Display; LCD type; 16:9 aspect ratio; 1080p; HDCP compliant; nominal 65-inch diagonal; with built in loudspeakers where shown; with multiple computer, HDMI, DVI, component video, composite video, and audio inputs; RS232 remote controllable
 - a. NEC E654.
3. Type 3 Flat Panel Display; LCD type; 16:9 aspect ratio; 1080p; HDCP compliant; nominal 80-inch diagonal; with built in loudspeakers where shown; with multiple computer, HDMI, DVI, component video, composite video, and audio inputs; RS232 remote controllable
 - a. NEC E805.
4. Type 1 Video Projector, 16:9 native aspect ratio; 1080p resolution; minimum 4500 ANSI lumens; with digital video inputs on HDMI or DVI connectors, with RS232 control; with lens shift capability and keystone correction; with lens as required.
 - a. NEC NP-P452H.
5. Type 2 Video Projector, 16:9 native aspect ratio; 1080p resolution; minimum 8000 ANSI lumens; with digital video inputs on HDMI or DVI connectors, with RS232 control; with lens shift capability; with interchangeable lens option.
 - a. Digital Projection E-Vision 8000 with lens as required.

H. AV Accessories

1. Flat Panel Display Mount, wall mount, with tilt adjustment and fine tune positioning.
 - a. Chief LTMU and MTMU Series.
2. Projector Mount, adjustable, with projector interface accessories as required, compatible with the Video Projector above, with anti-vibration structural adapter, stabilization kit, and additional mounting accessories as required.
 - a. Chief RPA/M series with CMA345 structural adapter and CMA340 stabilization kit.

2.6 AV CONTROL SYSTEMS

A. Touchpanels and Remotes

1. Type 1 Wired Control Panel; 7-inch diagonal pressure sensitive touch screen utilizing an active-matrix color LCD display; with Ethernet input, power supplied over PoE
 - a. Crestron TSW-752 with table top kit.
2. Type 2 Wired Control Panel; 10-inch diagonal pressure sensitive touch screen utilizing an active-matrix color LCD display; with Ethernet input, power supplied over PoE, streaming video capabilities
 - a. Crestron TSW-1050 with table top kit.

3. Type 3 Wireless Control Panel; 9-inch diagonal pressure sensitive touch screen utilizing an active-matrix color LCD display; with two base charging stations (tabletop at lectern and wall mount at rack), with gateways as required for dual RF and Wi-Fi wireless operation
 - a. Crestron TST-902.
- B. Control System Accessories
 1. Ethernet Switch, managed 10/100/1000Base-T stackable L2 switch with number of ports as required.
 - a. Cisco Catalyst Series.
 2. Ethernet Patch Panel, flat style, number of ports as required, punchdown terminations, CAT6A rated
 - a. Panduit DP6A Series.
 - b. All field UTP circuits shall terminate to appropriately labeled patch panels installed at the equipment racks. Use factory fabricated patch cables between the patch panels and the switches.
- C. System Controllers
 1. Integrated Controller; expandable resources configuration; Ethernet/LAN compatible for networked control application; with multiple RS-232/422/485 bi-directional serial ports; with multiple IR/serial interfaces; with multiple programmable analog and digital input/output ports; with multiple normally open isolated relays; and with expansion bus capability.
 - a. Crestron PRO3.
- D. Application Modules and Custom Programming

1. The Systems Contractor shall provide system programming incorporating the functions specified herein with input from the Owner and the Acoustical Consultant.
2. Where rooms are indicated to include the addition of future/optional equipment, the control system programming shall include all hardware and software required to control this future/optional equipment. Pages, sub-pages, and buttons for future/optional equipment shall be hidden and disabled so that they can easily be activated once the equipment has been installed.
3. The Systems Contractor shall provide all programming (final touchpanel screens, links to controller, controller code, web-browser control pages, etc.) required for a complete and operational control system. The Systems Contractor shall have a manufacturer-certified programmer, one familiar with the details of the project, on-site during the commissioning of the system to implement any required programming corrections and revisions.
4. The Audio-Visual Contractor shall furnish to the Owner compact discs containing all final system configuration files (including all source codes), the manufacturer's programming software and application modules (versions used for the project), and any required computer connection cables. All system custom programming (including source code) created and utilized for this project shall become the property of the Owner.
5. Furnish interface and/or control cards/modules and other components as necessary to provide the following control functions for work associated with each room.
6. Large Conference Room
 - a. Power on/off control of the video projector.
 - b. Up/down/stop control of the projection screen.
 - c. Volume controls for AV audio through the Video Switcher.
 - d. Selection of video source sent to video projector.
 - e. Remote control of AC Power Sequencer.
7. Training Room
 - a. Power on/off control of the video projector.
 - b. Up/down/stop control of the projection screen.
 - c. Volume controls for AV audio through the Video Switcher.
 - d. Selection of video source sent to video projector.
 - e. Pan/Tilt/Zoom and preset recall and save for the Video Camera.
 - f. Start, stop, pause, and mute control of the Video Recorder.
 - g. Confidence Monitor video window for selection of either camera monitoring or video projector source monitoring from the Touch Panel.
 - h. Remote control of AC Power Sequencer.
8. Carmack Room
 - a. Power on/off control of the video projectors and flat panel displays.
 - b. Up/down/stop control of the projection screens.
 - c. Volume control for AV audio through the audio processor.
 - d. Selection of video source sent to video projectors with flat panel displays to follow.
 - e. Channel selection of the tuner.
 - f. Control for the Blu-Ray Player.
 - g. Teleconferencing functions.
 - h. Remote control of AC Power Sequencer.
 - i. On/off control and preset selection of lighting system were applicable.

2.7 CABLE AND CONNECTORS

A. Audio Cable and Connectors

1. Microphone, intercom, and line level audio circuits, installed within conduit and equipment rack, #22 AWG, 2-conductor, stranded, aluminum polyester shielded
 - a. Basis of Design: West Penn 452.
2. Line level audio circuits, where installed exposed in spaces which are used as return air plenums; #22 AWG, 2-conductor, stranded, aluminum polyester shielded, with FEP Teflon insulation
 - a. Basis of Design: West Penn 25291.
3. Loudspeaker circuits installed in conduit, equipment rack, or exposed interior benign environment (except return air plenums); #16 AWG, 2-conductors; stranded, unshielded, jacketed.
 - a. Basis of Design: West Penn 225.
4. Loudspeaker circuits, where installed exposed above ceilings in spaces which are used as return air plenums; #16 AWG, 2-conductor; stranded, unshielded, with FEP Teflon insulation.
 - a. Basis of Design: West Penn 25225.
5. Loudspeaker circuits installed in conduit, equipment rack, or exposed interior benign environment (except return air plenums); #14 AWG, 2-conductors; stranded, unshielded, jacketed.
 - a. Basis of Design: West Penn 226.
6. Loudspeaker circuits, where installed exposed above ceilings in spaces which are used as return air plenums; #14 AWG, 2-conductor; stranded, unshielded, with FEP Teflon insulation.
 - a. Basis of Design: West Penn 25226.
7. Loudspeaker circuits installed in conduit, equipment rack, or exposed interior benign environment (except return air plenums); #12 AWG, 2-conductors; stranded, unshielded, jacketed.
 - a. Basis of Design: West Penn 227.
8. Loudspeaker circuits, where installed exposed above ceilings in spaces which are used as return air plenums; #12 AWG, 2-conductor; stranded, unshielded, with FEP Teflon insulation.
 - a. Basis of Design: West Penn 25227.
9. Microphone, intercom, and line level receptacles and cable connectors: Panel mounting receptacles shall be square in shape, except as noted.
 - a. Basis of Design: Neutrik NC series, with metal release mechanism.
10. Type 1 Phone Jack, ¼-inch, 3-conductor, self-locking, panel mounting.
 - a. Basis of Design: Neutrik NJ3FP6C; or
11. Type 1 Phone Plug, ¼-inch, 3-conductor, metal shell, solder terminals.
 - a. Basis of Design: Neutrik NP3C.
12. Type 2 Phone Plug, ¼-inch, 2-conductor, metal shell, solder terminals.
 - a. Basis of Design: Neutrik NP2C.

13. Type 1 Phono Connector, chassis jack.
 - a. Basis of Design: Switchcraft 3501FP.
14. Type 2 Phono Connector, chassis jack, insulated from chassis.
 - a. Basis of Design: Switchcraft 3501FP, with S-2207 and S-1564 insulating washers.
15. Type 3 Phono Connector, phono plug, metal shell.
 - a. Basis of Design: Switchcraft 3502.

B. Video Cable and Connectors

1. Type 1 Video Cable; coaxial, solid #23 AWG center conductor, 75 ohm; for use within equipment racks only.
 - a. Basis of Design: Belden 8241.
2. Type 2 Video Cable; coaxial, solid #20 center conductor, 75 ohm; for use in conduit and equipment racks where individual video runs are indicated.
 - a. Basis of Design: Belden 8281B.
3. Type 2A Video Cable; coaxial, solid #20 center conductor, 75 ohm; for use in cable tray and ceiling areas used as return air plenum where individual video runs are indicated.
 - a. Basis of Design: Belden 88281.
4. Type 3 Video Cable; high resolution mini 75 ohm coaxial multipairs in a common jacket; with each individual coax color coded with solid red, green, blue, black and white insulators; for use in conduit and equipment racks where RGBHV runs are indicated.
 - a. Basis of Design: Extron BNC5 Mini HR.
5. Type 3A Video Cable; high resolution mini 75 ohm coaxial multipairs in a common jacket; with each individual coax color coded with solid red, green, blue, black and white insulators; for use in cable tray and ceiling areas used as return air plenum where RGBHV runs are indicated.
 - a. Basis of Design: Extron BNC5 Mini HRP.
6. DigitalMedia video cable for use in conduit and equipment racks, four unshielded twisted pairs, four shielded twisted pairs, one unshielded pair for power, and one shielded control pair in a common jacket
 - a. Basis of Design: Crestron DM-CBL-8G-NP.
7. DigitalMedia video cable where installed exposed above ceilings in spaces which are used as return air plenums, four unshielded twisted pairs, four shielded twisted pairs, one unshielded pair for power, and one shielded control pair in a common jacket
 - a. Basis of Design: Crestron DM-CBL-8G-P.

8. DigitalMedia cable assembly for use with portable DigitalMedia circuits in the room, separate cables of four shielded twisted pairs, four unshielded twisted pairs, one unshielded pair for power and one shielded control pair, combined using black mesh cable wrap.
 - a. Basis of Design: Crestron DM-CBL-D-NP with Category 6 UTP cable, Control System Cable, and Techflex Techno Wrap.
9. Category 6 UTP Cable, unshielded twisted pair, where installed in conduit or exposed interior benign environment (except return air plenums) for digital audio, video, and data network connections.
 - a. Basis of Design: Belden MediaTwist 1872A.
 - b. Factory-made and certified Category 6 cable shall be used for all UTP patch cables installed within equipment racks. No field fabricated patch cables shall be used.
10. Category 6 UTP Cable, unshielded twisted pair, where installed return air plenums, for digital audio, video, and data network connections.
 - a. Basis of Design: Belden MediaTwist 1874A.
 - b. Factory-made and certified Category 6 cable shall be used for all UTP patch cables installed within equipment racks. No field fabricated patch cables shall be used.
11. DVI-D Video Cable, for use in lecterns and equipment racks, factory-made, male to male DVI-D molded connectors
 - a. Basis of Design: Extron DVID SL Pro.
12. RGBHV Video Cable, for use in lecterns and equipment racks, factory-made, male to male 15-pin HD molded connectors.
 - a. Basis of Design: Extron MVGA M-M.
13. HDMI Video Cable, for use in lecterns and equipment racks, factory-made, male to male HDMI molded connectors
 - a. Basis of Design: Extron HDMI M-M Pro.
14. HDMI to DVI-D Video Cable, for use in lecterns and equipment racks, factory-made, HDMI male to DVI-D male molded connectors.
 - a. Basis of Design: Extron HDMI M-DVID M Pro.
15. Type 1 Digital Video Adapter, factory-made, DVI-D male to HDMI female respectively, molded connectors.
 - a. Basis of Design: Extron HDMIF-DVIDM.
16. Type 2 Digital Video Adapter, factory-made, DVI-D female to HDMI male respectively, molded connectors.
 - a. Basis of Design: Extron HDMIM-DVIDF.
17. BNC Video Connector, radial compression type, color coded.
 - a. Basis of Design: Liberty CoaxMaster Series, connector size appropriate to cable type.
18. Video Receptacle, recessed BNC jack double ended feedthrough with insulated bulkhead.
 - a. Basis of Design: Canare BCJ-JRU.
19. BNC Terminating Plugs, 75 Ohm, where required to terminate video lines.
 - a. Basis of Design: Liberty 33-1175BU.

20. DigitalMedia Cable Connector, shielded RJ-45.
 - a. Basis of Design: Crestron DM-CONN.
21. DigitalMedia Panel Connector, shielded RJ-45, RJ-45, and DMnet, single gang Decora mount.
 - a. Basis of Design: Crestron MP-WP185.

C. Control Cables and Connectors

1. Control Circuits, #20 AWG, stranded, unshielded, vinyl jacketed with number of conductors as required. Each control cable shall have at least two spare conductors
 - a. Basis of Design: Belden 9455.
2. Control System Cable, unshielded twisted pair, shielded twisted pair, compatible with control system equipment chosen
 - a. Basis of Design: Belden 1502P.
3. Digital Twisted Pair Cable, shielded, 26AWG, for use with HDMI and DVI extenders and receivers
 - a. Basis of Design: Extron DTP26.
4. RS232 data communication circuits, #24 AWG, two twisted pairs, overall shield
 - a. Basis of Design: Belden 1419A.
5. RS422 data communication circuits, #24 AWG, four twisted pairs, overall shield
 - a. Basis of Design: Belden 1421A.
6. RS485 data communication circuits, #24 AWG, single twisted pair, shielded
 - a. Basis of Design: Belden 8761.
7. RS485 data communication circuits, duplex, #24 AWG, two twisted pairs, individually shielded
 - a. Basis of Design: Belden 9729.

2.8 EQUIPMENT RACKS, CABINETS, AND ACCESSORIES

A. Equipment Racks and Cabinets

1. AV Equipment Rack, self-enclosed retractable rack frame, floor mounted, nominal 26" depth, for Carmack Room
 - a. Middle Atlantic WR Series.
2. AV Equipment Rack, self-enclosed rack frame, floor mounted, for Large Conference Room and Training Room
 - a. Middle Atlantic MFR Series, finish as selected by Owner.
3. Rack Fan Panel, black metal, compatible with AV equipment rack; top mounted, with four (4) quiet fans.
 - a. Middle Atlantic MW-4QFT-FC.
 - b. Provide one (1) fan top in each equipment rack.
4. All standard sized rack panels used to mount controls or connectors shall have formed edges. Rack panel mounting screws shall be as short as practical for equipment to be mounted (Middle Atlantic HPQ or similar).

5. Any rack front panel details shown on the drawings are for concept only. Shop drawings are required indicating the exact equipment to be furnished. The exact size (larger or taller racks) and quantity of equipment racks is to be determined by the Systems Contractor based upon the exact equipment to be furnished. Verify all audio equipment room dimensions and conditions.
6. Except as noted on the drawings, allow 1¾-inch blank panel space at the top of each rack, minimum 3½-inch vent panel space at the bottom of each rack, and ventilation space (vent panels) between all equipment. Fill any empty rack space that is not near equipment with blank panels. Except as noted on the drawings or for mounting switches or LED indicators, blank panels shall not be used between equipment.
7. Where applicable, install a brush grommet panel directly above equipment such as an Ethernet Switch to allow cables to pass from the back of the equipment rack to the front panel of equipment (Middle Atlantic BR1 or similar).
8. Where applicable, mount small components behind vent panels on sub-chassis shelves or component panels (BUD CB series chassis or similar). Mount components with connections visible from rear of equipment rack using barrier strip terminal blocks for connections.
9. The following guidelines concerning equipment rack layouts shall be followed. Submit shop drawings illustrating proposed equipment rack layouts, indicating equipment labels
 - a. Equipment Rack Layouts shall be grouped according to function; audio, video, and control.
 - b. Heavy equipment such as audio amplifiers, large video matrix switches, and UPSs shall be placed near the bottom of equipment racks.
 - c. Control equipment shall be located near the top of equipment racks.
 - d. Equipment that requires operator interface (e.g. sound reinforcement system AC power pushbuttons, sound reinforcement system mode select switches, power amplifier monitor/test system, monitor loudspeaker, computer monitor and keyboard, patch panels, audio mixers, program source and/or audio-visual equipment) shall be installed in one or adjacent equipment racks. Operator interface equipment shall also be installed at heights that permit ease of operation and viewing. Such equipment shall be placed in equipment rack(s) closest to the audio equipment room entrance.
10. Furnish small clip-on or magnetic reflector type portable work light with 60 watt bulb in each equipment rack.

B. Hardware and Accessories

1. Type 1 Barrier Strip, for termination of audio circuits in equipment rack
 - a. TRW-CINCH 140 series; or approved equal.
2. Type 2 Barrier Strip, high density, for termination of loudspeaker circuit in junction box
 - a. Phoenix Contact High Density UK series; or approved equal.
3. Spade Tongue Terminal, brazed seam, uninsulated type only.

2.9 AC POWER

- A. The Systems Contractor shall be responsible for providing distribution and connection of AC power circuits within the audio-visual equipment racks and desks. The audio-visual system AC power service will be provided to the equipment rack location by the project electrical contractor as noted on the electrical drawings.

- B. Within AV Equipment Racks, furnish multi-circuit, multi-receptacle AC power strip Middle Atlantic PDW series or equivalent with at least two spare receptacles provided for each circuit.
- C. AV Power Sequencer, for use in AV equipment racks, a minimum of six sequencing steps, rack mounted, compatible with sequencing modules chosen, where applicable, with contact closure control outputs as required.
 - 1. Middle Atlantic PDS series power sequencer, units as required for power circuits provided.
 - 2. Provide sequencing control of AC power for all the audio-visual system components (excluding projectors and flat panel displays) from the control system. Connect the system components to the sequencers such that equipment turns on in the following order:
 - a. Audio and Video Source Equipment.
 - b. Audio Mixers, Video Switchers, and other miscellaneous equipment.
 - c. Digital Signal Processors.
 - d. Audio Amplifiers.
 - 3. Adjust the sequencing time so that all equipment startup cycles are complete before the next AC power circuit is energized.
 - 4. Power off sequencing shall occur in reverse order.
 - 5. Submit diagrams for AV power low voltage control switching, indicating distribution and sequencing of AC circuits for both on and off cycles.

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation and connection of audio-visual system equipment, materials, cable and cable fittings shall be performed only by experienced audio-visual system installers. Each installer shall have access to a complete copy of the specifications at the job site.
- B. All materials and equipment are to be installed in accordance with all applicable standards of the National Electrical Code, the Electrical Code of the governing local municipality, all other applicable local codes, and all safety codes and ordinances.

3.2 INSTALLATION

- A. Equipment rack sheet metal ground shall only be via the insulated ground cable(s) noted on the drawings. Racks shall not otherwise connect to building steel or electrical conduit which is grounded to the building electrical system. Adjacent equipment racks shall be connected by an insulated #6 AWG ground cable which is bonded to each equipment rack.
- B. All adjacent equipment racks shall be ganged together if applicable.
- C. All equipment racks shall be restrained and seismic rated as required by local code.
- D. Racks shall be thoroughly cleaned prior to turn over to the Owner.
- E. Rear rack rails shall be installed as required to support heavy or deep equipment.

- F. Lacing bars shall be installed to assist in organizing cable. Lacing bars shall not interfere with access to any terminations or connectors.
- G. Cable within equipment racks shall be separated and routed in groups according to function: microphone circuits, intercom circuits, line level audio circuits, loudspeaker circuits, video circuits, control circuits, and 120 volt AC power circuits. Cable shall be neatly arranged, but tight bundling which makes modifications difficult shall be avoided. Plastic or Velcro cable ties shall be used for grouping of circuits. Unless otherwise noted on the drawings, all cables shall enter the equipment racks in one of the following manners:
 - 1. Through conduit landed directly to the equipment rack.
 - 2. Through rack knock-outs on the top or back of the equipment rack with plastic or rubber grommets.
 - 3. Directly into the back of wall mounted equipment racks. The rack shall be installed over flush mounted junction boxes allowing all cables to pass directly from the junction box into the back of the rack.
 - 4. Directly into an open side of floor standing equipment racks without side panels.
 - 5. Directly into the bottom of floor standing equipment racks through access floor holes or conduit in the floor. The rack shall be installed above the conduit stub or hole allowing all cables to pass directly into the bottom of the rack. All conduit stubs or access floor holes shall also have a plastic or rubber bushing to protect the cables.
- H. Cable in conduit or other raceway shall be separated according to function: microphone circuits and intercom circuits, line level audio circuits, loudspeaker circuits, video circuits, control circuits, and 120 volt AC power circuits. Control circuits may be installed in line level audio conduit where separate control conduit is not indicated on the drawings. Control circuits for loudspeaker volume control priority override relays may be installed with loudspeaker circuits. Intercom circuits may be installed in line level audio conduit where microphone level conduit is not installed.
- I. Any grouping of cables left exposed in a room, such as those associated with a movable equipment rack, shall be bundled together into a single bunch using black, flexible and expandable sleeving such as Techflex Techno Wrap or equivalent.
- J. At all connection points for all types of cable, self-laminating or heat shrink printed labels of appropriate letters and/or numbers shall be installed near each termination point and be clearly visible. The labels shall be consistent on both ends of the same cable. These cable numbers and/or letters shall be given to the Acoustical Consultant for inclusion on the one-line diagrams of record.
- K. Care shall be exercised in wiring so as not to damage cables and equipment. Circuits shall not be spliced except as approved on shop drawings.
- L. Where conduit connects between equipment rack locations, or between sound console and equipment racks, at least two spare circuits of each type in the conduit (microphone level, line level, control, or data communications) shall be installed in each conduit used. All spare circuit conductors shall be connected to chassis ground at the downstream (e.g. power amplifier) end of the cable.
- M. All field cabling shall have service loops to allow for at least two (2) re-terminations.

- N. All crimp type connectors, including insulated butt connectors for inline loudspeaker circuit connections, shall be crimped with a Thomas & Betts model WT111M tool. Spade tongue terminals shall be crimped with the notch on the barrel opposite the seam.
- O. Unless otherwise noted, all audio circuits shall be two wire with shield, with the red or white wire used for the "high" side of the line and connected to pin 2 of microphone connectors or to the "tip" of patch panel and other phone jacks. The black wire shall be used for the "low" side of the line and shall connect to pin 3 of microphone connectors or to the "ring" of phone jacks. The shield (drain) wire shall connect to pin 1 of microphone connectors or to the sleeve of phone jacks.
- P. All audio circuits (red or white and black conductors) shall be ungrounded except as provided by single ended amplifier inputs and where grounding of unbalanced circuits is directed during system tests. Shields for line level audio circuits shall be grounded to rack sheet metal at each cable termination. Where line level audio circuits connect to audio transformers, shields shall connect to transformer electrostatic shields and case grounds. At each cable termination shield or shield drain, wire length shall be approximately equal to the length of the insulated conductors. Shield drain wires shall be sheathed in green PVC sleeving. Circuit shields shall not otherwise connect to each other nor ground to electrical conduit at wall boxes, etc. Microphone circuit shields shall be grounded only at mixer inputs.
- Q. Where resistors are indicated to terminate an audio circuit, install each resistor at the end of the line at the input to the following transformer or amplifier.
- R. All wire joints and connections in the audio system shall be made with rosin core solder and a small soldering iron; or with approved mechanical connectors. Soldering shall be neat and shall not exhibit "cold" solder joints. Connections to screw type terminals shall be made with mechanically connected, uninsulated, spade type lugs selected for the particular wire size in use.
- S. Connections made with miniature screw actuated, phoenix type connectors shall be made by stripping approximately ¼-inch of insulation from stranded conductor, inserting the untinned wire into the pressure terminal, and tightening the terminal screw using a small screwdriver which securely fits the screw head.
- T. High impedance unbalanced audio circuits shall not extend more than 20 feet.
- U. All analog video circuits, except as indicated otherwise, shall be shielded 75-ohm coaxial cable. Shields for video circuits shall be grounded only at the connected equipment and shall not ground at electrical conduit at wall boxes, etc.
- V. No field terminated digital video connectors will be permitted unless otherwise noted in these specifications or drawings (HDMI, DVI, DisplayPort).
- W. No soldering of video connectors will be permitted.
- X. All non-locking video connectors shall be secured to the installed equipment such that the connectors cannot be easily disturbed or disconnected.
- Y. All HDMI, DisplayPort and DVI cables shall not exceed 25 feet in length without the installation of an active HDMI or DVI Cable Equalizer, with the exception of cables terminating or originating at equipment which features integral cable equalization. These cables shall be limited in length as indicated by the equipment manufacturer's recommendations.

- Z. Loudspeaker connections within loudspeaker enclosures (and at other in-line locations where necessary) shall be made with crimped insulated butt connectors. Wire nuts and/or electrical tape will not be allowed.
- AA. Loudspeakers shall be installed so there are no obstructions to the loudspeaker coverage pattern. Loudspeakers shall be connected "in phase" and proper impedance matching shall be maintained between amplifiers and loudspeakers.
- BB. Tie-wrap and secure all loudspeaker line matching transformer leads and loudspeaker cable away from loudspeakers to prevent "rattling" when loudspeakers are energized.
- CC. All loudspeakers, projectors, and other mounted equipment shall be installed with wire rope safety ties.
- DD. All analog video connections shall be made with a specified BNC type connector. The BNC plug center pin shall be crimped with a Trompeter 010-0055 or Buchanan 613439 crimp tool.

3.3 NAMEPLATES

- A. All control panels, all patch panels, and all controls, jacks, microphone receptacles, switches, etc. (except for controls, etc., on audio equipment which are properly identified by the manufacturer) shall be suitably identified by metal or plastic engraved labels or Metal-photo labels. Engraved panels or plates shall be filled with a suitable contrasting color as approved on shop drawings.
- B. Room numbers shown on drawings and indicated on control panel details, patch panels, etc., are architectural room numbers for identification only during the construction phase. Fabricated labels shall reflect the room numbers to be later assigned by the Owner.
- C. All installed and portable equipment shall be identified on front and rear panels by nameplate labels as indicated on the drawings and approved in the shop drawings, or as directed on-site by the Owner, Architect and/or Acoustical Consultant.
- D. Except as noted, all standard gang wall plates shall be Sierra stainless steel wall plates factory finished to match electrical device covers on the same surfaces, with all lettering engraved and filled directly on the wall plate. All floor box covers shall be engraved and filled directly on the cover.
- E. Except as noted, all other control mounting wall plates or microphone connection panels, 12 inches square or smaller, shall be clear anodized brushed aluminum 1/8-inch thick with ground edges and pan head screws finished to match plate.
- F. Except as noted, all other control mounting wall plates or microphone connection panels, larger than 12 inches square, shall be clear anodized brushed aluminum 3/16-inch thick with beveled edges and countersunk screw holes with Phillips oval head screws finished to match plate.
- G. Verify all dimensions and spacing for panel-mounted components and engraving. Unless noted otherwise, engraved text shall be 3/16-inch high. Spacing between panel-mounted components shall be sufficient to enable front cable connections to be made easily.
- H. Connection panel layouts shall be according to function with all connections of one type located together. Labels shall be located above the corresponding connector or component. All connection plates and nameplates on the project shall be uniform in layout and nomenclature. Microphone multipin connectors shall be placed at the bottom of connection plates.

- I. All nameplate nomenclature shall be reviewed by the Architect and Acoustical Consultant prior to panel or plate engraving; or Metal-photo processing. No wall plates shall carry the logo of the contractor's firm.
- J. All patch panel labels shall have three lines of text maximum with adequate spacing between text. All patch panel labels and jack arrangements shall be detailed on shop drawing submittals prior to fabrication.
- K. All nameplates and patch panel labels shall reflect Alternates accepted or rejected.

3.4 PAINTING

- A. Paint all exposed hardware, loudspeakers, baffles, grille cloth, wall plates, and any other item furnished under this contract not specifically noted otherwise on the drawings, color and method as approved by the Architect.

3.5 PRELIMINARY SYSTEM TESTS AND ADJUSTMENTS

- A. The Systems Contractor shall be responsible for preliminary field tests and adjustments of the completed audio-visual systems prior to the time reserved for system equalization. Circuits containing equalizers and resistors to be installed later may be strapped across to permit preliminary system testing. Such tests shall be made in conformance with the recommendations of the equipment manufacturer and Acoustical Consultant.
- B. Preliminary system tests and adjustments shall include but not be limited to the following
 1. Verification that all loudspeakers are properly installed, tapped, and circuited as indicated on the drawings.
 2. Measurement of each loudspeaker line impedance to verify that no short/open circuits exist (including shorts to conduit/ground) and proper/expected loads are connected.
 3. Testing of each loudspeaker to ascertain that none of the units "squawk" or "rattle" when energized with one-third octave bands of pink noise at a nominal input power of two watts.
 4. Qualification of all Category-type field cabling.
 5. Functional tests of the installed system(s) as required to assure that the system(s) are ready for final tests and adjustments.
- C. The Systems Contractor shall be responsible for notifying the Acoustical Consultant of any unresolved malfunctions encountered during preliminary system tests and of any equipment not at the site sufficiently prior to system equalization.
- D. Most of the final tests and adjustments will be performed concurrently with system equalization. However, if troubles are encountered, preliminary tests and adjustments shall continue until the system operates in a satisfactory manner.

3.6 FINAL SYSTEM TESTS AND EQUALIZATION (COMMISSIONING SERVICES)

- A. After the audio-visual system has received its preliminary testing, and is found to be operating properly, without hum, distortion, oscillations, radio frequency interference, etc., all circuits and connections have been examined, and all gain controls properly adjusted, then the acoustic response of the system shall be tailored by the adjustment of the active broadband and narrowband (as required) filters as indicated on the drawings.

- B. This process is termed system "tuning" or "equalization" and is accomplished after the completion of the system installation, but prior to any use of the audio-visual system. At this time, it is possible to measure the acoustic response of the system and to determine the feedback frequencies that actually exist. The broadband and narrowband filters are then tuned to these specific conditions.
- C. To achieve proper acoustic levels and aiming, select loudspeaker transformers may require re-tapping and select loudspeakers or loudspeaker clusters may require reorientation as directed by the Acoustical Consultant.
- D. The Systems Contractor shall furnish the services of a competent technician, one having knowledge of the system, to adjust the audio-visual system equipment and connections as requested by the Acoustical Consultant during the time reserved for system equalization. It is estimated that this technician should be available for approximately five (5) 10-hour days.
- E. These periods of time will be used for equalization and final system tests and adjustments. They will not, however, include the time that might have to be expended in the correction of system wiring errors, improper system performance due to noise, oscillations, etc. The Systems Contractor shall make his own assessment of the total time required for the technician referenced above.
- F. If, in the opinion of the Acoustical Consultant, the system does not appear to be functioning properly, the Systems Contractor may be required to perform tests on any individual item of equipment to determine its operational status. Any measurements deemed necessary shall be made for frequency response, distortion, etc.
- G. If after maximum effort by all concerned, it should prove impossible to complete the equalization within the stipulated period, the technician shall be made available for additional hours at no additional cost to the Owner if the Acoustical Consultant feels such assistance is necessary.
- H. The commissioning services shall be provided for the Owner by AVANT ACOUSTICS, the Acoustical Consultant. These services shall be the subject of a separate contract directly between the Owner and the Acoustical Consultant.

3.7 SYSTEM WARRANTY AND MAINTENANCE

- A. The Systems Contractor shall warrant the audio-visual system against defects in materials and workmanship, including any required parts and labor, during a one year warranty period from date of final acceptance of the completed audio-visual system at no cost to the Owner.
- B. The Systems Contractor shall make at least two visits to the job site to determine that all equipment is functioning satisfactorily, and to perform any maintenance services that may be required. The first of these visits shall occur approximately six months after the commencement of the warranty period, and the second visit shall occur approximately six months thereafter, but prior to the end of the warranty period.
- C. Maintenance services requiring additional visits shall also be performed at no charge. Maintenance services shall consist of, but not be limited to, operational tests and checks of all equipment.
- D. Any defective equipment discovered during any maintenance visit shall be repaired or replaced under the terms of the warranty. The Systems Contractor shall not be liable for equipment damaged by improper use, negligence, or accidental acts of nature.

- E. Warranty and maintenance services shall be restricted to normal working hours unless the Owner agrees to pay the difference in labor rates for overtime work.

3.8 OPERATING INSTRUCTIONS

- A. The Systems Contractor shall assemble electronic notebooks for each audio-visual system and as described below, and forward accurate field drawings of all wire numbers and control panel and patch panel engraving (for use in record drawing revisions) together with the notebooks to the Acoustical Consultant for review.
- B. The Acoustical Consultant will insert simplified operating instructions, warranty information, and one-line diagrams of record for the audio-visual system into the notebooks. The Acoustical Consultant will then forward the notebooks to the Owner.
- C. The information described below shall be placed on a portable hard drive, flash drive or CD-ROM. Notebooks shall have extra capacity for the items listed below, to be added later. Name each notebook by room and as follows

AUDIO-VISUAL SYSTEMS
OPERATING INSTRUCTIONS AND MANUALS
JOHNSON COUNTY LIBRARY
OVERLAND PARK, KANSAS

- D. Notebook contents shall include the following sections:
 - 1. Table of Contents.
 - 2. System Operating Instructions, to be provided by the Acoustical Consultant.
 - 3. System Warranty information, to be provided by the Acoustical Consultant.
 - 4. One-line Diagrams of Record, to be provided by the Acoustical Consultant.
 - 5. Shop Drawings.
 - 6. Equipment Manuals, including manufacturer's warranty information, manufacturers' operating instructions, manufacturers' service manuals having schematic diagrams and parts lists, and any other information pertaining to the operation and routine maintenance of each major item of electronic equipment. This documentation shall be organized and divided into the equipment type categories used in this specification; with binder dividers and labeled tabs for each category.
 - 7. Any other documentation deemed pertinent to the operation and maintenance of the audio-visual system.
- E. Documentation for each major item of equipment shall be the original manufacturer provided manual or an electronic version printed in color and bound with binding combs or coils. Each manual shall be three-hole punched or inserted into clear binder pockets and placed into the appropriate category section.
- F. Oversized drawings shall be neatly folded to approximately 8½-inch by 11-inch size and inserted individually into binder pockets and placed in the appropriate binder category.
- G. An electronic PDF version of all the binder contents shall be provided on CD or USB drive. The documents shall be combined into a single PDF file with "bookmarks" for each section, equipment category, and document.

3.9 SYSTEM OPERATING ASSISTANCE

- A. After the audio-visual system has received its final testing and equalization and is fully operational, the Systems Contractor and Acoustical Consultant shall instruct designated representatives of the Owner in the proper methods of system operation.
- B. The Systems Contractor shall provide system operating assistance for the first two major uses of the completed audio-visual system. This assistance shall be provided at the times required by the Owner and there shall be no extra charge for work during this time prior to or after the normal working day.

PART 4 - EQUIPMENT SCHEDULES

4.1 STANDBY EQUIPMENT

- A. The Systems Contractor shall have standby equipment on hand at the job site during the period set aside for system equalizing for the possible replacement of defective components. All unused standby equipment and any replaced equipment shall remain the property of the Systems Contractor

4.2 BASE BID PORTABLE EQUIPMENT QUANTITY

- A. Quantities shown below are only for portable equipment not permanently mounted and/or not permanently connected to the audio-visual system. Refer to the drawings for other equipment quantities, or as noted, for additional requirements. Systems Contractor shall unbox, assemble, test, and store portable equipment where appropriate.
- B. Microphones
 - 1. Five (5) Type 1 Microphone Cables.
 - 2. Five (5) Type 4 Microphone Cables.
 - 3. Three (3) Microphone Stands.
 - 4. One (1) Microphone Cable Tester.
- C. Wireless Hearing Assistance System
 - 1. Ten (10) Personal Receivers.
 - 2. Ten (10) Lightweight Headphones.
 - 3. Two (2) Neck Loop Transducers.

END OF SECTION 27 41 00

AVANT⁷ ACOUSTICS

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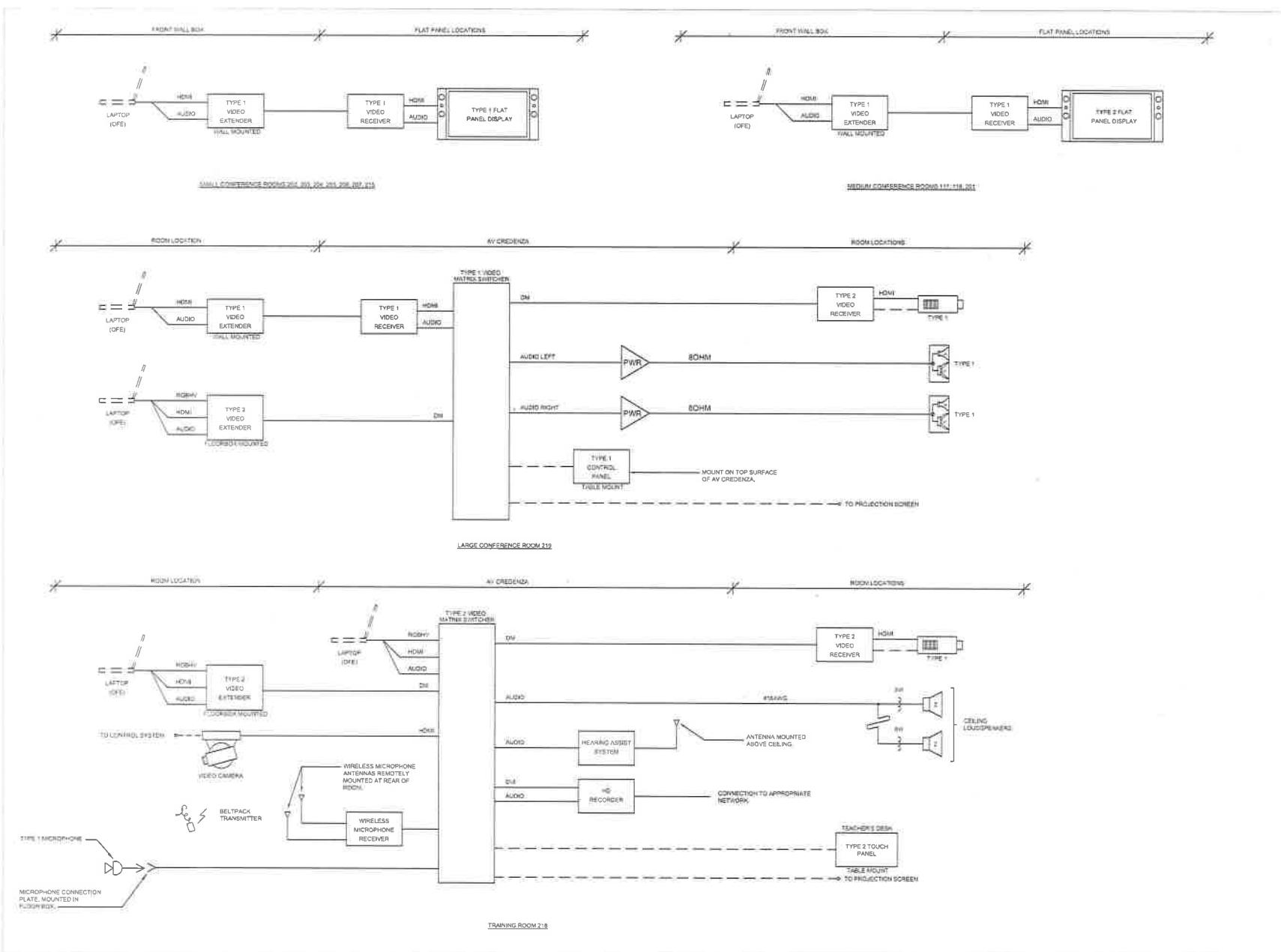
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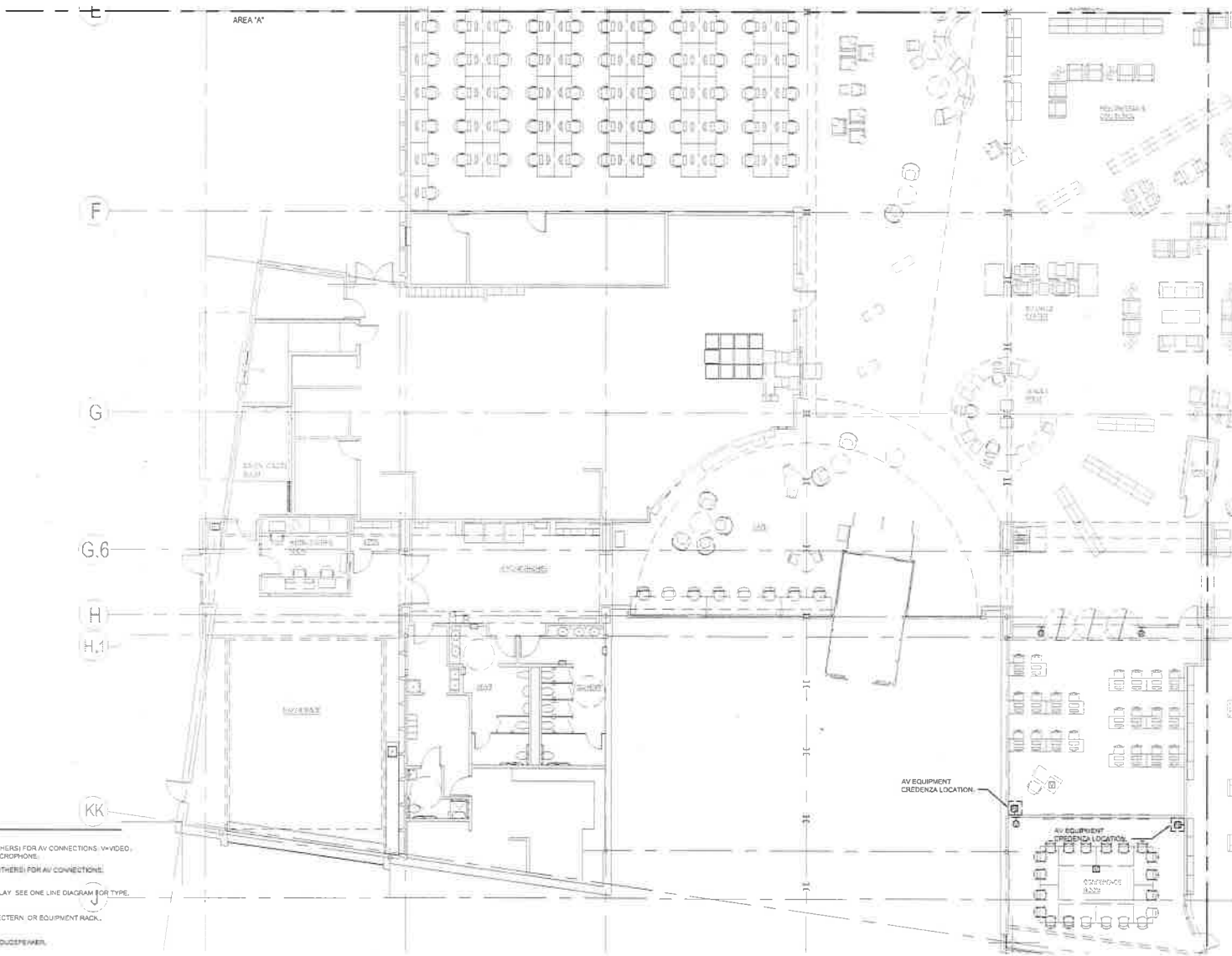
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Design: JCE
Drawn: JMH
Approved By: JCE
Date: 03/14/2016
Job Number: B4073A

AUDIO-VISUAL SYSTEM
ONE-LINE DIAGRAM

AV0.01





- AV PLAN LEGEND**
-  WALL BOX (BY OTHERS) FOR AV CONNECTIONS: V=VIDEO, R=REMOTE, M=MICROPHONE.
 -  FLOOR BOX (BY OTHERS) FOR AV CONNECTIONS.
 -  FLAT PANEL DISPLAY. SEE ONE LINE DIAGRAM FOR TYPE.
 -  AV CREDENZA, LECTERN, OR EQUIPMENT RACK.
 -  TYPE 1 CEILING LOUVER/SPEAKER.
 -  PROJECTION SCREEN (BY OTHERS).
 -  VIDEO PROJECTOR.
 -  VIDEO CAMERA.
 -  TYPE 1 CEILING LOUVER/SPEAKER.

1 AUDIO-VISUAL SYSTEM PLAN AREA A
SCALE 1/8"=1'-0"

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Design: JCE
Drawn: JMH
Approved By: JCE
Date: 03/14/2016
Job Number: 84075A

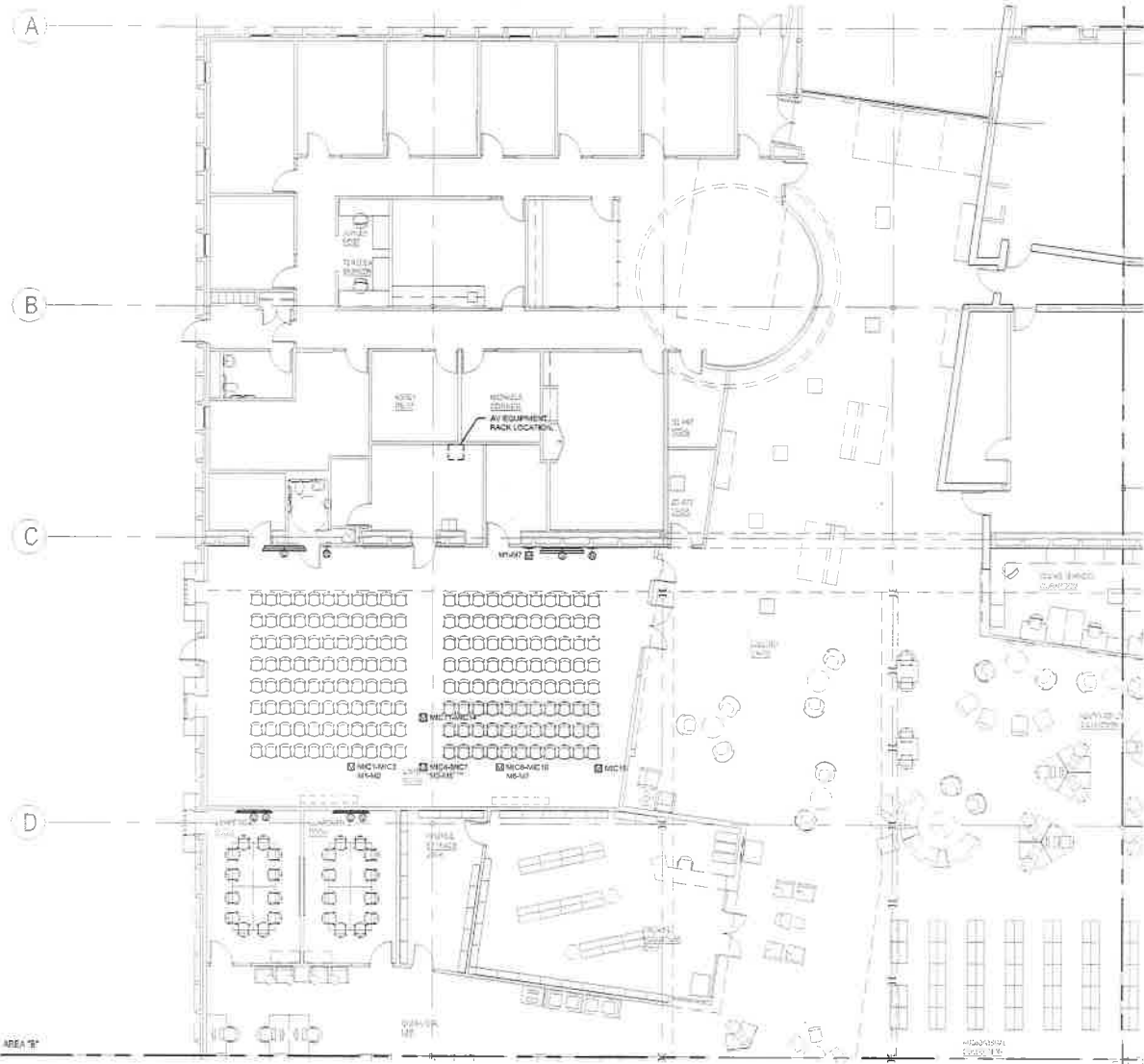
AUDIO-VISUAL SYSTEM
PLAN AREA A

AV1.01

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- AV PLAN LEGEND**
- WALL BOX (BY OTHERS) FOR AV CONNECTIONS, VIDEO, HANDNOTE MICROPHONE.
 - FLOOR BOX (BY OTHERS) FOR AV CONNECTIONS.
 - FLAT PANEL DISPLAY. SEE ONE LINE DIAGRAM FOR TYPE.
 - AV CHONDEZA LECTERN OR EQUIPMENT RACK.
 - TYPE 2 CEILING LOUDSPEAKER.
 - PROJECTION SCREEN (BY OTHERS).
 - VIDEO PROJECTOR.
 - VIDEO CAMERA.
 - TYPE 1 CEILING LOUDSPEAKER.

1 AUDIO-VISUAL SYSTEM PLAN AREA B
SCALE 1/8" = 1'-0"

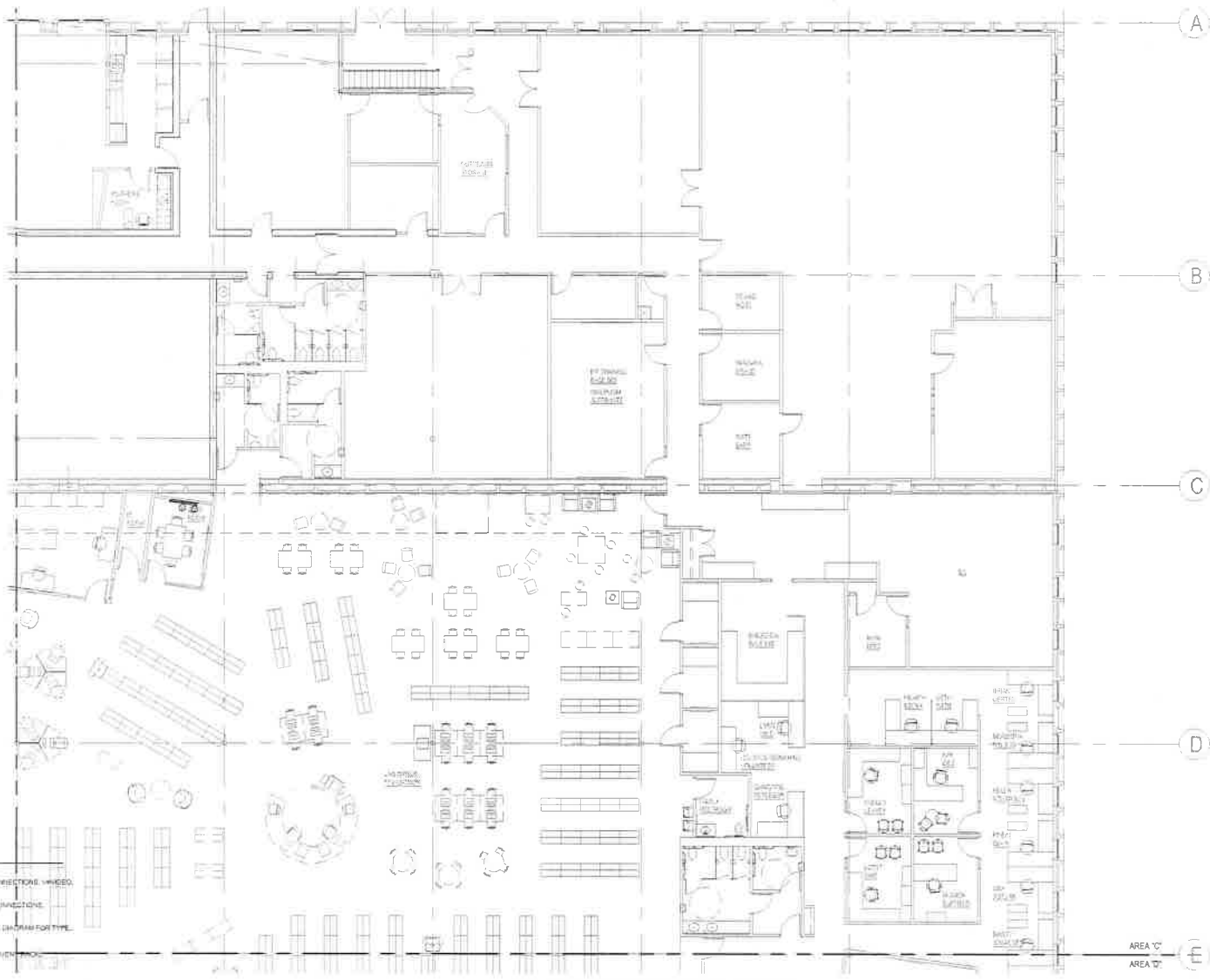
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AUDIO-VISUAL SYSTEM
PLAN AREA B

AV1.02



AV PLAN LEGEND

- WALL BOX (BY OTHERS) FOR AV CONNECTIONS, W/VIDEO W/NOTE TAKER/PHONE/FLOOR
- FLOOR BOX (BY OTHERS) FOR AV CONNECTIONS
- FLAT PANEL DISPLAY, SEE ONE-LINE DIAGRAM FOR TYPE
- CHAIRS/SEAT, LECTERN, OR EQUIPMENT RACK
- TYPE 2 CEILING LOUSPEAKER
- PROJECTION SCREEN (BY OTHERS)
- VIDEO PROJECTOR
- VIDEO CAMERA
- TYPE 1 CEILING LOUSPEAKER

1 AUDIO-VISUAL SYSTEM PLAN AREA C
SCALE 1/8"=1'-0"

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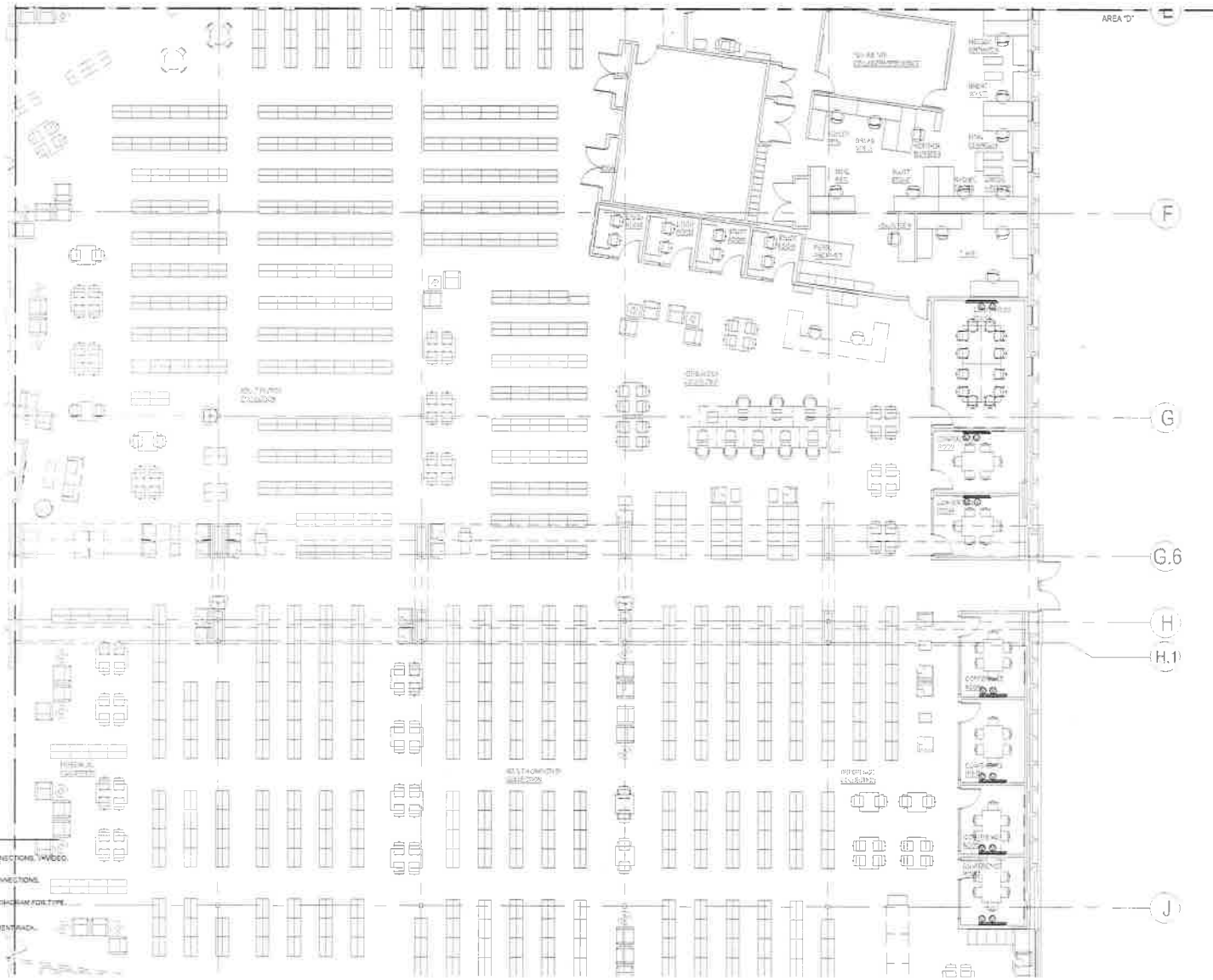
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AUDIO-VISUAL SYSTEM
PLAN AREA C

AV1.03



AV PLAN LEGEND

-  WILL BOX (BY OTHERS) FOR AV CONNECTIONS, VIDEO, PERIPHERAL, TEMPERATURE, FLOOR BOX (BY OTHERS) FOR AV CONNECTIONS.
-  FLAT PANEL DISPLAY. SEE ONE LINE DRAWING FOR TYPE.
-  AV CONSOLE, LECTERN, OR EQUIPMENT RACK.
-  TYPE 2 CEILING LOUSPEAKER.
-  PROJECTION SCREEN (BY OTHERS).
-  VIDEO PROJECTOR.
-  VIDEO CAMERA.
-  TYPE 1 CEILING LOUSPEAKER.

1 AUDIO-VISUAL SYSTEM PLAN AREA D
SCALE 1/8"=1'-0"

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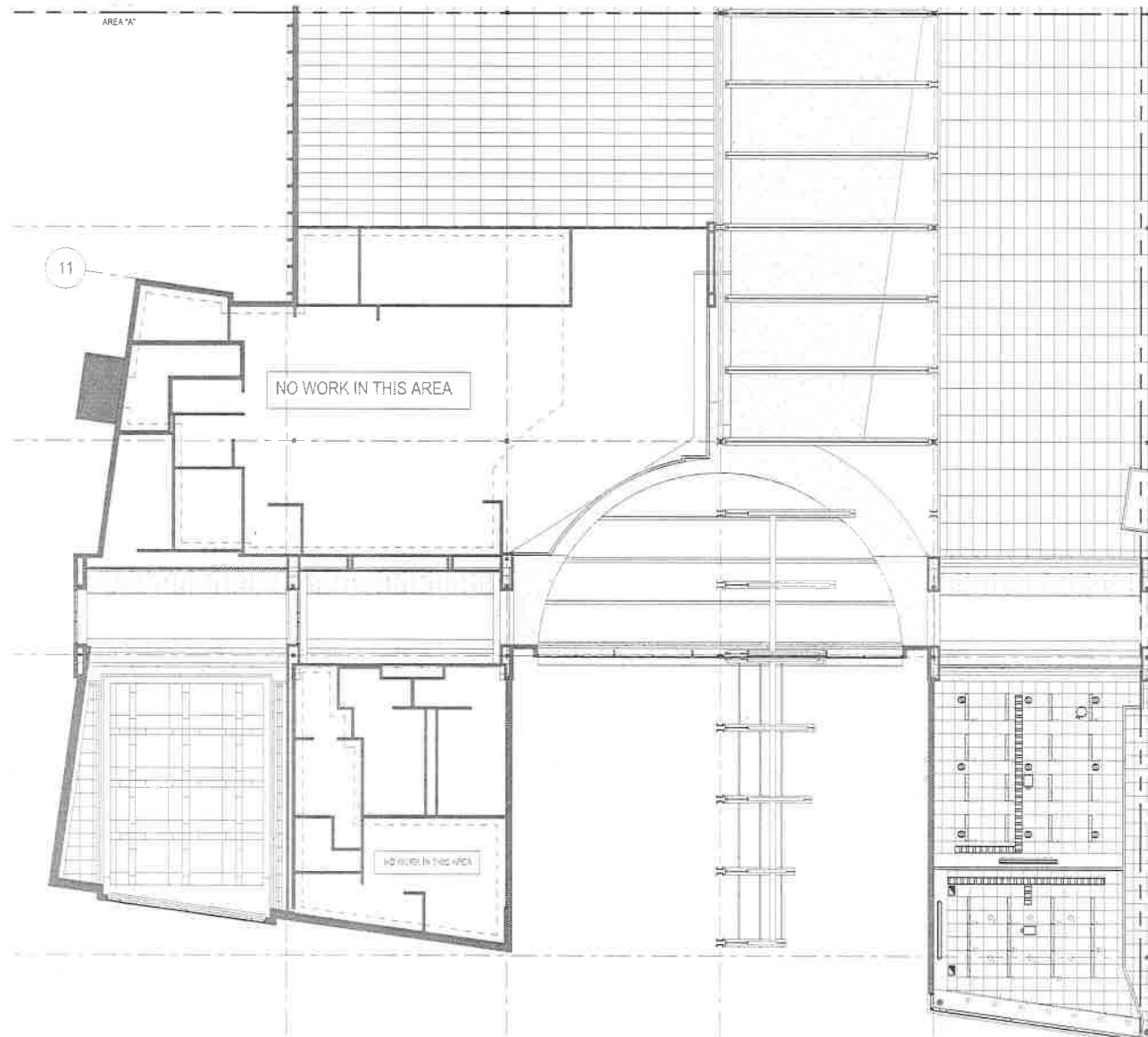
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AUDIO-VISUAL SYSTEM
PLAN AREA D

AV1.04



AV PLAN LEGEND

-  WALL BOX (BY OTHERS) FOR AV CONNECTIONS V-VIEWED
-  FLOOR BOX (BY OTHERS) FOR AV CONNECTIONS
-  AV CURTAINS, LECTERNS, OR EQUIPMENT RACKS
-  TYPE 2 CEILING LOUSPEAKERS
-  PROJECTION SCREEN (BY OTHERS)
-  VIDEO PROJECTOR
-  VIDEO CAMERA
-  TYPE 1 CEILING LOUSPEAKERS

1 AUDIO-VISUAL SYSTEM RCP AREA A
SCALE 1/8"=1'-0"

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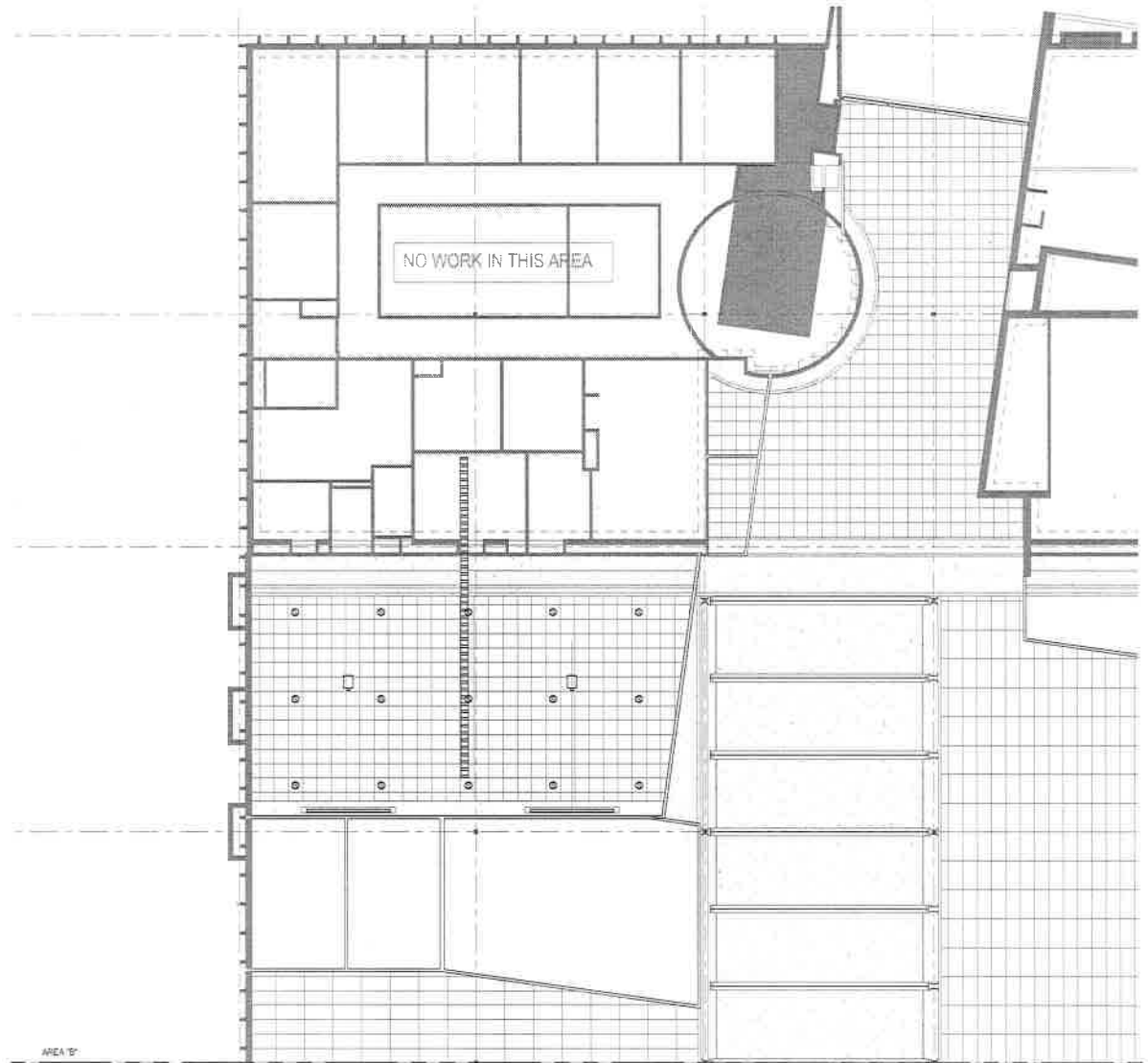
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AUDIO-VISUAL SYSTEM
RCP AREA A

AV2.01



AV PLAN LEGEND

- WALL BOX (BY OTHERS) FOR AV CONNECTIONS (V=VIDEO, R=REMOTE, M=MICROPHONE)
- FLOOR BOX (BY OTHERS) FOR AV CONNECTIONS
- ▭ FLAT PANEL DISPLAY, SEE ONE LINE DIAGRAM FOR TYPE
- ▭ AV CONTROL, LECTERN OR EQUIPMENT RACK
- TYPE 2 CEILING LOUVER SPEAKER
- ▭ PROJECTION SCREEN (BY OTHERS)
- ▭ VIDEO PROJECTOR
- VIDEO CAMERA
- ▭ TYPE 1 CEILING LOUVER SPEAKER

1 AUDIO-VISUAL SYSTEM RCP AREA B
SCALE 1/4"=1'-0"

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AUDIO-VISUAL SYSTEM
RCP AREA B

AV2.02