

March 16, 2020

Request for Proposal

Video Surveillance

TSD Bid # 9900

Troy School District

4420 Livernois

Troy, MI 48098

Prepared by

Convergent Technology Partners, LLC

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Swartz Creek, MI 48373

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TROY SCHOOL DISTRICT

TABLE OF CONTENTS

SCHEDULE OF EVENTS..... 3
BID PROPOSAL FORM..... 4
COST ANALYSIS WORKSHEET..... 8
UNIT PRICING..... 10
ALTERNATES 11
FAMILIAL DISCLOSURE AFFIDAVIT 12
BIDDING REQUIREMENTS & INSTRUCTION TO BIDDERS 14
COMMON WORK RESULTS FOR COMMUNICATIONS 27
FIRE STOPPING AND SEALING..... 38
STRUCTURED CABLING SYSTEMS..... 44
VIDEO SURVEILLANCE 53
SAMPLE CONTRACT..... 71

TROY SCHOOL DISTRICT

SCHEDULE OF EVENTS

The following is a projected schedule of events for this project. The schedule may change depending upon the results of the responses and a final schedule will be established prior to contracting with the Contractor.

EVENT	DATE
Bid Release	March 16, 2020
Mandatory Pre-bid meeting Date and time – 10:00 A.M. Services Building	March 19, 2020
Final Date and time for Questions - 12:00 P.M. EDT	March 25, 2020
Bid Due Date/time – 11:00 A.M. Services Building	April 1, 2020
Public Opening – Immediately after due date/time	
Contract Award	April 21, 2020
Project Kickoff – Week of	April 27, 2020
Earliest Project Start Date	May 4, 2020
Completion	August 28, 2020
System Training	September, 2020

TROY SCHOOL DISTRICT

BID PROPOSAL FORM

OWNER: Troy School District
Services Building – Technology Department
4420 Livernois
Troy, Michigan 48098
Attn: Beth Soggs, Technology Director

PROJECT: Surveillance System – Bid # 9900

NAME OF BIDDER: _____

BASE BID:

Lump sum bid for all work specified and shown on the drawings as indicated for base bid in the amount of:

_____ Dollars (\$ _____)

The Bid Proposal amount shall be shown in both words and figures. In the case of discrepancy, the amount shown in words shall govern.

BASE BID: The undersigned, having examined the Bid Documents and examined the conditions affecting the Work/Project, hereby proposes and agrees to furnish all of the labor, materials, and equipment and perform all work necessary to complete the Work/Project as required by the Bid Documents for the stipulated sum identified above and detailed in Supplemental A (Cost Analysis Worksheet). The Bid Documents set forth the terms and conditions upon which the Bidder will provide a "turnkey" solution for the installation and operation of the project for use by the Owner and represents and warrants that the design, operation and functionality of the project are in accordance with the Bid Documents. All prices provided by the Bidder on this Bid Proposal Form must include all cables, connectors, equipment etc. that are necessary to make the project fully operational for the intent and purpose stated in the Bid Documents

BID SECURITY

TROY SCHOOL DISTRICT

Enclosed herewith find (Certified Check)/ (Bid Bond) in the amount of \$_____ being five percent (5%) of the maximum Bid Proposal herein, made payable to Troy School District or naming Troy School District as obligee. The proceeds of which are to remain the property of Troy School District, if the Bidder does not, within ten (10) days after notice of the acceptance of Bid Proposal, enter into the Contract.

TAXES

Please identify the amount, if any, of this Bid Proposal that has been attributed to sales or use tax. If an amount has been attributed to such tax, please identify which components of the Bid to which the tax has been attributed.

SUBCONTRACTORS

Bidders must provide attach complete list of proposed subcontractors (one per discipline), if any are proposed to be utilized on the project. Listing two or more subcontractors per discipline will be grounds for disqualification.

EXCEPTIONS

Any Exceptions to the terms and conditions contained in the RFP or contract are identified below:

TROY SCHOOL DISTRICT

ADDENDA

This RFP incorporates the following Addenda:

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

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

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

BID PROPOSAL FORM SUPPLEMENTS:

The following Bid Form Proposal Supplements are attached hereto and are considered an integral part of this Bid Proposal Form:

- SUPPLEMENTAL A – Cost Analysis Worksheet
- SUPPLEMENTAL B – Unit Pricing
 - Includes BOM with installed unit pricing
- SUPPLEMENTAL C – Mandatory Alternates
- SUPPLEMENTAL D – Voluntary Alternates
- SUPPLEMENTAL E – Familial Disclosure Affidavit
- SUPPLEMENTAL F – Iran Economic Sanctions Act Compliance Affidavit

BIDDER NAME: _____

ADDRESS: _____

DATE: _____

TELEPHONE: _____

EMAIL ADDRESS: _____

TROY SCHOOL DISTRICT

If award is made to our firm based upon our Bid Proposal, we agree to enter into the form of Contract with the School District in accordance with this Request for Proposal, the contract and our Bid Proposal.

My signature certifies that the Bid Proposal as submitted complies with all terms and conditions as set forth in this Request for Proposal, unless specifically enumerated as an exception as part of this Bid Proposal Form.

I hereby certify that I am authorized to sign as a Representative for the Firm:

(Printed Name)

(Title)

(Authorized Signature)

TROY SCHOOL DISTRICT

COST ANALYSIS WORKSHEET

Note this form must be returned with bid submission, filled out completely and accurately or the bidder may be disqualified from consideration.

OWNER: Troy School District
 Services Building – Technology Department
 4420 Livernois
 Troy, Michigan 48098
 Attn: Beth Soggs, Technology Director

BIDDER: _____

ADDRESS: _____

BASE BID BREAKDOWN

	COMPONENT	Cost
Early Childhood Center (ECC) cameras, system, etc.	Material	
	Labor	
	Sub Total	
Elementary Schools cameras, cabling, systems, etc.	Material	
	Labor	
	Sub Total	
International Academy East cameras, cabling, systems, etc.	Material	
	Labor	
	Sub Total	

TROY SCHOOL DISTRICT

Middle Schools cameras, cabling, systems, etc.	Material	
	Labor	
	Sub Total	
	Performance and Payment Bond	
	Proposal Total	

Does the proposed Video Surveillance system meet the requirements for Perpetual Licenses and SSA?

Yes _____ No _____

If proposed system takes exception (Answered "No" to question above) to Perpetual Licenses and SSA clause, the bidder must provide the following information with the proposal, for the proposal to be considered:

Costs for both cameras and system	Years 2-4	Years 5-7	Years 8-10
Recurring Camera license (each)			
Anticipated Software upgrades (Major and Minor)			
Anticipated Firmware upgrades			
Anticipated Camera License upgrades			
Hardware conversion upgrades			
Maintenance/support fees or agreement			
Other costs to maintain the Video Surveillance system during the identified time periods			
Total			

UNIT PRICING

- 1) All bid proposals shall also include a detailed Bill of Materials that notes each item, part number, and installed unit price. Provide this Bill of Materials, attached to and submitted with the Bid Proposal. Bill of Materials pricing will be used for price revisions prior to award.
- 2) Provide installed unit pricing, which shall be considered firm pricing during the contract period and not subject to change, will be used to determine costs for additions and deletions during the contract period (after award). All unit pricing shall include all labor, materials, licenses, software, fees etc. The Owner reserves the right to adjust any or all quantities at any time.

UP1	Camera type A	\$
UP2	Camera type B	\$
UP3	Camera type C	\$
UP4	Camera type D	\$
UP5	Camera type E	\$
UP6	One Category 6 UTP cable, termination, testing including jack, housing and patch cords (Based on an average length of 225')	\$
UP7	Category 6 UTP patch panel	\$
UP8		\$

TROY SCHOOL DISTRICT

ALTERNATES

Mandatory Alternate 1: Provide cameras and system for the Former ITT Building (Cabling by others)

Add/Deduct _____ Dollars (\$) _____)

Mandatory Alternate 2: Add one (1) Type D camera at Boulan Park M.S. and Add one (1) Type D camera at Larson M.S. as shown on project drawings

Add/Deduct _____ Dollars (\$) _____)

Mandatory Alternate 3: Add 32Gb SD cards in all cameras

Add/Deduct _____ Dollars (\$) _____)

Mandatory Alternate 4: Revise storage for Static recording at 10FPS and recording on 50% Motion at 25FPS on all cameras – Include 25% additional storage

Add/Deduct _____ Dollars (\$) _____)

Mandatory Alternate 5:

Add/Deduct _____ Dollars (\$) _____)

TROY SCHOOL DISTRICT

FAMILIAL DISCLOSURE AFFIDAVIT

The undersigned, the owner or authorized officer of _____ (the "Bidder"), pursuant to the familial disclosure requirement provided in the Troy School District (the "School District") Request For Proposals, hereby represents and warrants that, except as provided below, no familial relationships exist between the owner or any employee of the Bidder, and any member of the Board of Education of the School District or the Superintendent of the School District.

List any Familial Relationships:

BIDDER:

By: _____

Title: _____

STATE OF MICHIGAN

COUNTY OF _____

This instrument was acknowledged before me on the ____ day of _____, 2020, by

_____.

, Notary Public

_____ County, Michigan

My Commission Expires: _____

Acting in the County of: _____

AFFIDAVIT OF COMPLIANCE – IRAN ECONOMIC SANCTIONS ACT

Michigan Public Act No. 517 of 2012

The undersigned, the owner or authorized officer of the below named applicant (the "Applicant"), pursuant to the compliance certification requirement provided in the Troy School District (the "School District") Request For Proposals (the "RFP"), hereby certifies, represents and warrants that the Applicant (including its officers, directors and employees) is not an "Iran linked business" within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 (the "Act"), and that in the event Applicant is awarded a contract as a result of the aforementioned RFP, the Applicant will not become an "Iran linked business" at any time during the course of performing the Work or any services under the contract.

The Applicant 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 School District's investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on a request for proposal for three (3) years from the date it is determined that the person has submitted the false certification.

APPLICANT:

Name of Applicant

By:

Title:

Date:

STATE OF Michigan

COUNTY OF _____)

This instrument was acknowledged before me on the ____ day of _____, _____, by

_____.

_____, Notary Public _____ County,

My Commission Expires: _____

Acting in the County of: _____

BIDDING REQUIREMENTS & INSTRUCTION TO BIDDERS

PART 1 - GENERAL

- 1.1 The Troy School District is seeking bids and proposals for a Video Surveillance System Refresh at the five buildings, and new cameras and system at thirteen Elementary Schools.
- 1.2 **Bid documents may be obtained from the purchasing page (under Departments, Business Services) of the District's web site at www.troy.k12.mi.us.**
- 1.3 **Due on or before date and time indicated on the schedule of events ("Due Date")**, the Owner will receive bid proposals for the project. The Owner will not consider or accept a bid proposal received after the due date for bid proposal submission. All bid proposals received after the due date will be returned by making them available to the respective Bidder, unopened, for said Bidder to pick-up at their sole cost and expense. Bid proposals shall be submitted to:

Troy School District

Services Building

4420 Livernois

Troy, Michigan 48098

Attn: Beth Soggs – Technology Director

1.4 PROPOSALS/QUOTES

- A. Bidders must submit a complete set of all bid documents as indicated herein. Proposals or bids that are incomplete or missing required documents will not be accepted. Proposals must consist of the original forms in the original format to be accepted.
- B. Three (3) "hard" copies and two (2) "soft" (electronic) copies on a USB "flash" drive of the proposals is to be submitted in sealed packaging, clearly marked: "VIDEO SURVEILLANCE SYSTEM" and shall be identified with the Bidder's name and address and the date and time of the bid proposal opening. The Owner is not responsible for any postal or delivery delays. No email, facsimile or other electronic bid proposals will be accepted.
- C. Proposals will be opened publicly on the time and date specified in Schedule of Events at the Owner's facility.

1.5 PROPOSAL FORMAT

- A. The Bid response shall be structured as follows in both the hard and electronic copies:
 1. Section 1 – Proposal Form, Submittal Letter, Executive Summary
 2. Section 2 – System/Solution Proposal, Bid Bond and Pricing
 3. Section 3 - Narratives, System Description, Information, and Brochures
 - a. Comprehensive Narrative/System Description of the proposed System/Solution
 - b. Information, Diagrams or Schematics supporting the System/Solution Narrative

TROY SCHOOL DISTRICT

- c. Bill of Material and installed pricing, Catalog Cut sheets, Brochures, Equipment Configuration
 4. Section 3 - Resume of Qualification, References
 - a. Bidder's Qualifications: (Company and proposed Staff)
 - 1) Company's Level of Manufacturer's Certification (Included in cover letter)
 - 2) Three (3) verifiable references demonstrating direct experience on recent systems of similar type and size, including contact names and phone numbers of projects that qualify
 - 3) Technical resumes of experience for the vendor's Project Manager and on-site installation supervisor who will be assigned to this project.
 - 4) A list of subcontractors and their training and certification
 5. Section 4 – Proposed Contracts
 - a. Maintenance Contract and pricing for consideration
 6. Section 5 – Alternate System/Solution Proposal (If Applicable)
 - a. Alternate solutions will be accepted provided the base bid requirements are met first. Alternate proposals must meet all base bid performance requirements to be accepted. The Owner may review alternate solutions but is under no obligation to consider or award them regardless of cost.
 - b. Comprehensive Narrative/System Description of the proposed Alternate System/Solution
 - c. Information, Diagrams or Schematics supporting the proposed Alternate System/Solution Narrative
 - d. Bill of Material and installed pricing, Catalog Cut sheets, Brochures, Equipment Configuration
- B. The "hard copy" Bids shall be submitted on 8 1/2" by 11" paper, single sided, single spaced using 10 to 12-point print, in 3 ring binders, clearly labeled to show the Bidder's name.
- C. The "soft copy" Bid shall be in the same structure as the "hard copy" Bids, bound in a .pdf file, submitted on an USB drive with the hard copies.
1. The electronic copy must be formatted in the same manner as the hard copy format, with separate PDFs per section, and contain an exact copy of the Hard Copy.

1.6 SECURITY

- A. The Bid Proposal shall be accompanied by a Bid Security of a certified check or cashier's check payable to the Owner or by a satisfactory Bid Bond Entity naming the Owner as the obligee and executed by the Bidder and a surety company authorized to do business in the State of Michigan, in an amount identified in the Instructions to Bidders. The check or amount of Bid Bond shall be forfeited to the Owner upon failure of the Contractor to enter into the Contract. The Contractor's Bid security will be retained until the Contractor has signed the contract and has furnished the required Certificates of Insurance and other required Bonds and documents required by the RFP. Bonds signed by an Attorney-In-Fact must be accompanied by a certified and effectively dated copy of their Power of Attorney.

TROY SCHOOL DISTRICT

- B. The Owner reserves the right to retain the Bid security of all Bidders until the Contractor enters into the contract or until ninety (90) days after bid opening, whichever is later. If the Contractor refuses to enter into the Contract, the Owner may retain their Bid Security as liquidated damages but not as a penalty.

1.7 PERFORMANCE AND LABOR AND MATERIAL PAYMENT BONDS

- A. At or prior to delivery of the signed Contract, the Owner will require the Contractor to secure and post a Labor and Material Payment Bond and a Performance Bond including bonding for all subcontractors, each in the amount of 100% of the Contract Sum including bonding for all subcontractors. Surety shall be a company incorporated in the United States and must appear on the U.S. Treasury Departments approved surety list and be adaptable to the Owner. The Contractor shall obtain such bonds in a manner consistent with Michigan law.

1.8 FAMILIAL DISCLOSURE AFFIDAVIT

- A. Each bid proposal must be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the bidder and any member of the board of education or the superintendent of troy school district. The board of education will not accept a bid proposal that does not include this sworn and notarized disclosure statement.

1.9 AFFIDAVIT OF COMPLIANCE – IRAN ECONOMIC SANCTIONS

- A. Each bid proposal must be accompanied by the Iran economic sanctions affidavit of compliance in compliance with Michigan public act no. 517 of 2012. The board of education will not accept a bid proposal that does not include this sworn and notarized disclosure statement.

1.10 RESERVATION OF RIGHTS

- A. The Owner reserves the right, in its sole and absolute discretion (for this provision and all other provisions contained in this RFP), to accept or reject, in whole or in part, any or all bid proposal with or without cause, to waive any irregularities or informalities in this RFP process or any bid proposal, and to award the contract to other than the low bidder, when in the opinion of the Owner, such action will best serve the Owner's interests.

1.11 WITHDRAWAL OF BID PROPOSALS/QUOTES

- A. Bid proposals submitted shall not be withdrawn and shall be irrevocable for a minimum period of ninety (90) calendar days following the due date for receipt of bid proposals set forth above.

1.12 REQUESTS FOR CLARIFICATION

- A. Bidders may request that the Owner clarify information contained in this RFP. All such requests must be made in writing via email to Mr. Eric Helsel, Convergent Technology Partners, at ehelsel@ctpartners.net. Requests for clarifications and inquiries may only be made via email.

1.13 CONTRACT

TROY SCHOOL DISTRICT

- A. The form of contract that the successful bidder (“contractor”) will be expected to sign with Troy School District is attached.

1.14 BOARD OF EDUCATION APPROVAL

- A. Implementation of the proposed project is fully contingent on the approval of the Troy School District Board of Education.

1.15 RESTRICTION ON COMMUNICATION

- A. From the issue date of this RFP until a Contractor is selected and the contract is awarded a prospective Contractor shall not communicate about the subject of this RFP or a Contractor’s bid proposal with the Owner, its Board of Education, or any individual member, administrators, faculty, staff, students, or employees, except for additional requests for clarification in accordance with the paragraph above.

1.16 RELEASE OF CLAIMS

- A. Each Bidder by submitting its Proposal releases the Owner from any and all claims arising out of, and related to, this RFP process and selection of a Contractor.

1.17 PROPOSAL COST

- A. Respondents of this RFP are responsible for any and all costs incurred by them or others acting on their behalf in preparing or submitting a bid proposal, or otherwise responding to this RFP, or any negotiations incidental to its bid proposal or this RFP.

1.18 COLLUSIVE BIDDING

- A. All Bidders certify that its bid proposal is made without any previous understanding, agreement or connection with any person, firm or corporation making a bid proposal for the same project and is in all respects fair, without outside control, collusion, fraud or otherwise illegal action.

1.19 INSURANCE REQUIREMENTS

- A. The contractor, and all their subcontractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted doing business in the state of Michigan and acceptable to the Owner. The requirements below should not be interpreted to limit the liability of the contractor:
 1. Workers’ compensation insurance, including employers’ liability coverage, in accordance with all applicable statutes of the state of Michigan.
 2. Commercial general liability insurance on an “occurrence basis” with limits of liability not less than \$2,000,000 per occurrence and aggregate. Coverage shall include, but not limited to, the following: (a) contractual liability (b) products and completed operations (c) independent contractors’ coverage (d) broad form general liability extensions or equivalent (e) explosion, collapse, and underground, if applicable.
 3. Automobile liability, including Michigan no-fault coverages, with limits of liability not less than \$1,000,000 per occurrence combined single limit for bodily injury, and

TROY SCHOOL DISTRICT

property damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

4. Additional insured: policy(ies) and coverages as described above, excluding workers' compensation insurance, shall include an endorsement stating the following shall be additional insureds: The Owner, all elected and appointed officials, all employees and volunteers, agents, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming the Owner as additional insured, coverage afforded is primary and any other insurance the Owner may have in effect shall be considered secondary and/or excess.
- B. Proof of insurance coverage: the contractor shall provide the Owner at the time the contracts are returned by him/her for execution a certificate of insurance as well as the required endorsements. In lieu of required endorsements, a copy of the policy sections, where coverage is provided for additional insured and cancellation notice, may be acceptable. Copies of all policies mentioned above shall be furnished, if so requested.

1.20 DEFINITIONS

- A. Bid Documents are defined as the Instructions to Bidders, Schedule of Events, this RFP, including any Supplemental forms, Attachments, Appendices, Specifications, Drawings and Other Information as noted herein (Narratives, diagrams, etc.), Addenda and the Contract.
- B. Addenda are written or graphic instruments issued prior to the due date of bid proposals which modify or interpret the Bid Documents by additions, deletions, clarifications or corrections. All Addenda issued to Bidders prior to the due date of bid proposals shall become part of the Bid Documents and all bid proposals are to include the Project/Work therein described. Each Bid Proposal submitted shall list all Addenda that have been received prior to the due date of bid proposals.
- C. As used in these Instructions to Bidders, the term "Bid Proposal" means a bid proposal prepared and submitted in response to this RFP.
- D. As used in these Instructions to Bidders, the term "PSC" refers to the Professional Service Contractor and means Convergent Technology Partners and its assigned representative.
- E. Throughout this RFP and Contract, the "Owner" will be used to refer to Troy School District and bidders submitting bid proposals will be referred to as "Bidders" or "Vendors" and a successful Bidder or Vendor will be referred to as a "Contractor".
- F. Throughout this RFP and Contract the Project may also be referred to as "VMS", "Project", "Surveillance Project" or "Surveillance System".

1.21 BIDDER'S REPRESENTATION

- A. Each Bidder, by submitting a Bid Proposal, represents that the Bidder has read and understands the Bid Documents and is familiar with the local conditions under which the project is to be performed. Bidders will be held to have compared the Sites with Bid Documents and have satisfied themselves to all conditions affecting the execution of the Work/Project.

1.22 EXAMINATION OF BID DOCUMENTS

TROY SCHOOL DISTRICT

- A. A mandatory bidder's conference will be held March 19th at 10:00 A.M. for answering questions from the Bidders and reviewing the site and existing conditions/system. The location of the Bidder's conference is:

Troy School District
Services Building
4420 Livernois
Troy, Michigan 48098

- B. Before submitting a Bid Proposal, each Bidder shall examine the RFP documents carefully and shall read the Specifications and the Bid Documents. Each Bidder shall gather complete information prior to bidding as to existing conditions and limitations under which the Work/Project is to be performed and shall include in its Bid Proposal a sum to cover the cost of items necessary to perform the Work/Project as set forth in the Bid Documents.
- C. No allowance or additional fees will be made to a Bidder because of lack of such examination or knowledge. The submission of a Bid Proposal will be considered as conclusive evidence that the Bidder has made such examination. An on-site-inspection of the Sites during the Bidder's Conference will be for all Bidders and their subcontractors, if any. Vendors may use subcontractors in connection with the Work/Project performed under this RFP provided the Owner has approved the subcontractors. In using subcontractors, the Vendor agrees to be responsible for all their acts and omissions to the same extent as if the subcontractors were employees of the Vendor.

1.23 REQUESTS FOR CLARIFICATION

- A. Bidders may request that the Owner clarify information contained in this RFP. All such requests must be made in writing via email to Eric Hesel, Convergent Technology Partners, at ehesel@ctpartners.net. Only a written interpretation or correction by Addendum shall be binding on Bidders. No explanations or interpretations requested or made orally will be considered binding. All questions will be responded to in writing. Requests for Clarifications and inquiries may only be made via email – **please note in the subject line the RFP name**. The deadline for all Requests for Clarification is per the Schedule of Events. The aggregated answers to all Requests for Clarification will be provided in an addendum to the RFP which will be issued and posted on the District's web site at www.troy.k12.mi.us no less than three (3) business days prior to the bid opening date for all potential proposers to view.

1.24 BIDDING PROCEDURES

- A. All Bids Proposal must be submitted on the Bid Proposal Forms provided as part of the Bid Documents and in accordance with the Advertisement to Bid and Instructions to Bidders. Bidders must provide a complete list of proposed subcontractors (one per discipline) as indicated on the Bid Forms. Listing two or more subcontractors per discipline will be grounds for disqualification.
- B. All Bidders must provide a proposal for the Base Bid that meets or exceeds the specifications set forth in this RFP. However, all Bidders may suggest Alternates if it is felt that the alternate proposal better suits the intent of this RFP. Any Alternate must be listed

TROY SCHOOL DISTRICT

as such with separate pricing sheets. Any variance of the feature/functionality of the Base Bid must be identified in any Alternates proposed.

- C. Prior to the due date for bid proposals, all Addenda will be available for inspection wherever the Bid Documents are kept available for that purpose. No Addendum will be issued later than three (3) days prior to the due date for bid proposals. It is each Bidders responsibility to ascertain prior to submitting a Bid Proposal that he/she has received all Addenda issued and shall acknowledge their receipt in their Bid Proposal Form.
- D. All Bids must be signed as follows:
 - 1. Corporations: Signature of an officer of the firm who is authorized to bind the corporation.
 - 2. Partnerships: Signature of one partner who is authorized to bind the firm and all its Partners.
 - 3. Bids submitted by Joint Ventures shall be signed by one of the Joint Ventures and shall be accompanied by a certified copy of the Power of Attorney authorizing the individual signing to bind all the Joint Ventures. If a certified copy of the Joint Venture's certificate submitted with the Bid Proposal indicates that all Joint Ventures have signed, no authorization is required.
 - 4. Individuals signing on own behalf: No authorization is required.
 - 5. Individual signing on behalf of another: Power of Attorney or comparable evidence of authority shall accompany Bid.
- E. Bid proposals shall be prepared on unaltered Bid Forms which are a part of this RFP. Beyond listing of exceptions, bidders shall make no additional stipulations on the Bid Form nor qualify the Bid Proposal in any other manner. Unauthorized conditions, limitations, or provisions attached to the Bid Proposal will be cause for rejection of the Bid Proposal. If alterations by erasure or interlineations are made for any reason, explain over such erasure or interlineations with a signed statement from the Bidder. No additional charges, other than those listed on the Bid Proposal Form and other Bid submissions, shall be made. Prices quoted will include verification/coordination of order, all costs for shipping, delivery to all Sites, insurance, payment and performance bonds, unpacking, setup, installation, operation, testing, cleanup, training and all other requirements contained in the bid documents.
- F. Bids shall be submitted in a sealed envelope. Identified on the face of the envelope:
 - 1. Project name
 - 2. Name and address of Bidder
 - 3. Notation "VIDEO SURVEILLANCE SYSTEM Bid #9897"
- G. No responsibility shall attach to the PSC, the Owner, or the authorized representatives of either one, for the premature opening of any Bid Proposal which is not properly addressed, delivered and/or identified. In such event, that Bid Proposal will not be considered, and the Bidder will be automatically disqualified from consideration.

TROY SCHOOL DISTRICT

- H. Negligence in preparation, improper preparation, errors in and/or omissions in the Bid Proposal shall not relieve the Bidder from fulfillment of all applicable obligations and requirements of contained in the Bid Documents.
- I. The Owner or PSC in making copies available of the Bid Documents to Bidders do so only for the purpose of obtaining bid proposals on the project and do not confer a license or grant of use to a Bidder for any other purpose.
- J. All Bidders must complete, sign and return the attached "FAMILIAL DISCLOSURE AFFIDAVIT" and "Iran Sanctions Affidavit" with their Bid Proposal.
- K. Bidders must include a Bill of Material (BOM), along with installed line item pricing for all components proposed, including maintenance and support, with the total listed where indicated in the Bid Proposal Forms. Failure to provide the BOM with line item pricing may result in disqualification of the Bid proposal.
- L. The Owner considers this RFP legally binding and will require that this Request for Proposal and the Bid Proposal be incorporated by reference into any subsequent Contract between the Contractor and the Owner. It should be understood by the Bidder that this means that the Owner expects the Bidder to satisfy all requirements and specifications contained in the RFP. Any exceptions to the RFP must be explicitly noted in the Bid Proposal. Lack of listing all exceptions will be considered acceptance of all specifications as presented in this RFP.

1.25 SUBSTITUTIONS

- A. Each Bid Proposal shall be based upon equipment described in the Bid Documents.
- B. In addition to the Base Bid, the submission of voluntary alternates is acceptable. If a voluntary alternate is submitted for consideration, it shall be expressed on the Bid Form as an "add" or "deduct" amount from the Base Bid. If a voluntary alternate is submitted, the Bidder shall also submit enough information in the form of drawings, specifications, and a complete description of the proposed substitute, the cost savings or advantages. Additionally, provide the name of the material or equipment for which it is substituted, drawings, cuts, performance and test data and any other data or information necessary for a complete evaluation, enough for analysis of the alternate. The Owner reserves the right to unilaterally accept or reject, in whole or in part, any voluntary alternates.

1.26 CONSIDERATION OF BIDS

- A. The Bidder acknowledges the right of the Owner to accept or reject any or all Bid proposals, in whole or in part, with or without cause, to waive any irregularities or informalities in this RFP process or any Bid Proposal, and to award the contract to other than the low bidder. In addition, the Bidder recognizes the right of the Owner to reject a Bid Proposal:
 - 1. If the Bidder fails to furnish any required Bid Security, or to submit the data required by the Bid Documents
 - 2. If the Bid Proposal is in any way incomplete (see checklist on bid form) or irregular
 - 3. If the Bidder's performance was unsatisfactory under a prior contract for the construction, repair, modification, or demolition of a facility with the Owner, or a

TROY SCHOOL DISTRICT

contractor in privacy of contract with the Owner, which was funded, directly or indirectly, by the Owner

- B. The Owner shall have the right to accept alternates in any order or combination and to determine the lowest qualified Bid based on the sum of the base bid and the alternates accepted.
- C. Once the contract is awarded to the Contractor, the contract is contingent upon Owner's Board approval and the Contractor providing the Owner with all documents required by the RFP prior to commencement of the Work/Project (i.e. Insurance Certificates, etc.). Further, the Owner reserves the unrestricted right to modifying the contract amount by changing the scope of Work/project and/or components. Any such action will be taken before specific work on a building or on a project component has commenced. Contract amount shall be reduced or increased based on the unit pricing values.
- D. Bidders to whom an award of a contract is under consideration shall submit to the Owner upon his/her request a properly executed Contractor's Qualification Statement, AIA Document A305 or other information format specified by the Owner.

1.27 TAXES

- A. Installation services for the tangible personal property purchased by the Owner is not subject to sales taxation. Moreover, the Owner is exempt from taxation on all tangible personal property purchased by the Owner for its use and consumption, however, this exemption would not apply to any materials required under the Bid Documents that are deemed to be a component of a construction/improvement project to the Owner's Sites/Facilities. All prices submitted on the Bid Proposal Form shall be inclusive of all applicable taxes.

1.28 PERMITS AND FEES

- A. All prices submitted on the Bid Proposal Form shall be inclusive of any and all Applicable and/or required permits and fees.

1.29 MICHIGAN RIGHT-TO-KNOW LAW

- A. All Contractors must conform to the provisions of the Michigan Right-To-Know Law, 1986 PA 80, which requires employers to:
 - 1. Develop a communication program designed to safeguard the handling of hazardous chemicals through labeling of chemical containers, and development and availability of Material Safety Data Sheets.
 - 2. Provide training for employees who work with these chemicals
 - 3. Develop a written hazard communications program.
- B. The law also provides for specific employee rights. These include:
 - 1. The right to be notified (by employer or Contractor posting) of the location of Safety Data Sheet (SDS)
 - 2. The right to be notified (by employer or Contractor posting) of new or revised SDS no later than five working days after receipt

TROY SCHOOL DISTRICT

3. The right to request copies of SDS from their employers or Contractors.
- C. Provisions of Michigan's Right-to-Know Law may be found in those sections of the Michigan Occupational Safety and Health Act (MIOSHA), which contain Right-to-Know provisions, and the Federal Hazard Community Standard, which is part of the MIOSHA Right-to-Know Law through adoption.

1.30 QUALIFICATIONS

- A. The system Contractor must be a factory-authorized representative or distributor of equipment used in the system(s) bid. Further, this contractor must have a minimum of five years of experience in the specific application of the equipment proposed for these systems.
- B. The contractor shall maintain permanent service facilities within 150 miles of the owner's facility capable of furnishing adequate inspection and service to the system. The facilities shall include a permanent source of factory trained service technicians experienced in servicing the associated system bid and shall provide warranty and manufacturer suggested maintenance service to afford the Owner maximum coverage. The contractor shall also provide a central source of support to guarantee immediate answers to Owner's problems and questions.
 1. The Vendor shall maintain at their facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.
- C. The contractor shall be experienced in all aspects of this work and shall be required to demonstrate direct experience on recent systems of similar type and size. The contractor shall own and maintain tools and equipment necessary for successful installation and testing of the systems bid and have personnel who are trained and certified in the use of such tools and equipment.

1.31 WITHDRAWAL OF BIDS

- A. A Bidder may withdraw its Bid Proposal by written request from an authorized Bidder representative, at any time prior to the due date of bid proposals.
- B. No Bidder may withdraw a Bid Proposal for a period of ninety (90) calendar days, following the due date for receipt of bid proposals, and all bid proposals shall be subject to acceptance by the Owner during this ninety (90) day period.

1.32 EXECUTION OF CONTRACT

- A. The Contractor to whom the contract is awarded shall, within ten (10) calendar days after Notice of Award and receipt of the contract from the Owner, execute and deliver required copies to the Owner.
- B. At or prior to delivery of the executed Contract, the Contractor to whom the contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Bid Documents and such Labor and Materials Payment Bonds and Performance Bond as are required by Owner and any other documents required by this RFP.

- C. **The Owner shall approve the provided Bonds and Certificates of Insurance before the Contractor may proceed with the Work/Project.** Failure or refusal to provide Bonds, Certificates of Insurance or any other documents required by this RFP in a form(s) satisfactory to the Owner shall subject the Contractor to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

1.33 POST BID INFORMATION

- A. Bid Form(s) shall be submitted as indicated in the Bid Documents. The Bid Form(s) requires all proposed subcontractors for the project to be named, no more than one per discipline.

1.34 TIME OF COMPLETION

- A. The Bidder agrees to complete the Work within the timeframes listed in the Schedule of Events.

1.35 EQUAL OPPORTUNITY

- A. The Contractor and all its subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin.

PART 2 - PRODUCT – NOT USED

PART 3 - EXECUTION

3.1 SITE REQUIREMENTS

- A. No systems will not be taken off-line or removed from service during normal working hours or scheduled board room usage without coordination of the Owner's representative, and the staff of the affected building. Arrangements must be made by the Contractor to coordinate any such activities.
- B. Applicable Codes, Standards, Best Practices, Industry Norms

3.2 QUALITY ASSURANCE

- A. Project Manager
 - 1. The Contractor will provide a full-time Project Manager who will act as a single point of contact for all activities regarding this Project. The Project Manager must be a management employee and will not be involved in personally performing craft installation Work
 - 2. The Project Manager is required to attend necessary meetings for coordination.
 - 3. The Project Manager will be required to make on-site decisions regarding the scope of the Work and any changes required by the Work.
 - 4. The Project Manager will be totally responsible for all aspects of the Work and shall have the authority to make immediate decisions regarding implementation or Owner approved changes to the Work.
- B. Compliance with Laws and Regulations
 - 1. The Contractor performance of the Work shall comply with all applicable federal, state, and local laws, rules, and regulations and Owner policies, procedure, rules and

TROY SCHOOL DISTRICT

regulations. The Contractor shall give required notices, shall procure necessary governmental licenses and inspections, and shall pay without burden to the Owner, all fees and charges in connection therewith unless specifically provided otherwise. In the event of violation, the Contractor shall pay all fines and penalties including attorney's fees and other defense costs and expenses in connection therewith.

C. Federal Communications Commission

1. Equipment requiring FCC registration or approval shall have received such approval and shall be appropriately identified.

D. Codes, Standards, and Ordinances

1. All Work shall conform to the latest edition of the National Electrical Code®, Michigan Electrical Code, the Building Code, and all local codes and ordinances, as applicable. ANSI/TIA/EIA-568 and ANSI/TIA/EIA-569 shall be adhered to during all installation activities. Methodologies outlined in the latest edition of the BICSI Telecommunications Distribution Methods Manual shall also be used during all installation activities. Should conflicts exist with the foregoing, the authority having jurisdiction for enforcement will have responsibility for making interpretation. The Contractor is wholly responsible to meet or exceed all codes, standards, regulation, manufacturer installation standards and industry best practices.

3.3 SAFETY

- A. The Contractor shall take the necessary precautions and bear the sole responsibility for the safety of the methods employed in performing the Work. The Contractor shall at all times comply with the regulations set forth by federal, state, and local laws, rules, and regulations concerning "OSHA" and all applicable state labor laws, regulations, and standards. The Contractor shall indemnify and hold harmless the Owner from and against all liabilities, suits, damages, costs, and expenses (including attorney's fees and court costs) that may be imposed on the Owner because of the Contractor, or its subcontractor, or supplier's failure to comply with the regulations stated herein.

3.4 INSPECTION, ACCEPTANCE, AND TITLE

- A. Inspection and Acceptance will be upon successful installation unless otherwise provided. Title to/or risk of loss or damage to all items shall be the responsibility of the Contractor until acceptance by the Owner, unless loss or damage results from negligence by the Owner. If the materials or services supplied to the Owner are found to be defective or do not conform to the specifications, the Owner reserves the right to cancel the Contract upon written notice to and return products at the Contractor's expense, based upon the terms of the Contract.
 1. When the Owner is referred to in this section of the RFP relative to inspections, the Owner has designated the PSC as the party to perform such inspections on behalf of the Owner. Notwithstanding the above, the Owner may also perform such inspections along with the PSC.
- B. The Owner shall at all times have access to the Work wherever it is in preparation or in progress and shall provide proper facilities for such access and for inspection.

TROY SCHOOL DISTRICT

- C. The Contractor shall not close up any Work until the Owner or AHJ (if applicable) has inspected the Work. Should the Contractor close up the work prior to inspection by The Owner or AHJ (if applicable), the Contractor shall uncover the Work for inspection at no cost to the Owner, and then recover the Work according to the specifications contained herein. The Contractor shall notify the Owner or AHJ (if applicable) in writing when the Work is ready for inspection. The Owner or AHJ (if applicable) will inspect the Work as expeditiously as possible after receipt of notification from the Contractor.

3.5 STATUS REPORTS, MEETINGS AND COORDINATION

- A. It shall be the Contractor's responsibility to provide the Owner / PSC with written weekly project status reports while actively engaged in craft work and a summary report at the beginning of periods of inactivity between phases or construction delays noting status at that time and expected date of return to work in addition to the requirements listed below. These reports are required and shall include, but not be limited to:
 - 1. Project completion percentage.
 - 2. All problems that were encountered.
 - 3. Any foreseeable problems that may arise.
 - 4. Work completed during the previous period and work scheduled for the next period.
 - 5. General status of the project
- B. The Owner / PSC reserves the right to hold additional status meetings on a regular basis with the Contractor's Project Manager.

END OF SECTION

COMMON WORK RESULTS FOR COMMUNICATIONS

REFERENCE

PART 1 - GENERAL

1.1. SUMMARY

- A. The successful bidder/contractor (hereafter referred to as the Contractor) shall supply equipment, materials, labor, and services to provide the following systems including, but not limited to:
1. Grounding of communications systems components.
 2. Labeling of all cabling, terminations and equipment
 3. Testing and test documentation as indicated in each Section.
 4. Fire stopping.
 5. Extended warranty and manufacturer's certification of systems, products, and labor.
- B. Provide all equipment, materials, labor, whether specifically mentioned or not, which are necessary to complete or perfect all parts of the installation. Ensure that they are in compliance with requirements stated or reasonably inferred by the contract documents.

1.2. RELATED SECTIONS

- A. Division 27

1.3. RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this section.
- B. As indicated in each section.

1.4. REFERENCES

- A. Local Codes and Standards - all applicable
1. Anywhere low-voltage cabling Standards conflict with electrical or safety Codes, Contractor shall defer to NEC and any applicable local codes or ordinances, or default to the most stringent requirements listed by either. Knowledge and execution of applicable codes is the sole responsibility of the Contractor. Any code violations committed at the time of installation shall be remedied at the Contractor's expense. Contractor is responsible to bring any perceived conflicts between project documents and referenced Standards or Codes to the attention of the PSC for resolution.
- B. Contractors shall adhere to latest ratified editions of the following, this list is not all inclusive:
1. American Society for Testing and Materials (ASTM)

TROY SCHOOL DISTRICT

2. American National Standards Institute (ANSI)
3. Insulated Cables Engineers Association (ICEA)
4. National Electrical Manufacturers Association (NEMA)
5. Institute of Electrical and Electronics Engineers (IEEE)
 - a. National Electric Safety Code (NESC IEEE C2)
6. American National Standards Institute (ANSI) Telecommunications Industry Association (TIA)
 - a. ANSI/TIA 455-78 - Optical Fibers – Part 1-40: Measurement Methods and Test Procedures – Attenuation
 - b. ANSI/TIA-526-7 (OFSTP-7)- Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant – OFSTP-7
 - c. TIA/TSB 140 - Additional Guidelines for Field-Testing Length, Loss and Polarity of Optical Fiber Cabling Systems
 - d. ANSI/TIA-568- Commercial Building Telecommunications Cabling Standard
 - e. ANSI/TIA-568 - Balanced Twisted-Pair Telecommunications Cabling and Components
 - f. ANSI/TIA-568: Optical Fiber Cabling Components
 - g. ANSI/TIA-569 - Telecommunications Pathways and Spaces
 - h. ANSI/TIA-598- Optical Fiber Cable Color Coding
 - i. ANSI/TIA-606 - Administration Standard for Telecommunications Infrastructure
 - j. ANSI/TIA-607 - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
 - k. ANSI/TIA-758 – Customer-Owned Outside Plant Telecommunications Cabling Standard
 - l. ANSI/IEEE E 1100 Recommended Practice for Powering and Grounding Electronic Equipment
 - m. ANSI NECA 1 Standard for Good Workmanship in Electrical Construction
7. ISO/IEC 11801– Information Technology – Generic Cabling for Customer Premises
8. NFPA 70 National Electrical Code (NEC) As adopted by the State of Michigan 2019
9. Rural Utility Services (USDA – RUS)
10. Restriction of Hazardous Substances Directive 2002/95/EC (RoHS)
11. Underwriters Laboratories (UL)
 - a. UL 2024A Optical Fiber Cable Routing Assemblies for non-metallic cable pathways

TROY SCHOOL DISTRICT

12. NEMA VE1/CSA22.2 Metal Cable Tray systems for ladder rack and cable tray systems
 13. Building Industry Consulting Services International (BICSI)
 - a. Telecommunications Distribution Design Manual (TDMM)
 - b. Information Technology Systems Installations Methods Manual (ITSIMM)
 - c. BICSI – Outside Plant Design Reference Manual (OSPDRM)
 - C. Federal, state, and local codes, rules, regulations, and ordinances
 1. The Contractor shall perform all work according to Federal, State, and local codes, rules, regulations, and ordinances governing the work. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply. OSHA Standards and Regulations – all applicable
 2. Anywhere low-voltage cabling Standards conflict with electrical or safety Codes, Contractor shall defer to NEC and any applicable local codes or ordinances, or default to the most stringent requirements listed by either. Knowledge and execution of applicable codes is the sole responsibility of the Contractor. Any code violations committed at the time of installation shall be remedied at the Contractor's expense. Contractor is responsible to bring any perceived conflicts between project documents and referenced Standards or Codes to the attention of the Owner and Owner's PSC for resolution.
 - D. Manufacturers' Recommendations
 - E. Best Practices and Industry Norms
 - F. Others as indicated in each section.
- 1.5. QUALITY ASSURANCE
- A. Electrical Components, Devices, and Accessories: Listed and labeled, meeting the National Electrical code or National Building Code and tested by a qualified testing agency, and marked for intended location and application
 - B. Telecommunications Pathways and Spaces: Comply with TIA-569, the National Electrical Code and the National Building Code.
 - C. Grounding: Comply with ANSI/TIA-607 and the National Electrical Code.
 - D. Warranty
 1. See Section 270500 "Common Work Results for Communications".
- 1.6. PROJECT CONDITIONS
- A. Environmental Limitations: Do not deliver or install interior equipment cable until spaces are enclosed and weather-tight, wet work in spaces is complete and dry, and work above ceilings in IT spaces is complete.

TROY SCHOOL DISTRICT

- B. This contractor shall examine the conditions under which the system installation is to be performed and notify the Owner's Representative or Design Professional in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to provide a workmanlike installation.
- C. Review areas of potential interference and resolve conflicts before proceeding with the work. Coordinate ceiling layout and wall layout and other work that penetrates or is supported throughout the space of the building. All work shall be flush and workmanlike in all finished areas.

1.7. COORDINATION

- A. Coordinate layout and installation of communications equipment with Owner's telecommunications and LAN equipment and service suppliers.
- B. Coordinate service entrance arrangement with local exchange carrier.
- C. Meet jointly with other equipment suppliers, local exchange carrier representatives, and Owner to exchange information and agree on details of equipment arrangements and installation interfaces.
- D. Coordinate all work with:
 - 1. Owner and Construction Manager for available work hours, existing credential holder data base transition and programming.
 - 2. Owner IT department for integration with the Owner's network and installation of the Central database server in the server room
 - 3. Others as required – Fire Alarm Vendor, Intrusion Detection Vendor, Elevator Vendor etc.
- E. Record agreements reached in meetings and distribute them to other participants.
- F. Adjust arrangements and locations of distribution frames, cross -connects, and patch panels in equipment rooms to accommodate and optimize arrangement and space requirements of telephone switch and LAN equipment.
- G. Adjust arrangements and locations of equipment with distribution frames, cross-connects, and patch panels of cabling systems of other communications, electronic safety and security, and related systems that share space in the equipment room.
- H. Coordinate location of power raceways and receptacles with locations of communications equipment requiring electrical power to operate.

1.8. PERMITS, FEES, and CERTIFICATES OF APPROVAL.

- A. The Contractor SHALL make application and pay for all required permits.
- B. As prerequisite to final acceptance, the Contractor shall supply to the owner certificates of inspection from an inspection agency acceptable to the owner and approved by local municipality and utility company serving the project.
- C. As indicated in each section.

TROY SCHOOL DISTRICT

1.9. DEFINITIONS

- A. PSC – Professional Services Contractor (Convergent Technology Partners)
- B. As indicated in individual sections

1.10. SUBMITTALS

A. Shop Drawings:

- 1. Provide cable routing diagrams.
- 2. Show patch panel numbering for all patch panels.
- 3. Provide a schedule of materials list with quantities and manufactures indicated for all materials installed in the project.
- 4. Provide fabrication drawings for any proposed custom-built equipment.
- 5. Submit for initial review 3 weeks after notice to proceed and for final review at substantial Completion.

B. Product Data:

- 1. Provide manufacturer’s product data specifications sheets indicating products being submitted and any long lead time items.
- 2. Provide submittals for products with long lead times (4) weeks prior to ordering the materials.
- 3. Provide submittals (3) weeks after receiving notice to proceed and prior to installation of any of the product.

C. Schedule

- 1. Submit a coordinated schedule (3) weeks after notice to proceed to include the following:
 - a. Preconstruction meeting and walkthrough.
 - b. Start and duration of system milestones.
 - c. Punch List.
 - d. Final Punch List.

D. Cable Test Results:

- 1. Category X UTP cable: test per current version of TIA 568 and associated addenda, TSB and errata using the Permanent Link method.

E. Project Record Drawings

- 1. Submit project record documents at Contract Closeout.
- 2. The contractor shall deliver three (3) sets of as-built drawings to the owner within four (4) weeks of completion of the project. A set of as-built drawings shall

TROY SCHOOL DISTRICT

be provided to the owner in suitable electronic form (i.e., USB) and utilizing software that is acceptable to the owner and PSC. The contractor shall deliver the digital media to the owner/PSC within six (6) weeks of completion of the project.

a. As-built Drawings must contain:

- 1) Labeling
- 2) Cable locations by type, with optical fiber showing strand count
- 3) As-built drawings shall reflect the shop drawings as modified by field conditions, including a list of all equipment with part numbers manufacturer, firmware, MAC addresses and assigned IP addresses.

- F. Submit, within 3 weeks after notice to proceed, the names and qualifications of those persons who will have management and supervisory positions over the employees on the job site. Submit the name of the supervisory person who will be on the job site daily and have responsibility for day-to-day decisions. Submit the name of the person who will attend meetings and have authority to make decisions for issues and requirements that arise from such meetings.
- G. Upon request by the engineer/designer (PSC), the Owner, and/or the Owner's representative will furnish a list of references with specific information regarding the type of project and involvement in providing other products and/or support equipment used on this project.
- H. Where equipment and materials have industry certification, labels, or standards (i.e., NEMA-National Electrical Manufacturer's Assn.), this equipment shall be labeled as certified or complying with the standards.
- I. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.
1. All hardware proposed must be the current offering of the manufacturer and receive the highest level of standard support offered by the manufacturer. Factory refurbished hardware which is in "new condition" as well as used, shopworn, prototype, demonstrator models, etc. are not acceptable.
 2. The System must consist of standards-based products or components whose performance, reliability, and maintainability can be demonstrated.

1.11. QUALITY ASSURANCE

- A. Submit documentation with the bid listing the names of employees that will be used on this project indicating their experience, level of expertise, and certificates of training.
- B. Complete Quality Assurance requirements.
- C. Submit documentation from the manufacturer of the optical fiber cable and components that they are either ISO 9000 or TL9000 Certified.

1.12. WARRANTY

TROY SCHOOL DISTRICT

- A. Submit at project closeout, a signed and registered product warranty and applications assurance. See individual (system) Sections for warranty requirements.
 - B. All software required to run or view the test data must accompany the application.
 - C. Copies of as built drawings must be submitted to the manufacturer via electronic or hard copy. (Drawings must be in AutoCAD or Visio)
 - D. Submit a statement, at notice to proceed, of any Contractor warranties in addition to the manufacturer's stated and supplied warranties. Submit at closeout signed copies of the Contractor provided warranties that are in addition to manufacturer's stated and supplied warranties.
- 1.13. DELIVERY, STORAGE, AND HANDLING
- A. Protect equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the owner for secure storage of equipment and materials.
 - B. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions.
 - C. Follow manufacturer's recommended procedures for storage of materials & equipment.
 - D. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.
- 1.14. SEQUENCE AND SCHEDULING
- A. Refer to Schedule of Events and Submittals Section above.
 - B. Coordinate schedule and activities with Owner/ PSC/ General Contractor / Construction Manager.
- 1.15. USE OF THE SITE
- A. Use of the site shall be at the owner's direction in matters in which the owner deems it necessary to place restriction.
 - B. Access to building wherein the work is performed shall be as directed by the owner.
 - C. The owner will occupy the premises during the entire period of construction for conducting his or her normal business operations. Cooperate with the owner to minimize conflict and to facilitate the owner's operations.
 - D. Schedule necessary shutdowns of plant services with the owner and obtain written permission from the owner.
 - E. Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations of the owner.
- 1.16. CONTINUITY OF SERVICES

TROY SCHOOL DISTRICT

- A. Take no action that will interfere with, or interrupt, existing building services unless previous arrangements have been made with the owner's representative. Arrange the work to minimize shutdown time
- B. Owner's personnel will perform shutdown of operating systems. The contractor shall give three (3) days' advance notice for systems shutdown.
- C. Should services be inadvertently interrupted, immediately furnish labor, including overtime, material, and equipment necessary for prompt restoration of interrupted service.

PART 2 - PRODUCTS

2.1. MANUFACTURERS

- A. Provide products as indicated in individual articles.
- B. Where no manufacturer is specified, provide products of manufacturers in compliance with requirements.
- C. Provide proof the manufacturer selected has successfully had these same products installed at other facilities and provide references with name, title, address, phone number & e-mail address of each point of contact within each referenced account.
- D. Provide proof the manufacturer has 20 years or more of designing, manufacturing and providing fiber optic cables, within the continental United States.
- E. Provide proof the manufacturer is located within the U.S., is incorporated within the U.S. and that the major products (fiber optic cables, cable assemblies and termination hardware) are manufactured within the U.S.
- F. Substitutions: Substitution requests will be considered only if submitted to Owner's Representative not less than 7 working days prior to project bid date. Acceptance or rejection of proposed substitution is at Owner's Representatives sole discretion. No exceptions. Requests for substitutions shall be considered not approved unless approval is issued in writing by Owner's Representative.
- G. Rejection: For equipment, cabling, wiring, materials, and all other products indicated or specified as no substitutions or no alternates, Owner does not expect nor desire requests for substitutions and alternate products other than those specified. Owner reserves right for Owner's Representative to reject proposed substitution requests and submissions of alternates without review or justification.

PART 3 - EXECUTION

3.1. PRE-INSTALLATION SITE SURVEY

- A. Prior to the start of systems installation, The Contractor will meet at the project site with the owner's representative and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the general contractor shall be necessary to plan the crucial scheduled completions of the equipment rooms and telecommunications rooms.

TROY SCHOOL DISTRICT

- B. Examine areas and conditions under which the system is to be installed. Do not proceed with the work until satisfactory conditions have been achieved.
- 3.2. HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS
- A. The contractor shall be responsible for safekeeping own materials and subcontractor's property, such as equipment and materials, on the job site. The owner assumes no responsibility for protection of above-named property against fire, theft, and environmental conditions.
- 3.3. CLEANUP
- A. Touch-up, repair or replace damaged products before substantial completion.
 - B. All work materials shall be removed at the end of each workday and the work area left in the same condition as found. Upon completion of the work, the Contractor must remove all tools, equipment and all rubbish and debris from the premises and must leave the premises clean and neat.
- 3.4. FIRE STOPPING SYSTEMS
- A. Comply with TIA 569 and BICSI "Fire Stop Systems" chapter
 - B. Per Section "Fire stopping and Sealing"
- 3.5. PROTECTION OF OWNER'S FACILITIES
- A. Effectively protect the owner's facilities, equipment, and materials from dust, dirt, and damage during construction.
 - B. Protect installed products until completion of project
 - C. Remove protection at completion of work.
 - D. Should it be found by the engineer that the materials, or any portion thereof, furnished and installed under this contract fail to comply with the specifications and drawings, with respect or regard to the quality, amount of value of materials, appliances, or labor used in the work, it shall be rejected and replaced by the contractor, and all work distributed by changes necessitated in consequence of said defects or imperfections shall be made good at the contractor's expense.
- 3.6. INSTALLATION
- A. Prior to pulling cable through conduit, mandrel the conduits to remove foreign material before pulling commences.
 - B. Only install cable in conduits or sleeves that have been reamed and bushed. If bushings are not present, provide and install same.
 - C. Beginning installation means contractor accepts existing conditions.
 - D. Contractor shall furnish all required installation tools to facilitate Cable installation without damage to the cable jacket. Such equipment is to include, but not be limited to, sheaves, winches, cable reels, cable reel jackets, duct entrance funnels, pulling tension gauges, and similar devices. All equipment shall be of substantial construction to

TROY SCHOOL DISTRICT

allow steady progress once pulling has begun. Makeshift devices that may move or wear in a manner to pose a hazard to the cable or employees shall not be used.

- E. Cable pulling shall be done in accordance with cable manufacturer's recommended procedures and ANSI/IEEE C2 standards. Manufacturer's recommendations shall be a part of the cable submittal. Recommended pulling tensions and minimum bending radii shall not be exceeded. Any cable bent or kinked to a radius less than recommended shall not be installed.
- F. During cable pulling operation, an adequate number of workers shall be present to allow cable observation at all points of duct entry and exit as well as to feed cable and operate pulling machinery.
- G. Pulling lubricant shall be used to ease pulling tensions. Lubricant shall be of a type that is non-injurious to the cable material used. Lubricant shall not harden or become adhesive with age. (i.e. - Polywater)
- H. Avoid abrasion and other damage to cables during installation.
- I. All exposed cable shall be labeled at 35-foot (maximum) intervals with tags indicating ownership, cable type, and fiber type installed.

3.7. LABELING

- A. All labeling shall be in accordance with ANSI/TIA-606 unless otherwise noted by the owner or in individual sections.
- B. Mark up floor plans showing Cable routes, segments, Cable type, and marking of cables. Turn these drawings over to the owner two (2) weeks prior to move-in to allow the owner's personnel to connect and test owner-provided equipment in a timely fashion.
- C. The contractor shall deliver three (3) sets of as-built drawings to the Owner's Representative within four (4) weeks of completion of the project. A set of as-built drawings shall be provided to the owner in digital form (i.e., CD-ROM or other suitable format) and utilizing software that is acceptable to the owner. The contractor shall deliver the digital media to the owner within six (6) weeks of completion of the project.

3.8. COOPERATION

- A. The contractor shall cooperate with other trades and owner's personnel in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the work to better fit the general installation, such work shall be done at no extra cost to the owner, provided such decision is reached prior to actual installation. The contractor shall check location of electrical outlets with respect to other installation before installing.

3.9. TESTING AND ACCEPTANCE

- A. The equipment must meet or exceed the agreed acceptance criteria during a 30-day acceptance period, which begins on the installation (cut-over) date. The system will then be accepted following this successful 30-day period.

TROY SCHOOL DISTRICT

- B. Test procedures must meet manufacturer's standards.
- C. The Contractor shall correct, in a timely manner, any failure to comply with Contract Documents as reasonably determined by Owner.
- D. If final acceptance is significantly delayed because of defective new equipment or because the installation is not in accordance with the Contract Documents, the Contractor shall pay for all the Owner's additional time and expenses resulting from the delay and any extensions of Acceptance Testing.
- E. As additionally indicated in each Section.

END OF SECTION

FIRE STOPPING AND SEALING

REFERENCE

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2. SUMMARY

- A. This section includes labor, materials and equipment necessary to complete the installation required for the items specified under this Section, including but not limited to:
 - 1. Firestopping of Through Penetrations in Fire Rated Assemblies.
 - 2. Smoke and Acoustical Sealing in Non-Rated Assemblies.

1.3. SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog data for specified products demonstrating compliance with referenced standards and listing numbers of systems in which each product is to be used.
- B. Schedule of UL System Drawings for Fire Rated Construction: Submit schedule of all expected opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance ratings.
- C. UL System Drawings for Fire Rated Construction: Furnish copies of all UL Systems identified in schedule above. Include any engineering recommendations.
- D. Certificates: Product Certificate of Compliance from the by manufacturer certifying material compliance with applicable code and specified performance characteristics.
- E. Installation Instructions: Submit manufacturer's printed installation instructions.

1.4. QUALITY ASSURANCE

- A. Products/Systems: Provide firestopping systems that comply with the following requirements:
- B. Firestopping tests are performed by a qualified, testing and inspection agency. A qualified testing and inspection agency shall be UL, or another agency performing testing and follow-up inspection services for firestop system acceptable to authorities having jurisdiction.
- C. Firestopping products bear the classification marking of qualified testing and inspection agency.
- D. Installer Qualifications: Experience in performing work of this section who is qualified by the firestopping manufacturer as having been provided the necessary training to install firestop products in accordance with specified requirements.

TROY SCHOOL DISTRICT

1.5. DELIVERY, STORAGE, AND HANDLING

- A. Deliver in manufacturer's original, unopened, undamaged containers, identification labels intact identifying product and manufacturer, date of manufacture, lot number, shelf life, if applicable, qualified testing and inspection agency's classification marking, and mixing instruction for multi-component products.
- B. Handle and store products according to manufacturer's recommendations published in technical materials. Leave products wrapped or otherwise protected and under clean and dry storage conditions until required for installation.
- C. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

1.6. PROJECT CONDITIONS

- A. Do not install products when ambient or substrate temperatures are outside limitations recommended by manufacturer.
- B. Do not install products when substrates are wet due to rain, frost, condensation, or other causes.
- C. Do not use materials that contain flammable solvents.
- D. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- E. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- F. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings

1.7. PERFORMANCE REQUIREMENTS

- A. References:
 - 1. ANSI/TIA-1179-A "Healthcare Facility Telecommunications Infrastructure".
 - 2. ANSI/TIA-EIA-569-D "Telecommunications Pathways and Spaces"
 - 3. ASTM E90, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements".
 - 4. ASTM E814, "Fire Tests of Through Penetration Firestops".
 - 5. CAN/ULC S115, "Standard Method of Fire Tests of Firestops Systems."
 - 6. UL 1479, "Fire Tests of Through Penetration Firestops".
 - 7. National Fire Protection Association (NFPA) – NFPA 101: Life Safety Code.
 - 8. National Fire Protection Association (NFPA) – NFPA 70: National Electrical Code.
 - 9. Underwriters Laboratories Inc. (UL) – Fire Resistance Directory
- B. Fire rated cable pathway devices shall be used in fire-rated construction for ALL low-voltage, video, data and voice cabling, optical fiber raceways and certain high-voltage

TROY SCHOOL DISTRICT

cabling where frequent cable moves, adds and changes may occur. Pathways required for high voltage cabling will be detailed on the prints. Such devices shall:

1. Meet the hourly fire-rating of fire rated wall and or floor penetrated.
 2. Be tested for the surrounding construction and cable types involved.
 3. Have UL Systems permitting cable loads from "Zero to 100% Visual Fill." This requirement eliminates need for fill-ratio calculations to be made by cable technicians to ensure cable load is within maximum allowed by UL System.
 4. Be "Maintenance-Free", having a corresponding Evaluation Services Report from a Nationally Recognized Third-Party Laboratory. Maintenance-Free is defined as: No action required by cabling technician to open and/or close pathway for cable moves, adds or changes, such as, but not limited to:
 - a. Opening or closing of doors.
 - b. Spinning rings to open or close fabric liner.
 - c. Removal and or replacement of any material such as, but not limited to, firestop caulk, putty, pillows, bags, foam muffins, foam, foam plugs, foam blocks, or foam closures of any sort.
 - d. Evaluation Services Report (ESR) from an accredited Nationally Recognized Third-party Laboratory certifying compliance with this definition of "Maintenance-Free" and all relevant codes and standards.
 5. Pathways shall be engineered such that two or more devices may be ganged together for larger cable capacities.
 6. Pathways shall be engineered to be re-enterable so they can be retrofitted and removed from around existing cables without cutting and re-splicing them.
 7. Affix adhesive wall label immediately adjacent to devices to communicate to future cable technicians, authorities having jurisdiction and others the manufacturer of the device and the corresponding UL System number installed.
- C. Non-rated cable pathway devices shall be used in non-fire-rated construction for all low-voltage, video, data and voice cabling, optical fiber raceways and certain high-voltage cabling where frequent cable moves, adds and changes may occur. Pathways required for high voltage cabling will be detailed on the prints. Such devices shall:
1. Limit the movement of smoke and sound of wall and or floor penetrated.
 2. Restore the STC Rating of the penetrated assembly.
 3. Provide L Ratings of greater than 1 CFM when empty and greater than 2.5 CFM at all other loading up to 100 percent.
 4. Accommodate cable loads from "Zero to 100% Visual Fill."
 5. Not have inner fabric liner that tightens around and compresses cables tightly together encouraging potential cable damage or interference.

TROY SCHOOL DISTRICT

6. Be "Maintenance-Free", maintenance-free is defined as No action required by cabling technician to open and/or close pathway for cable moves, adds or changes, such as, but not limited to:
 - a. Opening or closing of doors.
 - b. Spinning rings to open or close fabric liner.
 - c. Removal and or replacement of any material such as, but not limited to, firestop caulk, putty, pillows, bags, foam muffins, foam, foam plugs, foam blocks, or foam closures of any sort.
 - d. Furnish letter from manufacturer certifying compliance with this definition of "Zero-Maintenance".
 7. Pathways shall be engineered such that two or more devices may be ganged together for larger cable capacities.
 8. Pathways shall be engineered to be re-enterable so they can be retrofitted and removed from around existing cables without cutting and re-splicing them.
 9. Affix adhesive wall label immediately adjacent to devices to communicate to future cable technicians, authorities having jurisdiction and others the manufacturer of the device and the corresponding UL System number installed.
- D. As an alternate to using a fire-rated or non-rated cable pathway device for a single or tow low voltage cables (up to an aggregate cross sectional area of 0.52 in. (14mm) O.D.) penetrating one or two-hour, gypsum board/stud wall assemblies or non-rated assemblies, either as a through-penetration or as a membrane-penetration, a fire-rated cable grommet may be substituted. The product shall consist of a molded, two-piece, plenum-rated grommet having a foam fire and smoke sealing membrane that conforms to the outside diameter of the individual cable. The grommet product shall be capable of locking into place to secure the cable penetration within the wall assembly. The grommet shall be UL Classified and tested to the requirements of ASTM E814 (UL 1479) and CAN/ULC S115.
- E. Where non-mechanical pathways must be utilized, such as sealing (caulking) around single or grouped conduits, provide products that upon curing do no re-emulsify, dissolve, leach, breakdown or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture characteristic during or after construction. Provide letter from manufacturer certifying compliance with this section.
- F. Cable pathway shall replace conduit sleeves in walls and floors, and the following:
1. When installed individually in floors, devices shall pass through core-drilled or preformed opening utilizing tested floor plates.
 2. When multiple units are ganged in floors, devices shall be anchored by means of a tested grid.
 3. When installed individually in walls, devices shall pass through core drilled opening utilizing tested wall plates or integrated flanges.

TROY SCHOOL DISTRICT

- 4. When multiple units are ganged in walls, devices shall be anchored by means of a tested adjustable gang bracket.
- G. Cable tray shall terminate at each barrier and resume on the other side such that cables pass independently through devices. Cable tray shall be properly supported on each side of the barrier.

PART 2 - PRODUCT

- A. General: Use only products that have been tested for specific fire resistance rated construction conditions or acoustical and smoke related requirements conforming to construction assembly type, penetrating item type, annular space requirements, and rating involved for each separate instance.
- B. Firestop Sealants: Single component latex formulations that upon cure do not re-emulsify during exposure to moisture, the following products are acceptable:
- C. Firestop Putty: Intumescent, non-hardening, water resistant putties containing no solvents, inorganic fibers or silicone compounds, the following products are acceptable:
- D. Firestop Pillows: Re-enterable, non-curing, mineral fiber core encapsulated on six sides with intumescent coating contained in a flame-retardant poly bag, the following products are acceptable:
- E. Fire-Rated Cable Grommet: Molded, two-piece grommet with an integral fire and smoke sealing foam membrane for sealing individual cable penetrations through framed wall assemblies. Grommet snaps together around cable and locks tightly into the wall.
- F. Fire-Rated Cable Pathways: Device modules comprised of steel pathway with self-adjusting intumescent foam pads allowing 0 to 100 percent cable fill, the following products are acceptable:
- G. Smoke and Acoustical Pathways: Device module comprised of a nonmetallic pathway with integral self-adjusting smoke and sound sealing system for cable penetrations through non-fire-resistance rated wall or floor assemblies.

PART 3 - EXECUTION

3.1. EXAMINATION

- A. Before beginning installation, verify that substrate conditions previously installed under other sections are acceptable for installation of firestopping in accordance with manufacturer's installation instructions and technical information.
- B. Surfaces shall be free of dirt, grease, oil, scale, laitance, rust, release agents, water repellants, and any other substances that may inhibit optimum adhesion.
- C. Provide masking and temporary covering to protect adjacent surfaces.
- D. Do not proceed until unsatisfactory conditions have been corrected.

3.2. INSTALLATION

- A. General: Install systems in accordance with Performance Criteria and in accordance with the conditions of testing and classification as specified in the published design.

TROY SCHOOL DISTRICT

- B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of products.

3.3. FIELD QUALITY CONTROL

- A. Keep areas of work accessible until inspection by authorities having jurisdiction.
- B. Where deficiencies are found, repair firestopping products so they comply with requirements.

3.4. ADJUSTING AND CLEANING

- A. Remove equipment, materials, and debris, leaving area in undamaged, clean condition.
- B. Clean all surfaces adjacent to sealed openings to be free of excess firestopping materials and soiling as work progresses.

3.5. DOCUMENTATION

- A. Place system stickers on each side of wall penetrations.
- B. Place a reproduction (photocopy) of the UL System description in a document protector and mount to the wall next to the wall penetration
- C. Highlight the section of the system description that list the allowed cable types.

END OF SECTION

STRUCTURED CABLING SYSTEMS

PART 1 - GENERAL

1.1. SUMMARY

- A. All hardware, enclosures, racks, equipment and other equipment as indicated herein and on project drawings and documents, and as required for a complete installation per industry norms, standards and best practices
- B. Section Includes:
 - 1. Category 6 cabling, termination and testing

1.2. RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.3. CODES, STANDARDS AND REFERENCES

- A. The Contractor shall adhere to the latest edition of the following codes, standards, and references. Additionally, the Contractor shall adhere to all other codes, regulation and standards not stated here:
 - 1. As listed in Section 270500
 - 2. Manufacturers Recommendations
 - 3. Best Practices and Industry Norms

1.4. SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for equipment racks and cabinets. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
 - 1. Cable - Include the following installation data for each type used:
 - a. Nominal OD.
 - b. Minimum bending radius.
 - c. Maximum pulling tension.
- B. Field quality-control reports.
- C. Qualification Data: For installer, qualified layout technician, installation supervisor, and field inspector.

1.5. QUALITY ASSURANCE

- A. Bidder qualifications:
 - 1. Work under this section shall be performed by and the equipment shall be provided by the approved telecommunications contractor and key personnel.

TROY SCHOOL DISTRICT

Qualifications shall be provided for the telecommunications system contractor, the telecommunications system installer, and the supervisor (if different from the installer). A minimum of 30 days prior to installation, submit documentation of the experience of the telecommunications contractor and of the key personnel.

2. The telecommunications contractor shall be a firm which is regularly and professionally engaged in the business of the applications, installation, and testing of the specified telecommunications systems and equipment. The telecommunications contractor shall demonstrate experience in providing successful telecommunications systems within the past 5 years of similar scope and size. Submit documentation for a minimum of three and a maximum of five successful telecommunication system installations for the telecommunications contractor.
3. Minimum Manufacturer Qualifications

- a. Cabling, equipment and hardware manufacturers shall have a minimum of 3 years' experience in the manufacturing, assembly, and factory testing of components which comply with TIA-568, TIA-569, TIA 606 and TIA-607.

B. Installer Qualifications

1. Installers: Installation personnel shall be certified by the manufacturer for the installed product.
2. Installation Supervision: Installation shall be under the direct supervision of BICSI ITS Technician or ITS 2 Installer or equivalent certification, who shall be present at all times when Work of this Section is performed at Project site.
3. Project Manager and Quality Assurance: Project shall be managed and supervised by a current BICSI RCDD.

C. Telecommunications Pathways and Spaces: Comply with TIA-569

D. Bonding and Grounding: Comply with TIA-607 and attached specification

E. Regulatory Requirements - In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "shall" had been substituted for "should" wherever it appears. Equipment, materials, installation, and workmanship shall be in accordance with the mandatory and advisory provisions of NFPA 70 unless more stringent requirements are specified or indicated.

F. Standard Products - Provide materials and equipment that are products of manufacturers regularly engaged in the production of such products which are of equal material, design and workmanship unless specific manufacturer and/or part numbers is included herein. Products shall have been in satisfactory commercial or industrial use for 2 years prior to bid opening. The 2-year period shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been on sale on the commercial market through advertisements, manufacturers' catalogs, or brochures during the 2-year period. Where two or more items of the same class of equipment are required, these items

TROY SCHOOL DISTRICT

shall be products of a single manufacturer, however, the component parts of the item need not be the products of the same manufacturer unless stated in this section.

- G. Material and Equipment Manufacturing Date - Products manufactured more than 1 year prior to date of delivery to site shall not be used, unless specified otherwise.

1.6. CABLE DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
- B. Test optical fiber cable to determine the continuity of the strand end to end. Use optical fiber flashlight or optical loss test set.
- C. Test each pair of UTP backbone cable for open and short circuits.

1.7. PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install cable, equipment frames and cable trays until spaces are enclosed and weather tight, wet work in spaces is complete and dry.

1.8. COORDINATION

- A. Coordinate layout and installation of telecommunications equipment with Owner's telecommunications and LAN equipment and service suppliers. Coordinate service entrance arrangement with local exchange carrier.

1.9. SYSTEM DESCRIPTION

- A. Category 6 UTP cable, terminations and testing as indicated on drawings and herein

1.10. DEFINITIONS AND ABBREVIATIONS

1. Unless otherwise specified or indicated herein, electrical and electronics terms used in this specification shall be as defined in TIA-568, TIA-569, TIA-606 and IEEE 100 and herein.
2. BICSI: Building Industry Consulting Service International.
3. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
4. EMI: Electromagnetic interference.
5. IDC: Insulation displacement connector.
6. Outlet/Connectors: A connecting device in the work area on which horizontal cable or outlet cable terminates.
7. RCDD: Registered Communications Distribution Designer.
8. TDMM (BICSI): Telecommunications Design Methods Manual
9. UTP: Unshielded twisted pair.
10. LAN: Local area network.
11. PSC – Professional Services Contractor (Convergent Technology Partners)

TROY SCHOOL DISTRICT

12. SCS – Structured Cabling System
13. WAO – Work Area Outlet

1.11. WARRANTY

- A. Provide minimum two-year contractor warranty on structured cabling system.
- B. Provide minimum one-year manufacturer warranty material and components.

PART 2 - PRODUCT

2.1. Components shall be UL, or third party certified. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations, submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Owner. The certificate shall state that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard. Provide a complete system of telecommunications cabling and pathway components using star topology. Provide support structures and pathways, complete with outlets, cables, connecting hardware and telecommunications cabinets/racks. Cabling and interconnecting hardware and components for telecommunications systems shall be UL listed or third-party independent testing laboratory certified and shall comply with NFPA 70 and conform to the requirements specified herein.

A. Category 6 Plenum Rated UTP Cable: Approved manufacturers

1. Belden
2. CommScope
3. Hubbell
4. Panduit/General
5. Ortronics
6. Superior Essex/Legrand

2.2. Pathways

- A. General Requirements: Provide telecommunications pathways in accordance with TIA-569 and as specified herein and on project drawings and associated documents. Provide system furniture pathways in accordance with UL 1286.
- B. Cable Support: NRTL labeled. Cable support brackets shall be designed to prevent degradation of cable performance and pinch points that could damage cable and approved for use with Category 6 UTP cable. Comply with NFPA 70 and UL 2043 for fire-resistant and low-smoke-producing characteristics.

1. J-hooks

TROY SCHOOL DISTRICT

2. Saddles

PART 3 - EXECUTION

3.1. WIRING METHODS

- A. Wiring Method: Install cables in raceways and cable trays (if specified) except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces, in attics, and in gypsum board partitions where unenclosed wiring method may be used. Conceal raceway and cables except in unfinished spaces.
- B. Install plenum cable in environmental air spaces, including plenum ceilings.
- C. Wiring within Enclosures: Bundle, lace, and train cables to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.2. INSTALLATION OF PATHWAYS

- A. Cable Trays: Hallway cable trays are provided by others. Trays or ladder racks in the telecommunication closets will be provided per the project drawings.
- B. Comply with requirements for demarcation point, pathways, cabinets, and racks. Drawings indicate general arrangement of pathways and fittings.

3.3. INSTALLATION OF CABLES

- A. General Requirements for Cabling:
 - 1. Comply with TIA-568.
 - 2. Comply with NECA 1.
 - 3. Comply with BICSI TDMM, "Cable Termination Practices."
 - 4. Install 110-style IDC termination hardware unless otherwise indicated.
 - 5. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
 - 6. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 - 7. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
 - 8. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI TDMM, "Cabling Termination Practices". Install lacing bars and distribution spools.

TROY SCHOOL DISTRICT

9. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 10. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
 11. In the telecommunications equipment room, install a 10-foot-long service loop on the end of each optical fiber cable.
 12. Install a 12-inch-long service loop on each horizontal cable at the workstation end.
 13. All Access Points and Camera locations shall be terminated in the ceiling on a 1-port, plenum rated, surface mount box. The cable shall have a 10-foot long service loop coiled and left attached to the ceiling structure.
- B. Pulling Cable: Comply with BICSI TDMM, "Pulling Cable." Monitor cable pull tensions.
1. UTP Cable Installation:
 - a. Comply with TIA-568 and manufacturer's instructions.
 - b. Do not remove more than the minimum of cable jacket required for termination. To maintain cable geometry do not untwist UTP cables more than 1/2 inch from the point of termination.
 - c. Optical Fiber Cable Installation:
 - d. Comply with TIA-568 and manufacturer's instructions.
 - e. Cable shall be terminated on connecting hardware that is rack mounted.
 2. Open-Cable Installation:
 - a. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
 - b. Suspend UTP cable not in a wire way or pathway a minimum of 8 inches above ceilings by approved cable supports not more than 60 inches apart.
 - c. Approved supports include Category 6 rated J – hooks, saddles etc.
 - d. All cable shall be independently suspended from building structure using rated support components. The use of tie wraps and bridle rings is prohibited
 - e. Cable shall not be supported directly by structural members or in contact with pipes, ducts, or other potentially damaging items.
 - f. Group connecting hardware for cables into separate logical fields.
- C. Separation from EMI Sources (Copper UTP and SDI Cabling):
1. Comply with BICSI TDMM and TIA-569 for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.

TROY SCHOOL DISTRICT

2. Separation between open telecommunications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.
 - d. Separation between telecommunications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - e. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches.
 - f. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
 - g. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.
 - h. Separation between telecommunications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - i. Electrical Equipment Rating Less Than 2 kVA: No requirement.
 - j. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
 - k. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
 - l. Separation between Telecommunications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
 - m. Separation between Telecommunications Cables and Fluorescent Fixtures: A minimum of 5 inches.

3.4. FIRESTOPPING

- A. Comply with TIA-569, "Firestopping" and attached specification.
- B. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.5. GROUNDING

- A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. Comply with TIA-607-A and attached specification.
- C. Comply with Bonding and Grounding section contained herein.
- D. Bond metallic equipment and cable shield to the grounding bus bar, using not smaller than No. 6 AWG stranded copper equipment grounding conductor.
- E. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG stranded copper equipment grounding conductor.
- F. Bond the shield of shielded cable to the grounding bus bar in telecommunications rooms and spaces.

3.6. IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA-606.
- B. Paint and label colors for equipment identification shall comply with TIA-606 for Class 3 level of administration or as modified by owner.
- C. Label each cable within 4 inches (100 mm) of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
- D. Label each terminal strip and screw terminal in each cabinet, rack, or panel.
- E. Individually number wiring conductors connected to terminal strips and identify each cable or wiring group being extended from a panel or cabinet to a building-mounted device. Each shall be identified with name and number of particular devices as shown.
- F. Label each unit and field within distribution racks and frames.
- G. Label all components of the grounding system per TIA – 606 and TIA-607.
- H. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, pathways and cables, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors.
- I. Cable and Wire Identification:
 - 1. Label each cable within 4 inches (100 mm) of each termination, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
 - 2. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and connecting hardware.
 - 3. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.
 - 4. Labels shall be preprinted or computer-printed type with printing area and font color that contrasts with cable jacket color but still complies with requirements in TIA-606.
 - 5. Cables use flexible vinyl or polyester that flex as cables are bent.
- J. Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, pathways and cables, termination hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors. Follow convention of TIA-606. Furnish electronic record of all drawings, in software and format selected by Owner.

3.7. OUTLET, TERMINATION AND CABLE LABELS

A. Coordinate with Owner

3.8. FIELD QUALITY CONTROL

A. Perform tests and inspections

1. Visually inspect UTP and optical fiber jacket materials for NRTL certification markings. Inspect cabling terminations in telecommunications equipment rooms for compliance with color-coding for pin assignments and inspect cabling connections for compliance with TIA-568.
2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
3. Test instruments shall meet or exceed applicable requirements in TIA-568 for Category 6 Permanent Link. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for permanent link test configuration.
4. Horizontal UTP shall be tested using the Permanent Link Method.

END OF SECTION

VIDEO SURVEILLANCE

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

- A. All drawings, specifications and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2. SUMMARY

- A. Provide all labor, materials, equipment, software, programming and services to provide additional IP Cameras to the Elementary Schools and to replace existing analog cameras with IP cameras in the Middle Schools and 100% turn-key VMS, as indicated on the drawings and as specified herein. Prior to contact being awarded, Bill of Material per building may be used to adjust quantities up or down. Once the project has been awarded Unit Pricing will be used to adjust quantities up or down. The intent of these specifications and drawings are to provide a fully functional, turn-key solution to meet Owner requirements regardless of any errors or omissions in this specification. Any material or labor not noted herein, but required for a complete solution, shall be included at no cost to the Owner.

1.3. SYSTEM DESCRIPTION

- A. The VMS and Camera project shall be 100%, turnkey including but not limited to all hardware, software, licenses and other required material and labor. All Hardware shall be of the manufacturer's latest build. All software and firmware shall be the latest release from the manufacturer.

1.4. PROJECT DESCRIPTION

- A. Troy School District currently has a PELCO system in place at all secondary schools. The scope of this project consists of replacing the existing systems with a new VMS and IP cameras, as well as adding new cameras as indicated in the Middle Schools, and adding IP cameras, cabling and a new VMS for each elementary school as indicated.
- B. The new VMS and storage for the district buildings will be centralized in the district MDF in the Services building. There is a district-wide optical fiber WAN connecting all but the former ITT building with sufficient available bandwidth.
- C. The former ITT building has a leased 200Mb optical fiber connection with available bandwidth for the cameras anticipated to be sufficient. Cabling will be provided at camera locations by others.
- D. The Middle Schools and International Academy East primarily have analog cameras running on coaxial cable that are converted to IP at the IDF or MDF. There are a limited number of owner-added IP cameras that will also be replaced. The Owner will retain the IP cameras for other uses.
- E. The elementary school buildings and the former ITT building currently do not have any surveillance equipment.

TROY SCHOOL DISTRICT

1.5. SCOPE OF WORK

A. Services building – 4420 Livernois

1. Provide new centralized VMS and storage for the district in the district MDF
2. Program and train on all software – administrative and users
3. Servers for virtualized (VMWare) VMS software by owner
4. Workstations by owner
5. Servers/NVRs for video storage by integrator
6. Provide and program/install both Web and Mobile clients for users

B. Middle Schools and International Academy East

1. Replace the existing VMS and storage
2. Replace all coaxial cable with Category 6 UTP Plenum rated cable
3. Replace existing cameras and add or relocate as indicated on project drawings
4. Demo all existing surveillance equipment – all associated cabling, power supplies, analog cameras, etc. and dispose offsite
5. The district will retain the removed analog to IP converters, IP cameras, all other equipment to be disposed off-site

C. Elementary Schools

1. Add cameras and cabling as indicated on project drawings and attach to the centralized VMS and storage in the Services building
2. Program and train users

D. Early Childhood Center (ECC)

1. Add cameras as indicated on project drawings and attach to the centralized VMS and storage in the Services building
2. Program and train users
3. Camera cabling is installed currently at each camera location

E. Former ITT building (Mandatory Alternate)

1. Add cameras as indicated on project drawings and attach to the centralized VMS and storage in the Services building
2. Program and train users
3. Camera cabling is installed currently at each camera location

F. Integrator is responsible for all conduit, sleeves, pathway and support

1.6. WORK BY OTHERS

A. Electrical outlets and circuiting

TROY SCHOOL DISTRICT

B. Network and switches by Owner

1.7. RELATED SECTIONS

- A. Common Work Results for Telecommunications
- B. Firestopping and Sealing
- C. Structured Cabling Systems

1.8. REFERENCES

- A. Code of Federal Regulations (CFR).
- B. Institute of Electrical and Electronics Engineers (IEEE):
- C. 802.3 Ethernet Standards.
- D. International Electrotechnical Commission (IEC).
- E. International Organization for Standardization (ISO):
 - 1. ISO / IEC 10918 - Information technology - Digital compression and coding of continuous-tone still images: Requirements and guidelines, JPEG.
 - 2. ISO / IEC 14496-10 - Information Technology - Coding of Audio-Visual Objects - Part 10: Advanced Video Coding, MPEG-4 Part 10 (ITU H.264).
 - 3. ISO / IEC 23008-2 - High Efficiency Coding and Media Delivery in Heterogeneous Environments - Part 2: High Efficiency Video Coding, MPEG-H Part 2 (ITU H.265, HEVC).
- F. Federal Communications Commission (FCC):
 - 1. FCC Rules and Regulation of Title 47 of CFR Part 15 Subpart B Class A.
- G. Open Network Video Interface Forum (ONVIF):
 - 1. ONVIF - Profiles S Specification.
- H. Underwriters Laboratories (UL):
 - 1. UL listed.

1.9. GENERAL REQUIREMENTS

- A. The video management software shall be of manufacturer's official product line, designed for commercial 24/7/365 use.
- B. The video management software shall be based upon an open platform with the ability to have external programming interfaces standard tools and proven technology using open and published protocols.

1.10. SUSTAINABILITY

- A. The specified unit shall be manufactured in accordance with ISO 14001.
- B. The specified unit shall be compliant with the EU directives 2011/65/EU (RoHS) and 2012/19/EU (WEEE).
- C. The specified unit shall be compliant with the EU regulation 1907/2006 (REACH).

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- D. The manufacturer shall have signed and support the UN Global Compact initiative as defined by United Nations www.unglobalcompact.org/

1.11. CERTIFICATIONS AND STANDARDS

A. General abbreviations and acronyms

1. AGC: Automatic gain control
2. API: Application Programming Interface
3. Aspect ratio: A ratio of width to height in images
4. Bit Rate: The number of bits/time unit sent over a network
5. DNR - Digital Noise Reduction.
6. FPS: Frames per Second
7. FTP: File Transfer Protocol
8. GbE: Gigabit Ethernet (1000Mbps)
9. GUI - Graphical User Interface.
10. H.264/5 (Video Compression Format)
11. HDD - Hard Disk Drive.
12. JPEG: Joint Photographic Experts Group (image format)
13. LAN: Local Area Network
14. Lux: A standard unit of illumination measurement
15. MPEG: Moving Picture Experts Group
16. MJPEG - Motion JPEG.
17. MP - Megapixel.
18. Multicast: Communication between a single sender and multiple receivers on a network
19. NAS - Network Attached Storage.
20. NTP: Network Time Protocol
21. NVR - Network Video Recorder.
22. ONVIF – Open Network Video Interface Forum
23. PTZ: Pan/Tilt/Zoom
24. PoE: Power over Ethernet (IEEE 802.3af/at) standard for providing power over network cable
25. SDK: Software Development Kit
26. RTP - Real-Time Transport Protocol.
27. RTCP - Real-Time Control Protocol.

TROY SCHOOL DISTRICT

28. RTSP - Real-Time Streaming Protocol.
 29. SMTP - Simple Mail Transfer Protocol.
 30. SNMP - Simple Network Management Protocol.
 31. SMPTE: Society of Motion Picture and Television Engineers
 32. Unicast: Communication between a single sender and single receiver on a network
 33. VA - Video Analytics.
 34. VMS - Video Management System.
- B. The specified software shall support relevant parts of the following video standards:
1. Video:
 - a. SMPTE 274M (HDTV 1080p)
 - b. SMPTE ST 2036-1 (UHDTV)
 2. Interoperability
 - a. Support video from IEC 62676-2-3 compliant devices
 - b. Full Support of ONVIF Profile S compliant devices
- C. The specified software shall meet the following standards:
1. MPEG-4:
 - a. ISO/IEC 14496-10 Advanced Video Coding (H.264)
 - b. ISO/IEC 14496-2 (Profiles ASP and SP) (MPEG-4 Part 2)

1.12. QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5-year experience manufacturing similar products.
- B. Integrator or security sub-Integrator: Licensed security Integrator with a minimum of five (5) years' experience installing and servicing systems of similar scope and complexity.
- C. All installation, configuration, setup, program and related work shall be performed by electronic security technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.
- D. The Integrator or designated sub-Integrator shall submit credentials of completed manufacturer certification, verified by a third-party organization, as proof of the knowledge.
- E. The Integrator shall provide four (4) current references from clients with systems of similar scope and complexity that became operational in the past three (3) years. At least three (3) of the references shall be utilizing the same system components, in a similar configuration as the proposed system.

TROY SCHOOL DISTRICT

- F. System Integrator shall provide, with the bid response, the following as part of the System Solution:
- G. Proposed System Calculation of all network bandwidth and storage requirements for System Servers to ensure proper planning of computing and networking infrastructure
- H. Complete product and technical data specification sheets that include all material and equipment shall be provided, both hardcopy and available online.

1.13. SUBMITTALS

- A. Final System Calculation of all network bandwidth and storage requirements for System Servers to ensure proper planning of computing and networking infrastructure
- B. Complete product and technical data specification sheets that include all material and equipment shall be provided, both hardcopy and available online.
- C. Shop Drawings
- D. Details of construction, interface of equipment, and relationship with adjacent construction
- E. Connecting riser diagrams for all interfacing equipment
- F. Locations for all components to be installed under this scope of work

1.14. WARRANTY, SUPPORT AND LICENSING

- A. The manufacturer shall provide free upgrades to new software releases within the same major version for the lifetime of the version. The warranty shall provide a minimum 5-year SSA for all other software and firmware updates from the date of commissioning.
 - 1. The Owner prefers systems that offer lifetime SSA for all major and minor version upgrades of software and firmware of both the VMS and cameras.
- B. The video management software shall be backed by:
 - 1. Free support throughout the warranty period
 - 2. Free access to all new software service releases during the warranty period.
 - 3. Free access to all new device driver packs
 - 4. Case Management online tool for filing and tracking technical cases
 - 5. Direct Access to technical support via e-mail and phone
- C. The surveillance system (VMS, cameras and associated equipment) and labor furnished by the integrator including wiring, software, hardware and third-party products shall be fully warranted by the integrator for parts, materials and labor for a minimum of one (1) year from date of the final acceptance of the Video Surveillance System.
- D. Licensing and Warranty:
 - 1. The VMS will not require any licenses to increase the number of supported devices, users, or servers

TROY SCHOOL DISTRICT

2. Software licensing should be on a per device basis (e.g. 1 x license for 1 IP Camera or I/O device) with no base license required for additional features or capabilities
 3. The VMS Software should be completely free for live streaming or playback of offline media files (images, videos)
 4. Perpetual licenses and software upgrades shall be provided by the Manufacturer without cost and without the need for an annual maintenance agreement
- a. If proposed equipment doesn't provide this, the TCO analysis on the Cost Analysis worksheet must be completely filled out for the proposal to be considered.**

PART 2 - PRODUCTS

2.1. GENERAL

A. Video Management System

1. The video management software shall comply with established network and video standards. The Video Management System (VMS) shall be a scalable Microsoft Windows™-based video management and surveillance system consisting of four primary components:
 - a. A core server application to maintain the database of cameras and recording devices and to provide a web-based administrative portal to manage the video surveillance system
 - 1) Core Server provided by Owner if software is virtualized (VMWare only)
 - b. A stream management application to route video traffic to users as requested and appropriate
 - c. A client presentation application to allow users to view and manage live and recorded video.
 - d. A storage management application server to manage the video storage resources on the network. Management software shall fully support all features and functionality of ONVIF profile S compliant cameras. (I.e. – cameras not from the same manufacturer of the VMS must be capable of all features available for use within that camera type)
2. The video management system shall support integration with conformant devices that are compliant with relevant parts of IEC62676-2-3.
3. The VMS shall be capable of full video interoperability in multivendor installations using a standardized ONVIF compliant video-out interface.

B. Cameras – types and quantities as indicated herein and on project documents

C. Cabling and connectivity– types and quantities as indicated herein and on project documents

2.2. VIDEO MANAGEMENT SYSTEM (VMS)

TROY SCHOOL DISTRICT

- A. The video management software shall be subject to compliance with requirements and shall be manufactured by a corporation utilizing quality best practices meeting the specified features.
- B. Acceptable manufacturer
 - 1. PELCO
- C. Approved equivalent
 - 1. Hanwha
 - 2. Milestone
 - 3. ExactVision
 - 4. Genetec
 - 5. Others may be considered

2.3. VIDEO MANAGEMENT SYSTEM REQUIREMENTS

- A. Hardware requirements as indicated by manufacturer
 - 1. The video management app for portable devices shall provide access to video functionality when operated on a handheld device that operates specified software.
- B. Software requirements as indicated by manufacturer
 - 1. The video server software shall provide full functionality for the supported number ONVIF compliant cameras when operated in the following environment:
 - 2. One of the following 64-bit versions of Microsoft Windows
 - a. Windows Server 2016 & 2019 with Desktop Experience
 - b. Windows 10 Pro or better
 - c. Latest Microsoft.Net runtime environment installed
 - 3. The video client software shall provide full functionality for the supported number of cameras when operated in the following environment:
 - a. 64-bit version of Microsoft Windows
 - b. Windows 10 Pro
 - 4. The video management app shall provide full functionality when operated in the following environment:
 - a. Apple iOS 10.3 or higher
 - b. Google Android 5.0 or higher
- C. Recording
 - 1. Recording on all cameras shall be continuous 25FPS at 50% motion (Administrator selectable). Calculate storage size based on typical recording on the above.

2. Retention: Stored video shall be retained for 31 calendar days, recording shall be continuous in that oldest video shall be deleted/ overwritten by new video, keeping a current 31 days of video retention with no user interaction.
- D. Recording functionality
1. The video management software shall meet or exceed the following video specifications:
 - a. The video management software shall accept video and audio from network cameras and video encoders compliant with an open API as published by the video management software provider.
 - b. The video management software shall accept video and audio from network cameras and video encoders compliant with relevant parts of IEC62676-2-3.
 - c. The video management software shall support communication and functionality provided by network panels compliant with an open API as required by the video management software provider.
 - d. The video management software shall, when operating in a fully supportive environment, be able to record at least 70 individually configured full frame rate video streams in full HDTV 1080p (1920x1080 pixels) over IP networks.
 2. The video management software shall, for each channel:
 - a. Support Motion JPEG recording in a selectable range up to 30 fps.
 - b. Support MPEG4 Part 2 recording in a selectable range up to 30 fps.
 - c. Support H.264 recording in a selectable range up to 120 fps.
 - d. Support Baseline, Main and High-Profile H.264 decoding in up to 120 fps.
 - e. Support Main Profile H.265 decoding in up to 120 fps.
 - f. Support dynamic media profile selection for live view with all supported profiles.
- E. The video management software shall support the use of panoramic, fisheye and wide angle / 360° cameras.
1. Dewarping
 2. Stitching
- 2.4. TRANSMISSION
- A. The video management software shall allow for video to be transported over:
 - B. Multipart HTTP (Unicast)
 - C. RTP or RTSP over HTTP (Unicast)
 - D. RSTP over UDP (Multicast)
 - E. MP4 over HTTPS (mobile apps)

2.5. INTEGRATION

- A. The video management software shall support the following audio specifications:
- B. The video management software shall support two-way, full duplex audio encoded with the video stream with supported network cameras (one-way for third-party cameras).
- C. The video management software shall support the following audio quality:
 - 1. 24bit LPCM
 - 2. AAC-LC 8/16/32/48 kHz
 - 3. G.711 PCM 8 kHz, G.726
 - 4. ADPCM 8 kHz
 - 5. Opus 8/16/48 kHz
- D. It shall be possible to assign/link a microphone or speaker to a defined video device.
- E. The video management software shall support active echo cancellation and noise reduction.
- F. The video management software shall support the following Input/output functionality:
 - 1. Accept notifications and alarms from an unlimited number of auxiliary devices connected to the network.
 - 2. Received notifications and alarms shall be able to generate events within the video management software.
- G. The video management software shall support the following access control functionality
 - 1. Accept notifications and alarms from an unlimited number of access control units connected to the network.
 - 2. Received notifications and alarms shall be able to generate events within the video management software.

2.6. CLIENT FUNCTIONALITY

- A. The video management software shall be equipped with a graphical user interface, providing the following functionality:
 - 1. Display up to 25 different video streams per client.
 - 2. Display up to 100 different video streams using multiple split views.
 - 3. Support optimized rendering for smooth display of video in resolutions up to 4K.
 - 4. Provide real-time navigation between multi-views using a quick view button.
 - 5. Support drag and drop of video sources within the user interface.
 - 6. Support multiple screens when operating on a computer supporting this.
 - 7. Be able to display facility maps with interactive camera icons to call up live video and audio from the selected camera.

TROY SCHOOL DISTRICT

8. Be able to import graphical map data in the following formats:
 - a. JPEG
 - b. BMP
 - c. PNG
 - d. GIF
 9. Access to functions such as floor plans, video streams, split views, input/outputs, playback, snapshots and alerts shall be configurable on a user level.
 10. Support any aspect ratio provided by the camera, including landscape format (4:3 and 16:9 aspect ratio) and corridor format (3:4 and 9:16 aspect ratio).
- B. The video management software shall provide the following user functionality.
1. Live view functionality:
 2. Single camera live view
 3. Multi-views
 4. Corridor (9:16 aspect ratio) view
 5. Sequence views
 6. De-warping of panoramic (single sensor) cameras
 7. Stitching of multiple views from multi-sensor cameras into a single view
 8. Multi Ultra HD camera live views (3x 4K views)
 9. Flexible live view configuration
 10. Site maps and web page view
 11. Digital PTZ
- C. Recording functionality:
1. Continuous recording
 2. Locking of prioritized recordings
 3. Scheduled recording - customization of weekday and weekend recordings
 4. Event driven recording
 5. Manually initiated recording
 6. Individually and configurable resolution and frame rate for each video source.
 7. Unlimited recorded material based on availability of storage device.
 8. Smart search for recordings based on camera, date and timeline visualization
 9. Video and audio shall be recorded using a manufacturer-designed format preventing manipulation of the content and shall contain information about date, time and source of the recorded material.

TROY SCHOOL DISTRICT

10. Retrieval of failover recordings from cameras or encoders.
- D. Playback functionality:
1. Synchronized playback from up to 36 cameras of at least four different recorded video streams, up to 64x or frame by frame.
 2. Playback at least eight simultaneous full frame rate Full HDTV 1080p (1920x1080 pixels) video streams.
 3. Export (manual or scheduled) multiple selected video and audio sequences to ASF-formats together with standalone player.
 4. Digital signature on exported recordings.
- E. Search functionality
1. Provide an ability to search for video based upon the following criteria's:
 - a. Time & Date
 - b. By camera
 - c. Motion detection within a customizable area of the video
 - d. Video streaming content
 - e. Support "scrubbing" for effective search functionality.
- F. Event functionality
1. The video management software shall be equipped with an event functionality, supporting events triggered in a camera, encoder or other network connected device, and include support for the following triggers:
 2. Detectors
 - a. Video motion detection
 - b. Audio detection
 - c. Alarm functionality
 3. Storage
 - a. Failover recording recovery - recovery of local recordings in camera or encoder after connection disruption
 - b. Recording error
 - c. Storage full
 4. System
 - a. Embedded third-party applications
 - b. Cross Line Detection
 - c. Action button
 - d. Lost connection to network camera, encoder or network disk

- e. Schedule
- f. External I/O and external HTTPS triggers
- g. Device event triggers
- G. Response to triggers shall include:
 - 1. Selecting predefined live view
 - 2. Visual and audible notification
 - 3. Recording of video at defined image quality and frame rate
 - 4. Storing of pre-alarm video at the captured frame rate
 - 5. Activating external outputs on a camera, encoder or other network connected device
 - 6. PTZ control functionality
 - 7. Notification of event, using email or HTTP
- H. The video management software shall provide an event history list, containing up to one year of history
- I. App functionality
 - 1. The video management app shall provide the following functionality when accessing the video management software.
 - a. Live view functionality
 - b. Playback of recorded material
 - c. The ability to create/take snapshots
- J. System functionality
 - 1. The video management software shall support the following functionality:
 - a. Protocol support
 - 1) The video management software shall incorporate support for at least IP, HTTP, HTTPS, TCP, ICMP, RTSP, RTP, RTCP, SMTP, DHCP, UPnP, DNS, Bonjour and LDAP.
 - 2) The SMTP implementation shall include support for SMTP authentication.
 - b. IP addresses
 - 1) The video management software shall operate using static or dynamic IP addresses.
 - 2) The video management software shall provide support for addresses provided by a Dynamic Name Server (DNS).
 - 3) The video management software shall allow for automatic detection of cameras and encoders using UPnP and Bonjour.

TROY SCHOOL DISTRICT

- K. Time - The video management software shall utilize NTP as provided by the server and shall support multiple date formats.
- L. Security - The video management software shall provide/support the following:
 - 1. Client authentication using Microsoft Active Directory
 - 2. TLS-based encryption over HTTPS
 - 3. Configurable roles and permissions
 - 4. Retrieval of a report of user actions
 - 5. Running alongside antivirus
 - 6. Server shall not store passwords in an unencrypted format.
 - 7. Export encryption
 - 8. Restrict access to the systems by usernames and passwords at a minimum of three different levels
- M. API support / Customization and Integration
 - 1. The video management software shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration with third party applications.
 - 2. The video management software shall support video provided from video sources conformant with IEC62676-2-3.
 - 3. The video management software shall include a compliance test tool used to verify compliance of connected devices.
- N. Maintenance and configuration functionality
 - 1. The video management software shall:
 - a. Provide the ability to create multiple users of the system, either from local PC users or through Active Directory, each with individual definable user rights.
 - b. Provide the ability to assign IP address and configure new and replaced cameras and encoders.
 - c. Provide an ability to back up system configuration.
 - d. Provide the ability to upgrade firmware in individual cameras and encoders.
 - e. When connected to Internet, be able to locate suitable firmware updates and download these.
 - f. Provide an ability to create a system report of the complete system. This report shall include at least camera name, IP-address and firmware version.
 - g. Utilize a license model supporting unlimited and flexible system growth where scalability is only limited by overall server performance.

TROY SCHOOL DISTRICT

h. Support defining of individual database retention per camera for a selectable number of days or hours.

O. Export

1. The Client shall allow a user to create quick export in one to five-minute increments.
2. The Client shall initiate an export on the server independent of the client workstation, allowing the user to logoff or use their workstation for other tasks.
3. An operator shall be able to create a JPG snapshot image of the current frame of video in a cell.
4. An operator shall be able to select encryption of exports prior to the export, and the export shall be able protected by the user-entered password.
5. The system shall save the export and permit the operator to download the export to any system-accessible media including locally to HDD, CD/DVD, Flash USB device or to network storage.

2.7. CAMERAS

- A. Provide and install ONVIF Profile S cameras, all associated mounts and other manufacturer/ project specific equipment or material as indicated herein and on project documents.
1. Type A – Varifocal, exterior – Horizontal FOV 36° - 100°
 - a. PELCO model# IME238-1ERS
 - b. Axis model # P3245-LVE
 - c. Hanwha model # QNV-6082R
 - d. Approved equivalent
 2. Type B – Varifocal, interior– Horizontal FOV 36° - 100°
 - a. PELCO model# IME238-1RS
 - b. Axis model # P3245-LV
 - c. Hanwha model # QND-6082R
 - d. Approved equivalent
 3. Type C – Multi-sensor - 270° & 360° FOV applications
 - a. PELCO model# IMM12036-1EP
 - b. Axis model # P3717-PLE
 - c. Hanwha model # PNM-9084RQZ
 - d. Approved equivalent
 4. Type D – Interior and exterior, FOV 180°
 - a. PELCO model# IMM12018-1EP

TROY SCHOOL DISTRICT

- b. Axis model # P3807-PLE
 - c. Hanwha model # PNM-9030V
 - d. Approved equivalent
5. Type E – Panoramic/Fisheye - 360° (Corridor mode) and 2-sensor (2-way Corridors)
- a. PELCO model# EVO-12NMD
 - b. Axis model # P3805-PLVE
 - c. Hanwha model # PNF-9010RV or PNM-7000VD (Dual head for 2-way corridors)
 - d. Approved equivalent

2.8. CABLING AND CONNECTIVITY:

- A. Per Section “Structured Cabling”
- B. Provide, install, terminate and test required cabling. Cabling shall be Certified Category 6 UTP by TIA-568, Plenum rated, Green in color, UL certified

2.9. CABLING PATHWAY

- A. Per Sections “Structured Cabling Systems” and “Firestopping”
- B. Provide and install all required cable pathways, supports, conduit, sleeves and through wall penetrations.
- C. Through wall penetrations in exterior walls shall be sealed to prohibit entry of water, etc.

PART 3 - EXECUTION

3.1. DELIVERY, STORAGE AND HANDLING

- A. Handle and operate products and systems according to the manufacturer’s instructions.
- B. Deliver materials in manufacturer’s original, unopened, undamaged containers with original identification labels.
- C. Protect stored materials from environmental and temperature conditions following the manufacturer’s instructions.

3.2. INSTALLATION

- A. The Integrator’s or subcontractor’s main resources within the project shall carry proper professional certification issued by the manufacturer and verified by a third-party organization to confirm product and technology knowledge.
- B. The Integrator shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.
- C. The database shall be reviewed by the Owner and approved before the Integrator enters it into the system.

TROY SCHOOL DISTRICT

- D. All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.
- E. All firmware found in products shall be the latest and most up to date provided by the manufacturer, or of a version as specified by the provider of the Video Management Application (VMA) or Network Video Recorder (NVR).
- F. All equipment requiring users to log on using a password shall be configured with user/site-specific password/passwords. No system/product default passwords shall be allowed.

3.3. TESTING

- A. The Integrator shall demonstrate the functionality of the VMS upon completion of installation, documenting the result of all tests and providing these results to the Owner.
- B. The VMS shall be tested in accordance with the following:
 - 1. The Integrator shall be responsible for documenting and entering the initial database into the system debugging all issues. Prior to full operation, a complete demonstration of the computer real-time functions shall be performed. A printed validation log shall be provided as proof of operation for each software application package. In addition, a point utilization report shall be furnished listing each point.
 - 2. Upon satisfactory on-line operation of the system software, the entire installation including all subsystems shall be field inspected. Each device shall be tested as a working component of the completed system. All system controls shall be inspected for proper operation and response.
- C. Tests shall demonstrate the response time and display format of each different type of input sensor and output control device. Response time shall be measured and documented with the system functioning at full capacity. Computer operation shall be tested with the complete data file.
- D. The Integrator shall maintain a complete log of all inspections and tests. Upon final completion of system tests, a copy of the log records shall be submitted as part of the as-built manuals along with a letter of certification to indicate that the tests have been performed, and all devices are operational.
- E. The completed system shall be tested in front of the owner or owner's agent. The system test shall be witnessed by the Authority Having Jurisdiction if necessary. Any deficiencies noted during the testing must be corrected.

3.4. MAINTENANCE

- A. Installing integrator shall maintain proper manufactures certification and training during the warranty period. The availability of expansion, replacement and spare parts shall be accessible during the warranty period at standard pricing.
- B. User training for multiple shifts shall be available at the time of acceptance at the owner's location. Additional user e-training shall be available from the manufacturer during the warranty and license periods.

TROY SCHOOL DISTRICT

- C. Hard and electronic copies of installation, maintenance and operations manuals shall be provided at the time of acceptance. As-Built drawings are also to be provided at this time.

END OF SECTION

TROY SCHOOL DISTRICT

SAMPLE CONTRACT

(OWNER)

___ SYSTEMS

This (*System description*) Agreement ("the Agreement") is made on the Effective Date, between ___ (hereinafter called "the Contractor") whose address is ___, and ___ (hereinafter called "the Owner") whose address _____.

RECITALS

- A. The Contractor shall provide the Owner with all of the necessary equipment, components, materials, technology, Documentation, installation, migration services, labor, testing and other related Services for a fully functioning ___ as contemplated in the Request for Proposal (the "RFP").
- B. The Owner desires to obtain ___, including the System(s) and associated Services from the Contractor upon the terms and conditions set forth herein, in the Contract Documentation, in the Request for Proposal, Contractor's Response to the RFP, and subsequent clarifications.
- C. The parties agree that where there is a conflict between terms of this Agreement and the other Contract Documentation, this Agreement shall take precedence. The parties also agree that where there is not a conflict between this Agreement and the other Contract Documentation, to the extent accepted by Owner, all terms and conditions in the RFP and the Contractor's Response to the RFP shall be incorporated by reference into this Agreement and shall be binding upon the parties to this Agreement.
- D. The order of precedence for the Contract Documentation has been set forth in Paragraph 1.1. The parties also agree that where there is not a conflict between this Agreement and the information or terms presented in the other Contract Documentation that all terms and conditions in the other Contract Documents shall be incorporated by reference into this Agreement and shall be binding upon all parties to this Agreement.
- E. Owner and the Contractor each binds themselves, their partners, successors, and other legal representatives to all covenants, agreements, and obligations contained in this Agreement.
- F. It is expressly agreed that the Contractor is not an agent or employee of Owner but an independent contractor. Where the term "Contractor" is used, it includes all employees, subcontractors, consultants and agents of the Contractor. The Contractor shall not pledge or attempt to pledge the credit of Owner or in any other way attempt to bind the Owner.

NOW, THEREFORE, IN CONSIDERATION FOR THE FOREGOING AND THE MUTUAL COVENANTS SET FORTH HEREIN, THE PARTIES HERETO AGREE AS FOLLOWS:

1. DEFINITIONS AND EXHIBITS

- 1.1. Contract Documentation. "Contract Documentation" shall mean (i) this Agreement, (ii) bid bulletins and clarifications attached hereto, (iii) the Owner's Request for Proposal dated ____, (iv) the Contractor's Response to the RFP dated ____, and (v) the Implementation Schedule attached hereto as **Exhibit A**. Said documents shall take precedence in the order set forth in this Paragraph.
- 1.2. Documentation. "Documentation" shall mean (i) all written materials or information relating to the System(s) or its operation, including without limitation, user-oriented and technical operation, reference and training manuals and (ii) the documentation as outlined in the Contract Documentation.
- 1.3. Effective Date. "Effective Date" shall mean the last date on which both parties hereto have executed this Agreement.
- 1.4. Purchase Price. "Purchase Price" shall mean the aggregate amount payable by the Owner for (i) the purchase of the System(s) and (ii) the Services to be provided by the Contractor in accordance with the RFP and to the extent accepted by Owner, the Contractor's Response to the RFP. The Purchase Price is inclusive of all taxes, shipping, handling, material bond(s), payment bond(s), performance bond(s), insurance, and all options as listed on the Price Schedule attached hereto.
- 1.5. System(s): "System(s)" shall mean any and all paging and classroom audio equipment, components, cable, materials, connectors, operating systems, jumpers, installation, documentation, testing, miscellaneous items and materials necessary for a fully functioning solution to achieve the requirements contained in the Contract Documentation.
- 1.6. Services. "Services" shall mean any and all labor, design, installation, testing, documentation, training, debugging and acceptance testing activities.
- 1.7. Site. "Site" shall mean the locations set forth in the Contract Documentation.
- 1.8. Term: "Term" of this Agreement shall commence on the Effective Date and shall terminate sixty (60) months from the date of Final Acceptance of the System.
- 1.9. All provisions contained in the Recitals of this Agreement are binding upon the parties to this Agreement.

2. TURNKEY SOLUTION

- 2.1. Turnkey Solution. This Agreement and the other Contract Documentation set forth the terms and conditions upon which the Contractor will provide a "turnkey" solution for installation and operation of the System(s) for use by the Owner. The Contractor agrees that it will provide a complete "Turnkey Solution" to the Owner. The Contractor shall be responsible for the successful installation and operation of the System(s) in all phases of design, acceptance testing and Documentation of the System(s) as detailed in the Contract Documentation.
- 2.2. The Contractor's Obligation. In consideration of the payment of the Purchase Price, it is agreed and un-

TROY SCHOOL DISTRICT

derstood that the Contractor shall be obligated to provide the products, System(s) and Services in accordance with the terms and conditions contained in the Contract Documentation.

- 2.3. Guarantee. Contractor will guarantee its design, operation and functionality of the System(s), in accordance with the Contract Documentation.
- 2.4. Walk-Through. Contractor has had an opportunity to review the Site and acknowledges that it has no concerns with its proposed design that would prohibit Contractor from guaranteeing the installation and operation of the System(s), as contemplated in the Contract Documentation.
- 2.5. Turnkey Solution. Contractor will supply all labor, materials, equipment and Services necessary to provide the System(s) in accordance with the Purchase Price set forth in Paragraph 3.1 and in **Exhibit B** attached hereto. The Contractor represents and warrants that the purchase of the System(s) and installation Services provided to the Owner will constitute a fully operational solution as contemplated by the Contract Documentation.

3. PAYMENT

- 3.1. Purchase Price. The Contractor agrees to sell to the Owner and the Owner agrees to purchase the System(s) and Services upon the terms and conditions set forth in this Agreement at a price not to exceed \$_____. (Details are provided in Exhibit B)
- 3.2. Payment Terms: Payment shall be in accordance to the following schedule:
 - (A) Progress billing shall be submitted monthly for Services-to-date expended by the Contractor and/or System(s)/equipment that is delivered **and/or** installed, based on a mutually agreed upon percentage of completion between the Owner and the Contractor. Total progress payments shall not exceed 90% of the total Purchase Price. Progress billings shall reflect the 10% retainage referenced below.
 - (B) The remaining 10% will be payable within (30) thirty days of Final Acceptance of the completed System(s) by the Owner or its designated representative in accordance with Paragraph 5.5 (a) and (b) Acceptance of Installation. The retainage shall be payable based upon the Final Acceptance of all Sites.
- 3.3. Request for Payment. The Contractor shall submit to Convergent Technology Partners the contractor's standard invoice or AIA Application for Payment forms upon completion of the payment terms referenced in Paragraph 3.2 above. Approved invoices shall be paid within thirty (30) days from date of approval of the invoice. In the event of disputes an invoice is not approved, Owner shall notify Contractor within thirty (30) days of receipt of the invoice. Failure to give such notice does not constitute a waiver of such a dispute.
- 3.4. Taxes. The Purchase Price is **inclusive** of any applicable taxes. The Owner, however, is a tax-exempt entity except if the Project makes additions and/or enhancements to real property.
- 3.5. Performance Bonds. The parties acknowledge that the System(s) falls within the performance and payment bond statute for public works. Contractor shall provide a performance bond and a labor and materials payment bond upon award of this Agreement in a form acceptable to the Owner. The bonds shall be equal in amount to the total Purchase Price. The bonds shall, at a minimum, remain in effect for one year after Acceptance of Installation in accordance with Paragraph 5.5 (A) and (B). Said bonds shall be provided by

TROY SCHOOL DISTRICT

a Surety having a rating of A- or better from A. M. Best and Co. and said Surety shall be authorized to do business in the State of Michigan. In the event that the Contractor fails to perform its obligations under any contract between the Contractor and the Owner, the performance bond shall be paid to the Owner. The Contractor further agrees to save and hold harmless Owner and agents from all liability and damages of every description in connection with any subsequent contracts with any third parties. The Contractor shall submit both the performance and payment bonds to the Owner's Business Office within two weeks of the Effective Date of this Agreement or prior to the start of Work, whichever comes first. This Agreement shall be unenforceable by Contractor against Owner until the terms of this Paragraph have been satisfied. The cost of said bonds is included in the Purchase Price referenced in Paragraph 3.1 above.

- 3.6 Purchase Quantities. The Owner reserves the right to adjust upward by two (2) times, or downward by twenty-five (25%) percent, the quantities of items purchased without altering the unit Purchase Price upon award and throughout the Term of this Agreement until Final Acceptance of the Project.
- 3.7 Payment Disputes. Disputes regarding requests for payments will be communicated to Contractor by Owner, in writing, within thirty (30) days of the receipt of invoice. Payments will not be delayed unless Contractor is unable to resolve the matter to Owner's satisfaction ten (10) days prior to payment due date.

4. INSTALLATION AND ACCEPTANCE

- 4.1 Installation Plan. The Contractor shall install the System(s) in accordance with the Implementation Schedule that will be developed and agreed to by the parties prior to awarding of the Bid Proposal. Installation may occur in phases in order to meet the requirements of the Implementation Schedule. The Contractor shall deploy additional resources necessary to meet the Implementation Schedule. In the event the Contractor is unable to adhere to the attached Implementation Schedule or complete the Implementation Schedule as attached, the Owner shall have the option to terminate this Agreement, award the remaining work to another contractor or negotiate a final completion date. In the event the Owner so terminates this Agreement and awards the remaining work to another contractor, the Contractor shall be responsible for and shall hold Owner harmless from any costs or fees to complete the Project which exceed the amount of the Purchase Price remaining unpaid at the time of termination. Any changes or deviations to the Implementation Schedule caused by failure of the Owner or any third parties to meet the completion date set forth therein, shall result in a Implementation Schedule adjustment in the same magnitude which shall be subject to the Contractor's approval, which approval shall not be unreasonably withheld. Contractor shall not be entitled to monetary recovery for delays in installation caused by failure of the Owner, Owner's employees or the Owner's independent contractors.
- 4.2 Project Manager. The Contractor must designate an on-site Project Manager for the duration of the Project. Project Management will be within the guidelines as defined in the RFP.
- 4.3 Legal Compliance. The Contractor shall comply fully with all federal, state and local laws, statutes, ordinances, rules, regulations and codes applicable to the Work performed as well as all applicable provision of the Occupational Safety and Health Act. This includes, but is not limited to the Federal Davis-Bacon Act, 40 U.S.C. 3141, et seq., as applicable. The Contractor shall be responsible for adhering to all local and state fire codes and shall be responsible for firestopping all penetrations utilized.

TROY SCHOOL DISTRICT

- 4.4 Employee Qualification. All Contractor's employees shall be thoroughly experienced in the particular class of work in which they are employed. In the event Owner determines that Contractor's employees are unqualified, unresponsive or otherwise unacceptable, Contractor will remove and replace said employees from the Project in consultation with the Owner. In the event that an employee of the Contractor is, in the reasonable opinion of the Owner, uncooperative, incompetent or otherwise unacceptable, the Contractor agrees to remove such person from responsibility in the Project. In the event of such a removal, the Contractor shall, within fifteen (15) days, fill this representative vacancy in consultation with the Owner. Regardless of whom the Contractor has designated as the Project Manager, the Contractor remains the ultimate responsible party for performing the tasks and responsibilities presented in this Agreement.
- 4.5 Status Meetings. The Contractor shall coordinate and participate in regular status meetings between the Owner's Project Coordinator (Convergent Technology Partners) and the Contractor's Project Manager; at which time a list of open items with targeted responsibility and due dates will be established.
- 4.6 Access to Sites. The Contractor will coordinate access to the Sites per the procedures outlined by the Owner.
- 4.7 Compliance with OSHA. Contractor shall comply with all applicable provisions of the Occupational Safety and Health Act throughout the duration of the Project. Contractor shall also comply with all applicable laws, statutes, regulations, ordinances, codes, orders, rules and regulations in existence as of the date of this Agreement.
- 4.8 Testing. The Contractor shall perform all testing as to meet the specifications identified in the RFP and applicable bulletins.
- 4.9 Documentation. The Contractor shall provide all Documentation as required in the RFP and applicable bulletins.
- 4.10 Site Damage. The Contractor shall be responsible for restoring the physical Site to its original status for any damage resulting from the actions or omissions of the Contractor, its employees, subcontractors and consultants. The Owner shall determine whether the Contractor shall remedy the damage or a third party shall remedy the damage, to be compensated by the Contractor. The Owner shall have the authority to back-charge the contract amount or receive reimbursement from the Contractor related to remedying such damage.

5. WARRANTY

5.1 Warranties on Equipment.

- (A) The Contractor shall provide all warranties as identified in the RFP and, as accepted by the Owner, the Contractor's Response to the RFP and all applicable bulletins and clarifications. All warranties are effective from the date of the Final Acceptance of the System(s).

TROY SCHOOL DISTRICT

- 5.2 The Contractor Representations and Warranties. In addition to the warranties set forth above, the Contractor represents and warrants that:
- (A) The Contractor possesses full power and authority to enter into this Agreement and to fulfill its obligations hereunder;
 - (B) The performance of the terms of this Agreement and of the Contractor's obligations hereunder shall not breach any separate agreement by which the Contractor is bound; and
 - (C) The Contractor is financially sound to perform its obligations hereunder, and agrees that any material adverse change in such status shall be immediately communicated in writing to the Owner.
- 5.3 Warranty of Fitness For A Particular Purpose. The Owner has presented detailed technical specifications of the particular purpose for which the System(s) is intended. The Owner has provided detailed descriptions and criteria of how the System(s) can be defined to accomplish the particular purpose. The Owner has also defined the procedures and techniques to be employed in testing whether the System(s) has achieved the defined performance of this particular purpose. Given this advanced preparation concerning, and documentation about the Owner's particular purpose, the Contractor at the time this Agreement is executed has (1) reason and opportunity to know the particular purpose for which the System(s) are required, and (2) that the Owner is relying on the Contractor's experience and knowledge of the System(s) to provide a System(s) that is most suitable and appropriate. Therefore, the Contractor warrants that the System(s) is fit for the purposes for which it is intended as described in the Contract Documentation.
- 5.4 Warranty. The Contractor warrants that all components provided under this Agreement, whether installed initially or under subsequent purchase orders, shall be: newly manufactured equipment or assembled from newly manufactured parts; approved by Underwriter's Laboratories; and, will be free from defects in workmanship or material for a period as specified in the RFP, Contractor's Response to the RFP, and all bulletins and clarifications from the date of Final System(s) Acceptance. During this warranty period, the Contractor shall furnish all new replacement parts, shipping costs, repaired parts, service labor, travel costs, and other repair costs at no cost to the Owner. At the conclusion of the warranty period, the Owner will consider Contractor support under a separate maintenance agreement. Contractor shall pass-through to Owner all warranties of the third-party manufacturers of any such components.
- 5.5 Acceptance of Installation.
- (A) Within thirty (30) days of receipt of written notice from Contractor that installation and testing of the System(s) is completed and upon receipt by Owner of the Contractor's documentation including, but not limited to, "as-builts", warranty certification and test results verifying successful testing of the System(s) the Owner shall either accept or reject such System(s) by written notice to Contractor based upon determinations made by Owner's Technology Designer or Project Coordinator. Failure to give written notice of acceptance or rejection of System(s) within thirty (30) day period shall constitute acceptance. Any rejection shall expressly state the deficiencies giving rise to the rejection. Upon rejection of the System(s) by Owner, the Owner shall provide Contractor with reasonable access to correct deficiencies identified, which correction shall be completed within ten (10) days of the date of access. Upon correction, Contractor again shall provide written notice to Owner that installation and testing is completed and the acceptance/ rejection process set forth above shall be repeated. This procedure shall continue until the installation of the System(s) is accepted or finally rejected by Owner.

TROY SCHOOL DISTRICT

(B) Upon final rejection by Owner of the System(s), Owner may without prejudice to any other rights or remedies of Owner and after giving Contractor and Contractor's surety seven (7) days written notice, terminate this Agreement with Contractor and may, subject to any prior rights of the surety take possession of the materials and finish the Project by whatever method Owner may deem expedient. If the Owner terminates this Agreement pursuant to this Paragraph, Contractor shall not be entitled to receive further payment until the Project is finished and accepted by the Owner. If the unpaid balance of the Purchase Price and any other costs and/or expenses due to Contractor exceeds costs of finishing the Project, such excess shall be paid to Contractor. If such costs exceed the unpaid balance of the Purchase Price, Contractor or Contractor's surety shall pay the difference to Owner. Nothing in Paragraph 5.5 shall be construed to limit Owner's remedies under any warranty set forth below with respect to System(s).

5.6 Final Acceptance of the System(s). The System(s) proposed shall be defined to be finally accepted by Owner after meeting all requirements of this Agreement and the other Contract Documentation. The Owner or Owner's representative shall be the sole judge of whether all conditions for Final Acceptance have been met.

6. TERMINATION

6.1 Right to Terminate on Breach. Each party shall have, in addition to all other remedies available to it, the right to terminate this Agreement immediately upon written notice to the other party that the other party has committed a material breach of any of its obligations herein

and such material breach shall not have been cured or corrected within ten (10) days following written notice of the same.

6.2 Events upon Termination. Upon termination of this Agreement by either party for breach or default of the other party, each party shall be entitled to exercise any other right, remedy or privilege which may be available to it under applicable law or proceed by appropriate court action to enforce the terms of this Agreement or to recover damages for the breach of this Agreement. Upon termination of this Agreement, the Contractor shall immediately provide the Owner with all current drawings and Documentation regarding this Project. In the event of termination, title to all equipment purchased by the Contractor for integration into the Project shall pass to Owner, and Contractor shall deliver possession of said equipment to Owner at a location to be designated by Owner.

7. GENERAL

7.1 Risk of Loss. The Contractor assumes all risk of loss or damage to the equipment prior to acceptance. Title to the equipment will pass at that time.

7.2 Governing Law. This Agreement shall be construed in accordance with, and its performance governed by, the laws of the State of Michigan.

TROY SCHOOL DISTRICT

- 7.3 Assignment. This Agreement and any interest herein may not be assigned or transferred, in whole or in part, by either party without the prior written consent of the other party, and any assignment or transfer without such consent shall be null and void.
- 7.4 Severability. If any provision of this Agreement is held invalid or unenforceable, the remainder of this Agreement shall nevertheless remain in full force and effect. If any provision is held invalid or unenforceable with respect to particular circumstances, it shall nevertheless remain in full force and effect in all other circumstances.
- 7.6 Entire Agreement. This Agreement constitutes the entire agreement between the parties, supersedes all previous agreements, written or oral, and there are no understandings, representations or warranties of any kind, express, implied or otherwise, not expressly set forth herein.
- 7.7 Non-Waiver and Modification. Waiver by either party of any default or breach of any provision of this Agreement by the other party shall not be construed as a waiver of any subsequent default or breach. No extension of time for payment or other accommodation granted to a party shall operate as a waiver of any of its rights under this Agreement. No provision of this Agreement may be modified by a party without the prior written consent of the other party.
- 7.8 Insurance. During the Term of this Agreement, Contractor will maintain the following insurance coverage for itself and its employees: (a) Commercial General Liability covering bodily injury and tangible property damage liability with minimum limits of \$2,000,000.00 per occurrence; (b) Workers' Compensation under applicable state workers' compensation laws with minimum statutory limits; (c) Technology Errors & Omissions Liability covering damages arising out of negligent acts, errors, or omissions committed by its employees in the performance of this Agreement in the amount of \$ n/a per occurrence and actual liability with \$ n/a minimum limit per occurrence; (d) Automobile Liability with limits of \$1,000,000.00 for each occurrence combined single limit of liability for bodily injury, death, and property damage, including owned and non-owned automobile coverages, as applicable. Contractor shall provide certificates of insurance to Owner prior to the commencement of any Services. *Owner* shall be named as an "Additional Insured" on all such Policies and each policy shall be endorsed to provide *Owner* with at least thirty (30) days written notice prior to any material reductions to, or termination of, any such policies. Contractor shall include the insurance coverages, limits and requirements contained in this Paragraph in any and all contracts Contractor may have with any of its subcontractors.
- 7.9 Survival. All provisions of this Agreement which, by their nature, should survive termination shall survive termination of this Agreement.
- 7.10 General Indemnification. The Contractor agrees to indemnify, hold harmless and defend the Owner, its Board and its Board members in their official and individual capacities, its successors, assignees, employees, contractors and agents from and against any and all claims, costs, expenses, damages, and liabilities, including reasonable attorney's fees, arising out of the (i) negligent act or willful misconduct of the Contractor, its officers, directors, employees, subcontractors, consultants and agents, (ii) any breach of the terms of this Agreement by the Contractor, its officers, directors, employees, subcontractors, consultants and agents or (iii) any breach of any representation or warranty by the Contractor under this Agreement. Owner agrees to notify Contractor by certified mail, return receipt requested, of any claim, suit, action, or proceeding for which it may be entitled to indemnification under this Agreement. Contractor

TROY SCHOOL DISTRICT

shall have the sole right, but not the obligation, to control the defense of any such claim. Owner agrees to provide reasonable assistance to Contractor, at Contractor's expense, in defense of same.

- 7.11 Shipping of Equipment. All shipping and insurance costs to and from the Site shall be included in the Contractor's Bid Proposal. All payments to shipping agents and for insurance fees shall be made directly by the Contractor. The Owner shall make no payments to any firm concerning the shipment, installation and delivery of equipment which is not a part of this Agreement and for which exact payments are not described. Contractor shall be responsible for all arrangements for the shipment and receipt of equipment to Owner's Site. The Contractor shall provide all properly trained representatives to unpack all items of equipment and place the equipment in the proper locations. The Contractor shall also be responsible for removal of all debris and packing materials from the Site resulting from the installation of the equipment.
- 7.12 Non-Waiver of Agreement Rights. It is the option of any party to this Agreement to grant extensions or provide flexibilities to the other party in meeting scheduled tasks or responsibilities defined in this Agreement. Under no circumstances, however, shall any parties to this Agreement forfeit or cancel any right presented in this Agreement by delaying or failing to exercise the right or by not immediately and promptly notifying the other party in the event of a default. In the event that a party to this Agreement waives a right, this does not indicate a waiver of the ability of the party to, at a subsequent time, enforce the right. The payment of funds to the Contractor by Owner should in no way be interpreted as acceptance of the System(s) or the waiver of performance requirements.
- 7.13 Intellectual Property Indemnification. The Contractor agrees to indemnify, hold harmless and defend, at its sole expense, the Owner from any claim or suit brought against the Owner arising from claims of violation of United States patents or copyrights or claims of misappropriation or misuse of trade secrets resulting from the Contractor or the Owner use of any equipment, System(s), Documentation, and/or data developed in connection with the Services and products described in this Agreement. The Owner will provide the Contractor with a written notice of any such claim or suit. The Owner will also assist the Contractor, in all reasonable ways, in the preparation of information helpful to the Contractor in defending the Owner against this suit. In the event that the Owner is required to pay monies, in defending such claims, resulting from the Contractor being uncooperative or unsuccessful in representing the Owner's interest, or in the event that the Owner is ordered to pay damages as a result of a judgment arising out of an infringement of patents and/or copyrights, Contractor agrees to fully reimburse for all monies expended in connection with these matters.

The Owner retains the right to offset against any amounts owed Contractor any such monies expended by the Owner in defending itself against such claims.

Should a court order be issued against the Owner restricting the Owner's use of any product, and should the Contractor determine not to further appeal the claim issue, at the Owner's sole option the Contractor shall provide, at the Contractor's sole expense, the following:

- (a) Purchase for the Owner the rights to continue using the contested product(s), or
- (b) Provide substitute products to the Owner which are, in the Owner's sole opinion, of equal or greater quality.

TROY SCHOOL DISTRICT

If (a) or (b) are not commercially feasible, Contractor will refund all monies paid to the Contractor for the product(s) subject to the court action. The Contractor shall also pay to the Owner all reasonable related losses related to the product(s) and for all reasonable expenses related to the installation and conversion to the new product(s).

- 7.14 Nondiscrimination By Contractor Or Agents Of Contractor. Neither the Contractor nor anyone with whom the Contractor shall contract shall discriminate against any person employed or applying for employment concerning the performance of the Contractor responsibilities under this Agreement. This discrimination prohibition shall apply to all matters of initial employment, tenure and terms of employment, or otherwise with respect to any matter directly or indirectly relating to employment concerning race, color, sex, religion, age, national origin, or ancestry. A breach of this covenant may be regarded as a default by the Contractor of this Agreement.
- 7.15 Subcontractors. When using any subcontractors, the Contractor must obtain the Owner's prior written approval. In using subcontractors, the Contractor agrees to be responsible for all their acts and omissions to the same extent as if the subcontractors were employees of the Contractor.
- 7.16 Effect of Regulation. Should any local, state, or national regulatory authority having jurisdiction over the Owner enter a valid and enforceable order upon the Owner which has the effect of changing or superseding any term or condition of this Agreement, such order shall be complied with, but only so long as such order remains in effect and only to the extent actually necessary under the law. In such event, this Agreement shall remain in effect, unless the effect of the order is to deprive the Owner of a material part of its Agreement with the Contractor. In the event this order results in depriving the Owner of materials or raising their costs beyond that defined in this Agreement, the Owner shall have the right to rescind all or part of this Agreement (if such a rescission is practical) or to end this Agreement term upon thirty (30) days written prior notice to the Contractor. Should this Agreement be terminated under such circumstances, the Owner shall be absolved of all penalties and financial assessments related to cancellation of this Agreement.
- 7.17 Non-Collusion Covenant. The Contractor hereby represents and agrees that it has in no way entered into any contingent fee arrangement with any firm or person concerning the obtaining of this Agreement. In addition, the Contractor agrees that a duly authorized Contractor representative will sign a non-collusion affidavit, in a form acceptable to Owner, acknowledging that the Contractor firm has not received from any incentive or special payments, or considerations related to the provision of System(s) and Services described in this Agreement.

TROY SCHOOL DISTRICT

IN WITNESS WHEREOF, the parties have executed this Agreement to be effective as of the date first set forth above.

OWNER:

CONTRACTOR: _____

BY: _____

BY: _____

TITLE: _____

TITLE: _____

DATE: _____

DATE: _____

TROY SCHOOL DISTRICT

EXHIBIT A

Implementation Schedule

EXHIBIT B

Price Schedule

Subtotal	
Performance, Labor and Material Bond	
Total Contract Price	