

Caledonia Community Schools



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DIVISION 00 – BIDDING & CONTRACT REQUIREMENTS

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END OF SECTION

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<u>File/Name</u>	<u>Description</u>
Not Used	

END OF SECTION

SECTION 00 11 16
INVITATION TO BID

PART 1 - GENERAL

1.01 WORK INCLUDED: TECHNOLOGY RENOVATIONS

A. Caledonia Community Schools (Owner) is seeking bids for purchase and installation of associated equipment and installation related low voltage cabling, multifunction printers, public address and multimedia systems. Proposed systems shall be configured and installed to service Owner's classrooms, public spaces and common areas across multiple facilities, and as described herein.

B. Project: TECHNOLOGY RENOVATIONS

C. Owner: Caledonia Community Schools
8948 Kraft Ave SE
Caledonia, Michigan 49316

D. Designer: Communications by Design, Inc.

E. Sites of Work:

1. Caledonia Community Schools Administration Office
8948 Kraft Ave. SE
Caledonia, Michigan 49316
2. Caledonia Community Schools Transportation and Maintenance
8944 Kraft Ave. SE
Caledonia, Michigan 49316
3. Caledonia Elementary School
9770 Duncan Lake Ave
Caledonia, Michigan 49316
4. Caledonia High School (North and South Campus)
9050 Kraft Ave SE
Caledonia, Michigan 49316
5. Duncan Lake Middle School and Early Childhood Center
9751 Duncan Lake Ave.
Caledonia, Michigan 49316
6. Dutton Elementary School
3820 68th Street
Caledonia, Michigan

7. Emmons Lake Elementary
8950 Kraft Ave SE
Caledonia, Michigan 49316
8. Kettle Lake Elementary
8451 Garbow Drive
Caledonia, Michigan 49302
9. Kraft Meadows Intermediate School
9230 Kraft Avenue
Caledonia, Michigan 49316
10. Paris Ridge Elementary
4690 Paris Ridge Drive
Caledonia, Michigan 49316

1.02 GENERAL DESCRIPTION OF PROJECT SEQUENCE

- A. Sequences and dates specified herein are for information only and indicate the plan and intent of the Owner. Actual dates shall be established based on final award of project.
- B. Sequence of operations shall be established by the Contractor within the guidelines established by the Owner as required to meet schedules.
- C. Schedule:
 1. Request for Bid Distributed: December 18, 2024
 2. Pre-Bid Meeting: January 7, 2025 at 11:00am
 3. Intent to Bids Due: January 8, 2025 by 5:00pm
 4. Question and Clarification Deadline: January 9, 2025 by 5:00pm
 5. Public Bids Due: January 17, 2025 at 10:00am

1.03 TYPES OF BIDS

- A. Bids shall be submitted in total and with required detail for each item bid and as is required herein, and include all portions of the work identified for the individual bid package as specified herein. Bids shall be made on unaltered bid forms as included herein. Bidder shall fill in all blank spaces and the bid shall be signed by a legal officer or agent authorized to bind the bidder to a contract.

1.04 PRE-BID CONFERENCE

- A. A pre-bid conference will be held. A discussion of the project and review of bid documents will be followed by a site review and an opportunity to ask questions. Attendance is highly encouraged for all contractors interested in bidding on any components or portions of this project. Attendance at the pre-bid conference will be a factor considered during evaluation of bids.
- B. Time: January 7, 2025 at 11:00am
- C. Location: Caledonia Community Schools Administration Office
8948 Kraft Ave. SE
Caledonia, Michigan 49316
Board Room
- D. Any drawings identified in the table of contents herein will be distributed and reviewed at this conference.
- E. Physical building inspections of sites of work will be provided for at this time.

1.05 TIME AND PLACE OF BID RECEPTION

- A. Physically sealed bids for the base bid work will be received at the district office and read aloud at a public opening. Bids arriving after the appointed time as determined by the Owner's representative conducting the public opening, shall be returned unopened. Bids will be accepted beginning forty-eight (48) hours prior to the appointed opening time provided they are in sealed packages and addressed as specified herein.
- B. Bid Receipt Deadline: January 17, 2025 at 10:00am
- C. Bid Opening Location: Caledonia Community Schools Administration Office
8948 Kraft Ave. SE
Caledonia, Michigan 49316
Board Room
- D. Faxed or electronically delivered bids will not be accepted.

1.06 EXAMINATION AND PROCUREMENT OF DOCUMENTS

- A. Specifications and any relevant Drawings may be obtained from the Technology Designer. Contractors may obtain copies by documented request to Communications by Design, Attn: Rebecca Szilagy. Requests may be made by:
 - 1. Writing – 4101 Sparks Drive, Grand Rapids, Michigan 49456
 - 2. Email – rszilagy@cbdconsulting.com

1.07 BID SECURITY

- A. Bid security equal to five percent (5%) of the total bid amount, must accompany each base bid in accordance with the Instruction to Bidders.
- B. Bid security shall be either a Bid Bond issued by a company licensed in the State of Michigan to furnish bid security or Certified Check made payable to the Owner.

1.08 PERFORMANCE BOND COVERAGE

- A. Selected Contractor(s) will be required to provide a performance bond and payment bond in an amount equal to one hundred percent (100%) of the bid amount including any accepted alternates at the Owner's discretion. Such bonds shall be issued by surety licensed by the State of Michigan and acceptable to the Owner.

1.09 OWNER'S RIGHT TO REJECT BIDS

- A. The Owner reserves the right to reject any and/or all bids. The Owner reserves the right to accept a bid, or portion thereof by issuance of a valid purchase order within ninety (90) calendar days following the bid opening. No bids may be withdrawn during this time without the specific approval of the Owner.
- B. Withdrawal of any Bids after the opening time without specific approval by Owner may result in forfeiture of required bid security by Bidder.

1.10 DEFINITIONS

- A. "Owner" is intended to mean Caledonia Community Schools, a general powers school district.
- B. For purposes of this project, the terms "Architect", "Engineer" and "Designer" are used synonymously to refer to Communications by Design, Inc., a Michigan Corporation.
- C. The term "Bidder" refers to any organization properly and accurately submitting a complete "Intent to Bid Form" prior to the required time specified herein and subsequently properly submitting completed set of bid documents as specified herein.
- D. The term "Contractor" herein is a reference to the firm(s) eventually selected by the Owner to provide the intended system(s), or any portion thereof, and fulfill the terms of the contract.
- E. The term Contract is a reference to the collective set of documents, drawings, diagrams, Owner's Purchase Order, Addenda and all other materials as provided for herein defining arrangement between Owner and Contractor.

- F. The term Addenda (or Addendum) are that portion of the Contract consisting of modifications, amendments, deletions or substitutions to the contract documents issued prior to the execution of the Contract.

END OF SECTION

SECTION 00 40 00
BID FORMS

Intent to Bid Form

Complete and submit the following form if you have interest or intend to submit a Bid for this project. Unaltered and completed forms must be received on or before 5:00 PM on DATE. Only bidders returning a completed "Intent to Bid Form" will be notified of required addenda.

Company Information

Name: _____

Address Line1: _____

Address Line2: _____

City, State and Zip Code _____

Primary Contact Information

Name: _____

Phone No.: _____

Fax. No.: _____

E-Mail Address: _____

Portions of the bid for which you will be responding:

- Section 27 10 00 - Low Voltage Cabling
- Section 27 41 16 - Multimedia Systems
- Section 27 43 13 – Multifunction Printers
- Section 27 51 16 – Public Address and Program System

Submit unaltered and completed form to:

Rebecca Szilagy

Communications by Design, Inc.

rszilagy@cbdconsulting.com

SEALED BID LABEL

Separate, or fold over, the label on the line below, and affix to the exterior of sealed container so information is clearly visible for Bid Submission. ensure label is attached in a manner to prevent accidental removal or defacement. Label shall serve as sole identification for sealed bid at submission.

BID TO: Caledonia Community Schools
Attention: Mr. Scott Vugteveen
8948 Kraft Ave. SE
Caledonia, Michigan 49316

BID FROM: _____

PROJECT: TECHNOLOGY RENOVATIONS
TECHNOLOGY BID #3047

INCLUDING Addendum No. _____ Dated _____
ADDENDA: Addendum No. _____ Dated _____

DUE: January 17, 2025 at 10:00am

BID FORM

BID TO: Caledonia Community Schools
Attention: Mr. Scott Vugteveen
8948 Kraft Ave. SE
Caledonia, Michigan 49316

BID FROM: _____

PROJECT: TECHNOLOGY RENOVATIONS
TECHNOLOGY BID #3047

The undersigned, having familiarized themselves with all local conditions affecting the cost of work, and having examined the site and all applicable Bidding Documents herein, and herein referenced, including, but not limited to, all addenda issued thereto, hereby propose to furnish all labor, material, equipment, applicable taxes and services required for proper completion of each of the following categories of this project for the sum of:

Bid Category _____ Title _____
Dollars (\$) _____).

Said amount written above constituting the Base Bid

Bid Category _____ Title _____
Dollars (\$) _____).

Said amount written above constituting the Base Bid

Bid Category _____ Title _____
Dollars (\$) _____).

Said amount written above constituting the Base Bid

Bid Category _____ Title _____
Dollars (\$) _____).

Said amount written above constituting the Base Bid

TAXES:

Bid sum includes all applicable taxes.

ALLOWANCES:

Base bid includes all applicable allowance cost(s) as set forth herein.

COST OF BONDS:

Bid sum includes cost of furnishing a Performance Bond and Labor and Material Payment Bond, each in the amount of one hundred percent (100%) of the bid.

ACKNOWLEDGEMENT OF ADDENDA:

The following addenda have been received, are hereby acknowledged, and their execution is included in both base bid and alternate bids herein.

Addendum No. _____ Dated _____ Addendum No. _____ Dated _____

ALTERNATES:

Based bid amount may be increased or decreased in accordance with each of the following alternate bids as may be selected, following procedures stated herein. Voluntary Alternates shown below are identified and described in detail on appropriate attachment(s) as referenced herein.

Voluntary Alternate A _____

Voluntary Alternate B _____

Voluntary Alternate C _____

Voluntary Alternate D _____

Voluntary Alternate E _____

PRINCIPAL SUBCONTRACTORS

As required herein, the following Subcontractors are proposed to be used for this project:

Legal Name: _____ Work Proposed _____

Legal Name: _____ Work Proposed _____

BID SECURITY:

Accompanying this Bid, as required herein, is a bid security in the form of Certified Check/Cashier's Check/Bidder's Bond in the amount of:

_____ Dollars (\$ _____),

payable to the Owner, which it is agreed, shall be retained as liquidated damages, not as a penalty, by the Owner, if the undersigned fails to execute the Contract in conformity with the form of Contract incorporated and referenced herein and fails to furnish specified bonds within ten (10) days after date of issuance of a Letter of Intent to the undersigned.

If awarded the Contract, the undersigned agrees to commence work within ten (10) calendar days after date of issuance of a Purchase Order, which shall be considered as the notice to proceed, and agrees to complete the work in accordance with the schedule herein.

FAMILIAL DISCLOSURE:

Accompanying this Bid, as required herein, is a legally executed and notarized Michigan Familial Disclosure Statement.

EXCEPTIONS:

Bidder takes no exception to terms, conditions, specifications and/or any other requirements herein unless expressly noted, and specifically identified as provided for herein on unaltered Contract Exception form accompanying this Bid.

SIGNATORY AUTHORITY:

The undersigned certifies they are an authorized agent of the bidding entity, and legally able to bind the bidding entity to the terms, conditions and responsibilities of this, and all referenced bid documents. Furthermore, the undersigned acknowledges an understanding that non-compliance of this authority or any other bidding requirements may result in forfeiture of bid security, dismissal of consideration of bid submitted, and/or personal liability against the signatory.

AGREEMENT:

The undersigned agree(s) to provide the post-bid information required within ten (10) days after notification of a Letter of Intent and to execute an agreement for work covered by this Bid on the Owner's standard Purchase Order for which terms and conditions are expanded to include all Bidding Documents and subsequent addenda issued thereto.

In submitting this bid, it is understood that the Owner reserves the right to reject any or all bids. It is further agreed that this bid is binding for a period of Ninety (90) days from the opening thereof.

Respectfully submitted,

Date: _____

Firm Name: _____

By: _____

Signed: _____

Title: _____

Official Address: _____

Telephone Number: _____

Primary Contact Email Address: _____

(If Corporation, affix Seal)

Michigan Familial Relationship Disclosure Statement

In accordance with Section 1267 of Michigan Revised School Code this sworn and notarized statement of an authorized representative, discloses any familial relationship between the owner and/or any employee of the Bidder, and any member of the project Owner’s governing Board(s) or Superintendent(s).

If any conflict of interest is discovered subsequent to submission of bid, written disclosure shall be submitted to the project Owner within seven (7) days of discovery. The project Owner reserves the right to immediately terminate any contract with Bidder upon notification of a conflict of interest. Upon such termination, the project Owner shall compensate Bidder only for the value of any goods or services provided to the Owner prior to such termination as determined by Designer.

(Check only one Box Below)

It is hereby acknowledged and certified by Bidder that no familial relationship exists between the owner or any employee of the Bidder and any member of the project Owner’s governing Board(s) or Superintendent(s).

A familial relationship exists between the owner or an employee of the Bidder and a member of the project Owner’s governing Board(s) or Superintendent(s). The person(s) and the relationship(s) are as follows:

Bidder

Board or Superintendent

Bidder Authorized Representative:

Bidder: _____

Representative’s Signature: _____

Print or Type Name: _____

Representative’s Title: _____

Subscribed and sworn this _____ day of _____, 2025.

In the County of _____ State of _____

By _____
Notary Public Signature

Seal or Stamp:

My commission expires on: _____

REFERENCES

Customer name: _____
Address: _____
City/State/Zip: _____
Contact name: _____
Contact title: _____
Phone: _____
E-mail: _____
Scope of project: _____

Date of completion: _____

Customer name: _____
Address: _____
City/State/Zip: _____
Contact name: _____
Contact title: _____
Phone: _____
E-mail: _____
Scope of project: _____

Date of completion: _____

Customer name: _____
Address: _____
City/State/Zip: _____
Contact name: _____
Contact title: _____
Phone: _____
E-mail: _____
Scope of project: _____

Date of completion: _____

IRAN LINKED BUSINESS AFFIDAVIT

All Bids shall be accompanied by a sworn statement disclosing any Iran Linked Business relationship that exists within the owners, including its officers, directors and employees.

The undersigned, owner or authorized officer of _____ (the bidder), pursuant to Michigan Public Act No. 517 of 2012, the "Iran Linked Business" requirement provided in the Caledonia Community Schools Proposals hereby represents and warrants that the bidder, including its officers, directors and employees, is not an "Iran Linked Business" within the meaning of the applicable Public Act, and that in the event bidder is awarded a contract as a result of this RFB, the bidder will not become an "Iran Linked Business" at any time during the course of performing under the contract. The bidder further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than \$250,000.00 or 2 times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of the District investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on future Requests for Bids for three (3) years from the date that it is determined that the person has submitted the false certification.

There is not an "Iran Linked Business" that exists within the bidder and/or owner, officers, directors and employees.

Bidder

[Company Name]

[Signature]

[Title]

This instrument was acknowledged before me, a Notary Public,

in and for _____ County,

_____ on this ____ day of _____,
20__,

[Notary Public Signature]

My Commission expires: _____

Acting in the County of: _____

CONTRACT EXCEPTIONS

Check one Box

Bidder takes no exception to, and agrees to comply with all sections, terms, conditions and/or requirements of the Contract Documents.

Bidder proposes the following exceptions to the Contract Documents:

<i>Paragraph Number</i>	<i>Explanation</i>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

NOTE:
Exception(s) to any bid sections, terms, conditions and/or requirements deemed excessive for any reason by the Owner and/or Designer may result in disqualification of Bid.

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.01 OWNERSHIP

- A. Bidders prepare and provide bids without any cost to the Owner and/or Designer. Once opened, bids become the sole property of the Owner. Bidders have no claim to, or ownership of bids opened. Bids become subject to all legal statutes including, if applicable, United States and Michigan Freedom of Information Acts and related laws.

1.02 COMPLIANCE

- A. This document establishes the primary system(s) design configuration. The Bidder's bid response shall include all services, supplies, components and equipment required to provide a complete turnkey system(s) which meets or exceeds all specifications for each given bid item being proposed.
- B. Owner prefers to enter into a contract with a single bidder for all materials for completion of this project, but shall consider combinations of portions of bids from various bidders. The Owner reserves the right to award portions of the project to multiple bidders who will be required to cooperate with one another in order to complete the work.
- C. By their response, Bidders agree to comply with all sections, terms, conditions and/or requirements of the contract documents except as expressly noted, and specifically identified by paragraph number on the unaltered Contract Exceptions Bid Form. Exceptions to any bid sections, terms, conditions and/or requirements deemed excessive by the Owner and/or Bid Coordinator may disqualify Bid.
- D. In compliance with the Freedom of Information Act (FOIA), the Owner shall make bid documents available for public review after issuance of purchase order to the successful bidder/s.
- E. In connection with the execution of this Contract, Contractor and any Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin.
- F. Negligence in preparation, improper preparation, errors in, or omissions from Bids shall not relieve Bidder from fulfillment of any and all obligations and requirements of the Contract Documents.
- G. All Bid documents and worksheets must be completed in detail and submitted together on time.

- H. All documents constituting the entire present agreement shall be construed in accordance with and governed by the laws of the State of Michigan.
- I. Designer shall have authority for interpretation of Contract Documents. In the event terms, provisions or any other portion of the Contract Documents is/are in dispute, Designer shall have full and final authority to interpret the Contract Documents, and such interpretation shall be final and binding.
- J. In the event of a conflict between any terms or conditions in any of the documents comprising the entire present Agreement, the terms and conditions set forth in this document shall take precedence.

1.03 NOTICE AND RESPONSE

- A. Upon notification of Bidder being considered as a finalist, the Bidder shall provide to the Owner and Designer, within 48 hours, a current “Dunn and Bradstreet Supplier Evaluation Report” and other documentation as may be required of finalists herein and as requested by Owner and/or Bid Coordinator.
- B. Bidder shall provide timely response to all requests from Designer and/or Owner regarding clarification and/or elaboration concerning, but not limited to its Bid as may be deemed relevant by the Owner and/or Designer.

1.04 PROTECTION AND SAFETY

- A. Contractor shall continuously maintain adequate protection of all Work from damage and shall protect the Owner’s property from injury or loss arising in connection with the execution of the Contract. Contractor shall make good any such damage, injury or loss, except such as may be directly caused by agents or employees of the Owner. The Contractor shall adequately protect adjacent property as required by law, by the Contract Documents, or as otherwise required, to cause no damage to them during the execution of the Contract. This requirement shall also apply to structures above and below ground as conditions of the site require.
- B. Contractor shall be solely responsible for, and have control over means, methods, techniques, sequences and procedures for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the contract. Contractor shall take all necessary precautions for the safety of employees and visitors on the site of the Project and shall comply with applicable provisions of federal, state, and municipal safety laws and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed. Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of workers and the community.

- C. Contractor shall vigorously defend any and all suits that may be brought against the Owner by any person and/or entity, whether in the employ of the Contractor or not, for damage to property, and/or injury or death to persons alleged or claimed to have been caused by or through the performance of work.

1.05 DRAWINGS DIAGRAMS AND ILLUSTRATIONS

- A. Drawings, Diagrams and Illustrations are diagrammatic in nature and indicate general arrangement and nature of systems and work included.
- B. Floor plan drawings are provided to assist the contractor in preparing documentation and reports as required herein.

PART 2 - MATERIALS

2.01 VOLUNTARY ALTERNATES AND SUBSTITUTION OF SPECIFIED PRODUCTS

- A. This Request for Bid describes a particular implementation. All Bids must provide pricing on the “base bid” as described herein. Voluntary alternatives providing comparable functionality with significant cost reduction and/or performance enhancement may be proposed. Voluntary alternatives are encouraged, but must be identified as “Voluntary Alternates” and detailed on unaltered Bid Forms contained herein. Voluntary Alternates may be further detailed and/or explained in attachments to the unaltered Bid Forms contained herein. Exceptions to the Request for Bid specifications must be clearly noted and explained for each Voluntary Alternate proposed.
- B. No substitutions of specified products may be made without specific prior authorization by Designer and Owner. Individual bid divisions herein contain particular information related to acceptable manufacturer and product requirements.
- C. Trade-in, equipment/license exchanges or other return allowances may be provided as a voluntary alternate. Trade-in, exchange or other return equipment allowances shall not be included in base bid amount.

PART 3 - EXECUTION

3.01 EXAMINATION OF DOCUMENTS AND SITE

- A. Bidders shall carefully examine the Contract Documents and the construction site to obtain first-hand knowledge of existing conditions and requirements. No plea of ignorance of conditions that exist, or any other relevant matter concerning work to be performed in the execution of work will be accepted as justification for failure to fulfill every detail of all requirements as described herein.

3.02 QUESTIONS, INTERPRETATIONS AND ADDENDA

- A. Any bidder finding discrepancies between Drawings, Specifications and/or Bid Documents, or be in doubt as to the exact meaning of any provision or detail shall notify the Designer at once, and before the deadline for Questions and Clarifications. The Designer may then, at their option, issue Addenda clarifying same. The Designer is not responsible for oral instructions, or Bidder's/Contractor's misinterpretations of Drawings, Specifications and/or Bid Documents.
- B. The Designer reserves the right to issue Addenda at any time up to thirty-six (36) hours prior to the scheduled bid opening. All such addenda shall become, upon issuance, an inseparable part of the Specification/Contract Documents. Each bidder shall incorporate within their bid all costs for items listed in any/all Addenda, and shall acknowledge receipt and identifying number of each Addendum on the Bid Form and on the outside of the sealed bid container.
- C. Addenda will be forwarded to each bidder who has received a copy of the Bidding Documents and has submitted "Intent to Bid Form" in addition to being posted publicly.

3.03 BID SECURITY, BONDS AND INSURANCE

- A. Bid Security, Performance and Payment Bonds are required on this project.
 - 1. Bid security equal to five percent (5%) of the bid amount must accompany each bid in accordance with the Instruction to Bidders.
 - a. Bid security shall be either a Bid Bond issued by a company licensed in the State of Michigan to furnish bid security or Certified Check made payable to the Owner.
- B. The selected Contractor will be required to provide a performance bond and a payment bond each in an amount equal to one hundred percent (100%) of the bid amount including any accepted alternates at the Owner's discretion.
 - 1. The surety of the performance bond shall remain in effect until all acceptances and final contract close-out requirements herein have been executed by the Owner.
- C. Contractor shall provide, prior to beginning any work at the sites, certificate of insurance for delivery to Owner indicating all required insurance coverage is in force.
 - 1. Workers' Compensation and Employer's Liability Insurance
 - a. Coverage A – Statutory

- b. Coverage B - \$1,000,000 Per Accident
2. Broad Form Comprehensive General Liability Insurance (including – Premises, Elevators, Contractor’s Protective Liability, Contractual, Products & Completed Operations – including Broad Form Extensions).
 - a. Each Occurrence - \$1,000,000
 - b. General Aggregate - \$2,000,000
 - c. Products & Completed Operation Aggregate - \$2,000,000
 - d. Personal Injury & Advertising Injury - \$1,000,000
 - e. Fire Legal - \$100,000
 3. Sub-contractors Operations, Products – Completed Operations and Contractual Liabilities, plus such excess coverage as may be appropriate for the limits listed.
 4. Comprehensive Automobile Liability Insurance (owned, hired, and non-owned automobiles).
 - a. Bodily - \$1,000,000 each Person and \$1,000,000 each Occurrence
 - b. Property Damage - \$1,000,000
 5. Furnish Owner with Contingent Liability Insurance Policy with coverage and liability limits the same as for Public Liability Insurance specified herein. Designate on policy as assured, only the Owner.
 6. Furnish Owner with Contingent Property Damage Insurance Policy with coverage and liability limits the same as for Property Damage specified herein. Designate on policy as assured, only the Owner.
 7. Policies shall include notification clause requiring ninety (90) days written notice to Owner in the event of policy cancellation, expiration, non-renewal, coverage reduction or other material change.
 8. Contractor shall not commence work under the Contract until after all insurance required herein as been obtained and certificates for such are approved by Owner.
- D. All such bonds and/or insurance shall be issued by surety licensed by the State of Michigan and acceptable to the Owner.
1. Insurance certificate(s) shall be signed by insurance agent licensed in the state of Michigan or a representative of the insurance company.

- E. Contractor agrees to indemnify and hold harmless the Owner and Designer, including their agents and employees, from and against all claims, damages, losses and expenses, including, but not limited to, attorney fees arising out of, or resulting from the performance of the work to the fullest extent allowed by law on a comparison basis of fault.

3.04 MODIFICATION AND WITHDRAWAL

- A. Bids may be withdrawn and/or changed any time prior to the deadline for submission of bids. Bids may not be withdrawn or changed thereafter and shall be deemed a firm offer continuing for ninety (90) calendar days. Bids received after the deadline for submission will be returned unopened at the Owner's discretion.
- B. Withdrawal of any Bid after the opening time without specific approval by Owner may result in forfeiture of required bid security by Bidder.

3.05 CODES, ORDINANCES, REGULATIONS AND RELATED

- A. All labor and materials shall be furnished and installed in strict accordance with the latest applicable codes, ordinances and regulations of any governing body having jurisdiction over this project.
- B. In the event the quality of labor and materials required by the Drawings and Specifications herein exceeds requirements of current applicable codes, ordinances and regulations, the Drawings and Specifications shall take precedence.
- C. In the event the quality of labor and materials required by current applicable codes, ordinances and regulations having jurisdiction over this project exceeds that of the Drawings and Specifications herein, the applicable codes, ordinances and regulations shall take precedence.
- D. The Contractor shall give all notices and comply with all codes, laws, ordinances, rules and regulations of any authority having jurisdiction, which bears on the performance of its work. This compliance includes, but is not limited to, the Michigan School Safety Initiative (PA129, PA130, PA131 and PA138) if applicable to work being performed.
- E. The Contractor shall pay for all licenses, permits, taxes, and fees required for this project; and shall comply with all federal, state, local and Owner's codes, laws, ordinances, regulations and other requirements applicable to the work specified at no additional cost to the Owner. Contractor shall submit copies of all approved certificates and approvals to the Owner upon receipt.

3.06 SUB-CONTRACTOR AND MATERIAL SUPPLIER

- A. The successful Bidder shall submit to the Owner and Designer a complete list of all sub-contractors and all material suppliers proposed to engage on the work. Sub-contracts shall not be awarded until after they have been approved by the Designer and Owner.
- B. Finalist bidders may be required to submit additional details related to sub-contractors and suppliers within forty-eight (48) hours after the bid opening.
- C. Names of any principal sub-contractors must be listed on the Bid Form.
- D. All contracts made by the successful Bidder with Subcontractors shall be covered by the terms and conditions herein. The successful Bidder shall see to it that Subcontractors are fully informed in regard to these terms and conditions, and shall bind all subcontractors to the same terms and conditions. Failure to do so will absolve the Owner from any liability for additional cost due to subcontractor claims for additional cost, time or any claim(s) for additional cost by subcontractor(s).

3.07 BID RESPONSE FORMAT

- A. Bidder shall provide complete Bid copies in two formats as described herein.
 - 1. One (1) Hard copy format responses shall be in a bound tabulated format. Each response shall have tab indicators for each section.
 - 2. One (1) Electronic copy format responses shall be submitted on a USB Drive, readable by a standard Microsoft Windows 11 workstation. Electronic media shall contain separate folders to organize response documentation as described herein. Files submitted electronically shall be *Adobe Acrobat* "PDF" format (SCHEDULE OF VALUES is additionally required to be on the USB drive in the appropriate folder as a spreadsheet and as described herein).
- B. All Bid Response formats shall be clearly externally marked to include, but not be limited to:
 - 1. Bidder identification.
 - 2. Project Owner identification.
 - 3. Project name.
 - 4. Bid submission date.
- C. Bid Responses shall include an index containing copies/PDF of a complete index of documents comprising Bid Response. Responses shall include, but not be limited to the following tabbed/folder sections:

1. Section 1 – Forms, which shall contain copies/PDF files of all required and completed bid forms.
 - a. BID FORM
 - b. Michigan Familial Relationship Disclosure Statement
 - c. Iranian Linked Business Affidavit
 - d. REFERENCES
 - e. CONTRACT EXCEPTIONS
 - f. SCHEDULE(s) OF VALUES
 - g. BID BOND
2. Section 2 – Overview, which shall contain copies/PDF files of cover letter and/or executive overview.
3. Section 3 – Submittals, which shall contain copies/PDF files of all required and voluntary submittals.
4. Section 4 – Appendices, which shall contain copies/PDF files of other reference materials Bidder wishes to, or is required to submit.

3.08 AWARD OF CONTRACT

- A. The material proposed to be used for the completion of work, and the competency, solvency and responsibility of bidders will receive due consideration before award of contract. In the reception of bids for this work, the Owner incurs no obligation to accept the lowest, or any bid submitted. The right to accept or reject any and all bids or portion thereof is reserved by the Owner. The Owner reserves the right to require testimonial, accounting or legal documents pertaining to the solvency of a Contractor, or any other decision factor the Owner deems appropriate, prior to award of contract.
- B. Owner reserves the right to select individual components from schedule of values independent of installation as may be determined in Owners best interest. Selected bidder may be required to install selected components provided by others.
- C. Issuance of a Purchase Order by Owner in response to a valid bid shall be a Notice to Proceed, and shall become part of, but not limited to, all terms, conditions and requirements herein. Notice to Proceed shall have the full effect of contract award, and shall make all terms, conditions, requirements and responsibilities of Bidder binding upon issuance. Notice to Proceed, once

issued, shall become an inseparable part of the contract documents herein, and constitute both Bidder and Owner's acceptance of contract.

3.09 TIME, SCHEDULES, PROJECT MANAGEMENT, MEETINGS AND PLANS

- A. Time is of the essence on this project. Award of contracts for this project will be contingent on the bidder's agreement to complete the work on or before the contract completion date stated herein.
- B. All Contractors will commence work in such a manner and at such a time as to expeditiously interface with the work of other Contractors, and will pursue the project diligently to completion. All Contractors will work in a cooperative manner with Owner and other Contractors.
- C. Contractor shall appoint an overall Project Manager acceptable to Owner, with skills and experience deemed appropriate by the Owner for the scope and size of the project. Project Manager shall be responsible for the scheduling of all Contractor resources and attending all project meetings. Upon notification of Bidder being considered a finalist, the Bidder shall submit professional resume of proposed Project Manager within forty-eight (48) hours.
 - 1. Project meetings shall be conducted at Owner's selected and identified location weekly and at Owner's and/or Designer's discretion.
 - 2. Within five (5) days of Notice to Proceed (issuance of a Purchase Order by the Owner), Contractor's Project Manager shall provide to the Owner a critical flow path in the form of a "Gantt Chart" (or equivalent) indicating the proposed sequence of events and approximate beginning and completion dates in accordance with, compliance to, and coordinated with requirements herein.
 - 3. Changes of the Project Manager during the project shall not be acceptable without prior written approval from the Owner.
 - 4. It is the responsibility of the Contractor's Project Manager to schedule work, work out issues, ensure that all required products and services are delivered according to schedule and attend to any other matters required by the Owner in the interest of professional and timely completion of the project.
 - 5. The appointed Project Manager, or a designee acceptable to the Owner, shall be in attendance of all project meetings throughout the term of the project. Failure to do so may be considered a material breach of contract.
 - 6. After a ten (10) business day notice, the Owner reserves the right to request a new Project Manager, when it appears that, in the Owner's sole discretion, the Project Manager is not fulfilling the full responsibilities of

the position. Failure by Contractor to provide adequate Project Manager meeting requirements of the Owner, may result in Contract termination.

3.10 CHANGES IN THE WORK

- A. No changes in work with the effect of either increasing or decreasing in the project value shall be made without specific and prior authorization by the Owner and Designer.
- B. Owner, without invalidating the contract and without notice to any surety, may at any time order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly. All such work shall be authorized by a written Change Order approved by Owner and Contract Designer. Upon receipt of such an order Contractor shall promptly proceed with the work involved. All such work shall be executed under the conditions of the original Contract. Owner authorized change order(s) may be issued at any time prior to Contract close out.
- C. When so directed, Contractor shall promptly submit an itemized estimate and a unit price for performing or deleting such extra or changed work as may be contemplated. Any extensions or reductions of the contract time associated with extra or changed work shall be identified at the time Contractor submits such documentation.
- D. At the Owner's discretion, adjustments in the Contract Sum shall be determined by one or more of the following methods:
 - 1. By mutual acceptance of a lump sum cost, including overhead and profit, itemized and supported by sufficient substantiating data to permit evaluation.
 - 2. By unit prices stated in the Contract Documents including, but not limited to, Schedule of Values.
 - 3. By unit prices mutually agreed upon.

3.11 PAYMENT REQUESTS AND PAYMENTS

- A. Contractor's invoices shall be submitted monthly in correlation with the Project Schedule indicating percentage of work completed.
- B. All contract and change order invoices shall be sent directly to Contract Designer.
- C. A 10% retainage shall be held back on all payment requests, including, but not limited to hardware, software, change orders and services, until final completion and close out of the project or project phase as determined by Owner and Designer.

- D. Contractors are required to submit all invoices on approved AIA Payment Request Forms or other billing format pre-approved by Contract Designer. Each AIA Payment Request Form shall be accompanied by a properly completed, executed and notarized Waiver of Lien which shall be in a format and contain verbiage approved by Owner.
- E. The Contract Designer and Owner shall process payment requests on a monthly schedule and in accordance with their respective established processes and procedures. Payments will be made by the Owner based only on AIA Request Forms having been previously certified, audited and approved by Contract Designer and accompanied by acceptable Waiver of Lien.

END OF SECTION

SECTION 00 65 00
CONTRACT CLOSE OUT

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide an orderly and efficient transfer of the completed work to Owner.
- B. Details affecting work of this Section includes, but is not limited to all other Sections herein and all related Contract Documents.
- C. Activities relative to Contract close-out are described in, but not limited to, this and other Sections of this document.

1.02 SUBSTANTIAL COMPLETION

- A. "Substantial Completion" shall be defined as:
 - 1. All responsibilities of Contractor for all provisions and requirements of all divisions and sections of complete Contract herein, and as amended, are properly and fully completed or properly, accurately and acceptably provisioned for.
 - 2. All systems, equipment, facilities, services, programming and/or components required by all divisions and sections of complete Contract are fully operational, acceptable and useful to the Owner for their intended purposes.
- B. Prior to requesting inspection by Designer to certify Substantial Completion, Contractor shall use adequate means to assure the Work is completed in accordance with the specified requirements and is ready for such inspection.

PART 2 - MATERIALS

2.01 NOT USED FOR THIS SECTION

PART 3 - EXECUTION

3.01 PROCEDURES

- A. Contractor shall submit a written request to Designer indicating they have achieved Substantial Completion of Work.
- B. Within a reasonable time after receipt of the request, Designer will inspect Work to determine status of completion.
- C. Should Designer determine the Work is not substantially complete:

1. Designer promptly will so notify Contractor, in writing giving reasons therefore and providing sufficient details to allow Contractor to make corrective actions.
 2. Contractor shall then expeditiously remedy the deficiencies and notify Designer in writing when ready for re-inspection.
 3. Designer will re-inspect the Work.
 4. Excessive re-inspections of Work may result in fees being assessed Contractor.
- D. Should Designer concur the Work is substantially complete:
1. Designer will prepare a letter of Substantial Completion.
 2. Designer will submit the letter to Owner and Contractor.
 3. Contract shall be deemed "Closed Out" for retainage purposes.
 4. Final Acceptance of the system shall be deemed complete.

END OF SECTION

SECTION 27 10 00
LOW VOLTAGE CABLING

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

- A. Work described in this specification section pertains to structured cabling and internal plant fiber to support various types and styles of communications systems. Owner expects structured cable system shall be used to provide connectivity for items including, but not limited to, Access Points, Phones, Computers, Printers, Cameras and video displays.
- B. Copper structured cable system shall be compliant with EIA/TIA 568B.
- C. The Owner has identified MDF/IDF locations in Caledonia Community High School – North Campus to receive new fiber optic cabling. New internal single mode fiber optic cable shall be installed to connect existing data cabinet.
 - 1. This work includes, but is not limited to the following:
 - a. A single indoor rated twelve (12) strand OS1 single mode (SMF) fiber optic cable installed between MDF and IDF locations identified in this document and on provided diagrams.
 - 1. Caledonia High School – North Campus – IDF 8 – Catwalk
 - b. New OS1 fiber optic cables shall be terminated on Contractor supplied enclosure shelf with LC connectors.
 - c. All twelve (12) strands are to be terminated and tested.
 - 2. Connectors and couplers.
 - 3. Adequate cable support in existing or new raceway system as may be required for efficient and effective routing.
 - 4. Rack mounted termination enclosure shelves.
 - 5. Storage Loops
 - a. Installed prior to cable entry to cabinet or rack where termination is completed with fifteen (15) feet of stored cable.
- D. The Contractor shall configure, supply, install, connect, test, document and train Owner representatives and warrant a fully operational and compliant communications transport system, complete and with full functionality as specified herein including, but not limited to:

1. Cables
 2. Jacks
 3. Cable support hardware
 4. Communication distribution racks
 5. Cross connect blocks and devices
- E. Contractor shall coordinate their installation with other contractors, Architect, Construction Manager, Architect/Engineer and the Owner as is appropriate.

1.02 DRAWINGS

- A. Drawings show the location and general arrangement of data cabling in each building respectively. No work shall proceed without final approval of locations by Owner and/or Designer. Data cabling locations are identified for bidding purposes, final location of data cabling may be adjusted as necessary.
- B. Examine drawings of other trades and verify conditions of work sites. Arrange work accordingly.
- C. Deviations from final drawings, with the exception of minor changes in routing and other such incidental changes not affecting functionality or serviceability of systems, shall not be made without written approval of Architect/Engineer.

1.03 WARRANTY

- A. Complete installation shall be free from defect and/or failure for a period of fifteen (15) years. Any replacement, upgrade or fix, including labor for any non-conforming or non-operational part of the system shall be fixed and/or replaced at no cost to the Owner.
- B. Manufacturer's warranty shall be provided for all components of the system.
 1. Any paperwork and/or submittals required by individual manufacturers for compliance with the standard and/or applicable extended warranty programs shall be provided and submitted for approval by the Contractor.
 2. Contractor shall submit all paperwork, apply for warranty or extended warranty certification, and provide a Certificate of Warranty or Extended Warranty as may be applicable from the manufacturer prior to project closeout.

C. On site services provided under the warranty shall be performed by personnel or representatives of Contractor as herein defined and located within physical proximity to provide response levels deemed acceptable to Owner.

1. Contractor shall provide response times for all malfunctioning equipment of two (2) business days or less.
2. Response time shall be measured from the time Contractor is notified by Owner to the time work is begun to resolve the matter.

1.04 SUBMITTALS

A. Submittals shall consist of technical cut sheets and information pamphlets on all components of the system to be installed. All cut sheets and submittals shall be distinctly marked to highlight the actual part number of the item being submitted for approval.

B. Equipment or material installed for this project that does not have an approved submittal associated with it, shall be removed and replaced with acceptable equipment or material as defined by the Architect/Engineer. All replacement costs including, but not limited to material and labor, shall be the sole responsibility of the Contractor.

1. The Owner and/or Architect/Engineer may notify Contractor of any offending situations under this provision allowing Contractor up to forty-eight (48) hours to correct the situation prior to taking other corrective action.
2. The Owner reserves the right to replace unapproved materials and deduct the costs of doing so as defined herein from any amounts that may be due, or become due Contractor.

C. Shop drawings and diagrams shall be submitted by Bidder for approval by Architect/Engineer with Bids.

1. Shop drawings and diagrams shall show all data relating to structural, electrical, wiring, cross connect, interconnect, equipment arrangement/layout, and any other information deemed significant by the Architect/Engineer.
2. No work constituting final installation shall be commenced until after approval of shop drawings by Architect/Engineer.

1.05 REFERENCE STANDARDS

A. All work, products, and materials shall conform with the following standards as applicable for the intended use:

1. ANSI/NFPA
2. EIA/TIA Commercial and Administration Standards
3. NECA
4. BICSI
5. UL
6. MOSHA Safety Standards

1.06 CONTRACTOR

- A. The Contractor shall accept complete responsibility for the installation, certification and support of the system. Contractor shall provide proof of manufacturer support by photocopy of certification and letter of support from major component manufacturers for this specific project. Contractor shall be an authorized vendor of all major components.
- B. All work shall be performed and supervised by Project Managers, Engineers and/or Technicians who are qualified to install system and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods.
- C. Project Managers, Engineers and Technicians employed on this project shall be properly and fully trained and qualified by the manufacturer on the installation and testing of the equipment and systems to be installed. Certification of such training shall promptly be provided if requested by Architect/Engineer.
- D. The Contractor shall have a proven track record in structured cable configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the installation of similar systems completed by the Contractor in the prior two (2) years on unaltered forms with the sealed Bid as provided herein.

PART 2 - PRODUCTS

2.01 MANUFACTURERS (Low Voltage Cabling)

- A. Manufacturer(s) of major components of the structured cable system shall be a known and leading entities in the communications field, and shall have been designing, manufacturing and installing similar systems for a period of no less than four (4) years.
- B. Acceptable Manufacturers – Low Voltage Cabling (In alphabetical order):

1. General Cable
 2. Panduit
- C. System shall be built upon an open and standard platform, supporting industry standards. Systems that are deemed Proprietary in nature shall not be considered.

2.02 MANUFACTURERS (Fiber Optic Cabling)

- A. Manufacturer of major components of the Fiber Optic Network shall be a known and leading entity in the cabling and/or connector field, and shall have been designing, manufacturing and installing similar components for a period of no less than four (4) years.
- B. Acceptable Manufacturers – Fiber Optic Cabling (In alphabetical order):
1. Belden
 2. Berk-Tek
 3. CommScope
 4. Hubbell
 5. Lucent
 6. Siecor / Corning Cable Systems
- C. Network shall be constructed using industry standards and as specified herein.
- D. Contractor shall provide all dielectric fiber optic cable and termination components. All provided and installed fiber components shall comply with ANSI/TIA/EIA 568C specifications.
- E. All indoor single-mode fiber optic cables shall meet or exceed the following specifications or performance requirements:
1. Installed cable shall be single mode graded index glass fiber.
 2. All materials in the cable are to be dielectric.
 3. 8.3-micron core diameter size
 4. 125-micron cladding diameter
 5. Maximum Attenuation
 - a. 1310nm: 0.5 dB/km

- b. 1550nm: 0.5 dB/km
 - 6. Tight buffered
 - 7. EIA/TIA – 598 color coding for fiber optic cable
 - 8. Indoor plenum rated
 - 9. Capable of bend radius as small as 20 x outside cable diameter (under installation load) and 10 x outside cable diameter (long term load).
- F. All indicated fibers shall be terminated on high quality IEC 61754 compliant LC connectors at head end locations (MDF). Total optical attenuation through the cross connect from any terminated fiber to any other terminated fiber shall not exceed .5 dB. All optical fiber shall be handled, installed, and supported as per manufacturer recommendations.
- G. Contractor shall supply new fiber patch cables for MDF and IDF locations.
- 1. Six (6) – 3-meter, OS1 LC to LC single mode fiber patch cables shall be provided for connection to Owner provided network equipment.
- H. Contractor shall provide termination shelves to support newly installed optical fiber. Fiber termination shelves shall meet or exceed the following specifications:
- 1. Rack mountable - 1U
 - a. Where fiber densities are greater than can be accommodated in 1U, larger enclosures will be permitted.
 - 2. Provide security and protection.
 - 3. Be accessible from both front and rear.
 - 4. Provide adequate strain relief for cables.

2.03 COPPER CABLE

- A. Station Cable shall meet or exceed:
- 1. Four (4) pair Category 6 Unshielded Twisted Pair (UTP) cable.
 - 2. Rated and certified for installation in plenum air return spaces as may be required.
 - 3. Twenty-three gauge wires (23AWG)
 - 4. Compliant as per EIA/TIA-36 specifications

5. Certified under UL's LAN Cable Certification Program
- B. All cables shall be terminated for T568B compliant connection.
- C. Coordinate cable color(s) with Owner requirements prior to installation.

2.04 CROSS CONNECT EQUIPMENT

- A. Cross Connect Equipment shall meet or exceed:
 1. Patch Panel for UTP Category 6 Cable Termination.
 - a. Rack mounted modular category 6 compliant patch panel with T568B compliant terminations and modular Panduit NetKey connectors.
 - b. Rack mounted patch panels shall be no larger than Forty-eight (48) ports each.
 - c. Rack mounted patch panels shall be flat.
 2. Furnish and install smear resistant, mechanically imprinted polyester or similar material labels to identify each port of all patch panels (fiber optic and copper) in compliance with EIA/TIA 606 standards or Owner required scheme. Labels shall be permanently affixed to patch panels.

2.05 WIRING DEVICES

- A. All station cable shall terminate on modular jacks that meet or exceed:
 1. Category 6 compliant
 2. 4 position T568B compliant modular female jack.
 3. Snap-in, high impact housing
 4. Field verify and coordinate insert color to match Owner requirements.
 5. Field verify and coordinate plates and/or outlet frame colors and materials to coordinate with electrical devices and Owner requirements.
 6. Where station cable is to terminate above finished ceiling or behind a finished wall for cameras, speakers, or other special station devices, modular jack may be surface mounted in appropriate high strength, impact resistant plastic enclosure.
 7. Furnish and install matching coordinating blank cover plates for all unused communications outlets in common raceway.

8. Mount flush plates so all four edges are in continuous contact with finished surfaces.
9. Furnish and install smear resistant, mechanically imprinted polyester or similar material labels to identify each connector at all station cables in compliance with EIA/TIA 606 standards or Owner required scheme. Labels shall be permanently affixed to patch panels.

2.06 OWNER STANDARDS

- A. Contractor shall provide connectors in a color to match the Owner's existing standards.
- B. Contractor shall provide cover plates and any associated keystone inserts as may be required matching Owner's existing standards.
 1. Stainless Steel cover plates.
 2. Grey keystone inserts.
- C. Contractor shall provide connector identification and labels on all terminations matching Owner's existing standard. Field verify all label conditions per site prior to final installation.

2.07 PROJECT CABLE CONFIGURATIONS

- A. Data Outlet
 1. Contractor shall supply data locations in quantities and locations identified on provided Appendix A and B – Multimedia Diagrams and Public Address Diagrams.
 - a. Cabling quantity and locations is identified with the Xd identifier, the "X" showing the quantity of data activations on Appendix A - Multimedia Diagrams.
 - b. Additionally, one (1) cable shall be provided for each public address speaker location in Appendix B – Public Address Diagrams.
 2. Contractor shall provide data outlets including, but not limited to:
 - a. UTP station cable(s) terminated on compliant patch panel in nearest IDF and wire devices in a single box location.
 - b. In locations that terminate on wall locations, Contractor shall supply stainless steel faceplate compliant with Owner standards. Wire device(s) shall be installed in standard keystone insert with six (6) positions. All unused positions shall be blanked.

- c. In locations that terminate above ceilings, Contractor shall supply surface mount device box. Box shall be bright in color and/or contain a permanently attached brightly colored reflective identification label to facilitate visual location of connection point behind finished surfaces.
- d. Faceplate compliant with Owner standards shall be provided.

2.08 ALLOWANCES

- A. Contractor shall include allowances for equipment and/or other contract service reimbursements as required below in base bid lump sum amount(s). Equipment and/or contract services shall be provided and sourced at Owner's discretion and convenience with full cooperation by Contractor, and paid for from successful bidder's contract in the amount(s) provided for herein. Any allowance amount proving to be excessive for the intended equipment and/or contract services shall be credited to the Owner against contract payment requests.
 - 1. Allowance shall be made in the amount of \$8,000.00 for contract services related to supply and installation of Owner directed infrastructure upgrades.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Contractor shall conduct detailed walk-through examination with Architect/Engineer verifying equipment and material locations as well as mounting and placement requirements prior to commencement of other installation activities.
- B. Contractor shall ensure all submittals and shop drawings have been provided to, and approval has been obtained from Architect/Engineer prior to commencement of any final installation activities.

3.02 INSTALLATION

- A. Contractor shall be familiar with the environment where work shall be done as specified herein.
- B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed and disposed of in an approved container for the site. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations. Any work that may impede the general use of the space and cannot be removed shall be flagged and cordoned off by the Contractor prior to their departure.

- C. All equipment and materials shall be installed in a neat and workmanlike manner. Best practices installation principles shall be used throughout the project. All manufacturer recommended installation practices and standards shall be complied with.
- D. The Contractor shall furnish, set in place, and install all equipment necessary for a fully compliant and operational system as specified herein. The installation process includes, but is not limited to the following:
1. Cables installed in a professional manner to prevent tangling and congestion and to facilitate installation or removal of cables in the future.
 2. Cables installed without kinks (any bend with a radius less than manufacturer defined minimum).
 3. All cable free of abrading or penetrating of cable jacketing.
 4. In suspended ceiling where cable trays or conduit are not available, Contractor shall support wiring with “D – rings”, beam clamps or other approved cable support devices at appropriate distances (6 ft. minimum).
 5. All information outlets shall be labeled according to the Owner’s cable identification scheme. Labels shall be completed using pre-printed labels. Handwritten labels are not acceptable.
 6. The Contractor shall label all cables, jacks, patch panel positions, faceplates and cross connects.
 7. In-line cable splicing shall not be permitted.
 8. Contractor shall provide 10’ minimum service loop above accessible ceiling for each terminated cable in pole access for modular furniture to accommodate future changes.
 9. Length of each individual run of horizontal cable from the MDF/IDF to the information outlet shall not exceed 90 meters (295 ft.).
 10. IDF(s) and MDF locations have been identified in the appendices herein. Contractor shall calculate distances to ensure the adherence to the EIA/TIA 568 distance limitations. Contractor shall notify Architect/Engineer of cable length exceptions prior to installation in writing and request direction.
 11. All copper data cabling shall terminate on Category 6 compliant connectors. Approximately 10 ft. of Category 6 and/or fiber cabling shall be coiled and stored at each cable distribution center in order to accommodate future change.

12. Fiber optic cabling.
 - a. All interior cable installed shall be installed in one inch (1") PVC yellow colored fiber optic inner duct with suitable couplings when joining ends of inner duct.
 1. Alternately, fiber optic cable may be armored cable with yellow colored exterior. If used, armored cable shall be properly and neatly terminated with armor properly grounded and finished at all end points of the link per the manufacturer installation guides.
 - b. Contractor shall install spider fan-out kits on fiber optic cable prior to termination.
 - c. All fiber optic cables shall all be terminated on fiber optic LC connectors on rack mounted patch panels provided by contractor.
 - d. All fiber optic cable terminations shall be clearly labeled at each end with computer generated labels, designations as approved by Owner.
 1. Labeling should be consistent in all buildings and carefully coordinated with owner.
 - e. Any firewall penetrated to facilitate the routing of communication wiring shall be fire stopped using approved methods as outlined in the current National Electric Code (NEC) and all applicable State, County and Local ordinances.
 - f. Where cable tray or raceway is not provided Contractor shall provide and install cable supports of intervals not more than five (5) feet.
 - g. Cables shall not be laid on ceiling grid structure or any structure not specifically designed to support cable.
13. Wiring not installed in conduit shall not be routed within 18 inches of light fixture ballasts or within 36 inches of motors or transformers.
14. Coordinate cable colors with Owner requirements prior to installation.
15. Contractor shall include any sleeves where wall penetrations are needed. Sleeves shall be a minimum of 2" diameter and sized for cable being installed with a maximum fill rate of 25%. All installed sleeves shall be fully fire stopped with compliant fire stop material following cable installation.
16. Provide backboards, properly treated for fire retardation on single wall of MDF as required by site conditions.

17. Assemble, install, configure and test all equipment and components, maintaining accurate inventory records and status documents and discarding packaging.
18. Work shall be performed to meet local codes and industry standards, including, but not limited to:
 - a. Grounding and Bonding.

E. Sites of Work:

1. Caledonia Elementary School
9770 Duncan Lake Ave
Caledonia, Michigan 49316
2. Caledonia High School (North Campus)
9050 Kraft Ave SE
Caledonia, Michigan 49316
3. Duncan Lake Middle School and Early Childhood Center
9751 Duncan Lake Ave.
Caledonia, Michigan 49316
4. Emmons Lake Elementary
8950 Kraft Ave SE
Caledonia, Michigan 49316
5. Paris Ridge Elementary
4690 Paris Ridge Drive
Caledonia, Michigan 49316

- F. It shall be the responsibility of the Contractor to repair or replace any damage done to the structure of finishes in the building by the Contractor. If in the course of work, Contractor damages, marks or misplaces any surfaces or access plates/panels the Contractor shall repair and/or replace the surface, plate or panel to the original condition.
1. Final determination as to the damage condition and/or repair/replacement fitness of any surface, plate or panel shall be the sole responsibility of the Designer.
 2. The building and work area shall be returned to its original condition prior to final sign off of the project.

3.03 DOCUMENTATION

A. Contractor shall be responsible for providing thorough, timely documentation. Documentation shall include, but not be limited to both printed and electronic copies of:

1. As-built drawings of each building.
2. Copper station cable test results.

3.04 TESTING

A. Low Voltage Cabling

1. End-to-end testing of UTP copper Category 6 cables shall be conducted at 350 Mhz to meet or exceed reference standards. 100% of all pairs shall be tested. Documentation of test results shall be provided including, but not limited to the following parameters:
 - a. Attenuation.
 - b. Near End Cross Talk (NEXT).
 - c. Signal to noise ratio.
 - d. Continuity
 - e. Pair integrity
 - f. EMI interference.
 - g. Any cable that does not meet EIA/TIA 568 specifications shall be repaired or replaced at the Contractor's expense.
 - h. Cable length.
2. All fiber optic cable shall be factory tested on a reel basis with performance data for each cable supplied to Owner.
 - a. Tests shall be conducted at both 1310nm and 1550nm wavelengths utilizing an Optical Time Domain Reflectometer (OTDR). Attenuation will be recorded for each fiber.
 - b. Continuity testing shall be performed on each fiber of each cable reel prior to installation.
3. Contractor shall review all end faces of field terminated connectors with a fiber inspection scope following final polish. Connector end faces with hackles, scratches, cracks, chips and/or surface pitting shall be rejected and re-polished or replaced if re-polishing will not remove defects. The

minimum viewing magnification for connector end inspections shall be 200x.

4. Contractor shall conduct and document OTDR traces from head end location(s) for baseline documentation on each strand.
5. All fiber optic cable (system) shall be tested in both directions by Contractor following installation, and prior to acceptance.
6. All fiber optic strands shall be tested end-to-end for bi-directional attenuation, 1310 nm / 1550 nm. Tests shall be conducted in compliance with EIA/TIA-526-14 or OFSTP 14, Method B and according to the manufacturer's instructions for the test set being utilized.
7. Tests must certify the measured link loss for each strand does not exceed the "worst case" allowable loss defined as the sum of connector loss (based on the number of mated connector pairs at EIA/TIA-568B maximum allowable loss of .75 dB per mated pair) and optical loss (based on the performance standard specified herein).
 - a. The maximum allowable attenuation for any splice or termination is 0.3 dB.
 - b. Contractor shall perform Optical Test Set consisting of an Optical Source (transmitter) and Optical Meter (receiver) to determine end-to-end attenuation and fiber length. All testing will be done in accordance with EIA/TIA 526-14.
 - c. The procedure shall be completed in three steps.
 1. Reference set-up
 2. Jumper test
 3. Standard test
 - d. Final test shall be the successful operation of the network utilizing the transfer of at least one ten-megabyte (10Mb) file from computers located in each building to and from a computer located at the other end of each link. All pairs of fiber shall be tested in this step.
 - e. Test results shall be submitted on both 8.5" x 11" paper and a USB formatted to be read by a standard Windows 11 workstation.
8. Upon receipt of test documentation, Designer shall verify particular and specific test results by means of independent re-testing.

- a. Prior to submitting testing to Designer, Contractor shall use adequate means to assure the work is completed in accordance with the specified requirements, meets the owner's specific application requirements.

3.05 TRAINING

- A. Not Used.

3.06 SCHEDULE, MEETINGS AND PLANS

- A. Sequence of operations shall be established by the Contractor within the guidelines established by the Owner, documented herein, required by Architect/Engineer, Architect and/or Construction Manager and as required to meet schedule.
- A. Contractor shall attend all construction progress meetings as may be required by Construction Manager and Owner. Such meetings shall aid in coordination and scheduling for field work and be held at the convenience of the Construction Manager.
- B. Schedule
 - 1. Final Vendor Presentations: Week of January 27, 2025
 - 2. Contractor Chosen: Week of February 24, 2025
 - 3. Work Commences: April 1, 2025
 - 4. Substantial Completion: July 1, 2025
 - 5. Project Close-out: September 1, 2025
- C. Planned sequence of operations shall be established by the Contractor within the guidelines established by the Owner, as required herein and as required to meet schedules.
- D. All work shall be coordinated with Owner's construction manager on site where applicable.
- E. Project progress meetings shall be held, but not limited to, weekly at a site and time identified as convenient for Owner and as required herein. Meetings will be attended as required herein.

END OF SECTION

SECTION 27 41 16
MULTIMEDIA SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

- A. Work described in this specification section pertains to new classroom multimedia infrastructure and instructional equipment for Caledonia Community Schools.
- B. Contractors shall propose Systems and/or components to be deployed using standard procedures and technology components and as specified herein. The system components shall be installed and connected to the owner's existing physical infrastructure and as specified herein.
- C. Contractor shall advise, coordinate and work cooperatively with Owner representatives or owner's designee related to any configuration changes required and/or proposed for Owner's existing physical infrastructure.
- D. Contractor shall work collaboratively with Owner and Designer. Work shall include but not be limited to installation of supplied equipment, removal of existing equipment and full operational capacity of system as specified herein.
- E. The Contractor shall design, engineer, configure, supply, connect, test, document, train Owner representatives and warrant a fully operational and compliant system and/or component connection to the system complete and with full functionality as specified herein.
- F. Contractor shall provide all transportation and delivery services in a timely manner to individual work location(s) at each site of work in preparation for installation activity.
- G. Contractor shall coordinate their installation with other contractors, Designer and the Owner as is appropriate.

1.02 WARRANTY

- A. Complete installation shall be free from defect and/or failure for a period of warranty. Any replacement, upgrade or fix, including labor for any non-conforming or non-operational part of the system shall be fixed and/or replaced at no cost to the Owner.
- B. Manufacturer's warranty shall be provided for all components of the system.

1. Any documents and/or submittals required by individual manufacturers for compliance with the standard and/or applicable extended warranty programs shall be provided and submitted for approval by the Contractor.
 2. Contractor shall submit all documents, apply for warranty or extended warranty certification, and provide a Certificate of Warranty or Extended Warranty as may be applicable from the manufacturer prior to project closeout.
 3. Standard manufacturer warranty duration and terms shall be identified for each component with bid as well as additional fee required for warranty duration election of each of the following terms:
 - a. Three (3) year parts and labor warranty.
- C. On site services provided under the warranty shall be performed by personnel or representatives of manufacturer of individual components and/or appropriately trained and certified Contractor representatives as herein defined and located within physical proximity to provide response levels deemed acceptable to Owner.
- D. Contractor shall provide the following response times for all malfunctioning equipment:
1. Twenty-four (24) hours or less for matters that render twenty percent (20%) or more of the system unable to maintain normal functionality.
 2. Two (2) business days for matters not meeting the above criteria.
 3. Response time shall be measured from the time Contractor is notified by Owner to the time work is begun to resolve the matter.
- E. Bidder shall provide current annual maintenance contract pricing, terms and conditions for recommended maintenance programs for all equipment following the specified and included warranty periods as a Voluntary Alternate. This information will be considered by Owner and Designer as part of the bid evaluation process.
- F. System Warranty shall commence on date of substantial completion as certified by Designer and provided for herein. Delivery to work site of materials, physical removal from packaging, issuance of Contractor documents including, but not limited to invoices and/or packing slips, or any event or documentation, not specifically provided for herein, shall have no effect on Warranty or System Acceptance by Owner and/or Designer.

1.03 SUBMITTALS

- A. Submittals shall consist of, but not be limited to, technical cut sheets and detailed information pamphlets on all components of the system to be installed. All cut sheets and submittals shall be distinctly marked to highlight the actual part number of the item being submitted for approval with Bid Proposals.
- B. Shop drawings, data sheets and diagrams shall be submitted by Bidder for approval by Designer with Bid Proposals.
 - 1. Shop drawings, data sheets and diagrams shall show all data relating to structural, electrical, wiring, cross connect, interconnect, equipment arrangement/layout, and any other information deemed significant by the Designer.
 - 2. No work constituting final installation shall be commenced until after approval of shop drawings, data sheets and diagrams by Designer.
- C. Contractor shall provide proof of manufacturer support by photocopy of certification and letter of support from major component manufacturers for this specific project with Bid Proposals.
- D. Equipment or material installed for this project that do not have an approved submittal associated with it, will be removed and replaced with acceptable equipment or material as defined by the Designer. All replacement costs including, but not limited to material and labor, shall be the sole responsibility of the Contractor.
 - 1. The Owner and/or Designer may notify Contractor of any offending situations under this provision allowing Contractor up to forty-eight (48) hours to correct the situation prior to taking other corrective action.
 - 2. The Owner reserves the right to replace unapproved materials and deduct the costs of doing so as defined herein from any amounts that may be due, or become due Contractor.
- E. The Contractor shall submit within ten (10) calendar days after the Notice to Proceed, a schedule that reflects the sequence of activities of the contractor's approach to the execution of and completion of the work. The schedule shall be broken into work areas to provide for a clear identification of the planned progress of the work. Included in the schedule will be a list of tasks with list of deliverables and the percentage of work completed. This schedule shall coincide with progress payments applications dates and projected amounts. All durations shown will be in working days. Applications that generate Microsoft Project compatible files shall be management tools of choice. The timeframe described in the Contractor's Schedule shall represent the Contractor's plan for organizing, directing, managing, controlling, staffing and

executing the work required by the Contract Documents. The district will rely on such schedules to coordinate and otherwise plan the work of the District, other separate contractors, or the District's routine daily work.

1.04 REFERENCE SPECIFICATIONS

- A. All work, products, and materials shall conform with the following standards as applicable for the intended use:
 - 1. EIA/TIA Commercial and Administration Standards
 - 2. NEC
 - 3. IEEE 802
 - 4. IETF RFCs
 - 5. FCC – All Applicable Rules and Regulations
 - 6. UL
 - 7. MIOSHA Safety Standards

1.05 CONTRACTOR

- A. The Contractor shall accept complete responsibility for the installation, certification and support of the system and/or components as required herein. Contractor shall be an authorized vendor of all major components.
- B. All work shall be performed and supervised by Project Managers, Engineers and/or Technicians who are qualified to install specified equipment and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods and as required herein.
- C. Project Managers, Engineers and Technicians employed on this project shall be properly and fully trained and qualified by the manufacturer on the installation and testing of the equipment and systems to be installed.
- D. The Contractor shall have a proven track record in comparable system supply, configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the supply and/or installation of similar systems completed by the Contractor in the prior two (2) years with the sealed Bid Proposal as provided herein.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

- A. Acceptable manufacturers have been provided to comply with a standard for individual components associated with the specified system. Indicated components include particular models and makes currently installed and/or preferred by Owner.
 - B. Any system bid shall be based only on acceptable manufacturer's components.
- 2.02 Supply most current version of all products provided.
- A. Manufacturer shall have five (5) years of experience and history manufacturing similar products to those specified.
 - B. Proposed components shall have been field tested and proven in actual use.
 - C. Prior and/or old versions of products, unless specifically approved and documented by Designer and/or Owner shall not be acceptable.
 - D. In cases where a newer version of hardware or software is available at the time of installation, Contractor shall request clarification from Designer on which version is to be used.
- 2.03 Furnish only new, first-class quality materials and equipment.
- 2.04 All wiring not installed in conduit shall be plenum type cable and shall be so identified with continuous marking.
- 2.05 All connectors and accessories not installed in conduit and installed above finished ceiling shall be plenum rated.
- 2.06 AUDIO SPEAKERS
- A. Selected classrooms shall receive new audio speakers. Please refer to Appendix D - Multimedia Equipment Schedule for quantities and locations.
 - B. Acceptable Manufacturer:
 - 1. LIGHTSPEED
 - C. Where classroom speakers are to be installed in drop ceilings, they shall be near flush mount and cleanly cut into available tiles for optimal and uniform audio fill of the relevant classroom space. Speakers shall meet or exceed the following minimum standard requirements:
 - 1. 6" driver; 1" horn per speaker
 - 2. Frequency response: 40 Hz – 20 kHz

3. Impedance of 8 Ohms
 4. Power handling of 30 watts
 5. Speakers shall be mounted in fully enclosed, acoustically appropriate, metallic back boxes and fully supported by appropriate tile bridges.
- D. Where flush mounting is not possible or practical, Contractor shall install surface mounted speakers meeting or exceeding all requirements above.
 - E. Where specific speaker location is in question, obtain Owner approval prior to any final installation activity.
 - F. All speakers shall include attractive finished white grill.
 - G. All speaker wire shall be 16 AWG high quality plenum rated cable.
 - H. Speakers shall be connected in two pairs for right and left stereo channels.
 - I. All speaker cable shall be terminated at Voice Amplification System mounted at or near projectors.
 - J. All speaker cable shall be protected in existing owner raceway.

1.01 MULTI-MEDIA INFRASTRUCTURE CABLE

- A. All classrooms receiving new projection systems shall receive new multimedia infrastructure cable. Please refer to Appendix D – Multimedia Equipment Schedule for quantities and locations.
- B. All cable shall be factory manufactured with terminations and connector assemblies fully attached and integral to the cable to industry published quality standards and meet performance requirements specified herein.
- C. Infrastructure cable to connect projector to a teacher station wall plate shall be provided.
- D. Acceptable Cable:
 1. Active HDMI Digital Video Cable 1 shall be of commercial first-class quality manufacture and meet or exceed the following requirements:
 - a. Monoprice 4K SlimRun HDMI Active Optical Cable
 1. Or Equal.
 - b. Supports 4K@60Hz

- c. CMP Plenum Rated
 - d. Rated for in wall use
 - 2. Active HDMI Digital Video Cable 2 shall be of commercial first-class quality manufacture and meet or exceed the following requirements:
 - a. Monoprice 4K SlimRun HDMI Active Optical Cable
 - 1. Or Equal.
 - b. Supports 4K@60Hz
 - c. CMP Plenum Rated
 - d. Rated for in wall use
- E. Wall plate provided shall be constructed of commercial grade stainless steel.
 - 1. Wall plate shall contain connection points for all specified cables
 - 2. Two (2) data outlet locations.
 - 3. Unpopulated data connections shall all have blank covers installed.
 - 4. Any existing terminated category cabling should be securely locked into new plate and any existing labeling shall be transferred.
 - 5. HDMI inputs in faceplate shall be positioned at the bottom of the plate, side by side in double gang plate so both connections will be able to utilize right angle connectors for umbilical cables. Contractor to supply necessary HDMI passthrough pig tails to support tight bend radius mounting.
 - 6. Contractor shall supply appropriate dual HDMI single gang faceplate with pig tails to support tight bend radius mounting. Contractor to supply necessary frame and connectors for a fully functional system.
 - 7. Contractor shall supply extra deep, metallic double gang box in all locations where in wall cabling and faceplate mounting is not possible.
- F. All cables originating from wall plate connectors, except speaker cables, shall terminate in a service loop eight (8) feet in length at projector location.
- G. Cable shall terminate in the following connector gender:
 - a. Active HDMI Digital Video Cable 1 - HDMI Type A 19 pin plug connector to display device.

- b. Active HDMI Digital Video Cable 2 - HDMI Type A 19 pin plug connector to display device.

1.02 MULTI-MEDIA CONNECTION CABLE BUNDLES

- A. All classrooms receiving new projection systems shall receive new multi-media connection cable bundles. Please refer to Appendix D – Multimedia Equipment Schedule for quantities and locations.
- A. Fully assembled infrastructure cable bundles for each classroom indicated to receive a projector shall be provided for final connection to components and classroom plate by others.
- B. Acceptable Manufacturer
 - 1. Cable shall be of commercial first-class quality manufacture.
- C. All Cable shall be fifteen (15) feet in length and terminate in the following connector genders:
 - 1. HDMI Cable 1 (M/M) - Cable shall have right angle connector in wall plate locations and straight connector on teacher device input location.
 - 2. HDMI Cable 2 (M/M) – Cable shall have right angle connector in wall plate locations and straight connector on teacher device input location.

2.09 SURGE PROTECTOR

- A. All classrooms receiving new projection systems shall receive new surge protectors. Please refer to Appendix D – Multimedia Equipment Schedule for quantities and locations.
- B. Contractor shall supply surge suppressed power strip installed at teacher workstation location for connection of teacher devices. Power strip shall contain six (6) grounded AC power connectors.
 - 1. Tripp-Lite TLP615 or equal
 - 2. Power cord should be sufficient length to support the OPE desk attached with the 15’ cable bundle and be elegantly mounted at teacher desk location.
 - 3. Coordinate power cable relationship to connection bundle for neat and fully functional installation.

2.07 WIRELESS PRESENTATION SYSTEM

- A. Wireless Presentation Systems shall be provided and installed in locations as indicated in Appendix D – Multimedia Equipment Schedule.
- B. Acceptable Manufacturers (in alphabetical order):
 - 1. KRAMER
 - a. VIA GO3
 - 2. HDMI output with support for up to 4K video streaming
 - 3. Gigabit LAN and dual-band 802.11ac Wireless connectivity
 - 4. 16GB Memory
 - 5. 128GB Storage
 - 6. All other features currently a part of the manufacturer’s latest commercial release.
- C. Contractor shall provide all necessary licensing for on premise management of all Kramer VIA GO3 wireless presentation system for term of warranty. Contractor shall fully configure all Kramer VIA GO3 wireless presentation devices to be connected to Owner provide network and configured in provided on premise management system.
- D. Cables and Accessories
 - 1. All necessary mounting brackets and connectors to securely mount at projector location.
 - 2. Work includes extending Ethernet Category 6 compliant patch cables from installed equipment, as required, to Owner identified connection ports at all locations.
 - a. Patch cables shall not exceed fifteen (15) feet in length.
 - 3. Material and labor to cross connect wireless presentation systems in communication closets to PoE switches shall be provided by Contractor using provided Category 6 patch cables.
 - a. Cable lengths shall be appropriate for connections made, and not include excessive cable.
 - b. Coordinate all work with Owner, Designer and other contractors prior to installation.

4. Contractor shall coordinate installation and configuration of Wireless Presentation System per manufacturer recommended guidelines. Contractor shall work collaboratively as necessary with Owner and network support resources for a complete and compliant installation.

2.08 ULTRA SHORT THROW PROJECTORS (Non-Interactive)

- A. Short Throw Video Projectors each with accompanying projector specific mounts shall be provided and installed by selected Contractor. Please refer to Audio-Visual Equipment Schedule for quantities and locations.
- B. Acceptable Manufacturers (In alphabetical order):
 1. EPSON
 - a. PowerLite 770F
- C. Projectors shall include full functionality of the following feature sets and/or standards in projector management software and/or remote access capability and in conjunction with proposed projectors, and shall provide for all management, configuration and control features and/or standards from a management administrative interface:
 1. Administration access shall be protected by unique and secure log on (User ID and Password).
 2. System administrator shall be capable of complete system back-up and full system restoration from a previously saved configuration.
 3. Projector reporting shall include, but not be limited to:
 - a. Device power status (on/off).
 - b. Filter status management.
 - c. Source selection status.
 4. Projector Control shall include, but not be limited to:
 - a. Device power (on/off).
 - b. Source selection.
 - c. Internal or downloadable program schedule database for timed execution of projector control functions based on, but not limited to time of day and day of week.

- D. Projector management software and/or access shall be installed on equipment provided at Owner discretion to be located at the owner's discretion and communicate over the existing installed infrastructure provided by others.
- E. Projectors shall meet or exceed the following minimum output, port availability and other standards:
 - 1. 4100 ANSI Lumens
 - 2. 1080P resolution
 - 3. Three (3) HDMI ports
 - 4. +/- 3-degree keystone correction.
 - 5. Instant on laser light source
 - 6. Operating volume level of less than 40dB (fan).
 - 7. Operating temperature range of 45 – 95 degrees Fahrenheit.
 - 8. Accessible top or front panel mechanical controls including, but not limited for the following functions:
 - a. Power on.
 - b. Power off.
 - c. Video input port selection.
 - 9. Mechanical keypad lock out to minimize tampering with device settings
 - 10. Ethernet connector for management, monitoring and control applications.
 - 11. User definable power on graphic to replace factory default or manufacturer logo
- F. In the event of a power failure, system shall automatically re-initialize and “become active” to the last configuration in use with no human intervention.
- G. All other features currently a part of the manufacturer's latest commercial release.
- H. Contractor shall supply and install category 6 patch cable at both projector and IDF/MDF locations. Contractor shall cross connect cables and connect to Owner provided switching equipment. Contractor shall report back switch port location to Owner for programming.

- I. Contractor shall fully configure all projectors in Epson cloud management software. Contractor shall supply all labor to make devices fully functional within software.
- 2.09 VOICE AMPLIFICATION
- A. Voice Amplification Systems shall be provided and installed in locations as indicated in Appendix D – Multimedia Equipment Schedule.
 - B. Acceptable Manufacturers
 - 1. LIGHTSPEED
 - a. T25
 - C. Major components of Voice Amplification System shall be installed at projector location.
 - D. Voice Amplification systems shall meet or exceed the following minimum standards:
 - 1. DECT (1.9 GHz) communication for complete classroom coverage of two (2) microphones simultaneously.
 - 2. Two (2) highly durable, rechargeable, battery powered, tamper resistant, impact resistant, lanyard based pendant microphones.
 - a. Two (2) Lightspeed volume control Clearmikes
 - E. Contractor shall provide one (1) shielded 3.5mm audio cable for connectivity from audio output of projector to voice amplification system installed in projector location to support a fully functional and compliant system.
 - F. In the event of a power failure, system shall automatically re-initialize and “become active” to the last configuration in use with no human intervention.
 - G. All other features currently a part of the manufacturer’s latest commercial release.
 - H. Voice Amplification Systems shall be neatly and securely mounted at projector location. As indicated in the provided line diagram, Contractor shall supply and install audio cabling from projector output to connect to provided Voice Amplification Systems.
 - I. Contractor shall supply sixteen (8) Clearmikes for Owner shelf spares.

- J. Contractor shall rework and reconfigure existing speaker cabling where applicable to connect to new voice lift systems. Contractor shall carefully extend existing speaker cabling to voice lift system at projector location for a fully functional system.

2.10 DOCUMENT CAMERAS

- A. Document cameras shall be provided and installed in locations as indicated in Appendix D – Multimedia Equipment Schedule.

- 1. Acceptable Manufacturer(s)
 - a. IPEVO
 - 1. VZ-R
- 2. Document cameras shall meet or exceed the following the following requirements:
 - a. 8 MP Image Sensor
 - b. Integral Microphone
 - c. Integral LED Light
 - d. USB connectivity and power
 - e. HDMI

2.11 ALLOWANCES

- A. Contractor shall include allowances for equipment and/or other contract service reimbursements as required below in base bid lump sum amount(s). Equipment and/or contract services shall be provided and sourced at Owner's discretion and convenience with full cooperation by Contractor and paid for from successful bidder's contract in the amount(s) provided for herein. Any allowance amount proving to be excessive for the intended equipment and/or contract services shall be credited to the Owner against contract payment requests.

- 1. Allowance shall be made in the amount of \$35,000.00 for Owner directed infrastructure upgrades.

PART 3 - EXECUTION

3.02 PREPARATION

- A. Contractor shall conduct detailed walk-through examination with Designer, Construction Manager and Owner verifying equipment and material locations as well as mounting and placement requirements prior to commencement of other installation activities.
- B. Contractor shall ensure all submittals and have been provided to, and approval has been obtained from Designer and Owner prior to commencement of any final installation activities. Submittals shall include, but not be limited to:
 - 1. Shop drawings, data sheets and system diagrams including specific cable connectors and types proposed to be installed.
 - 2. Asset tag format, composition, attachment method and location on each serialized component being provided.
 - 3. Firmware configuration template to be used for each component provided.
 - 4. Written installation, coordination and test procedure to be followed by installing technicians and engineers.
 - 5. Final documentation template.

3.03 DEMOLITION

- A. Remove ALL abandoned AV cabling including VGA, Cable TV (in classroom only), unused speaker cables, shelves, brackets and blank any open locations in all rooms receiving new AV equipment.
- B. Contractor shall remove any existing equipment. Any equipment not retained by Owner shall be properly disposed of by Contractor.

3.04 INSTALLATION

- A. Contractor shall be familiar with the environment where work will be done as specified herein and make every reasonable effort to minimize interference with Owner's or other contractor's activities.
 - 1. Appendices depicting general ceiling conditions for areas of buildings are included herein. Contractors shall field verify specific room conditions.
- B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed and disposed of off premise. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations.
 - 1. Owner shall not be responsible for disposal or transportation of any packaging materials or other waste items.

2. Owner's waste containers including site dumpsters shall not be used for material disposal.
- C. All equipment and materials shall be installed in a neat and workmanlike manner. Best practices installation principles shall be used throughout the project.
- D. The Contractor shall furnish, set in place, and install all equipment necessary for a fully compliant and operational system as specified herein. The installation process includes, but is not limited to the following:
1. Inventory receipt of all components and equipment.
 2. Storage of all equipment and components until such time those items are installed according to the specifications.
 3. Transport equipment to the Owner's installation location(s).
 4. Assemble, install, configure and test all equipment and components, maintaining accurate inventory records and status documents and discarding packaging.
 5. Collect all information necessary to accurately program all system devices to the Owner's intended use and need.
 6. Label with asset tags and other markings provided by Owner all system devices as may be appropriate and required by Owner and Designer.
 7. Work shall be performed to meet local codes and industry standards including proper grounding and bonding of installed equipment. Work shall conform to "best practices" observed by industry professional installers and as required by Owner and Designer.
 8. Work shall include careful coordination and cooperation with others to ensure a timely, cost effective and proper installation for Owner's intended application. Such efforts shall include, but not be limited to, coordinating and cooperating with other contractors, Owner, Designer and Engineer.
 9. Where cables are to be routed through or on a finished wall, standard connectors must be used at the wall location to terminate call cables. All wall plates shall be stainless steel. Plastic or nylon plates shall not be acceptable. Cables routed out of a wall box on a finished wall without proper standard connection termination shall not be acceptable.
 10. All cables shall be proper and adequately supported using hooks or rings no more than eight feet (8') apart. Cables supported by structural steel,

ceiling grid or hanger wires will not be acceptable. All cable routing shall be neat and orderly.

11. All cable connecting components mounted in/on existing furniture, shall have adequate cable slack to provide for full system inspection and or service without the removal (intentional or inadvertent) of connecting cables, including items that will be placed on the keyboard tray of equipment carts.
12. Label all cable connections for intuitive user access and as directed by Owner and Designer.
13. Work may include extending cables from installed equipment, and as required and/or specified herein, to Owner identified connection outlets.
 - a. Work includes supply, connection and testing of any such cables.

14. ULTRA SHORT THROW PROJECTORS

- a. Install, configure and test approved firmware configuration template including, but not limited to:
 1. Power on Image.
 2. Firmware based Device ID (Including parameters such as: TCP/IP settings, Host Name, etc.).
 3. Default port selection.
- b. Contractor shall install and fully configure Epson projector management software and enable projectors for management.
- c. Contractor shall install manufacturer recommended firmware during initial installation.
- d. Neatly configure all cables as directed by Owner.
- e. Attach projector to mount using manufacturer best practices.
- f. Connect AC power using cord provided to projector.
- g. Align projector with whiteboard provided by Others. Contractor shall install projector in relationship to the whiteboard to maximize the projected image and provide reliable interactive functionality.
- h. Set keystone adjustment(s) as required.
- i. Zoom and focus projector as required.

- j. Secure all adjustment points.

15. WIRELESS PRESENTATION SYSTEM

- a. Provide and connect all audio and video input and output device cables.
- b. Contractor shall install manufacturer recommended firmware during initial installation.
- c. Secure mounting location at projector location with provided mount to eliminate involuntary equipment movement.
- d. Neatly route all cabling and secure slack.
- e. Adjust balance levels for standard configuration.
- f. Neatly route all cabling and secure slack.
- g. Install, configure and test approved firmware configuration template including, but not limited to:
 - 1. Power on Image.
 - 2. Firmware based Device ID (Including parameters such as: TCP/IP settings, Host Name, etc.).
- h. Collaborate and coordinate with Owner or Others to fully configure wireless presentation system to function on Owner provided network equipment.
- i. Contractor shall supply, install and fully configure Kramer VIA on premise management software for a fully functional system.

16. VOICE AMPLIFICATION

- a. Provide and connect all audio input and output device cables.
- b. Secure mounting location at projector location with mounting screws or Velcro pads to eliminate involuntary equipment movement.
- c. Neatly route all cabling and secure slack.
- d. Adjust balance levels for standard configuration.
- e. Neatly route all cabling and secure slack.

- f. Provide and install connection from audio output on Contractor supplied projection units.

17. DOCUMENT CAMERAS

- a. Connect Contractor provided HDMI cable to document camera.
- b. Connect Contractor provided USB cable where applicable.
- c. Fully cooperate with Owner for classroom workstation software installation.

E. It shall be the responsibility of the Contractor to repair or replace any damage done to the structure of finishes in the building by the Contractor. If in the course of work, Contractor damages, marks or misplaces any surfaces or access plates/panels the Contractor shall repair and/or replace the surface, plate or panel to the original condition.

- 1. Repairs shall include, but not be limited to patching and painting.
- 2. Final determination as to the damage condition and/or repair/replacement fitness of any surface, plate or panel shall be the sole responsibility of the Designer.
- 3. The building and work area shall be returned to its original condition prior to final sign off of the project.

F. Following installation and system “turn-up”, but prior to final acceptance of the system, Contractor shall conduct follow-up interviews with Owner identified administrators and staff to review system functionality, suitability and confirm feature and program fitness for Owner applications.

- 1. Follow-up interviews shall be fully documented by Contractor and submitted to Owner for approval.

G. All cable and device labels shall match existing standard.

H. Sites of Work:

- 1. Caledonia Elementary School
9770 Duncan Lake Ave
Caledonia, Michigan 49316
- 2. Duncan Lake Middle School and Early Childhood Center
9751 Duncan Lake Ave.
Caledonia, Michigan 49316

3. Emmons Lake Elementary
8950 Kraft Ave SE
Caledonia, Michigan 49316
4. Paris Ridge Elementary
4690 Paris Ridge Drive
Caledonia, Michigan 49316

3.05 TESTING

- A. In an effort to ensure a smooth “turn-up” of the new system Contractor shall submit to a thorough testing process as defined herein prior to cut-over.
- B. Prior to requesting testing by Designer, the Contractor shall use adequate means to assure the Work is completed in accordance with the specified requirements, meets the owner’s specific application requirements and is ready for functionality and integrity testing.
- C. Testing Procedures
 1. Prior to system “turn-up”, Contractor shall submit a written request and proposed test plan to Designer indicating they have completed full and final configuration of the system and are ready to have system integrity and functionality tested.
 2. Within reasonable time after receipt of request, Designer will accept or revise the proposed test plan, provide a test schedule and coordinate testing date(s) with Owner and Contractor.
 3. Should Designer determine the Work is not acceptably configured or not of adequate integrity:
 - a. Designer promptly will so notify Contractor, giving reasons therefore and providing sufficient details to allow Contractor to make corrective actions.
 - b. Contractor shall then expeditiously remedy the deficiencies and notify Designer in writing when ready for re-testing.
 - c. Designer will schedule re-test of the Work.
 - d. Excessive re-testing of Work may result in fees being assessed Contractor.
 4. Should Designer and Owner concur the Work is configured properly and system integrity is as required:

- a. Designer will review Contractors detailed “turn-up” plan, and upon finding it acceptable issue a memorandum of Testing Completion to Owner and Contractor after which system “turn-up” can proceed.

3.06 DOCUMENTATION

- A. Contractor shall, throughout the completion of the project, provide Owner a file storage system that shall include all necessary equipment, including if reasonably required, file drawers, folders, dividers, etcetera, to contain all as-built drawings, owner’s manuals of all equipment installed, warranty and maintenance information and other information the Contractor, Designer and/or Owner deem necessary. Documentation shall also be provided in a digital format in file formats and on media as specified by Owner and/or Designer.
- B. Contractor shall be responsible for providing thorough, timely documentation on all hardware, software. Documentation shall include, but not be limited to:
 1. Equipment description.
 2. Equipment make.
 3. Model number.
 4. Software release.
 5. Date installed.
 6. Manufacturer's warranty.
 7. Maintenance contract terms.
 8. Verification of maintenance contract engagement.
 9. Telephone numbers for service and support.
 10. Detailed technical support and service procedure instructions.
 11. All product (hardware and software) manuals and manufacturer supplied documentation, including, but not limited to owner manuals, system administrator manuals and configuration guides. Where number of duplicate copies for particular manual or documentation item could be reasonably considered excessive, Contractor shall request direction from Owner and Designer.
 12. Photocopy of original invoice listing make and model for all components and equipment from individual manufacturer(s), distribution source(s), or

authorized agent(s) to establish manufacturer warranty start date for potential use after end of contract warranty provisions.

13. CAD or Visio as built drawings/diagrams for each building.

14. System Configuration Report.

15. Complete inventory of installed hardware and system software including, but not be limited to, model numbers, Ethernet MAC address, serial numbers, physical installation location and software options.

3.07 TRAINING

A. No training shall be conducted prior to training outline and/or syllabus being approved by Owner, Instructional or overview activities conducted without prior content approval with not be deemed contract training, and Contractor shall remain responsible for delivery of approved training.

B. Contractor shall provide training for the Owner designated system administrator(s). Owner shall designate up to four (4) administrators to be trained. Training shall be a minimum of two (2), two (2) hour sessions in length, at the convenience of the Owner personnel, and of sufficient duration to satisfactorily complete training on all system administration functions including, but not limited to:

1. Basic trouble shooting of the installed system and components including diagnostic and problem resolution actions.
2. System back-up and restore functions and procedures for all system parameters and configurations.
3. Device additions, moves and changes as well as reconfiguration.
4. Review of system alerts, logs and monitoring of configuration parameters including, but not limited to and system configuration changes.

C. "First day" training support shall be provided for all buildings during a day agreed upon by the Owner. This training support shall provide users with assistance in problem diagnostics and "first day" operations of installed equipment. Adequate numbers of qualified support trainers shall be deployed to provide users with thirty (30) minute or less response on all support training requests. Owner will designate the appropriate day for this training to take place.

3.08 SCHEDULE, MEETINGS AND PLANS

A. Schedule

1. Final Vendor Presentations: Week of January 27, 2025
 2. Contractor Chosen: Week of February 24, 2025
 3. Work Commences: April 1, 2025
 4. Substantial Completion: August 1, 2025
 5. Project Close-out: October 1, 2025
- B. Planned sequence of operations shall be established by the Contractor within the guidelines established by the Owner, as required herein and as required to meet schedules.
- C. All work shall be coordinated with Owner's construction manager on site.
- D. Project progress meetings shall be held, but not limited to, weekly at a site and time identified as convenient for Owner and as required herein. Meetings will be attended as required herein.

END OF SECTION

SECTION 27 43 13
MULTI-FUNCTION PRINTERS

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

- A. Work described in this specification section pertains to new equipment and replacements to existing printers, scanners, facsimile and copier equipment and operational management controls intended to be used for instructional and administrative applications by Owner.
 - 1. Owner intends to purchase new units to replace existing building copiers and multi-function printers across the district.
 - 2. Owner intends to deploy an output control and management application with credential readers to provide for output security and tracking.
- B. Contractors shall propose methods, services and systems and/or components to be deployed using standard procedures and technology components and as specified herein. The system components are intended to be installed and connected to the owner's existing physical Ethernet infrastructure and as specified herein.
 - 1. Owner will provide adequate standard connections and cable routing for the number and locations of devices specified herein except as expressly noted otherwise.
 - 2. System operation, support and control components shall be physically installed on Contractor provided cabinets, if appropriate, that orient the equipment at a proper operating height for its intended application. Contractor shall provide and attach power connectors and network cables to outlets. Connection cable lengths shall not exceed eight (8) feet for power and Twenty (20) feet for Ethernet network (UTP category 6 patch cable).
- C. Contractor shall advise, coordinate and work cooperatively with Owner representatives or owner's designee related to any configuration changes required and/or proposed for Owner's existing physical infrastructure.
- D. The Contractor shall configure, connect, test, document and warrant a fully compliant system and/or component connection to the system complete and with full functionality as specified herein. Work described in this section requires the full installation, implementation and warranty service for new equipment.
- E. Contractor shall coordinate their work and testing with other contractors, Designer and the Owner as is appropriate.

- F. The Contractor shall configure, supply, test, document, train Owner representatives and warrant a fully operational and compliant system and/or component connection to the system complete and with full functionality as specified herein.
- G. Contractor shall coordinate their testing and delivery with other contractors, Designer and the Owner as is appropriate.
 - 1. Contractor shall deliver components as specified to individual building staging location/room inside as identified and coordinated by Owner. Delivery to the individual building locations for Owner unloading will not be accepted.
 - a. Loading dock facilities, pallet lift equipment, or related material handling equipment/facilities are not available at any site of work.
 - 2. Delivery shall be coordinated with Owner, Designer and others based on specific release schedule of materials on a building basis and as directed, required and published by Designer and Owner.
 - a. Complete shipment of all materials at one time will not be accepted.
- H. Contractors shall provide a consistent discount from current published US List prices for all products from the same product family or replacement product family, as may be introduced by Manufacturer during the implementation and through the release schedule of this project.
- I. Owner reserves the right, with input from Designer and Contractor, to select other model(s) of equipment at their sole discretion, at any point in the release schedule for implementation. Any such model change, being from the same or replacement product family, shall be accommodated by Contractor and provided at the same discount from current published US List prices as similar and/or prior models as proposed under this contract.
- J. Contract Close out shall not be fully completed until final and complete release of last equipment from the schedule as modified and provisioned for herein. Payment of retainage under the terms of this contract shall be made on a release basis. Completion of and close out of an individual release under this contract shall be the basis for payment of retainage by Owner for that release only.
- K. Initiation of warranty shall be based on acceptance of a particular release as determined by payment of retainage, rather than final acceptance and final contract close out at the end of the project.

1.02 WARRANTY

- A. Any replacement, upgrade or fix, including labor for any non-conforming or non-operational part of the system shall be fixed and/or replaced at no additional cost to the Owner for the period of the warranty.
- B. A complete warranty shall be provided for all new components of the system for the following term.
 - 1. Thirty-three million (33,000,000) Monochrome Copies
 - 2. Six hundred thousand (600,000) Color Copies
 - 3. Contractor shall provide a per page rate for both monochrome and color copies for devices provided in project. Per page rate shall be good for a term of six (6) years and will adhere to all warranty terms and conditions as specified herein. Per page rate shall be clearly identified on the provided schedule of values bid.
- C. Additional warranty terms:
 - 1. Warranty fees shall be limited to a fixed cost for volume of output for each type of unit based on the number of units installed and accepted by Owner at any time.
 - 2. Any documents and/or submittals required by individual manufacturers for compliance with the standard and/or applicable warranty programs shall be provided and submitted for approval by the Contractor.
 - 3. Contractor shall submit all documents, apply for warranty or extended warranty certification, and provide a Certificate of Warranty or Extended Warranty as may be applicable from the manufacturer prior to project closeout.
 - 4. All parts, labor and supplies, excepting only staples, paper and electricity, shall be provided by the vendor to maintain the new equipment in full and proper working order. No additional charges, fees, or any other costs will be incurred by Owner during the warranty period.
 - 5. A full-service warranty compliant with these terms shall be included for each new component with bid. Rates associated with warranty shall be provided on provided schedule of values bid for provided herein.
- D. On site services provided under the contract shall be performed by personnel or representatives of manufacturer of individual components and/or appropriately trained and certified Contractor representatives as herein defined and located within physical proximity to provide response levels deemed acceptable to Owner.

- E. Contractor shall provide the following response times for all malfunctioning equipment:
 - 1. Four (4) business hours or less for matters that are deemed of a critical nature by Owner and render any unit unable to maintain reasonable functionality.
 - a. Business hours are defined as 8:00am to 5:00pm, Monday through Friday excepting customary legal holidays.
 - 2. Two (2) business days for matters not deemed by the Owner to be of a critical nature.
 - 3. Response time shall be measured from the time Contractor is notified by Owner to the time work is begun to resolve the matter.
 - 4. Owner shall be provided direct escalation instruction for service contract matters deemed to be of a chronically reoccurring matter.
- F. System contract shall commence on date of substantial completion as certified by Designer and provided for herein. Delivery to work site of materials, physical removal from packaging, issuance of Contractor documents including, but not limited to invoices and/or packing slips, printing of test documents, or any event or documentation, not specifically provided for herein, shall have no effect on Service Contract Date or System Acceptance by Owner and/or Designer.

1.03 SUBMITTALS

- A. Submittals shall consist of, but not be limited to, technical cut sheets and detailed information pamphlets on all components of the system to be installed and configuration/installation procedures intended. All cut sheets and submittals shall be distinctly marked to highlight the actual part number of the item being submitted for approval with Bid Proposals.
- B. Bidder shall provide standard sample contract proposed for Post Warranty Device Maintenance Contract as submittal with bid documents.
- C. Contractor shall provide current published US List Price schedule(s) for complete line of materials of manufacturer(s) proposed for this contract including all items in product families of equipment proposed.
- D. Shop drawings, data sheets, procedure guidelines, checklists, outlines and diagrams shall be submitted by Bidder for approval by Designer with Bid Proposals.
 - 1. Shop drawings, data sheets and diagrams shall show all data relating to structural, electrical, wiring, cross connect, interconnect, equipment

arrangement/layout, and any other information deemed significant by the Designer.

2. No work constituting final configuration, shipment or installation shall be commenced until after approval of shop drawings, data sheets and diagrams by Owner and Designer.
- E. Contractor shall provide proof of manufacturer support by photocopy of certification and letter of support from major component manufacturers for this specific project with Bid Proposals.
- F. Equipment or material installed for this project that do not have an approved submittal associated with it, will be removed and replaced with acceptable equipment or material as defined by the Designer. All replacement costs including, but not limited to material and labor, shall be the sole responsibility of the Contractor.
1. The Owner and/or Designer may notify Contractor of any offending situations under this provision allowing Contractor up to forty-eight (48) hours to correct the situation prior to taking other corrective action.
 2. The Owner reserves the right to replace unapproved materials and deduct the costs of doing so as defined herein from any amounts that may be due, or become due Contractor.
- G. The Contractor shall submit within ten (10) calendar days after the Notice to Proceed, a schedule that reflects the sequence of activities of the contractor's approach to the execution of and completion of the work. The schedule shall be broken into work areas to provide for a clear identification of the planned progress of the work. Included in the schedule will be a list of tasks with list of deliverables and the percentage of work completed. This schedule shall coincide with progress payments applications dates and projected amounts. All durations shown will be in working days. Applications that generate Microsoft Project compatible files shall be management tools of choice. The timeframe described in the Contractor's Schedule shall represent the Contractor's plan for organizing, directing, managing, controlling, staffing and executing the work required by the Contract Documents. The district will rely on such schedules to coordinate and otherwise plan the work of the District, other separate contractors, or the District's routine daily work.

1.04 REFERENCE SPECIFICATIONS

- A. All work, products, and materials shall conform with the following standards as applicable for the intended use:
1. EIA/TIA Commercial and Administration Standards
 2. NEC

3. IEEE 802
4. IETF RFCs
5. FCC – All Applicable Rules and Regulations
6. UL
7. MIOSHA Safety Standards

1.05 CONTRACTOR

- A. The Contractor shall accept complete responsibility for the, certification and support of the system and/or components as required herein. Contractor shall be an authorized vendor of all major components.
- B. All work shall be performed and supervised by Project Managers, Engineers and/or Technicians who are qualified to configure or install specified equipment and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods and as required herein.
- C. Project Managers, Engineers and Technicians employed on this project shall be properly and fully trained and qualified by the manufacturer on the configuration and testing of the equipment and systems to be provided.
- D. The Contractor shall have a proven track record in comparable system supply, service and configuration. This must be shown by the inclusion of references of at least three (3) projects involving the supply, service and/or installation of similar systems completed by the Contractor in the prior two (2) years with the sealed Bid Proposal as provided herein.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

- A. Lists of acceptable manufacturers have been provided to establish a standard of quality for individual components associated with the specified system. Indicated components include particular models and makes currently preferred by Owner.
 1. CANON
 2. KYOCERA
 3. RICOH
 4. TOSHIBA

5. XEROX

- B. Any system bid shall be based on either acceptable manufacturer's components or components deemed equal in quality and function for the intended applications.
 - C. Judgment and determination associated with equivalency of components, compatibility with identified acceptable items and/or fitness for the intended use and application shall be solely by Owner and Designer.
- 2.02 Supply the most current version of all products provided.
- A. Manufacturer shall have five (5) years of experience and history manufacturing similar products to those specified.
 - B. Proposed components shall have been field tested and proven in actual use.
 - C. Prior and/or old versions of products, unless specifically approved and documented by Designer and/or Owner shall not be acceptable.
 - D. In cases where a newer version of hardware or software is available at the time of installation, Contractor shall request clarification from Owner and Designer on which version is to be used.
- 2.03 Furnish only new, first-class quality materials and equipment.
- 2.04 MULTI-FUNCTION PRINTER DEVICES
- A. Contractor shall provide complete printing units and accessories for each location listed in Appendix E – Multi-Function Printer Schedule. Devices shall meet or exceed the performance specifications of existing units identified in Appendix E – Multi-Function Printer Schedule and as specified herein.
 - B. Contractor shall supply all necessary materials, accessories, labor and licensing to enable all supplied devices to integrate with existing card access system.
 - C. All Contractor provided multi-function printer devices shall be capable of 11x17 printing with provided paper input and output trays.
- 2.05 OUTPUT CONTROL SOFTWARE
- A. Output Management / Document Control Software suitable to support four thousand (4000) users will be provided.
 - B. Output Management / Document Control Software shall be valid for three (3) years.
 - C. Acceptable Manufacturers:

1. PaperCut

D. Output Management Software shall meet or exceed the following:

1. Full integration with LDAP Directory.
2. Full integration with user code based authentication.
3. Ability for use with card readers to authorize printing use
 - a. Ability for full integration with Contractor provided card reader for user authentication.
4. Usage tracking
5. Remote web administration

E. Contractor shall integrate and make fully functional all provided multi-function printer devices with provided Papercut software.

2.06 OWNER ALLOWANCE

A. Contractor shall include allowances for equipment and/or other contract service reimbursements as required below in base bid lump sum amount(s). Equipment and/or contract services shall be provided and sourced at Owner's discretion and convenience with full cooperation by Contractor, and paid for from successful bidder's contract in the amount(s) provided for herein. Any allowance amount proving to be excessive for the intended equipment and/or contract services shall be credited to the Owner against contract payment requests.

1. Allowance shall be made in the amount of \$5,000.00 for contract services related to electrical upgrades, reconfiguration, testing and/or documentation.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Contractor shall conduct detailed walk-through examination with Designer, Construction Manager and Owner verifying equipment and material locations as well as mounting and placement requirements prior to commencement of other project activities.
- B. Contractor shall ensure all submittals have been provided and/or updated, and current approval has been obtained from Designer and Owner prior to commencement of any final installation activities specific to each release schedule or phase. Submittals shall include, but not be limited to:

1. Shop drawings, data sheets and system diagrams including specific cable connectors and types proposed to be installed.
2. Approved device image/configuration template to be used for each component provided.
3. Written configuration, coordination and test procedure to be followed by technicians and engineers.
4. Final documentation template.

3.02 INSTALLATION

- A. Contractor shall be familiar with the environment where work will be done as specified herein and make every reasonable effort to minimize interference with Owner's or other contractor's activities.
- B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed and disposed of in an approved container for the site. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations. Any work that may impede the general use of the space and/or other contractor's work and cannot be removed shall be flagged and cordoned off by the Contractor prior to their departure.
- C. All equipment and materials shall be installed in a neat and workmanlike manner. Best practices installation principles shall be used throughout the project.
- D. It shall be the responsibility of the Contractor to repair or replace any damage done to the structure of finishes in the building by the Contractor. If in the course of work, Contractor damages, marks or misplaces any surfaces or access plates/panels the Contractor shall repair and/or replace the surface, plate or panel to the original condition.
 1. Repairs shall include, but not be limited to patching and painting.
 2. Final determination as to the damage condition and/or repair/replacement fitness of any surface, plate or panel shall be the sole responsibility of the Designer.
 3. The building and work area shall be returned to its original condition prior to final sign off of the project.
- E. The Contractor shall furnish all equipment necessary for a fully compliant and operational system as specified herein including, but not limited to the following:

1. Work shall include careful coordination and cooperation with others to ensure a timely, cost effective and proper installation for Owner's intended application. Such efforts shall include, but not be limited to, coordinating and cooperating with other contractors, Owner, Designer and Engineer.
2. Storage of all equipment and components until such time those items are released for delivery to a specific staging location in a specific building according to the specifications.
3. Coordination for delivery of materials to Owner specified sites with Owner personnel to accommodate reasonable, efficient, safe and secure arrival at intended locations.
4. Transport equipment to the Owner's installation location(s).
5. The Contractor shall transport from the Owner designated staging area in each building, set in place, and install all equipment necessary for a fully compliant and operational system as specified herein.
6. Assemble, install, configure and test all equipment and components, maintaining accurate inventory records and status documents and breaking down and appropriately discarding packaging as directed.
7. Remove existing decommissioned equipment and components maintaining accurate inventory records and status documents and breaking down and appropriately discarding packaging as directed.
 - a. Remove all existing equipment, not a part of the new output management system. As part of the base bid, Contractor shall be responsible for the disposition of all existing multi-function printer equipment. Contractor shall identify any trade-in value for existing identified in Appendix E – Multi-Function Printer Schedule. Trade in value shall be clearly identified on provided schedule of value bid form.
8. Collect all information necessary to accurately document all system devices to the Owner's intended use and need.
9. Work shall be performed to meet local codes and industry standards including proper grounding and bonding of installed equipment. Work shall conform to "best practices" observed by industry professional installers and as required by Owner and Designer.
10. Inventory receipt of all components and equipment shipped to individual Owner locations to comply with latest release schedule.

11. Work shall include careful coordination and cooperation with others to ensure a timely, cost effective and proper installation for Owner's intended application. Such efforts shall include, but not be limited to, coordinating and cooperating with other contractors, Owner, Designer and Engineer.

F. Worksites include the following:

1. Caledonia Community Schools Administration Office
8948 Kraft Ave. SE
Caledonia, Michigan 49316
2. Caledonia Community Schools Transportation and Maintenance Center
8944 Kraft Ave. SE
Caledonia, Michigan 49316
3. Caledonia Community Center
9757 Kraft Ave. SE
Caledonia, Michigan 49316
4. Caledonia Elementary School
9770 Duncan Lake Ave
Caledonia, Michigan 49316
5. Caledonia High School (North and South Campus)
9050 Kraft Ave SE
Caledonia, Michigan 49316
6. Duncan Lake Middle School and Early Childhood Center
9751 Duncan Lake Ave.
Caledonia, Michigan 49316
7. Dutton Elementary School
3820 68th Street
Caledonia, Michigan
8. Emmons Lake Elementary
8950 Kraft Ave SE
Caledonia, Michigan 49316
9. Kettle Lake Elementary
8451 Garbow Drive
Caledonia, Michigan 49302
10. Kraft Meadows Intermediate School
9230 Kraft Avenue
Caledonia, Michigan 49316

11. Paris Ridge Elementary
4690 Paris Ridge Drive
Caledonia, Michigan 49316

- G. It shall be the responsibility of the Contractor to repair or replace any damage done to the structure of finishes in the building by the Contractor. If in the course of work, Contractor damages, marks or otherwise defaces any surfaces, the Contractor shall repair and/or replace the surface to the original condition.
1. Repairs shall include, but not be limited to patching and painting.
 2. Final determination as to the damage condition and/or repair/replacement fitness of any surface, plate or panel shall be the sole responsibility of the Designer.
 3. The building and work area shall be returned to its original condition prior to final sign off of the project.

3.03 TESTING

- A. In an effort to ensure a smooth “configuration” of the new system Contractor shall submit to a thorough testing process as defined herein prior to final configuration.
- B. Prior to requesting testing by Designer, the Contractor shall use adequate means to assure the Work is completed in accordance with the specified requirements, meets the owner’s specific application requirements and is ready for functionality and integrity testing.
- C. Testing Procedures
1. Prior to system configuration and/or installation, Contractor shall submit a written request to Owner and Designer indicating they have completed full and final configuration of the system, and are ready to have system integrity and functionality tested.
 2. Within reasonable time after receipt of request, Designer will provide a test schedule and coordinate testing date(s) with Owner and Contractor.
 3. Should Designer determine the Work is not acceptably configured or not of adequate integrity:
 - a. Designer promptly will so notify Contractor, giving reasons therefore and providing sufficient details to allow Contractor to make corrective actions.
 - b. Contractor shall then expeditiously remedy the deficiencies and notify Designer in writing when ready for re-testing.

- c. Designer will schedule re-test of the Work.
 - d. Excessive re-testing of Work may result in fees being assessed Contractor.
4. Should Designer and Owner concur the Work is configured properly and system integrity is as required:
- a. Owner and Designer will review Contractors detailed “configuration” plan, and upon finding it acceptable, Designer will issue a memorandum of Testing Completion to Owner and Contractor after which system “configurations” can proceed.

3.04 DOCUMENTATION

- A. Contractor shall, throughout the completion of the project, provide Owner a file storage system that shall include all necessary equipment, including if reasonably required, file drawers, folders, dividers, etcetera, to contain all as-built drawings/diagrams, owners manuals of all equipment installed, warranty and maintenance information and other information the Contractor, Designer and/or Owner deem necessary. Documentation shall also be provided in a digital format in file formats and on media as specified by Owner and/or Designer.
- B. Contractor shall be responsible for providing thorough, timely documentation on all hardware, software. Documentation shall include, but not be limited to:
 - 1. Equipment description.
 - 2. Equipment make.
 - 3. Model number.
 - 4. Software release.
 - 5. Date installed.
 - 6. Location installed.
 - 7. Manufacturer's and Vendor's warranty.
 - 8. Telephone numbers for service and support.
 - 9. Detailed technical support and service procedure instructions.
 - 10. All product (hardware and software) manuals and manufacturer supplied documentation, including, but not limited to owner manuals, system administrator manuals and configuration guides. Where number of duplicate copies for particular manual or documentation item could be

reasonably considered excessive, Contractor shall request direction from Owner and Designer.

11. Photocopy of original invoice listing make and model for all components and equipment from individual manufacturer(s), distribution source(s), or authorized agent(s).
12. System Configuration Report.
13. Complete inventory of installed hardware and system software. Hardware inventory shall include, but not be limited to, model numbers, Ethernet MAC address, serial numbers, physical installation location as well as hardware and software options.

3.05 TRAINING

- A. Contractor shall provide training for the Owner designated system administrator(s). Owner shall designate up to three (3) administrators to be trained. Training shall be a minimum of one (1), four (4) hour session in length, at the convenience of the Owner personnel, and of sufficient duration to satisfactorily complete training on all system administration functions including, but not limited to:
 1. Basic trouble shooting of the installed system and components including diagnostic and problem resolution actions.
 2. System back-up and restore functions and procedures for all system parameters and configurations.
 3. Device additions, moves, repairs and changes as well as reconfiguration.
 4. Review of system alerts, logs and monitoring of configuration parameters including, but not limited to and system configuration changes.
- B. Contractor shall provide training for Owner designated system operators. Owner shall designate up to three (3) operators per new unit to be trained. Training shall be a minimum of one thirty (30) minute session in length (each), at the convenience of the Owner personnel, and of sufficient duration to satisfactorily complete training on all system operating functions.
 1. Operator training shall be conducted in each building for each type of unit installed in that facility.

3.06 SCHEDULE, MEETINGS AND PLANS

- A. Work is contemplated in two phases to facilitate an orderly transition from existing equipment, operations and contracts. The anticipated schedule is:

1. Final Vendor Presentations: Week of January 27, 2025
 2. Contractor Chosen: Week of February 24, 2025
 3. Work Commences: April 1, 2025
 4. Substantial Completion: August 1, 2025
 5. Project Close-out: October 1, 2025
- B. Planned sequence of operations shall be established by the Contractor within the guidelines established by the Owner, as required herein and as required to meet schedules.
- C. All work shall be coordinated with Owner's construction manager on site.
- D. Project progress meetings shall be held, but not limited to, weekly at a site and time identified as convenient for Owner and as required herein. Meetings will be attended as required herein.

END OF SECTION

SECTION 27 51 16
PUBLIC ADDRESS AND PROGRAM SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

- A. Work described in this specification section pertains to a Public Address System component for Caledonia Community Schools. Work shall include, but not be limited to public address devices, ceiling and/or wall speakers, interface units and all other components and services required for a full and operational system.
- B. Contractor shall propose a system to be installed and connected to the owner's existing infrastructure.
- C. The Contractor shall design, engineer, configure, supply, connect, test, document, train Owner representatives and warrant a fully operational and compliant system, complete and with full functionality as specified herein.
- D. Contractor shall coordinate their installation with other communication systems, contractors, Designer, and the Owner as is appropriate.

1.02 WARRANTY

- A. Complete installation shall be fully functional and free from defect and/or failure for a period of three (3) years. Any replacement, upgrade, or fix, including labor for any non-conforming or non-operational part of the system shall be fixed and/or replaced at no cost to the Owner.
 - 1. Owner shall be provided full operation of system functions and features during the complete warranty period incurring absolutely no costs during that time.
- B. Manufacturer's warranty shall be provided for all components of the system.
 - 1. Any paperwork and/or submittals required by individual manufacturers for compliance with the standard and/or applicable extended warranty programs shall be provided and submitted for approval by the Contractor.
 - 2. Contractor shall submit all paperwork, apply for warranty or extended warranty certification, and provide a Certificate of Warranty or Extended Warranty as may be applicable from the manufacturer prior to project closeout.

- C. On site services provided under the warranty shall be performed by personnel or representatives of Contractor as herein defined and located within physical proximity to provide response levels deemed acceptable to Owner.
- D. Contractor shall provide the following response times for all malfunctioning equipment:
 - 1. Four (4) hours or less for matters that render twenty percent (20%) or more of the system users unable to maintain normal productivity.
 - 2. Two (2) business days for matters not meeting the above criteria.
 - 3. Response time shall be measured from the time Contractor is notified by Owner to the time work is begun to resolve the matter.
- E. Bidder shall provide current monthly maintenance/service contract pricing for recommended programs for all equipment following the specified and included period as additional information. This information will be considered by Owner and Designer as part of the bid evaluation process.
- F. System Warranty shall commence on date of substantial completion as certified by Designer and provided for herein. Delivery to work site of materials, connection of circuits, turn-up of system, physical removal from packaging, issuance of Contractor documents including, but not limited to invoices and/or packing slips, or any event or documentation, not specifically provided for herein, shall have no effect on Warranty or System Acceptance by Owner and/or Designer.

1.03 STORAGE OF MATERIALS

- A. All materials shall be secured when not in use by the Contractor.
- B. It shall be the Contractor's responsibility to secure all equipment including material to be installed as part of the contract. No changes shall be made to the contract due to loss or theft of equipment and/or materials not officially accepted by the Owner.
- C. Formal receipt of the materials shall not be completed by the Owner until completion of project closeout. The Contractor shall be responsible for all equipment until time of closeout as provided for herein.

1.04 SUBMITTALS

- A. Submittals shall consist of, but not be limited to, technical cut sheets and detailed information pamphlets on all components of the system to be installed. All cut sheets and submittals shall be distinctly marked to highlight

the actual part number of the item being submitted for approval with Bid Proposals.

- B. Shop drawings and diagrams shall be submitted by Bidder for approval by Designer with Bid Proposals.
 - 1. Shop drawings and diagrams shall show all data relating to structural, electrical, wiring, cross connect, interconnect, equipment arrangement/layout, and any other information deemed significant by the Designer.
 - 2. No work constituting final installation shall be commenced until after approval of shop drawings by Designer.
- C. Contractor shall provide proof of manufacturer support by photocopy of certification and letter of support from major component manufacturers for this specific project with Bid Proposals.
- D. Equipment or material installed for this project that does not have an approved submittal associated with it, will be removed and replaced with acceptable equipment or material as defined by the Designer. All replacement costs including, but not limited to material and labor, shall be the sole responsibility of the Contractor.
 - 1. The Owner and/or Designer may notify Contractor of any offending situations under this provision allowing Contractor up to forty-eight (48) hours to correct the situation prior to taking other corrective action.
 - 2. The Owner reserves the right to replace unapproved materials and deduct the costs of doing so as defined herein from any amounts that may be due, or become due Contractor.
- E. The Contractor shall submit within ten (10) calendar days after the Notice to Proceed, a schedule that reflects the sequence of activities of the contractor's approach to the execution of and completion of the work. The schedule shall be broken into work areas to provide for a clear identification of the planned progress of the work. Included in the schedule will be a list of tasks with list of deliverables and the percentage of work completed. This schedule shall coincide with progress payments applications dates and projected amounts. All durations shown will be in working days. The timeframe described in the Contractor's Schedule shall represent the Contractor's plan for organizing, directing, managing, controlling, staffing and executing the work required by the Contract Documents. Owner will rely on such schedules to coordinate and otherwise plan related work of Owner personnel, other separate contractors, or the Owner's routine daily work.

- F. Determination of acceptance of proposed equal equipment is at the sole discretion of the Designer/Owner.

1.05 REFERENCE SPECIFICATIONS

- A. All work, products, and materials shall conform with the following standards as applicable for the intended use:
 - 1. EIA/TIA Commercial and Administration Standards
 - 2. NEC
 - 3. IEEE 802
 - 4. IETF RFCs
 - 5. FCC Emissions Ratings
 - 6. UL
 - 7. MOSHA Safety Standards

1.06 CONTRACTOR

- A. The Contractor shall accept complete responsibility for the installation, certification, and support of the system. Contractor shall be an authorized vendor of all major components.
- B. All work shall be performed and supervised by Project Managers, Engineers and/or Technicians who are qualified to install provided Paging and Public Address System and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods.
- C. Project Managers, Engineers and Technicians employed on this project shall be properly and fully trained and qualified by the manufacturer on the installation and testing of the equipment and systems to be installed.
- D. The Contractor shall have a proven track record in Public Address System configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the installation of similar systems completed by the Contractor in the prior two (2) years on unaltered forms with the sealed Bid Proposal as provided herein.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer of major components of the included Public Address / Paging system shall be known and leading entity in the relevant communications field, and shall have been designing, manufacturing and installing similar systems for a period of no less than three (3) years.
 - 1. Acceptable Manufacturers (In alphabetical order):
 - a. ADVANCED NETWORK DEVICES
 - b. ATLASIED
 - c. CYBERDATA
- 2.02 Supply most current version of all products provided.
- A. Prior and/or old versions of products, unless specifically approved and documented by Designer and/or Owner shall not be acceptable.
 - B. In cases where a newer version of hardware or software is available at the time of installation, Contractor shall request clarification from Designer on which version is to be used.
- 2.03 Furnish only new, first-class quality materials and equipment.
- 2.04 PUBLIC ADDRESS AND PROGRAM SYSTEM
- A. A fully compliant public address and program system devices shall be configured and installed to service Owner's worksites listed herein.
 - B. New Interior PoE speakers and strobes shall be provided in locations identified on provided drawings. Quoted cost must include all materials and labor to integrate speakers into Owners existing Singlewire Informacast system.
 - C. New interior wide-angle sound dispersion PoE horn(s) and strobes shall be provided in locations identified on provided drawings. Quoted cost must include all parts and labor to integrate into Owners existing Singlewire Informacast system.
 - D. CENTRAL CONTROL SOFTWARE
 - 1. Contractor shall supply all necessary Informacast Fusion Licensing for provided devices for term of warranty.
 - 2. Contractor shall configure provided licensing to make Public Address System devices fully functional per Owner requirements and as specified herein.

E. INTERIOR POWER OVER ETHERNET (PoE) IN-CEILING SPEAKERS

1. Speakers shall be provided in locations identified on provided Appendix B – Public Address Diagrams as identified as S1.
2. Acceptable Manufacturer(s)
 - a. ADVANCED NETWORK DEVICES
 1. IPSCM
3. Interior Speakers shall be provided in classrooms and other common areas as identified on provided drawings.
 - a. Final speaker placement shall be adjusted as needed for appropriate audio intelligibility, volume levels and ceiling obstructions and/or conditions and shall remain the responsibility of the contractor.
4. Speakers shall meet or exceed the following requirements:
 - a. Square ceiling tile IP speaker (2'x 2')
 - b. Microphone for two-way communication
 - c. Frequency response – 60 Hz – 17kHz
 - d. Built-in 8 W amplifier
 - e. PoE IEEE 802.3af/802.3af Type 1 Class 3 (max 12.95 W)
 - f. Support for SIP integration with Voice over IP (VoIP) systems.
 - g. Full multicast and broadcast support.
 - h. All devices, including but not limited to, amplifiers, brackets, baffles, and Control Unit shall be mounted square and plumb and as recommended by the manufacturer and required by Owner and Architect.
 - i. Each speaker shall be connected to central equipment using standard category 6 ethernet cabling provided by others. Contractor shall supply ethernet patch cables at both the closet and device location to extend provided cabling to optimal speaker location, cable shall not exceed 30'. Cable color shall be coordinated with Owner and/or designer.
 - j. Contractor shall be responsible for cross connecting speakers in data closet and reporting back switch and switch port locations to Owner for programming.

- k. Each speaker shall be volume adjustable at installation to accommodate specific acoustical properties of the intended coverage area.
- l. Contractor shall include all parts and accessories for a fully functional and securely installed system using manufacturer and industry best practices.
- m. System shall produce audio at a peak level of approximately eighty-five (85) dBA at probable listener's positions.
- n. Provided speakers must be fully Singlewire Informacast compatible.

F. INTERIOR POWER OVER ETHERNET (PoE) SURFACE MOUNT SPEAKERS

- 1. Speakers shall be provided in locations identified on provided Appendix B – Public Address Diagrams as identified as S2.
- 2. Acceptable Manufacturer(s)
 - a. ADVANCED NETWORK DEVICES
 - 1. IPSWS-SM
- 3. Interior Speakers shall be provided in classrooms and other common areas as identified on drawings.
 - a. Final speaker placement shall be adjusted as needed for appropriate audio intelligibility, volume levels and ceiling obstructions and/or conditions and shall remain the responsibility of the contractor.
- 4. Speakers shall meet or exceed the following requirements:
 - a. Surface mount IP speaker
 - b. Microphone for two-way communication
 - c. Frequency response – 60 Hz – 17kHz
 - d. Built-in 8 W amplifier
 - e. PoE IEEE 802.3af/802.3af Type 1 Class 3 (max 12.95 W)
 - f. Support for SIP integration with Voice over IP (VoIP) systems.
 - g. Full multicast and broadcast support.

- h. All devices, including but not limited to, amplifiers, brackets, baffles, and Control Unit shall be mounted square and plumb and as recommended by the manufacturer and required by Owner and Architect.
- i. Each speaker shall be connected to central equipment using standard category 6 ethernet cabling provided by others. Contractor shall supply ethernet patch cables at both the closet and device location to extend provided cabling to optimal speaker location, cable shall not exceed 30'. Cable color shall be coordinated with Owner and/or designer.
- j. Contractor shall be responsible for cross connecting speakers in data closet and reporting back switch and switch port locations to Owner for programming.
- k. Each speaker installed in gymnasium shall include appropriate protective cage.
- l. Each speaker shall be volume adjustable at installation to accommodate specific acoustical properties of the intended coverage area.
- m. Contractor shall include all parts and accessories for a fully functional and securely installed system using manufacturer and industry best practices.
- n. System shall produce audio at a peak level of approximately eighty-five (85) dBA at probable listener's positions.
- o. Provided speakers must be fully Singlewire Informacast compatible.

G. LED STROBE

- 1. Strobes shall be provided in locations identified on provided Appendix B – Public Address Diagrams as identified as S3.
- 2. Acceptable Manufacturers
 - a. ALGO
 - 1. 8138-IC
- 3. LED Strobe/Visual indicators shall be installed in the locations identified on drawings and as specified herein.
- 4. Strobe devices shall meet or exceed the following requirements:

- a. Weatherproof multi-color device
- b. Four (4) colors (Red, Blue, Green, Amber)
- c. Gymnasium strobe/visual indicators shall include protective enclosure to prevent breakage.
- d. System shall be capable of providing a bright and visible indicator when paging system is engaged.
- e. Indicators shall be installed and integrated into Public Address System for consistent and reliable operation.
- f. Each device installed in gymnasium shall include appropriate protective cage.
- g. Contractor shall supply all parts, accessories and labor for a fully functional system.
- h. Strobe devices shall be Singlewire Informacast compatible.
- i. Devices shall flash 1-3 times at the initiation of a page, and then remain illuminated through the duration of the address. Power for the device is the responsibility of the Contractor.

H. INTERIOR/EXTERIOR POWER OVER ETHERNET (PoE) HORNS

- 1. Speakers shall be provided in locations identified on provided Appendix B – Public Address Diagrams as identified as S4.
- 2. Acceptable Manufacturers
 - a. ADVANCED NETWORK DEVICES
 - b. ATLASIED
 - c. CYBERDATA
 - 1. 011472
- 3. Horns shall meet or exceed the following requirements:
 - a. Built-in 8 W Class D amplifier
 - b. PoE IEEE 802.3at Class 3 (max 25 Watts)
 - c. Support for SIP integration with Voice over IP (VoIP) systems.

- d. Horns shall be installed in recessed impact-resistant case.
- e. Horns shall be IP66 rated.
- f. Frequency response of 400Hz – 7.5 kHz.
- g. Each speaker installed in gymnasium shall include appropriate protective cage.
- h. Each speaker shall be connected to central equipment using standard category 6 ethernet cabling provided by others. Contractor shall supply ethernet patch cables at both the closet and device location for each speaker to extend provided cabling to optimal speaker location, cable shall not exceed 30'. Cable color shall be coordinated with Owner and/or designer.
- i. Contractor shall be responsible for cross connecting speakers in data closet and reporting back switch and switch port locations to Owner for programming.
- j. Contractor shall include all parts and accessories for a fully functional and securely installed system using manufacturer and industry best practices.
- k. Provided speakers must be fully Singlewire Informacast compatible.

I. COMPONENT INTERCONNECTION

- 1. All wiring not installed in conduit shall be plenum type cable and shall be so identified with continuous marking.
 - 2. No wiring installed shall be visible unless specifically and individually approved by Owner and Designer.
 - 3. Wiring color shall remain the same throughout the system. Colors used for coding shall be as directed by the system manufacturer, Owner and Architect.
 - 4. Wire shall be copper.
- J. Owner shall provide adequate PoE ports in the designated MDF and IDF locations for the connection of all devices required for system operation. Contractor shall remain responsible for all connection to switches, including, but not limited to patch cables at both the closet and device location. All patch cable colors must be coordinated with Owner to match Owner site standards.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Contractor shall conduct detailed walk-through examination verifying equipment and material locations as well as mounting and placement requirements prior to commencement of other installation activities.
- B. Contractor shall ensure all submittals and shop drawings have been provided to, and approval has been obtained from Designer prior to commencement of any final installation activities.

3.02 DEMOLITION

- A. Contractor shall completely remove existing analog paging system.
- B. All speakers, cabling, racks, devices and accessories shall be completely removed and disposed of.
- C. All cabling shall be removed to source, any interior locations with exposed holes remaining will be filled with metallic plates to be painted by Others. Locations that will accept a standard faceplate will receive a Contractor supplied stainless-steel faceplate.
- D. Exterior speaker locations that are recessed will be left; cabling will be removed to speaker locations.
- E. Select interior locations recessed into decorative ceilings or gypsum board shall be left; cabling will be removed to speaker locations.

3.03 INSTALLATION

- A. Contractor shall be familiar with the environment where work will be done as specified herein.
- B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed, and disposed of in an approved container for the site. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations. Any work that may impede the general use of the space and cannot be removed shall be flagged and cordoned off by the Contractor prior to their departure.
- C. All equipment and materials shall be installed in a neat and workmanlike manner. Best practices installation principles shall be used throughout the project.
- D. The Contractor shall furnish, set in place, and install all equipment necessary for a fully compliant and operational system as specified herein. The installation process includes, but is not limited to the following:

1. Inventory receipt of all components and equipment.
 2. Storage of all equipment and components until such time those items are installed according to the specifications.
 3. Transport equipment to the Owner's installation location(s).
 4. Assemble, install, configure and test all equipment and components, maintaining accurate inventory records and status documents and discarding packaging.
 5. Collect all information necessary to accurately program all sets and/or system devices to the Owner's intended use and need.
 6. Complete end user and system administrator training programs as specified herein.
 7. Work includes extending cable bundles, as required, to Owner identified equipment installation locations at all locations.
- E. Contractor shall program all bells, alerts, and schedules into the system to support initial operations. No Owner programming shall be required for successful system cut-over in any building.
- F. Worksites include the following:
1. Caledonia High School (North Campus)
9050 Kraft Ave.
Caledonia, Michigan 49316
- G. It shall be the responsibility of the Contractor to repair or replace any damage done to the structure of finishes in the building by the Contractor. If in the course of work, Contractor damages, marks, or misplaces any surfaces or access plates/panels the Contractor shall repair and/or replace the surface, plate or panel to the original condition.
1. Final determination as to the damage condition and/or repair/replacement fitness of any surface, plate or panel shall be the sole responsibility of the Designer.
 2. The building and work area shall be returned to its original condition prior to final sign off of the project.
- H. Following installation and prior to final acceptance of the system, Contractor shall conduct follow-up interviews with Owner identified administrators and staff to review system functionality, suitability and confirm feature and program fitness for Owner applications.

1. Follow-up interviews shall be fully documented by Contractor and submitted to Owner for approval.
- I. Contractor shall collect, consolidate and otherwise prepare for shipping or disposal Owner's existing telecommunications system components, including, but not limited to stations, processors, cards, options, and application servers in a manner acceptable to, and consistent with, Owner's intended disposition of the items.

3.04 TESTING

- A. In an effort to ensure a smooth cut-over to the new system Contractor shall submit to a thorough testing process as defined herein prior to cut-over. Testing shall include, but not be limited to the following:

1. 100% of all speakers
2. Paging and Public Address programming

- B. Prior to requesting testing by Designer, the Contractor shall use adequate means to assure the Work is completed in accordance with the specified requirements, meets the owner's specific application requirements and is ready for functionality and integrity testing.

C. PROCEDURES

1. Prior to system cut-over, Contractor shall submit a written request to Designer indicating they have completed full and final configuration of the system and are ready to have system integrity and functionality tested.
2. Within reasonable time after receipt of request, Designer will provide a test schedule and coordinate testing date(s) with Owner and Contractor.
3. Should Designer determine the Work is not acceptably configured or not of adequate integrity:
 - a. Designer promptly will so notify Contractor, giving reasons therefore and providing sufficient details to allow Contractor to make corrective actions.
 - b. Contractor shall then expeditiously remedy the deficiencies and notify Designer in writing when ready for re-testing.
 - c. Designer will schedule re-test of the Work.
 - d. Excessive re-testing of Work may result in fees being assessed Contractor.

4. Should Designer and Owner concur the Work is configured properly, and system integrity is as required:
 - a. Designer will review Contractors detailed cut-over plan, and upon finding it acceptable issue a memorandum of Testing Completion to Owner and Contractor after which system cut-over can proceed.

3.05 DOCUMENTATION

- A. Contractor shall, throughout the completion of the project, provide Owner a file storage system that shall include all necessary equipment (file drawers, folders, dividers, etc.), to contain all as-built drawings, owner's manuals of all equipment installed, warranty and maintenance information and other information the Contractor, Designer and/or Owner deem necessary.
- B. Contractor shall be responsible for providing thorough, timely documentation on all hardware, software. Documentation shall include, but not be limited to:
 1. Equipment description.
 2. Equipment make.
 3. Model number.
 4. Software release.
 5. Date installed.
 6. Manufacturer's warranty.
 7. Maintenance contract terms.
 8. Verification of maintenance contract engagement.
 9. Telephone numbers for service and support.
 10. Detailed technical support and service procedure instructions.
 11. All product (hardware and software) manuals and manufacturer supplied documentation, including, but not limited to owner manuals, system administrator manuals and configuration guides. Where number of duplicate copies for particular manual or documentation item could be reasonably considered excessive, Contractor shall request direction from Owner and Designer.
 12. Photocopy of original invoice listing make and model for all components and equipment from individual manufacturer(s), distribution source(s), or

authorized agent(s) to establish manufacturer warranty start date for potential use after end of contract warranty provisions.

13. As built drawings for each building.

14. Complete inventory of installed station hardware and system software. Hardware inventory shall include set type (model number), Ethernet MAC address, serial number, location, software groups.

3.06 SCHEDULE, MEETINGS AND PLANS

A. Schedule

1. Final Vendor Presentations: Week of January 27, 2025

2. Contractor Chosen: Week of February 24, 2025

3. Work Commences: June 1, 2025

4. Substantial Completion: August 1, 2025

5. Project Close-out: October 1, 2025

B. Planned sequence of operations shall be established by the Contractor within the guidelines established by the Owner, as required herein and as required to meet schedules.

C. All work shall be coordinated with Owner's construction manager on site.

D. Project progress meetings shall be held, but not limited to, weekly at a site and time identified as convenient for Owner and as required herein. Meetings will be attended as required herein.

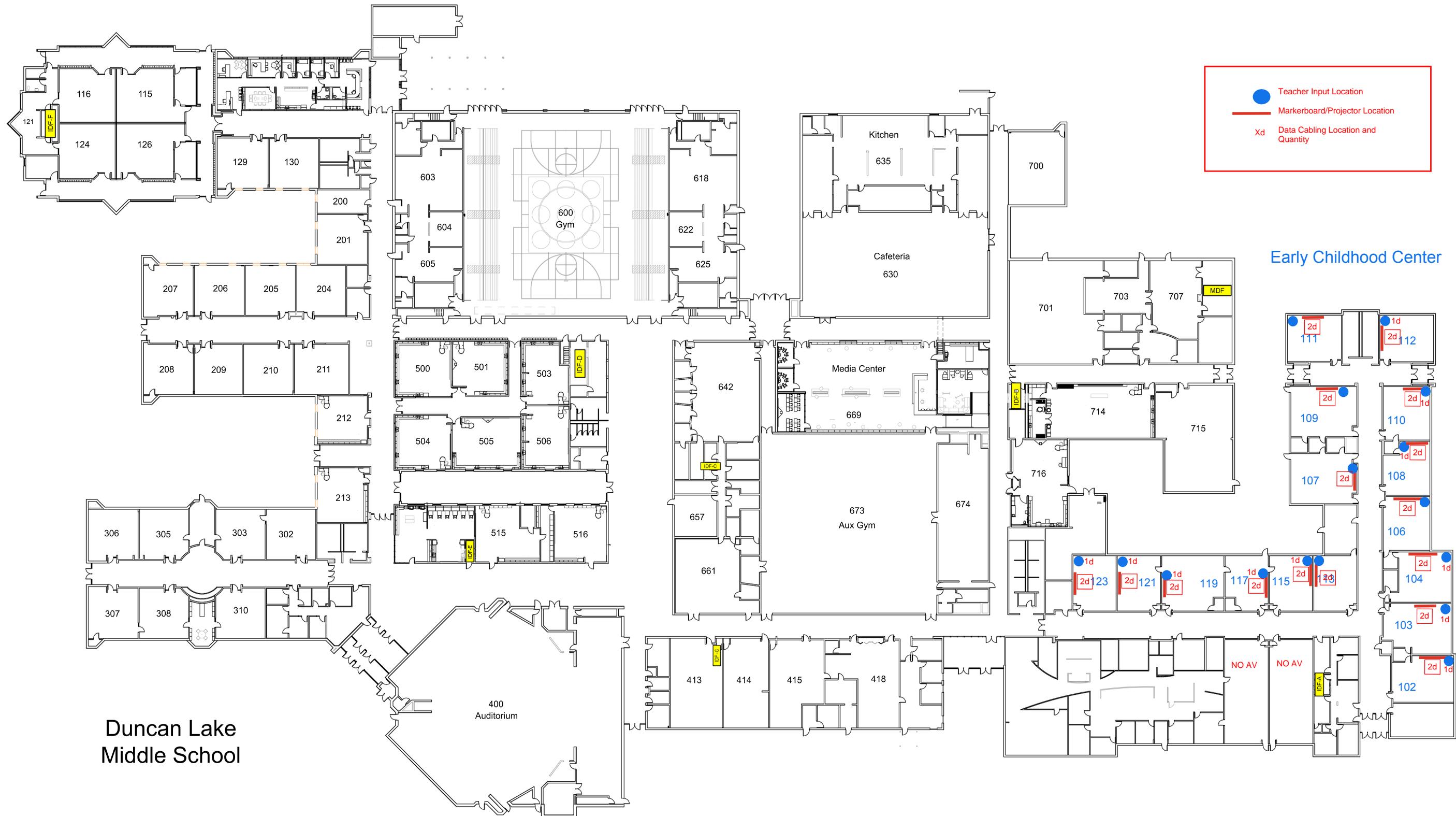
Appendix A - Multimedia Diagrams



Caledonia Elementary
 9770 Duncan Lake Ave.
 Caledonia, MI 49316

Duncan Lake Complex

Duncan Lake Middle School
Early Childhood Center
District Technology Office

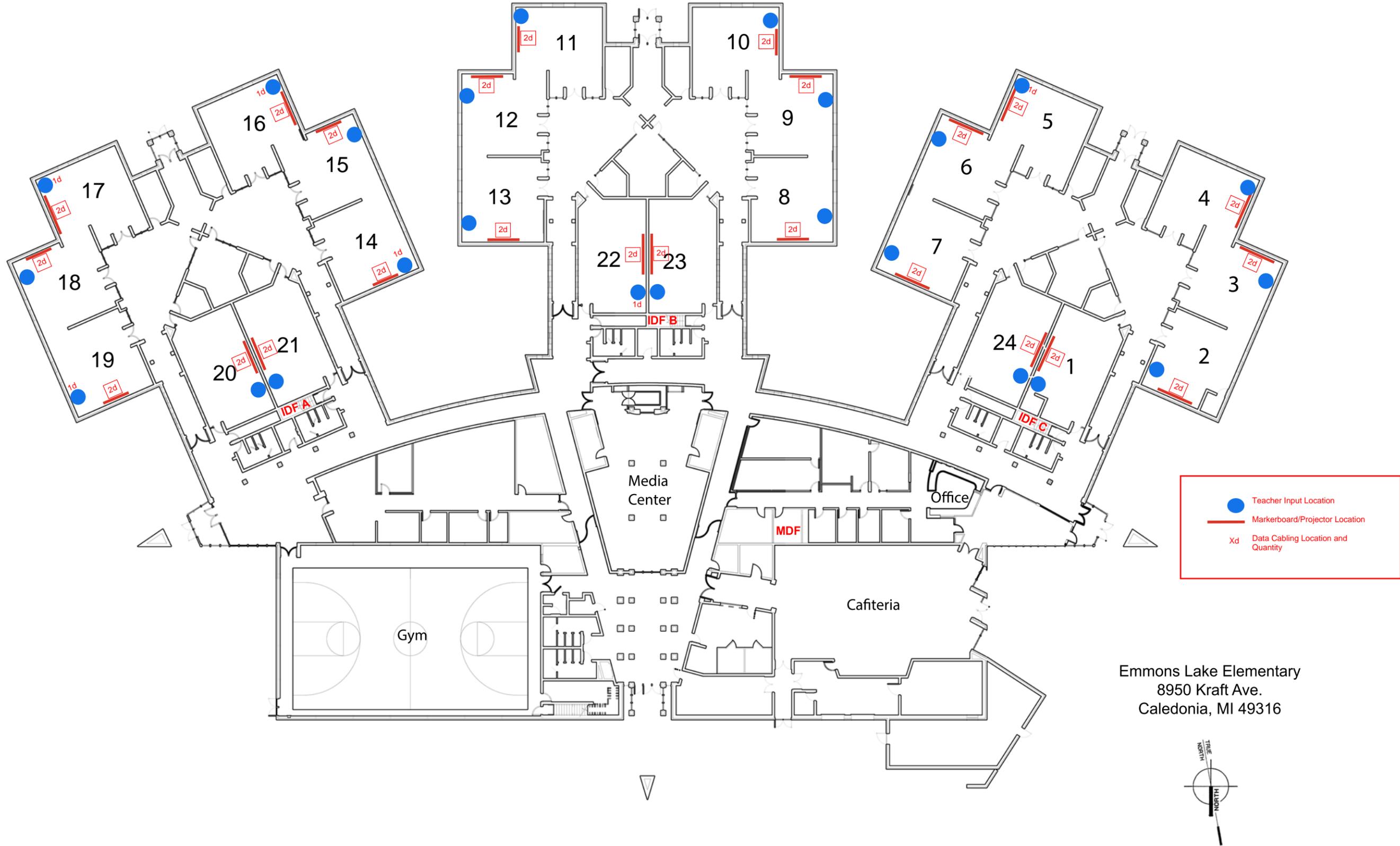


● Teacher Input Location
— Markerboard/Projector Location
Xd Data Cabling Location and Quantity

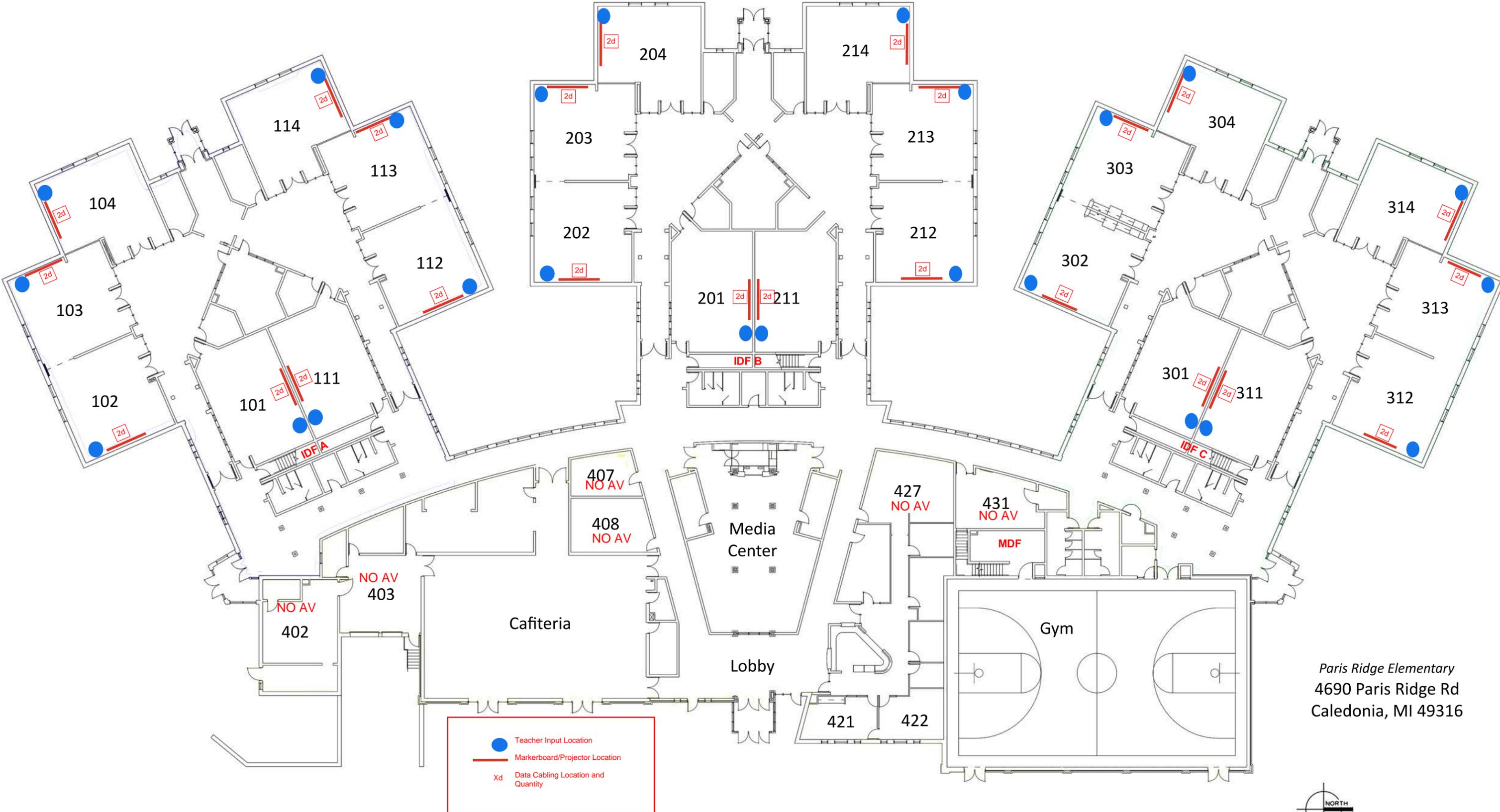
Early Childhood Center

Duncan Lake Middle School

Appendix A - Multimedia Diagrams

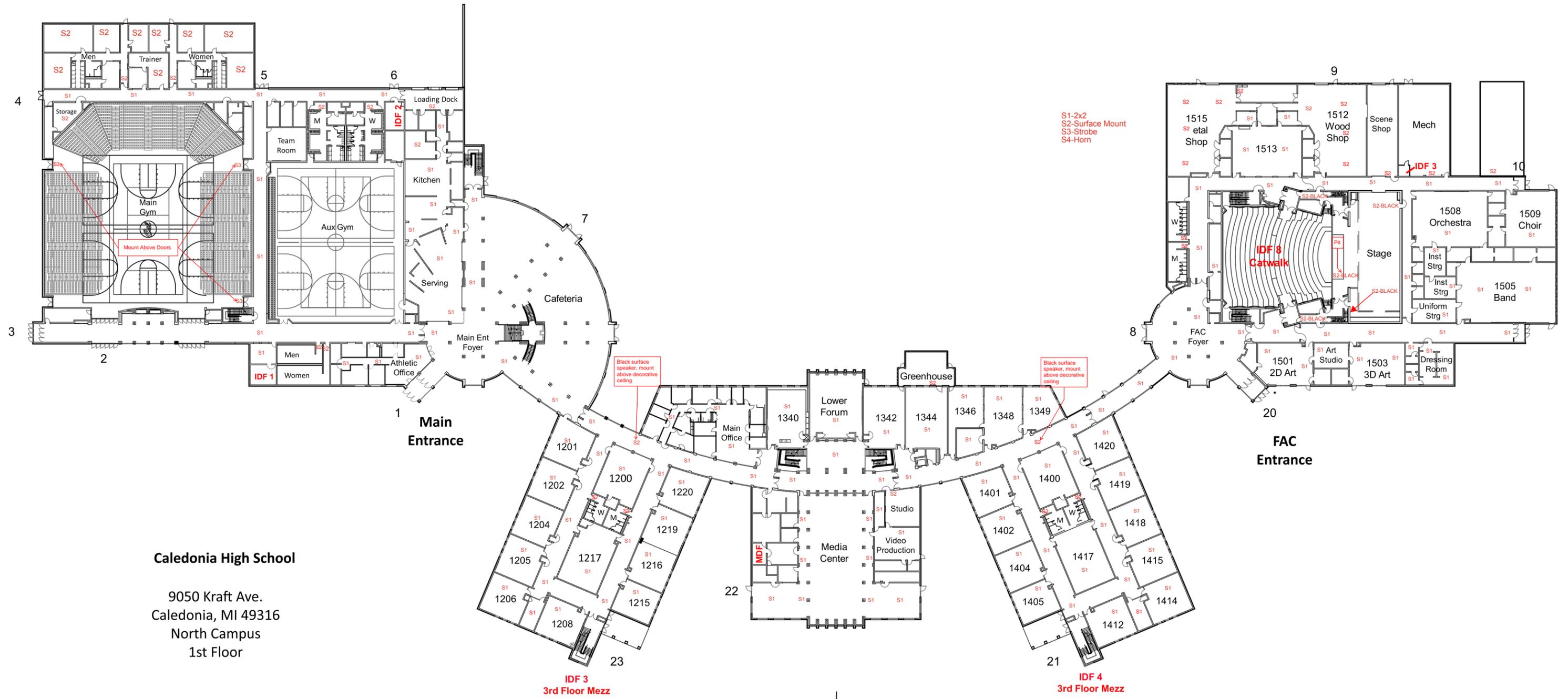


Appendix A - Multimedia Diagrams



Paris Ridge Elementary
4690 Paris Ridge Rd
Caledonia, MI 49316

Appendix B - Public Address Diagrams



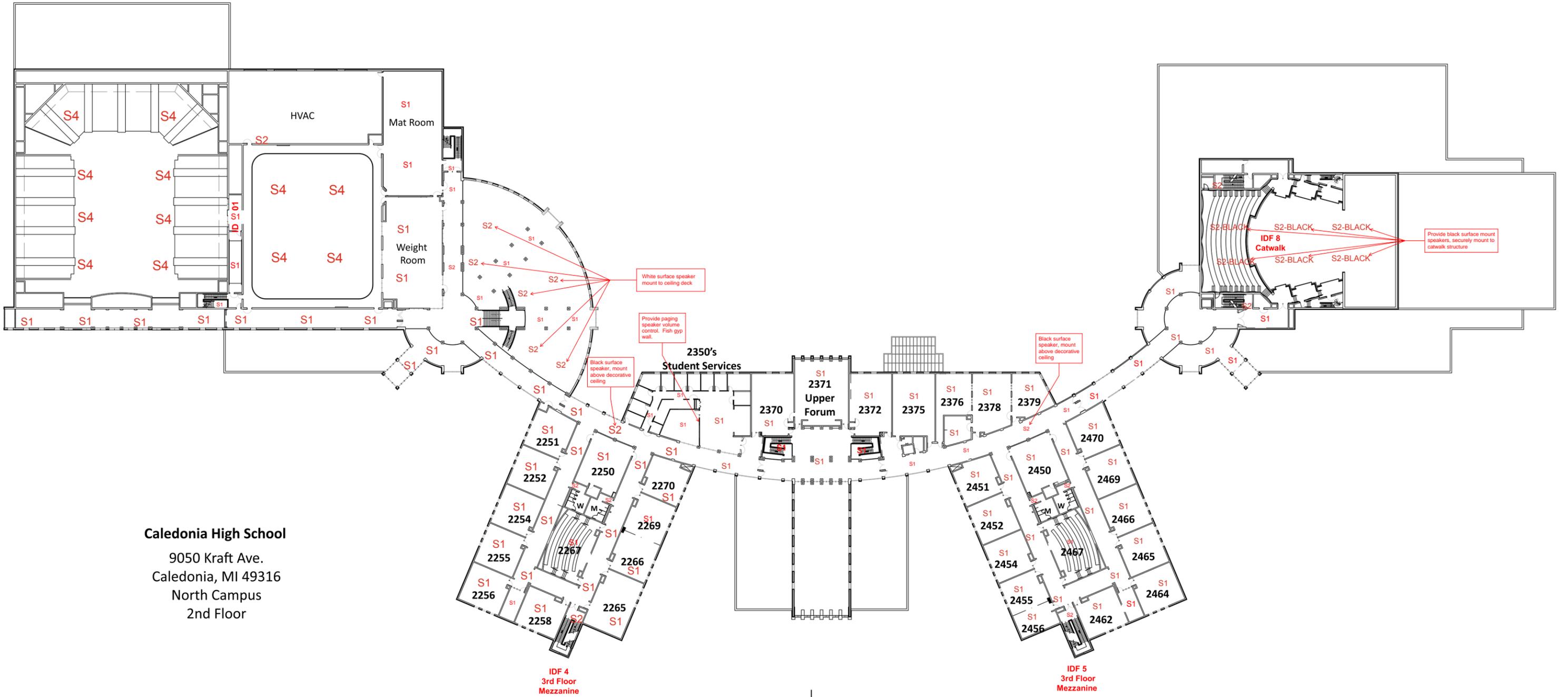
Caledonia High School

9050 Kraft Ave.
Caledonia, MI 49316
North Campus
1st Floor

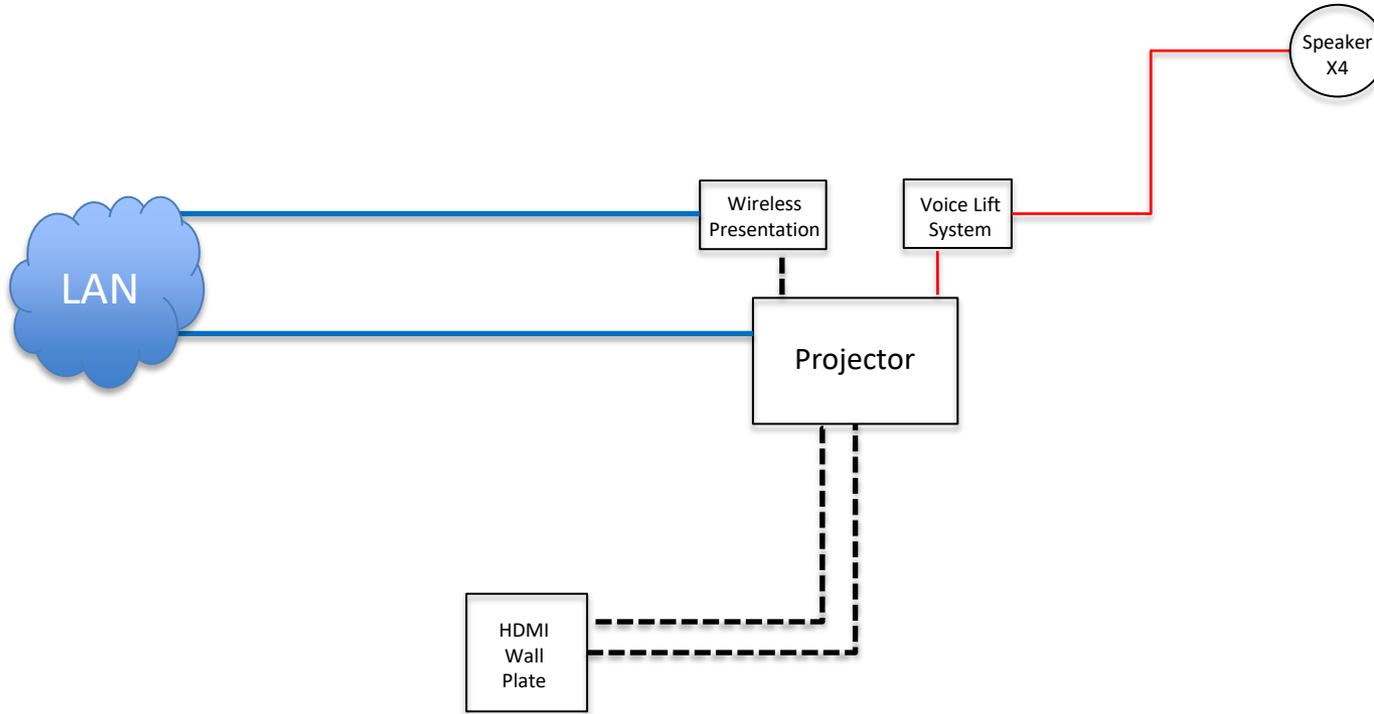


Appendix B - Public Address Diagrams

- S1-2x2
- S2-Surface Mount
- S3-Strobe
- S4-Horn



Appendix C - Classroom Multimedia System Connection Line Diagram



Legend

Network Cable – to LAN



HDMI



Audio



Caledonia Community Schools

Appendix D: Multimedia Equipment Schedule

	Long Throw Projector	Short Throw Projector	Lightspeed	Kramer VIA	Speakers	Document Camera	8' Manual Screen	Markerboard	Raceway
Caledonia Elementary	1	20	21	21	0	21	1	See Building Schedule	1
ECC (at Duncan Lake MS)	0	15	15	15	52	15	0	See Building Schedule	13
Emmons Lake Elementary	0	24	24	24	0	24	0	See Building Schedule	7
Paris Ridge Elementary	0	24	24	24	0	24	0	See Building Schedule	0
TOTAL	1	83	84	84	52	84	1		21

Caledonia Elementary

Room #	Long Throw Projector	Short Throw Projector	Lightspeed	Kramer VIA	Speakers	Document Camera	8' Manual Screen	Markerboard	Raceway	Notes
3	0	0	0	0	0	0	0		0	No new AV
4	0	1	1	1	0	1	0		0	
5	0	1	1	1	0	1	0		0	
6	0	1	1	1	0	1	0		0	
7	0	1	1	1	0	1	0		0	
9	0	1	1	1	0	1	0		1	Needs new raceway, remove old
10	0	1	1	1	0	1	0		0	
11	0	1	1	1	0	1	0		0	
12	0	1	1	1	0	1	0		0	
13	0	1	1	1	0	1	0		0	
14	0	1	1	1	0	1	0		0	Center projector as close as possible to middle of room
15	0	0	0	0	0	0	0		0	No new AV, remove existing AV equipment
16	1	0	1	1	0	1	1		0	Leave existing audio system
20	0	1	1	1	0	1	0		0	
21	0	1	1	1	0	1	0		0	
23	0	1	1	1	0	1	0		0	
24	0	1	1	1	0	1	0		0	
25	0	1	1	1	0	1	0		0	
26	0	1	1	1	0	1	0	12'	0	Add 12' whiteboard, cut into tackboard
27	0	1	1	1	0	1	0	12'	0	Add 12' whiteboard, cut into tackboard
28	0	1	1	1	0	1	0		0	
29	0	1	1	1	0	1	0		0	
30	0	1	1	1	0	1	0		0	
31	0	0	0	0	0	0	0		0	No new AV
	1	20	21	21	0	21	1		1	

Emmons Lake Elementary

Room #	Long Throw Projector	Short Throw Projector	Lightspeed	Kramer VIA	Speakers	Document Camera	8' Manual Screen	Markerboard	Raceway	Notes
1	0	1	1	1	0	1	0		0	
2	0	1	1	1	0	1	0		0	
3	0	1	1	1	0	1	0		0	
4	0	1	1	1	0	1	0		0	
5	0	1	1	1	0	1	0		1	Needs new raceway, remove old
6	0	1	1	1	0	1	0		0	
7	0	1	1	1	0	1	0		0	
8	0	1	1	1	0	1	0		0	
9	0	1	1	1	0	1	0		0	
10	0	1	1	1	0	1	0		0	
11	0	1	1	1	0	1	0		0	
12	0	1	1	1	0	1	0		0	
13	0	1	1	1	0	1	0		0	
14	0	1	1	1	0	1	0		1	Needs new raceway, remove old
15	0	1	1	1	0	1	0		1	Needs new raceway, remove old
16	0	1	1	1	0	1	0		1	Needs new raceway, remove old
17	0	1	1	1	0	1	0		1	Needs new raceway, remove old
18	0	1	1	1	0	1	0		0	
19	0	1	1	1	0	1	0		1	Needs new raceway, remove old
20	0	1	1	1	0	1	0		0	
21	0	1	1	1	0	1	0		0	
22	0	1	1	1	0	1	0		1	Needs new raceway, remove old
23	0	1	1	1	0	1	0		0	
24	0	1	1	1	0	1	0		0	
	0	24	24	24	0	24	0		7	

Paris Ridge Elementary

Room #	Long Throw Projector	Short Throw Projector	Lightspeed	Kramer VIA	Speakers	Document Camera	8' Manual Screen	Markerboard	Raceway	Notes
101	0	1	1	1	0	1	0		0	
102	0	1	1	1	0	1	0		0	
103	0	1	1	1	0	1	0		0	
104	0	1	1	1	0	1	0		0	
111	0	1	1	1	0	1	0		0	
112	0	1	1	1	0	1	0		0	
113	0	1	1	1	0	1	0		0	
114	0	1	1	1	0	1	0		0	
201	0	1	1	1	0	1	0		0	
202	0	1	1	1	0	1	0		0	
203	0	1	1	1	0	1	0		0	
204	0	1	1	1	0	1	0		0	
211	0	1	1	1	0	1	0		0	
212	0	1	1	1	0	1	0		0	
213	0	1	1	1	0	1	0		0	
214	0	1	1	1	0	1	0		0	
301	0	1	1	1	0	1	0		0	
302	0	1	1	1	0	1	0		0	
303	0	1	1	1	0	1	0		0	
304	0	1	1	1	0	1	0		0	
311	0	1	1	1	0	1	0		0	
312	0	1	1	1	0	1	0		0	
313	0	1	1	1	0	1	0		0	
314	0	1	1	1	0	1	0		0	
402	0	0	0	0	0	0	0		0	No new AV
403	0	0	0	0	0	0	0		0	No new AV
407	0	0	0	0	0	0	0		0	No new AV
408	0	0	0	0	0	0	0		0	No new AV
427	0	0	0	0	0	0	0		0	No new AV
431	0	0	0	0	0	0	0		0	No new AV
	0	24	24	24	0	24	0		0	

Duncan Lake - ECC

Room #	Long Throw Projector	Short Throw Projector	Lightspeed	Kramer VIA	Speakers	Document Camera	8' Manual Screen	Markerboard	Raceway	Notes
102	0	1	1	1	4	1	0	12'	1	Needs new raceway, remove old
103	0	1	1	1	4	1	0	12'	1	
104	0	1	1	1	4	1	0		1	
106	0	1	1	1	4	1	0		1	Needs new raceway, remove old
107	0	1	1	1	0	1	0		0	
108	0	1	1	1	4	1	0		1	Needs new raceway, remove old
109	0	1	1	1	0	1	0		0	
110	0	1	1	1	4	1	0		1	Needs new raceway, remove old
111	0	1	1	1	4	1	0		1	Needs new raceway, remove old - no new data in raceway
112	0	1	1	1	4	1	0	8' MB - 4' Tackboard	1	Needs new raceway, remove old
113	0	1	1	1	4	1	0		1	Needs new raceway, remove old - Project onto right side of board.
117	0	1	1	1	4	1	0		1	
119	0	1	1	1	4	1	0		1	Needs new raceway, remove old
121	0	1	1	1	4	1	0		1	
123	0	1	1	1	4	1	0		1	
	0	15	15	15	52	15	0		13	

Appendix E - Multifunction Printer Equipment Schedule

Building	Lifetime Duty Cycle	Existing Copier Model	PPM	Color	Fax	Stapler	Hole Punch	Large Capacity Feeder (1500-sheet x2)	Finisher 1000-sheet	Side Feeder 3000-sheet	Finisher 4000-sheet	Booklet Finisher	Notes:
Administration Building	175,000 per month	KYTA3552ci	35	X		X							
Administration Building	100,000 per month	KYECM6635cidn	37	X	X								
Administration Building	250,000 per month	KYTA6002I	60			X	X	X	X				
Caledonia Elementary	100,000 per month	KYECM6535cidn	37	X	X								
Caledonia Elementary	175,000 per month	KYTA3552ci	35	X		X							
Caledonia Elementary	175,000 per month	KYTA4002I	40			X			X				
Caledonia Elementary	175,000 per month	KYTA4002I	40			X			X				
Caledonia Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Caledonia Elementary	450,000 per month	KYTA8002I	80			X	X			X	X	X	
Duncan Lake - Early Childhood Center	175,000 per month	KYTA3552ci	35	X	X	X							
Duncan Lake - Early Childhood Center	250,000 per month	KYTA6002I	60			X	X	X	X				
Duncan Lake - Food Service	150,000 per month	KYTA3212i	32										
Duncan Lake - Food Service	100,000 per month	KYECM6635cidn	37	X									
Duncan Lake - Resource Center	350,000 per month	KYTA6551CI	65	X		X							
Duncan Lake - Technology	175,000 per month	KYTA3552ci	35	X	X	X							
Duncan Lake Middle School	175,000 per month	KYTA3552ci	35	X		X							
Duncan Lake Middle School	100,000 per month	KYECM6535cidn	37	X	X								
Duncan Lake Middle School	100,000 per month	KYECM6535cidn	37	X									
Duncan Lake Middle School	100,000 per month	KYECM6635cidn	37	X									
Duncan Lake Middle School	150,000 per month	KYECM3540idn	40										
Duncan Lake Middle School	150,000 per month	KYECM3540idn	40										
Duncan Lake Middle School	175,000 per month	KYTA4002I	40			X			X				
Duncan Lake Middle School	175,000 per month	KYTA4002I	40			X			X				
Duncan Lake Middle School	250,000 per month	KYTA6002I	60			X	X	X	X				
Duncan Lake Middle School	250,000 per month	KYTA6002I	60			X	X	X	X				
Duncan Lake Middle School	250,000 per month	KYTA6002I	60			X	X	X	X				
Duncan Lake Middle School	450,000 per month	KYTA8003i	80			X	X			X	X	X	
Dutton Elementary	100,000 per month	KYECM6535cidn	37	X	X								
Dutton Elementary	175,000 per month	KYTA3552ci	35	X		X							
Dutton Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Dutton Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Dutton Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Dutton Elementary	450,000 per month	KYTA8002I	80			X	X			X	X	X	
Emmons Lake Elementary	100,000 per month	KYECM6535cidn	37	X	X								
Emmons Lake Elementary	175,000 per month	KYTA3552ci	35	X		X							
Emmons Lake Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Emmons Lake Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Emmons Lake Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				

Appendix E - Multifunction Printer Equipment Schedule

Building	Lifetime Duty Cycle	Existing Copier Model	PPM	Color	Fax	Stapler	Hole Punch	Large Capacity Feeder (1500-sheet x2)	Finisher 1000-sheet	Side Feeder 3000-sheet	Finisher 4000-sheet	Booklet Finisher	Notes:
Emmons Lake Elementary	450,000 per month	KYTA8002I	80			X	X			X	X	X	
High School - North 1st Floor	100,000 per month	KYECM6535cidn	37	X									
High School - North 1st Floor	100,000 per month	KYECM6535cidn	37	X	X								
High School - North 1st Floor	100,000 per month	KYECM6535cidn	37	X	X								
High School - North 1st Floor	175,000 per month	KYTA3552ci	37	X		X			X				
High School - North 1st Floor	150,000 per month	KYECM3540idn	40										
High School - North 1st Floor	150,000 per month	KYECM3540idn	40										
High School - North 1st Floor	150,000 per month	KYECM3540idn	40										
High School - North 1st Floor	175,000 per month	KYTA4002I	40			X			X				
High School - North 1st Floor	175,000 per month	KYTA4002I	40			X			X				
High School - North 1st Floor	175,000 per month	KYTA4002I	40			X			X				
High School - North 1st Floor	175,000 per month	KYTA4002I	40			X			X				
High School - North 1st Floor	175,000 per month	KYTA4002I	40		X	X			X				
High School - North 1st Floor	250,000 per month	KYTA6002I	60			X	X	X	X				
High School - North 1st Floor	450,000 per month	KYTA8002I	80			X	X			X	X	X	
High School - North 1st Floor	450,000 per month	KYTA8002I	80			X	X			X	X	X	
High School - North 2nd Floor	175,000 per month	KYTA4002I	40			X			X				
High School - North 2nd Floor	175,000 per month	KYTA4002I	40			X			X				
High School - North 2nd Floor	250,000 per month	KYTA6002I	60		X	X	X	X	X				
High School - North 2nd Floor	250,000 per month	KYTA6002I	60			X	X	X	X				
High School - North 2nd Floor	250,000 per month	KYTA6002I	60			X	X	X	X				
High School - South 1st Floor	175,000 per month	KYTA3552ci	35	X		X			X				
High School - South 1st Floor	175,000 per month	KYTA3552ci	35	X		X			X				
High School - South 1st Floor [1]	150,000 per month	KYECM3540idn	40										
High School - South 1st Floor	175,000 per month	KYTA4002I	40			X			X				
High School - South 1st Floor	175,000 per month	KYTA4002I	40			X			X				
High School - South 1st Floor	250,000 per month	KYTA6002I	60			X	X	X	X				
High School - South 1st Floor	450,000 per month	KYTA8002I	80			X	X			X	X	X	
High School - South 2nd Floor	175,000 per month	KYTA4002I	40			X			X				
High School - South 2nd Floor	250,000 per month	KYTA6002I	60			X	X	X	X				
Kettle Lake Elementary	100,000 per month	KYECM6535cidn	37	X	X								
Kettle Lake Elementary	175,000 per month	KYTA3552ci	35	X		X			X				
Kettle Lake Elementary	175,000 per month	KYTA4002I	40			X			X				
Kettle Lake Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Kettle Lake Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Kettle Lake Elementary	450,000 per month	KYTA8002I	80			X	X			X	X	X	
Kraft Meadows Intermediate School	175,000 per month	KYTA3552ci	35	X		X			X				

Appendix E - Multifunction Printer Equipment Schedule

Building	Lifetime Duty Cycle	Existing Copier Model	PPM	Color	Fax	Stapler	Hole Punch	Large Capacity Feeder (1500-sheet x2)	Finisher 1000-sheet	Side Feeder 3000-sheet	Finisher 4000-sheet	Booklet Finisher	Notes:
Kraft Meadows Intermediate School	100,000 per month	KYECM6535cidn	37	X	X								
Kraft Meadows Intermediate School	175,000 per month	KYTA4002I	40			X			X				
Kraft Meadows Intermediate School	175,000 per month	KYTA4002I	40			X			X				
Kraft Meadows Intermediate School	175,000 per month	KYTA4002I	40			X			X				
Kraft Meadows Intermediate School	175,000 per month	KYTA4002I	40			X			X				
Kraft Meadows Intermediate School	175,000 per month	KYTA4002I	40			X			X				
Kraft Meadows Intermediate School	250,000 per month	KYTA6002I	60			X	X	X	X				
Kraft Meadows Intermediate School	250,000 per month	KYTA6002I	60			X	X	X	X				
Kraft Meadows Intermediate School	250,000 per month	KYTA6002I	60			X	X	X	X				
Kraft Meadows Intermediate School	450,000 per month	KYTA8002I	80			X	X			X	X	X	
Paris Ridge Elementary	100,000 per month	KYECM6535cidn	37	X									
Paris Ridge Elementary	175,000 per month	KYTA3552ci	35	X		X			X				
Paris Ridge Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Paris Ridge Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Paris Ridge Elementary	250,000 per month	KYTA6002I	60			X	X	X	X				
Paris Ridge Elementary	450,000 per month	KYTA8002I	80			X	X			X	X	X	
TMC Operations	175,000 per month	KYTA4002I	35	X		X			X				Change to Color - use KYTA3552ci as base
TMC Transportation	175,000 per month	KYTA3552ci	35	X		X			X				