



POUDRE SCHOOL DISTRICT R-1

REQUEST FOR PROPOSAL

DISTRICT-WIDE CELLULAR and DIGITAL TRUNKED RADIO DISTRIBUTED ANTENNA SYSTEM CONTRACTOR

RFP #20-680-008

PROPOSAL SCHEDULE

RFP Posted to BidNet	February 24, 2020
Mandatory Walkthrough	March 3, 2020, 9 a.m. MST
Questions due	March 6, 2020, 2 p.m. MST
RFP Closing Date	March 24, 2020, 2 p.m. MST
Anticipated RFP Evaluation	March 25 – March 30, 2020

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DISTRICT-WIDE CELLULAR and DIGITAL TRUNKED RADIO DISTRIBUTED ANTENNA SYSTEM CONTRACTOR

Poudre School District (the District) is accepting formal proposals from experienced Distributed Antenna System (DAS) solution providers to establish a contract for District-wide Cellular and Digital Trunked Radio (DTR) wireless in-building enhancement.

A copy of the Request for Proposal (RFP) and any associated addenda may be obtained from the Rocky Mountain E-Purchasing (BidNet) website: <http://www.RockyMountainBidSystem.com>.

All contractors planning to submit proposals are required to attend a **mandatory walkthrough starting at 9 a.m. MST on Tuesday, March 3, 2020** beginning at **Poudre High School** (201 Impala Drive, Fort Collins 80521). Proposals received from contractors who did not attend the mandatory walkthrough will not be considered.

Questions regarding this RFP must be in writing and directed to the District through the BidNet platform any time after the issuance of this RFP through and including **2:00 p.m. MST on March 6, 2020**. Questions received after the deadline date/time and/or not submitted electronically through the BidNet platform may not be addressed. Each question submitted, as well as the District's response thereto, shall be provided in an addendum through BidNet.

Note: Every question must be submitted individually. Multiple questions per entry will not be answered.

The District will only accept and consider electronically submitted bids. Bids must be submitted and received in BidNet's electronic solicitation portal by **2:00 p.m. MST on March 24, 2020**. At that time the submission portal will close, and no further submissions will be allowed, nor considered.

At no time during the solicitation process will communication regarding this RFP be permitted with any District employee other than the Procurement Agent named below until an award has been announced. Communication with a District employee other than the Procurement Agent named below may disqualify your bid from consideration.

District staff shall review the bids received in response to this RFP during the bid consideration period commencing on March 25, 2020. During the bid consideration period, the District may ask questions of and/or request additional information from contractors who have submitted bids.

Sales Prohibited/Conflict of Interest: No officer, employee, or member of the School Board, shall have a financial interest in the sale to the school district of any real or personal property, equipment, material, supplies or services where such officer or employee exercises directly or indirectly any decision-making authority concerning such sale or any supervisory authority over the services to be rendered. This rule also applies to subcontracts with the District. Soliciting or accepting any gift, gratuity favor, entertainment, kickback or any items of monetary value from any person who has or is seeking to do business with the District is prohibited.

Collusive or sham bids: Any bid deemed to be collusive or a sham bid will be rejected and reported to authorities as such. Your authorized signature on the bid assures that such bid is genuine and is not a collusive or sham bid.

The District reserves the right to reject any and all proposals and to waive any irregularities or informalities.

Sincerely,
Karen Wailly
Senior Procurement Agent

BACKGROUND

The District is a high-performing district, covering more than 1,800 square miles in northern Colorado with diverse school settings. The District's instructional program is centered around District Ends, under the Policy Governance model, developed to support a comprehensive curriculum.

While more than 70% of the District's families choose to send their children to their neighborhood school, the District does support school choice and offers a wide spectrum of educational programs to fit any child's needs. Program options include International Baccalaureate, Core Knowledge, Bilingual/Dual Language Immersion, Hybrid/Online, Expeditionary Learning, Science, Technology, Engineering and Math (STEM) along with extra-curriculars and athletics. The District has two LEED certified school buildings and over 30 Energy Star awards and supports operational sustainability in all areas of work.

Schools:

- 31 elementary schools
- 10 middle schools
- 4 comprehensive high schools
- 6 option (100% choice) schools
- 3 alternative high schools
- 4 charter schools
- 1 online school

The District is fully accredited by the Colorado Department of Education Accreditation and Accountability Unit and is subject to periodic monitoring to ensure continued compliance with accreditation standards.

1.0 GENERAL CONDITIONS

- 1.1 This is a solicitation for an offer and is not an offer to contract for goods or services.
- 1.2 Submission of a response is deemed as acceptance of all terms, conditions and specifications contained in the solicitation package provided to the prospective contractor (the "Contractor"). Any proposed modification must be accepted in writing by the District prior to award of the submittal.
- 1.3 Contractor must provide all requested information. Failure to do so may result in rejection of the submittal at the option of the District.
- 1.4 The District is exempt from City, County, State and Federal Sales/Excise Taxes. Tax Exempt Certificates will be issued upon request. The District's Tax-Exempt Number is: 98-03335.
- 1.5 Submittals must meet or exceed specifications contained in this document.
- 1.6 The Contractor, its employees, representatives and subcontractors agree to abide by all applicable federal, state and local codes, laws, rules and regulations, as well as all District construction requirements and specifications.
- 1.7 The Contractor shall furnish all supplies, which conform to all applicable safety codes and regulations.
- 1.8 By affixing its signature to the Proposal Certification Form in this RFP, the Contractor certifies that its submittal is made without previous understanding, agreement, or connection with any persons, firms or corporations offering a submittal to the District. The Contractor also certifies that its submittal is in all respects fair, without outside control, collusion, fraud, or otherwise illegal action. Failure to properly sign the Proposal Certification Form may result in the submittal being considered non-responsive.
- 1.9 Contact with District personnel regarding this RFP, other than inquiries to the specific Procurement Agent identified in this document, may be grounds for elimination from the selection process.
- 1.10 Notwithstanding any other term or provision of this RFP, the District's obligations hereunder are expressly subject to its budgeting and appropriation of sufficient funds for each fiscal year (July 1 - June 30). In no event shall the District's obligations constitute a multiple-fiscal year direct or indirect debt or other financial obligation under Article X, Section 20(4)(b) of the Colorado Constitution.
- 1.11 In the event the District has reasonable grounds to believe that any individual assigned to perform work under the District-issued purchase order or negotiated agreement executed as a result of this Solicitation (the Contract) has a criminal record, is a registered sex offender, is under the influence of alcohol or other substance, has exhibited violence or based upon other information the District deems reliable; the District may exclude such individual from any school building or grounds or impose reasonable conditions upon such individual's presence upon any

school premises. In the judgment of the District, if any Services cannot be performed as a result of such action, the Contract may be terminated.

- 1.12 The awarded Contractor shall provide any and all Services under the Contract, as an independent Contractor of the District, and the persons performing Services shall not be considered employees of the District. Contractor shall be exclusively responsible for: (a) all compensation, employment tax withholdings and payments, and all fringe benefits for its employees in full compliance with all applicable federal, state and local laws; (b) all insurance coverage's and benefits for its employees in full compliance with all applicable federal, state and local laws, including but not limited to pension or retirement benefits, workers' compensation, unemployment compensation, and Social Security benefits; and (c) all payments to its suppliers and subcontractors for Services directly or indirectly related to this Solicitation and under the Contract.
- 1.13 Information and materials submitted in response to this RFP may be considered public records subject to disclosure under the Colorado Open Records Act ("CORA"), C.R.S. §§ 24-72-200.1 to -205.5. Information and materials that the Contractor believes are confidential and not subject to disclosure under CORA must be submitted separately with a citation to the section of CORA and any other relevant law under which the Contractor believes they are confidential. The District, not the Contractor, shall determine whether information and materials so identified will be withheld as confidential, but will inform the Contractor in advance of disclosure to give it an opportunity to take legal action to protect its interests vis-à-vis the party making the CORA request.
- 1.14 The accuracy of the submittal is the sole responsibility of the Contractor. No changes in the submittal shall be allowed after the submission deadline, except when the Contractor can show clear and convincing evidence that an unintentional factual mistake was made, including the nature of the mistake and the price actually intended.
- 1.15 For services requiring the Contractor's presence on District property and the project site, the Contractor must provide proof of insurance that meets the insurance requirements stated in Section 7.0 of this document.
- 1.16 Contractor must note in the RFP response any intent to use subcontractors. The subcontractor's name, address, phone number and three client references, along with the type of work to be performed must be included. Use of subcontractors may be considered as a factor in the District's evaluation process. If the Contractor fails to notify the District of its intent to use subcontractors in the proposal submittal, the proposal may be considered a void offer. Subcontractors will be allowed only by written permission of the District. The Contractor agrees that it is fully responsible to the District for the acts or omissions of its subcontractors or any persons employed by them, in the same way as it is for the acts and omissions of persons directly employed by the Contractor. Nothing contained in the contract or any subcontract shall create any contractual relation between any subcontractor and the District.
- 1.17 The District reserves the right to reject any and all proposals or any part thereof, to waive any formalities, and further, to award the proposal to the responsible Contractor as deemed in the best interest of the District.

- 1.18 There is no expressed or implied obligation for the District to reimburse responding firms for any expenses incurred in preparing proposals in response to this request.
- 1.19 Responses to this RFP will be independently evaluated by an evaluation committee to be established for such purpose. Proposals submitted will be evaluated using pre-determined objective rating criteria. Those that are clearly non-responsive to the stated requirements may be eliminated prior to the evaluation. Prior to proposal submission, Contractors are encouraged to check the BidNet website to ensure additional requirements are incorporated into its submissions.
- 1.20 The District reserves the right to negotiate further with one or more Contractor or to request additional information. The District may make such inquiries and conduct such investigations as it deems necessary to determine the qualifications and ability of the Contractor to provide the services called for under the RFP and/or represented in the Contractor's response. Contractors shall timely provide information to the District in connection with such inquiries and investigations. Contractors may be asked to give presentations to the District regarding their proposals.
- 1.21 Should the District determine, in its sole discretion, that only one Contractor is fully qualified or that one Contractor is clearly more highly qualified than the others under consideration, a Contract may be negotiated and awarded to that Contractor.
- 1.22 Once the evaluation is complete and the intent to award is issued to the recommended Contractor(s), the recommended Contractor(s) will work with the District's Contract Administrator to successfully negotiate a Contract.
- 1.22.1 The RFP will become part of the Contract and will be in effect for the duration of the Contract period. The Contract language will control over any language contained within this RFP that conflicts with the signed and fully executed Contract.
- 1.23 The District intends for the Contract to commence May 2020 and continue in full force and effect through and including June 2021, unless earlier terminated by the District as provided in Section 1.33 below. The final award and Contract start date is contingent upon a successfully negotiated and fully executed Contract between the District and the recommended Contractor. The *intended* date is provided for planning purposes only.
- 1.24 For services provided, and at the option of the District, the Contract may be extended beyond the first term for up to four (4) additional one-year terms subject to the parties' negotiation of mutually agreeable one-year fee schedule for each successive one-year term.
- 1.24.1 Extension of the Contract beyond the initial period is a District prerogative and not a right of the Contractor. The prerogative will be exercised only when such continuation is clearly in the best interest of the District. Changes in price and/or specifications of renewal maintenance must be submitted to the District for review and approved at least (60) days prior to the end of the term and agreed upon by both parties.

- 1.25 Contractor agrees to provide the Services covered in this RFP in strict accordance with the District's specifications and at the price noted.
- 1.26 Unless otherwise agreed in writing by the District, the District's acceptance of any offer is made in reliance on Contractor's promised service performance time. If Contractor fails to deliver as and when promised, the District may, without liability and in addition to its other rights and remedies at law or in equity, cancel the order by notice effective when received by Contractor as to Services not yet rendered, and purchase substitute Service elsewhere and charge Contractor with any loss incurred.
- 1.27 The Contractor shall not assign the Contract, as a result of this Solicitation, or any of its rights, interests or obligations without the prior written consent of the District. The consent may be withheld for any reason or no reason as determined by the District in its sole discretion.
- 1.28 The awarded Contractor will agree to not refuse to hire, discharge, promote, demote, or to otherwise discriminate in matters of compensation against any person otherwise qualified solely because of race, creed, gender, national origin, ancestry or physical handicap.
- 1.29 The transactions covered herein, and the terms of the Contract shall be governed and construed in accordance with the laws of the State of Colorado. Venue for any and all legal action shall be solely in the District Court in and for Larimer County, State of Colorado.
- 1.30 All information and supplemental documentation required in conjunction with Contractor's submittal shall be furnished by the Contractor with its submittal. If the Contractor fails to supply any required information or documents, its submittal may be considered non-responsive and ineligible for award.
- 1.31 The apparent silence or omissions within this RFP regarding a detailed description of Services to be provided shall be interpreted to mean that only the best commercial practices are to prevail and that only workmanship of first quality are to be used.
- 1.32 Payment for the Services furnished by the awarded Contractor shall not constitute acceptance thereof. The District shall have the right to inspect the products of such Services, and to reject any or all of which are in the District's judgment defective or nonconforming. Nothing contained herein shall relieve, in any way, Contractor from the obligation of testing, inspection, and quality control.
- 1.33 The District may terminate the Contract at any time in its sole discretion for any reason, with or without cause, upon written notice served on the awarded Contractor no less than thirty (30) days prior to the date of termination. In the event of such early termination by the District, the Contractor shall be paid up to the date of termination for services performed under and in accordance with this Contract.
- 1.34 Contractor certifies, represents, warrants and agrees that it will not knowingly employ or contract with an illegal alien to provide services under this Contract and will not enter into a Contract with a subcontractor that fails to certify to Contractor that the subcontractor will not knowingly employ or contract with an illegal alien to provide

services under this Contract. Contractor also certifies, represents, warrants and agrees that it will confirm the employment eligibility of all its employees who are newly hired for employment to provide services under this Contract through Contractor's participation in either: (a) the E-Verify Program created under federal law and jointly administered by the Department of Homeland Security and the Social Security Administration; or (b) the Colorado Department of Labor and Employment Program ("Department Program") established pursuant to C.R.S. § 8-17.5-102(5)(c).

1.35 Contractor shall not use either the E-Verify Program or the Department Program procedures to undertake pre-employment screening of job applicants while this Contract is being performed. If Contractor obtains actual knowledge that a subcontractor providing services under this Contract knowingly employs or contracts with an illegal alien, Contractor shall notify the subcontractor and the District within three (3) days that Contractor has such actual knowledge and terminate the subcontract within three (3) days of providing the notice if the subcontractor has not stopped employing or contracting with the illegal alien. Contractor shall comply with any reasonable request made by the Department of Labor and Employment in the course of an investigation undertaken pursuant to the authority of C.R.S. § 8-17.5-102(5). If Contractor participates in the Department Program, it shall: (a) notify the District and the Department of Labor and Employment of such participation as required by law; and (b) within twenty (20) days after hiring an employee to provide services under this Contract, provide to the District a written notarized copy of an affirmation that it has examined the legal work status of such employee, retained file copies of the documents required by 8 U.S.C. § 1324a, and not altered or falsified the identification documents for such employee.

1.36 Qualifications of Contractor

1.36.1 The District may make such reasonable investigations as deemed proper and necessary to determine the ability of the Contractor to perform the work and the Contractor shall furnish to the District all such information and data for this purpose as may be requested.

1.36.2 The District further reserves the right to reject any proposal if the evidence submitted by, or investigations of, such Contractor fails to satisfy the District that such Contractor is properly qualified to carry out the obligations of the Contract and to complete the work/furnish the item(s) contemplated therein.

1.37 Miscellaneous

1.37.1 Appeal of Award. Contractor may appeal the award by submitting, in writing, a request for re-consideration to the District's Purchasing Manager within seventy-two (72) hours after the receipt of the notice of award.

1.37.2 In the event the awarded Contractor defaults on its Contract or the Contract is terminated for cause due to performance, the District reserves the right to re-procure the Services from another Contractor or from other sources during the remaining term of the terminated/defaulted Contract. Under this arrangement, the District shall charge the awarded Contractor any differences between its price and the price to be paid to the next lowest Contractor, as well as, any costs associated with the re-solicitation effort which resulted from such default or termination.

- 1.37.3 This solicitation does not commit the District to award a Contract or to pay any costs incurred in the preparation of a proposal or to procure a Contract for the Services. The District reserves the right to accept or reject any or all proposals received as a result of this RFP or to cancel in part or in its entirety this RFP if it is deemed to be in the best interest of the District. The District reserves the right to accept any portion of the proposal or the entire proposal as deemed in the best interest of the District.
- 1.37.4 For the purposes of the RFP evaluation, Contractors must indicate any variances to the specifications and terms and conditions, no matter how slight. If variations are not stated in the Contractor's response, it shall be construed that the proposal fully complies with the specifications and terms and conditions. Notwithstanding the above, it is hereby agreed and understood that the District reserves the right to reject these variations if they individually, or as a whole, do not meet the standards established in the specifications.

1.38 Warranties

- 1.38.1 Notwithstanding prior acceptance of Services by the District, the Contractor shall expressly warrant all delivered Services provided, as properly functioning at the start of operations and compliant with the terms of the Contract and industry standards thereafter. The warranty period will begin at the time the Services have been formally accepted in writing by the District.
- 1.38.2 During the warranty period, the Contractor shall be responsible and bear all costs to correct any problems, defects and/or deficiencies reported which do not meet the specifications set forth in the Contract.
- 1.38.3 The Contractor will correct all defects and/or deficiencies associated with the Contract and replace incorrect or defective Services within five (5) business days of written notification from the District to the Contractor. If, within five (5) business days after written notice by the District to the Contractor, the Contractor has not corrected all defects and/or deficiencies, the District may correct all defects and/or deficiencies at the Contractor's expense.
- 1.38.4 Contractor warrants that all Services furnished under the Contract shall be merchantable and shall be safe and appropriate for the purpose for which Services of like kind are normally used. If Contractor knows or has reason to know the particular purpose for which the District intends to use the Service, Contractor warrants that such Services shall be fit for that particular purpose. Contractor warrants that all Services furnished under the Contract shall be new unless otherwise specified by the District, and that the title conveyed regarding such Services shall be complete and its transfer rightful. Contractor agrees to promptly replace or correct all defects and/or deficiencies in any Service not conforming to the foregoing warranties, without expense to the District, provided the District elects to allow Contractor the opportunity to do so.

- 1.38.5 Defects and/or deficiencies properly noted in writing to the Contractor before expiration of the warranty period will be fully covered regardless of such expiration.
- 1.38.6 In the case of emergency, repairs and/or replacement may be made without notice being given to the Contractor if determined by the District that delay would cause certain loss or damage. The Contractor shall pay the cost of these emergency repairs and/or replacements. Contractor shall, upon District request, provide proof as to the kind and quality of materials and equipment. Contracted work shall, likewise, be free of defects and in conformance with industry standards. Contractor also warrants that its workers will be sufficiently skilled to produce high quality work, free of faults and defects. Work not conforming to these requirements, including unauthorized substitutions, may be considered defective. Contractor further warrants that the construction processes and methods employed to perform the work shall be suitable for the results required and expected. If the Contractor proposes to use an unproved and untried method, process or product, the District must be advised of the proposal in writing and give approval. The District may permit experimentation but may require special guarantees by the Contractor to cover the experimental work.
- 1.38.7 By acceptance of a Contract as a result of this Request for Proposal, in addition to the guarantees and warranties provided by law, Contractor expressly guarantees and warrants as follows:
- a. That the articles to be delivered hereunder will be manufactured, sold and/or installed in compliance with the provisions of all applicable Federal, State and Local laws and regulations.
 - b. That nothing contained herein shall exclude or affect the operation of any implied warranties otherwise arising in favor of the District.

2.0 INTRODUCTION

- 2.1 The District desires improved wireless communications in its schools and administrative facilities throughout the District and seeks to identify one or more Contractor to enhance the signals from Commercial Wireless Service Providers (CWSPs), as well as the local public safety 800 MHz trunked radio system (DTRS) in these facilities.
- 2.2 The District intends to select Contractor(s) based on proposals for three (3) District sites following surveys performed by the Contractors. The District will evaluate the capabilities in design, analysis and price of the three (3) sites.
- 2.3 The Contractor(s) must be capable of identifying the specific areas in need of wireless systems enhancement, designing a system to provide the necessary enhancement, coordinating with the appropriate service providers, supplying the necessary equipment, as well as providing install, test and commissioning services for a Distributed Antenna System (DAS) in each identified facility. Part of the Contractors' responsibility in this process is to serve as technical experts for the District in support of agreements with the CWSPs. As such, the selected Contractor

must be conversant on the standards used in the industry and for each wireless service provider for engineering and designing systems to meet the current and reasonably foreseeable requirements.

- 2.4 The Contractor must be capable of incorporating the requirements of the CWSPs into the DAS design and will be responsible for identifying and resolving any conflicts that arise pertaining to the CWSP requirements. Any changes necessary to secure CWSP approval will be performed at no additional cost to the District.
- 2.5 Contractor must provide a proposed design and price proposal for a DAS for three (3) sample facilities based on specific coverage requirements and proposed enhancement areas as determined by the Contractor following its site surveys.
 - 2.5.1 The proposed DAS designs and cost proposals of the three (3) sample facilities will serve as a base for all other like-sized sites.
 - 2.5.2 The District will provide an opportunity for Contractors to tour the facilities and collect survey data on March 3, 2020. All Contractors planning to submit proposals are required to attend the **mandatory walkthrough** starting at 9 a.m. MST. All three sites will be visited, starting with Poudre High School, then Leshar Middle School, and finally Tavelli Elementary School.
- 2.6 Surveys of the three (3) facilities shall be performed in accordance with Section 4.3 of this RFP.
 - 2.6.1 Poudre High School: 201 Impala Drive, Fort Collins, CO 80521
 - 2.6.3 Leshar Middle School: 1400 Stover Street, Fort Collins, CO 80524
 - 2.6.2 Tavelli Elementary School: 1118 Miramont Drive, Fort Collins, CO 80524
- 2.7 Building floorplans for the three (3) facilities will be provided at the site surveys.
- 2.8 Following selection of the Contractor(s) through this RFP process, the District will identify additional facilities to be addressed. The District will decide to augment a facility and will issue a purchase order for the facility and initially authorize the Contractor to perform a site survey at a fixed price. The Contractor will provide the survey results, including recommended enhancement areas to the facility. The District will then determine if it wishes to pursue development of a DAS design for this facility and request the Contractor develop a proposed design and cost for a DAS to achieve specific results based on the survey. The design will be accompanied with a turnkey construction proposal for the DAS (including cost, bill of materials, and schedule). The design phase will also include the collaboration with the CWSPs to secure any necessary approvals for the selected facility. If the District decides to proceed with the design at the quoted price, the District will authorize the Contractor to proceed with the turnkey construction of the DAS for the selected facility.
- 2.9 To facilitate this process, Contractors will be required to provide pricing for:
 - Site survey – elementary or middle school
 - Site survey – high school
 - System design – elementary of middle school

- System design – high school, and
- Commercial wireless service provider contact and design approval (per provider).

3.0 SCOPE OF WORK

3.1 Phase 1: Preliminary Survey

The survey phase shall be conducted per the requirements of Section 4.3 below. The survey phase shall result in the collection of data sufficient to provide evidence of the need for DAS and to collect sufficient information to determine the scope and design of the DAS.

3.2 Phase 2: Design

The design phase shall be conducted per the requirements of Section 4.1 below. The design phase shall identify how the Contractor proposes to achieve the desired results, identify all components needed to achieve the desired results, shall identify the timeframe and plans associated with the implementation of the system, and shall provide sufficient detail to secure CWSP approval, where required. The design shall be compliant with all functional and performance requirements specified within this RFP and the CWSPs (where applicable). Where the requirements in this RFP and the CWSP requirements conflict, the more stringent requirement shall apply. Contractors shall identify any conflicts in their proposal and their proposed remedy. The Design shall address the individual needs of each wireless network.

3.3 Phase 3: Implementation

The Implementation phase shall include all activities required to achieve the required level of performance specified in this RFP including, but not limited to, installation of amplifiers, cable, fiber, antennas, coordination and integration with CWSP activities (i.e., installation of cell site equipment), and equipment configuration.

3.4 Phase 4: Testing and Acceptance

The testing and acceptance phase will be conducted according to the requirements of Sections 4.7 and 4.8. The testing and acceptance phase must demonstrate compliance with the requirements specified in this RFP and must also satisfy the requirements of the CWSPs and the Poudre Fire Authority.

3.5 Phase 5: Operations

The operations phase requires the Contractor maintain, repair, and otherwise ensure that the DAS continues to operate according to the requirements of this RFP, the Poudre Fire Authority, and the CWSPs.

3.6 The District reserves the right to issue purchase orders for one or more facilities at its convenience. The District also reserves the right to select separate Contractors for the DTRS and CWSP DAS portions of a facility and to issue separate purchase orders at its discretion.

3.7 For facilities where a single Contractor is chosen for both the DTRS and CWSP portions of the DAS, the District may require separate pricing and billing for the DTRS and CWSP portions.

4.0 **PROPOSAL SECTIONS AND REQUIREMENTS**

In its submission, the Contractor must address each of the categories and items outlined in this section below. Where particular requirements are specified, the Contractor must confirm its submission complies with these requirements. Contractors may provide additional detail regarding its approach to aid the District in evaluating its proposal. The proposal shall include content in each of the following sections, in the order they appear.

4.1. System Design and Component Requirements

Each facility within the District that is identified as needing wireless systems enhancement will require the design and installation of a Distributed Antenna System (DAS) to support that facility. The DAS must include the capability to support the State of Colorado Digital Trunked Radio System (DTRS). Each facility may also require enhancement of the four nationwide commercial service providers (AT&T, Sprint, T-Mobile, Verizon), based on need and agreement to participate.

The District requires that all DAS equipment and cabling supporting the DTRS shall remain separate from the equipment and cabling used to enhance the commercial service providers' networks for those facilities that require enhancement of both types of systems. However, common cabling paths and conduit should be used where feasible. Equipment and cabling used to support multiple CWSPs may be common or combined based on the proposed design. All equipment shall be FCC Type Certified.

DTRS Portion

The DAS to support the DTRS will be an "off-air" system which will utilize a roof-mounted donor antenna to receive from and transmit to the best DTRS site. The Contractor will survey each candidate facility and make signal measurements to determine the best DTRS site to use as a donor site for the DAS. This portion of the DAS will utilize a public safety grade Bi-Directional Amplifier (BDA) to amplify the signal in both directions (downlink and uplink). A Class A ("channelized") BDA that supports uplink squelching is required for the DTRS.

This portion of the system must incorporate the appropriate cabling, distribution and combining equipment and indoor server antennas to provide the required coverage throughout the facility. The DAS for this portion of the system must meet all requirements established by the International Fire Code (IFC) Section 510 (2018 Edition) and the National Fire Protection Association (NFPA) as specified in the IFC. These publications provide specific requirements for the design and installation, included the following areas (as well as others), as summarized below:

- a. Coverage: Addressed in a separate section of this document.
- b. Equipment Enclosures: All signal booster components shall be contained in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet.
- c. Installation Requirements and Survivability: The installation of the public safety radio coverage system shall be in accordance with NFPA 1221 and Sections 510.5.1 through 510.5.4.
- d. Standby Power: Systems shall include dedicated standby batteries. If the facility supplies emergency generator backup power, the standby batteries shall be

sized to provide not less than 2-hour standby power at 100-percent system capacity. If the facility does not supply emergency generator backup power, the standby battery supply shall be capable of operating the emergency responder radio coverage system at 100-percent system capacity for a duration of not less than 12 hours. Contractor shall provide calculations verifying the standby batteries meet the required specifications.

- e. Antenna Isolation: Isolation shall be maintained between the donor antenna and all inside antennas to not less than 20dB greater than the system gain under all operating conditions.
- f. System Monitoring: The emergency responder radio enhancement system shall be monitored by a listed fire alarm control unit, or where approved by the fire code official, shall sound an audible signal at a constantly attended on-site location. The Contractor will be required to supply connections for alarm monitoring of the DAS and the District will be responsible for interfacing the DAS alarms into the existing facility fire alarm control unit. The Contractor will be responsible for supporting the testing and integration of the interface.

CWSP Portion

This portion of the DAS shall be a neutral host type of DAS, where multiple CWSP signals can be independently connected and routed through a common set of equipment. The system shall be designed to accommodate and meet the technical approval of each major CWSP in the United States including:

- AT&T Wireless
- Sprint
- T-Mobile
- Verizon.

The CWSP Portion of the DAS shall be designed to meet the requirements of each CWSP. The following requirements are the baseline CWSP requirements and shall be used for the basis of the design proposals. However, to the extent that any one CWSP has more stringent requirements, the more stringent requirement shall prevail. Contractors shall identify any deviation from the following requirements in their proposal and the rationale for the deviation. The system may be fiber or copper LAN cable connected from the head end or hub units to the remote units. Contractors shall identify the type of systems it intends to employ. The system must be designed such that operation of the individual service providers and independent of each other, such that:

- a. Each CWSP's signal in each operating band and end-to-end DAS gains (in both downlink and uplink) shall be adjustable independently from all other CWSPs, within the limits of the DAS equipment
- b. Downlink signal levels will be allocated so that no CWSP downlink adjustment will take away all or a portion of the downlink signal power allocated to another CWSP
- c. Uplink signal gains will be independently adjustable at the interfaces to the drive sources.

This portion of the DAS shall be designed to meet the following requirements:

- d. The active portions of the DAS shall be SISO configured
- e. The passive DAS components should be configured for 2x MIMO configured
- f. The DAS should be designed for a single sector, but scalable to accommodate additional sectors in the future
- g. The following frequency bands are to be supported as applicable for each CWSP:
 - 600MHz
 - 700 MHz
 - 850 MHz
 - 1900 MHz
 - 2100 MHz
- h. The DAS shall accommodate all technologies and frequency bands required by each CWSP within the region.
 - The Contractor shall provide an explanation as to how additional bands and technologies would be added to the DAS in the future and the cost for such an enhancement for specific additional bands and technologies anticipated in the coming years.
- i. Active and passive intermodulation that occurs within the equipment shall not produce narrowband 3rd order intermodulation products, wideband noise, or any other spurious signals, that degrades any portion of any uplink bands by more than 1 dB.
- j. The uplink noise figure shall be less than 6 dB for individual remote units.
- k. The repeater uplink noise figure shall be less than 6 dB at maximum gain.
- l. The repeater downlink noise figure shall be less than 10 dB.
- m. The design must be compatibility with RF drive sources that would be expected to be used by the CWSPs:
 - At a minimum, this includes repeaters as well as small cells.
 - For the design proposal responses to this RFP, Contractors shall assume an eNodeB/base station signal source will be used.
- n. For those portions of the DAS intended to use a repeater drive source, the repeater equipment:
 - Shall be acceptable to the CWSP whose signals use the repeater to drive their portion of the DAS.
 - Each CWSP shall have the capability to independently disable rebroadcast of the RF source if required.
 - Shall be DSP filtered for individual bands and software programmable for filtering, where the filtering per band shall be flexible to provide separate filtering for all possible sub-bands in each major band.
 - Shall have independent gain adjustments for each band and sub-band, over a minimum range of 30 dB.
 - The uplink and downlink gains shall be independently adjustable, with the capability to incorporate uplink gain reduction below the downlink gain.

- o. The repeater uplink and downlink shall have at least a -30 dBm input 1 dB compression point at the main unit connection for all gain settings, exclusive of any external attenuation.
- p. The design must include propagation plots demonstrating compliance with the coverage requirements.
- q. The uplink performance will have gain settings and noise figure levels such as to be compatible with the driving source for each different CWSP:
 - Repeater driven DAS signals will not degrade the donor base station(s) by more than an amount specified for the CWSP. This standard of performance will be met whether the repeating system is over-the-air connected, or optically connected.
 - For a dedicated cell sector driving the DAS for a CWSP, the uplink gain of the DAS will be adequate to allow the DAS noise figure to dominate over the source's noise figure. This level of noise figure dominance will be agreed upon with the CWSP prior to commissioning.
- r. There shall be an Administrator, or Master login for use by the District or its designee, where viewing and adjustment of any and all signals, gains, etc. can be accomplished.
- s. The system configuration settings shall not be lost due to power loss.
- t. Recovery to normal operation shall occur within 3 minutes after restoration of system power.

General Requirements

For the sample facility, Contractors must describe their system design approach in their response, including details relating to:

- a. Conceptual details of the system architecture including make and model of all major system components.
- b. A system block diagram detailing components and interface types.
- c. Include proposed locations and quantities of all major system components to include:
 - Input ports for connection of RF signal sources.
 - Fiber remotes.
 - Antennas (donor and in-building (server)).
 - The proposed signal distribution and cabling requirements (Coax and fiber) and routes to meet RF coverage requirements relative to the survey results.
- d. Identification of adequate power for all active equipment at all locations, and definition of any needed upgrades to power.
- e. Identification of the backup power capability/specifications.
- f. The alarming and system monitoring capability/specifications.
- g. Identification of the mounting components (such as racks) adequate to accommodate equipment with growth space.

- h. Identification of and proposed physical locations for signal sources to be installed for all wireless services, including donor antenna locations and mounting facilities as required (any special conditions).
- i. Coverage antennas may be separate, discrete units or integrated with active devices.
- j. Coverage antennas, and all passive RF components, shall cover the frequency range of the active devices if integrated, or 617-2700 MHz for discrete antennas.
- k. Coverage antennas shall be PIM rated to adequate levels for 3rd 2 tone IM products to be at or below -110 dBm for all operating conditions. This applies for PIM test frequencies in all bands of use.

4.2. Coverage

All DAS must achieve the following coverage requirements and be compliant with FCC OET Bulletin 65 General Public exposure limits at a 24-inch distance. In their response, Contractors must describe their design criteria and methodology used to establish their design and how they confirmed their design will meet the coverage requirements. The Contractor, following installation of each DAS, will be required to verify compliance with the coverage requirements via on-site testing. The Contractor will be required to correct any areas found to be non-compliant at no additional cost to the District.

DTRS Coverage

The portion of the DAS used to support the DTRS will meet the signal strength requirements as specified in the 2018 edition of the IFC Section 510. This specifies that both the inbound and outbound signal levels shall be sufficient “to provide not less than a Delivered Audio Quality (DAQ) of 3.0” in 95 percent of all areas on each floor of the building. DAQ 3.0 is defined as “Speech understandable with slight effort. Occasional repetition necessary due to Noise/Distortion.” The Contractor will be required to perform a survey of each facility identified by the District to determine the necessary enhancement infrastructure to meet the requirement as stated above.

CWSP Coverage

The District requires coverage for the CWSPs within all areas of the schools from either the external macro network or an installed DAS, except for specific facilities and maintenance areas that have restricted access.

The portion of the DAS supporting the CWSPs shall meet the following signal dominance requirements for the High School facility proposal. Subsequent facilities may use these requirements as a baseline, but the final decision on the areas requiring DAS signal dominance will be driven by each CWSP’s requirements for that facility. If there are opportunities to reduce these areas to save implementation costs, yet still have coverage in the entire facility and receive approval from the CWSPs, those should be explored.

- a. Full signal coverage requirements as specified herein are to be implemented in all public space areas of each school building to include, subject to approval by each CWSP, the signal dominance of the in-building DAS signals over the macro

signals as specified in EXHIBIT A: Signals per Band and Minimum Downlink Signal Levels. These spaces include:

- Hallways and atriums
 - All staff offices and teacher's lounges
 - Cafeterias
 - Libraries
 - Gymnasiums
 - Theaters and auditoriums
- b. All remaining coverage areas of the facility must exhibit the minimum usable signals specified in Appendix D, but in these areas, the in-building DAS signal dominance over the macro signals is not required.

4.3. Survey Methodology

As described in this RFP, Contractors will be required to perform site surveys of three selected facilities and provide their results and recommendations to the District. Following identification of the Contractor(s), each facility identified by the District will be surveyed to measure existing coverage performance in order to determine required enhancement areas for each of the identified services.

The survey will entail measurement of signal strength for each wireless service (DTRS and four CWSPs) and capture the following baseline information:

- Signal levels in all areas of the facility for all active bands and technologies to include:
 - RSRP for LTE signals
 - Pilot for UMTS or CDMA/EVDO signals
 - RSSI for the DTRS signal.

The Contractor must provide in its response, a description of its survey methodology to be used to acquire sufficient data to facilitate a design which will be used to present to each of the CWSPs to gain acceptance and participation. Describe your understanding of each of the CWSPs requirements and the proposed survey steps to acquire the data necessary to satisfy those requirements.

For those wireless services where a repeater drive source is anticipated, then candidate donor antenna locations and azimuths, along with signal quality parameters must also be surveyed. The locations must be capable of achieving adequate isolation, while meeting aesthetic limitations and allowing for a suitably strong mounting design. This donor antenna information must be gathered separately for each wireless service that may use a repeater as a signal source.

The survey results shall be presented in a plain view format as follows:

- The signal readings shall be overlaid on a plan view of the school building. The plan view should be sufficiently detailed to see room walls but not be overly cluttered with other details.

- The signal readings shall be represented by dots colored via a signal level bin, where each range of signal levels is represented by a different color.
- The signal ranges of bins should be in dB increments to allow for accurate design of indoor DAS signal dominance over the macro signals.
- The color coding for the bins, and the bin signal ranges, shall be clearly identified in an easily found legend.

In addition to the signal measurements, the site survey will identify potential equipment mounting locations and cable routes. The results of the survey are to be provided to the District with the following information:

- Signal measurement results as described above and overall qualitative assessment of signal levels within the facility.
- Suggested signal enhancement areas for each wireless service and spectrum band, and
- Recommended equipment locations and cabling requirements.

Contractor shall provide any additional information it desires in describing its approach to performing and documenting the surveys and also identify any specific requirements or assistance to be provided by the District.

4.4 Capacity

The installed DAS must be capable of handling the anticipated capacity specified by each service provider for its portion of the system. All portions of the DAS shall be scalable for expansion into new areas of the facility as well as additions of new frequency bands and services.

The public safety portion of the DAS must be capable of supporting the full complement of channels utilized by the DTRS donor site to be used in addition to having the capability to support a minimum of 50% more channels than currently in use. The DAS must be capable of supporting these additional channels without additional hardware or a system redesign. Additionally, the public safety portion of the DAS must be capable of supporting P25 Phase II TDMA operation with no degradation in performance.

In their proposed design description, Contractors shall describe how their proposed design meets these specific requirements.

4.5 Infrastructure Requirements

The Contractor must provide a detailed description of the proposed system design in its response, including all equipment to be installed, mounting locations, proposed cabling and routing plans, and any required infrastructure and equipment room space and cable pathway access to be provided by the District.

The cabling components of the DAS shall meet the following requirements:

- All fiber and CAT cable use and connections shall be per the manufacturer's specifications.
- All coax cable shall be a nominal 50-ohm impedance and industry standard sizes such as 1/2" and 7/8" shall be used.
- The cable outer conductor shall be a continuous metal shield for all runs over 6'. Braided outer conductor coax may be used in smaller sizes for jumpers, not to exceed 6'.
- Coax connectors shall be made by the same manufacturer of the coax.
- Coax connectors shall be of a stainless-steel body and of the 'Helix' self-flaring style of connection for the outer conductor, with a matching spring finger style of connection to the inner conductor.
- Coax connectors shall be of the type to make a direct connection to the mating equipment (such as active equipment, couplers, antennas) without an adapter and shall have a hex outer ring for connector torqueing.
- Coax connectors shall meet PIM requirements of 3rd order IM level of less than -110 dBm for 2 tone testing at 20W per tone. This applies for PIM test frequencies in all bands of use.

The design shall include provisions for backhaul or other landline signal connection into the system.

There shall be a minimum of 48 strands of single mode fiber from the DAS head end to the main communications point of presence. The connectors, pairing, and tip polish are to be as required for the backhaul equipment for each CWSP.

4.6 Convergence

The Contractor shall identify any potential common usage or opportunities available to the District as a result of the equipment and cabling to be deployed as part of the proposed system.

For those portions of the DAS design that utilize fiber installations, these installations shall include a minimum of 100% spare fiber stands in each bundle and patch panels with spare capacity to be installed at each interconnect point in the DAS.

4.7 Test Plan

Once each DAS has been installed but prior to certification for operation, the DAS must be thoroughly tested to confirm it meets the design requirements. In their response, the Contractors shall confirm compliance with the requirements defined here and provide further details on the test methodology that will be used to confirm operation of the DAS. At minimum, Contractors shall meet the testing requirements described below.

DTRS Portion of the DAS

The portion of the DAS designed to support the DTRS shall, at minimum, comply with the acceptance test procedure specified in IFC Section 510. This procedure is repeated here as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system or equipment approved by the fire code official.
3. Failure of more than one test area shall result in failure of the test.
4. In the event that two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than two nonadjacent test areas shall not result in failure of the test. If the system fails the 40-area test, the system shall be altered to meet the 95-percent coverage requirement.
5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered to be a failure of that test area. Additional test locations shall not be permitted.
6. The gain values of all amplifiers shall be measured, and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation, a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and at subsequent annual inspections.

The DAS must be tested to ensure that it meets isolation requirements and that there is no uplink noise contribution to the donor site. For isolation, the Contractor must demonstrate that isolation shall be maintained between the donor antenna and all inside antennas to not less than 20dB greater than the system gain under all operating conditions.

To demonstrate the limit on uplink noise contribution, the Contractor must capture downlink signal levels received at the BDA to estimate the pathloss to the host site, determine the uplink noise level at the output of the BDA (with squelch off), and confirm that the DAS is configured to operate 15 dB below the measured noise floor of the donor site.

The Contractor shall support testing of the DAS system monitoring capability and the integration into the existing facility fire alarm control unit in conjunction with the District.

Commercial Portion of the DAS

Testing of this portion of the system must occur prior to integration of any of the CWSPs and also when each CWSP is integrated into the system. This latter portion of the testing will be addressed in the "Certification Process" section. The following requirements are the baseline test requirements. In the event that CWSPs have additional test requirements in order to approve the DAS, the Contractor must comply with those additional requirements. Contractors shall include any known additional test elements required by the carriers in the region and shall indicate the additional cost associated with those additional activities.

Prior to integrating the commercial providers, the following tests must be performed:

- Coax and branch DTF and RL testing
- PIM Testing
- Fiber testing
- Integrated DAS testing

Coax and branch Distance to Fault (DTF) and Return Loss (RL) Testing

Definitions:

- A coax segment is a single length of coax with connectors.
- A branch is defined as a coax DAS array, complete with couplers, splitters, and antennas that is fed directly by an active device.

Procedure:

1. All coax segments will be tested for Distance to Fault (DTF) into a calibrated load and open. Return Loss and Insertion Loss will be performed at both Low and High Bands – a total of 6 tests per cable segment.
 - a. Low Band Sweeps will be set as 617-894MHz.
 - b. High Band Sweeps will be set as 1710-2700MHz. Resolution shall be > 500 data points.
 - c. Equipment calibration sheets will be included with reports and techniques for testing will adhere to the manufacture's recommendations.
 - d. RL on any segment shall be -18dB or lower.
 - e. DTF/RL shall be <-24dB between the connectors into a calibrated load.
 - f. DTF/RL shall be performed into an open or short to obtain a clean cable length determination for reporting purposes.
2. Branch level RL testing shall be performed once all devices are installed in the final configuration and connections torqued.
 - a. Branch level RL testing shall be done for 617-984 MHz and for 1710-2700 MHz.
 - b. For active DAS or one driven by a repeater, RL results should not exceed the worse specification of all devices or <-16dB, whichever is more stringent.
 - c. For a single branch, 100% passive DAS directly driven by multiple WSP radios through a passive combining system, the RL shall be measured

through the radio combining equipment. The RL shall be adequately low to ensure adequate isolation between radios to avoid active IM between radios. This has to necessarily be a radio manufacturer's specification, but typically will require the RL levels to be more stringent. An RL of 20-25 dB would be typical.

Coax Segment and Branch Passive InterModulation (PIM) Testing

Definitions:

- A coax segment is a single length of coax with connectors.
- A branch is defined as a coax DAS array, complete with couplers, splitters, and antennas that is fed directly by an active device.

Procedure:

- The third order harmonic PIM products will be measured.
 1. Cable Segment Testing:
 - a. Will be performed with 2x20W tones into a low PIM calibrated load only.
 - b. The pass/fail standard is relative PIM @-153dBc.
 - c. A low band 700MHz and high band 2100MHz PIM test will be performed for each cable segment.
 2. System (Branch level) testing will be performed with 2x20W tones to test the completed branch including all passive devices, jumpers and antenna.
 - a. The pass/fail criterion for the system test is relative PIM @-140dBc.
 - b. A low band 700MHz and high band 2100MHz PIM test will be provided for each branch.

Fiber Cable Testing

Procedure:

1. All field terminated fiber optic cables shall be tested for Insertion Loss (IL) and DTF.
2. IL shall not exceed 0.5dB per mated connector plus 0.5dB/km.
3. All fiber links shall not exceed 80% of the fiber equipment manufacturer's optical loss specifications.
4. Method of testing, and equipment models and equipment calibration sheets, shall be provided with the fiber test report.

Integrated fiber DAS Testing and Reports

Procedure:

1. An integrated fiber DAS shall be tested to demonstrate proper integration of all system components prior to integrating WSP signals.
2. The test will demonstrate proper communications between all elements of the DAS.

3. A test report will be generated consisting of screen shots or page downloads of various programming screens and/or status screens for each fiber connected DAS component that shows:
 - a. Operating parameters such as optical power received and or transmitted
 - b. Alarm status
 - c. Internal gain settings
 - d. Complete interconnection of all active system components.
4. The test report screens will vary depending on the fiber DAS manufacturer. It will be sufficient to show a reviewer that the fiber DAS is fully connected, basic operational parameters are set or within normal ranges, and the there are no alarms present.
5. An overall block diagram of the DAS will be generated or updated, showing exact physical locations, configurations, connections etc. in the form of an As-built diagram.

4.8 Certification Process

In its response, the Contractor shall describe the methodology that will be used to certify and commission the DAS prior to operation, while meeting the minimum requirements described below.

DTRS Portion of the DAS

For the portion of the DAS that supports the DTRS, the operation must be verified and approved by an appropriate representative from the Poudre Fire Authority to confirm that it meets the coverage and performance requirements. Additionally, a DTRS representative must confirm that the DAS does not interfere with or adversely impact the radio system.

Commercial Portion of the DAS

The following tests and activities must be performed for each CWSP that is to be connected to the DAS. This work must be done for each CWSP added onto the system, regardless of the order or timing of each CWSP's addition. It is permissible to add more than one CWSP on at a time and perform the work in this section as one task.

- Connection of the CWSP RF sources to the DAS and adjustment
- Documenting active DAS test information specific to each CWSP's signals
- Live testing of the DAS performance in the building coverage areas
- Meeting any CWSP specific testing.

Connection of the CWSP RF source to the DAS

- Provide necessary connecting cables and association parts (which typically will be coaxial cables), to connect the DAS to the CWSP RF sources.
- Coordinate with the CWSP to activate the RF sources and make adjustment to the DAS system to activate the signals on the DAS.

Documenting active DAS test information specific to each CWSP's signals

- Active DAS settings, DL power levels, UL noise levels, gain and loss settings, and all such related info available from the DAS equipment shall be recorded as screen shots or page downloads from the DAS equipment and presented in a report.
- Any and all connections from the CWSP source connections to the DAS equipment will be documented in diagrams. This includes any RF connections and any monitoring connections.
- If adjustments to the DAS settings are made during or after live signal testing, then the final DAS settings must be documented. The objective is to maintain DAS configuration and adjustment info up to date as the DAS changes and matures.

Live testing of the DAS performance in the building coverage areas

- Provide DAS signal testing for each CWSP's signal set through the DAS
- Report the following parameters
 - Overall signal coverage levels in a readily understood format
 - A typical format would be colored dots at each approximate measurement location, with different colors signifying different signal range 'bins.'
 - Document coverage in each operating band and for each technology. For each technology record at a minimum:
 - LTE services: RSRP, RSRQ, CINR, and PCI key performance indicators.
 - CDMA/EVDO services: Pilot Ec, PN Code, and Ec/Io key performance indicators.
 - UMTS services: RSCP, PSC, and Ec/Io key performance indicators.
 - Coordinate with the WSP on where to make signal measurements and how many. Test points should ensure that any required DAS signal dominance over macro signals is adequately measured and documented.
 - Record the signal level 10' from each radiating point for one technology and one band.
 - Document each test position and signal as exactly as possible on a plan view of the building. The objective is to have a reference over-the air test level for later system troubleshooting.
 - Document the test tools used.
- Specific CWSP required testing.
- The selected Contractor shall be responsible for ascertaining and performing any special tests required by any CWSP that is not covered herein.

4.9 Expansion

In its response, the Contractor shall describe the capability of the product to be expanded to support additional capacity, frequency bands, or systems.

The public safety portion of the DAS, at a minimum, must be capable of supporting the full complement of channels utilized by the DTRS donor site to be used in addition to having the capability to support a minimum of 50% more channels than currently in use without redesign.

4.10 Support Model

The Contractor shall describe the recommended support required for the DAS and its components, once the system is installed. This response must include items such as equipment warranty, system monitoring, equipment spares, equipment repair, reconfiguration or modification of the equipment if necessary, updates to address service provider changes (such as frequency changes) or address changes in the RF conditions, building additions/modifications, etc.

The Contractor must identify what support / maintenance services they can offer to the District in support of the DAS and the pricing model for those services. The Contractor's proposal shall address the response times to address problems requiring on-site presence, whether its staff provides monitoring of the systems 24/7, repair and replacement of equipment intervals, and other aspects of the Contractor's support offering.

4.11 Training

The Contractor shall offer training to District staff to enable the staff to operate the systems, including basic troubleshooting practices to ensure the continued operation of the systems.

4.12 Project Approach

The Contractor shall describe in its response how the project will be managed and coordinated. This description must include how the work will be planned, designed, constructed, tested, certified and turned over to the District, consistent with the specific requirements outlined in this RFP, as well as other procedures and best practices to be followed by the Contractor. The Project Approach section will identify any proposed deviation from the baseline requirements of this RFP.

4.13 Schedule

The Contractor shall provide a proposed project schedule for a typical facility showing major milestones as well as how they will be tracked and reported. The project schedule must include an overall deployment schedule for the installation of the DAS equipment within the facility. The schedule must include sufficient detail to enable the District to judge the work and to accommodate the coordination within its standard work routines. For the commercial portion of the DAS, the schedule must include typical timeframes and processes for obtaining CWSP permission, coordination, and commissioning. The DTRS portion of the DAS must be complete and tested by June 1, 2021.

4.14 Price

Contractors shall provide their price proposal for a turnkey DAS for each of the three sample facilities to enhance coverage in accordance with the coverage requirements specified in Section 4.2. The price shall be provided per phase and individual activity as described below. The Contractor's prices for phase 1 and 2 shall be fixed for the facility types identified.

The turnkey price proposals must include (and be broken down in discrete pricing per activity) the following activities:

- a. DAS system design to enhance the following wireless services:
 - AT&T
 - Sprint
 - T-Mobile
 - Verizon, and
 - The local portion of the State of Colorado 800 MHz trunked radio system.
- b. Coordination with the service providers identified above (design shall include the preparation of suitable review materials for all CWSPs)
- c. All required equipment for the proposed design
- d. All cabling, and implementation services (including patch and paint work) required to implement the proposed design
- e. Project Management services
- f. Testing, verification and commissioning services to confirm compliance with the requirements of each of the identified service providers and to obtain approval to retransmit each off their frequencies on behalf of the District
- g. Optional pricing shall be provided for Extended Warranty, Monitoring and Maintenance services as well.

The individual equipment, installation, testing and commissioning costs shall be broken out for the DTRS portion as well as for each CWSP such that each of these portions of the DAS can be individually authorized based on approval and agreement to participate by each CWSP. Additionally, if the Contractor is aware of any specific regional requirements of any CWSP which are above and beyond those specified in this document, these additional requirements shall be identified and priced separately.

As described earlier, Contractors are required to provide fixed pricing for the following activities, which will be used to implement additional facilities:

- Site survey – elementary or middle school
- Site survey – high school
- System design – elementary of middle school
- System design – high school, and
- Commercial wireless service provider contact and design approval (per provider).

To ensure a consistent pricing approach and evaluation, the District requires the Contractors to provide their proposed pricing in the pricing table below. Pricing for phases 3, 4 and 5 (optionally) must be provided for each of the three sample facilities.

DAS Component	DTRS	Common CWSP Infrastructure	AT&T	Sprint	T-Mobile	Verizon
Phase 1 (Site Survey): elementary or middle school (all services)			\$			
Phase 1 (Site Survey): high school (all services)			\$			
Phase 2 (System Design): elementary or middle school	\$			\$		
Phase 2 (System Design): high school	\$			\$		
Phase 3: Service Provider Coordination	\$	N/A	\$	\$	\$	\$
Phase 3: Equipment	\$	\$	\$	\$	\$	\$
Phase 3: Cabling and Equipment Installation	\$	\$	\$	\$	\$	\$
Phase 3: Project Management Services	\$	\$	\$	\$	\$	\$
Phase 4: Testing and Commissioning	\$	\$	\$	\$	\$	\$
TOTAL (Phases 3 and 4)	\$	\$	\$	\$	\$	\$
Phase 5: Optional: Extended Warranty; Monitoring; Maintenance services	\$	N/A	\$	\$	\$	\$

Table 1: Required Pricing Table

4.15 Qualifications

The District seeks Contractors with expertise in the survey, design, installation, and operations of DAS systems for both commercial and public safety wireless service enhancements, especially in the local/regional requirements of the four major commercial cellular carriers and the State of Colorado Digital Trunked Radio System.

In response to this RFP, the Contractor must, at a minimum, provide the following company information and qualifications:

- a. Company overview including corporate history and experience. Include:
 - The total number of individual facilities designed and implemented by your firm and the wireless operators supported by those systems
 - The equipment vendors your firm has worked with and currently uses in its DAS solutions
 - Any relevant certifications your firm has with equipment vendors or other recognized entities
- b. Descriptions of three relevant reference projects of similar size and type deployed within the last five years. The descriptions must include the scope of work completed and customer contact information, including:
 - Venue Name
 - Vendor Representative
 - Wireless Operators Supported
 - Scope of DAS including total square feet of service, type of deployment, number of antennas,
 - Telephone and Email address
- c. References and contact information for any of the wireless service providers which Contractor has conducted business with in the past five years.

5.0 REVIEW AND ASSESSMENT

- 5.1 Professional firms will be evaluated on the following criteria. These criteria will form one basis for review of the written proposals and interview session.
- 5.2 The rating scale will be from **0 to 5**
(0=Does Not Meet Minimum Criteria, 5=Exceptional)
- 5.3 The proposal will be evaluated on a cumulative point system.

System Feature	RFP reference	Score (0-5)	Wt.	Total points (score*wt.)
Site surveys	4.3		1	
Analysis and Design	4.1,4.2		2	
CWSP signal enhancement solution	4.4, 4.5		4	
CWSP negotiated contribution	2.4		1	
CWSP Schedule: installation speed and flexibility			2	
Cost CWSP	4.14		5	
DTRS 800MHz signal enhancement solution	4.4, 4.5		4	
DTRS Schedule: installation speed and flexibility			3	
Cost DTRS	4.14		5	
Testing and Certification	4.7, 4.8		5	
Support and Training	4.10, 4.11		2	
Qualifications and References	4.15, 6.0		3	
GRAND TOTAL (185 points possible)				

6.0 REFERENCE EVALUATION (TOP RANKED FIRM)

6.1 The District Project Manager will check references using the following criteria. The evaluation rankings will be labeled Satisfactory/Unsatisfactory.

QUALIFICATION	STANDARD
Overall Performance	Are you pleased with the Contractor’s performance? Would you continue to exercise your contract with this provider, if given a choice?
Thoroughness	Does the Contractor follow through with the Project in the exact manner agreed upon, keeping you informed of status, and on-schedule? Is there connectivity between the sale, services provided, and final results?
Knowledge of Cellular and Digital Trunked Radio (DTR) Systems	Is there an understanding of professional practices and procedures? Are the specifications complete, thorough and accurate? Is the product the right “fit” for the District?
Reporting	Are the Contractor’s reports thorough and complete? Do they address your needs? Are they customizable? Do they extend beyond generic or canned reports?
Specific Contract Requirements	Is the Contractor able to meet required schedules? Are the products/services accurate, complete and professional? Is there a dedicated representative?
Cost	Did Contractor work with you to find a product to best match technical specifications and stay within budget constraints? Did Contractor maintain prices throughout the contract period?

7.0 **INSURANCE**

Contractor shall procure and maintain the required insurance specified below for the duration of this Contract, which insurance shall be written for not less than the amounts specified or greater if required by law. Specified coverages and amounts may be provided by a combination of a primary policy plus an umbrella or following form excess policy. If not otherwise required by law, lower amounts may be acceptable upon review and written approval by the District's Director of Records and Risk Management. All insurance shall be with a carrier licensed in the state of Colorado and shall have a minimum A.M. Best rating of A- VII. Contractor shall furnish the District's Director of Records and Risk Management with certificates of the required insurance prior to the District's approval and signing of this Contract, and with renewal certificates prior to the expiration of any required insurance that expires during the term of this Contract. Certificates of Insurance and all communication regarding insurance shall be sent to:

Poudre School District
Attention: Risk Management
Email: risk@psdschools.org (preferred method of communication)
2407 Laporte Ave
Ft. Collins, CO 80521

Any insurance and/or self-insurance carried by the District is excess of the coverage extended to the District by Contractor. Contractor shall provide at least thirty (30) days' advance written notice to the District prior to cancellation, change of coverage, or non-renewal. The insurance requirements specified in this section shall not reduce the indemnification liability that Contractor has assumed in section 7.1.

Commercial General Liability

Minimum Limits

- | | |
|---|-------------|
| a. Each Occurrence Bodily Injury & Property Damage | \$2,000,000 |
| b. General Aggregate | \$3,000,000 |
| c. Products/Completed Operations Aggregate | \$2,000,000 |
| d. Personal/Advertising Injury | \$2,000,000 |
| e. Coverage must be written on an "occurrence" basis. | |
| f. Poudre School District R-1 and its elected officials, employees, agents, and volunteers shall be named as an additional insured and shall be insured to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract. | |

Builders' Risk/Installation Floater

The policy shall:

- Cover materials and/or equipment to be installed in existing structures and/or infrastructure.
- Be written on a Special Covered Cause of Loss Form including theft, faulty workmanship, mechanical or electrical damage during testing (if applicable) and labor costs to repair damaged work, extra expense.
- Delete any exclusions for underground exposures.
- Provide coverage for materials and/or equipment to be installed at the construction site, off-site storage locations and in transit.

- e. Be written on a completed value; the estimated completed value of the project is used as the limit of insurance.
- f. Poudre School District R-1, its elected officials, employees, agents, and volunteers, the Contractor, and subcontractors, shall be named insureds under the policy.

Technology Errors and Omissions Liability (Professional Liability, including Network Security and Privacy Liability)

Minimum Limits

- a. Per Loss \$1,000,000
- b. Aggregate \$3,000,000
- c. Liability extends for a period of three (3) years beginning at the time work under this Contract is completed. Contractor shall maintain continuous coverage, as required by the Contract, for this period.
- d. The policy shall provide a waiver of subrogation in favor of Poudre School District R-1.

If applicable, the insurance shall provide coverage for:

- a. Liability arising from theft, dissemination and/or use of confidential information (defined term including but not limited to bank account, credit card account, personal information such as name, address, social security numbers, etc. information) stored or transmitted in electronic form.
- b. Network Security Liability arising from the unauthorized access to, use of or tampering with computer systems including hacker attacks, inability of an authorized third party to gain access to Contractor’s services including denial of service, unless caused by a mechanical or electrical failure.
- c. Liability arising from the introduction of a computer virus into, or otherwise causing damage to, a District or third person’s computer, computer system, network, or similar computer related property and the data, software, and programs thereon.

Crime Coverage (for contracts allowing privileged access to network systems, valuable property or sensitive data)

Minimum Limits

Per Loss \$1,000,000

The policy shall include:

- a. Coverage for all directors, officers, agents, and employees of the Contractor.
- b. Employee dishonesty, forgery and alteration, monies and securities, and computer (cyber) crime.
- c. Extended theft and mysterious disappearance.
- d. The policy shall not contain a condition requiring an arrest and conviction.
- e. Policy must be endorsed to cover Third Party Fidelity and include Poudre School District R-1 as a Loss Payee.

Commercial Automobile Liability Providing Coverage for Owned, Non-Owned, and Leased or Hired Vehicles (Only if Contractor operates vehicles in performing any services under this Contract)

Bodily Injury & Property
Damage Combined Single Limit \$1,000,000

Workers’ Compensation and Employers’ Liability*

Minimum Limits

8.0 **PROPOSAL CERTIFICATION**

**DISTRICT-WIDE CELLULAR and DIGITAL
TRUNKED RADIO DISTRIBUTED ANTENNA
SYSTEM CONTRACTOR**

Bids must be submitted and received in BidNet’s electronic solicitation portal on or before 2:00 p.m. MST on March 24, 2020.

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the company issuing this proposal and that all information provided in the proposal is true and accurate.
- He/she has read the conditions and technical specifications, which were made available to the company in conjunction with this RFP, and fully understands and accepts these terms unless specific variations have been expressly listed in the proposal.
- The company will adhere to all terms and conditions and provide, at a minimum, all services as expressed in the RFP and/or the company’s proposal responding to the RFP.
- The company meets or exceeds all of the required criteria as specified by this RFP, or if not, has submitted a Justification for Consideration addressing any failure to meet the criteria.
- The company’s proposal is being offered independently of any other Contractor and in full compliance with the terms specified in Sections 1 and 2 of the RFP.
- The company will accept any awards made to it, contingent on contract negotiation, as a result of this RFP for a minimum of ninety (90) calendar days following the date and time of the RFP opening.

Company Name: _____

Signature of Agent: _____

Printed Name: _____

Title: _____

E-mail address: _____

Mailing address: _____

Telephone & Fax: _____

Contact Person: _____

(If different from Agent – include e-mail address and phone number)

NOTE: Proposals submitted without a signature of an authorized agent of the company may be considered non-responsive and ineligible for the award.

EXHIBIT A: Signals per Band and Minimum Downlink Signal Levels

The following required signal levels and signal dominance are provided as a baseline set of requirements. Contractors shall identify any deviation from current, regional signal or signal quality requirements for the individual carriers in their proposals.

WSP	Band	Minimum signal (RSRP)	Signal dominance over macro dB (in areas required)
AT&T	Low Band	-85 dBm	8
	High Band	-95 dBm	8
VZW	Low Band	-80 dBm	6
	High Band	-95 dBm	6
T-Mobile	Low Band	-85 dBm	8
	High Band	-95 dBm	8
Sprint	Low Band	-85 dBm	8
	High Band	-95 dBm	8
	2.5 MHz TDD	-95 dBm	NA

NA = Not applicable

EXHIBIT B: EMERGENCY RESPONDER RADIO COVERAGE

- 13.2. Building emergency contact information that includes: a list of the building's emergency contacts including but not limited to building manager, building engineer and their respective work phone number, cell phone number and e-mail address;
 - 13.3. Building construction information that includes: the type of building construction including but not limited to floors, walls, columns and roof assembly;
 - 13.4. *Exit access stairway* and *exit stairway* information that includes: number of *exit access stairways* and *exit stairways* in building; each *exit access stairway* and *exit stairway* designation and floors served; location where each *exit access stairway* and *exit stairway* discharges, *interior exit stairways* that are pressurized; *exit stairways* provided with emergency lighting; each *exit stairway* that allows reentry; *exit stairways* providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve; location of elevator machine rooms, control rooms and control spaces; location of sky lobby; and location of freight elevator banks;
 - 13.5. Building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator and location of natural gas service;
 - 13.6. *Fire protection system* information that includes: location of standpipes, location of fire pump room, location of fire department connections, floors protected by automatic sprinklers and location of different types of *automatic sprinkler systems* installed including but not limited to dry, wet and pre-action;
 - 13.7. Hazardous material information that includes: location and quantity of hazardous material.
14. Work table.
 15. Generator supervision devices, manual start and transfer features.
 16. Public address system, where specifically required by other sections of this code.
 17. Elevator fire recall switch in accordance with ASME A17.1.
 18. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

SECTION 509 FIRE PROTECTION AND UTILITY EQUIPMENT IDENTIFICATION AND ACCESS

509.1 Identification. Fire protection equipment shall be identified in an *approved* manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. *Approved* signs required to identify fire protection equipment and equipment location shall be constructed of durable materials, permanently installed and readily visible.

509.1.1 Utility identification. Where required by the *fire code official*, gas shutoff valves, electric meters, service switches and other utility equipment shall be clearly and legibly marked to identify the unit or space that it serves. Identification shall be made in an *approved* manner, readily visible and shall be maintained.

509.2 Equipment access. *Approved* access shall be provided and maintained for all fire protection equipment to permit immediate safe operation and maintenance of such equipment. Storage, trash and other materials or objects shall not be placed or kept in such a manner that would prevent such equipment from being readily accessible.

SECTION 510 EMERGENCY RESPONDER RADIO COVERAGE

510.1 Emergency responder radio coverage in new buildings. All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the building official and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained instead of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.
3. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the *fire code official* shall have the authority to accept an automatically activated emergency responder radio coverage system.

510.2 Emergency responder radio coverage in existing buildings. Existing buildings shall be provided with *approved* radio coverage for emergency responders as required in Chapter 11.

510.3 Permit required. A construction permit for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.5. Maintenance performed in accordance with

this code is not considered a modification and does not require a permit.

510.4 Technical requirements. Systems, components and equipment required to provide the emergency responder radio coverage system shall comply with Sections 510.4.1 through 510.4.2.5.

510.4.1 Radio signal strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 and 510.4.1.2.

510.4.1.1 Minimum signal strength into the building. A minimum signal strength of -95 dBm shall be receivable within the building.

510.4.1.2 Minimum signal strength out of the building. A minimum signal strength of -95 dBm shall be received by the agency's radio system when transmitted from within the building.

510.4.2 System design. The emergency responder radio coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.5.

510.4.2.1 Amplification systems allowed. Buildings and structures that cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC)-certified signal boosters, or other system approved by the *fire code official* in order to achieve the required adequate radio coverage.

510.4.2.2 Technical criteria. The *fire code official* shall maintain a document providing the specific technical information and requirements for the emergency responder radio coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, effective radiated power of radio sites, and other supporting technical information.

510.4.2.3 Standby power. Emergency responder radio coverage systems shall be provided with standby power in accordance with Section 604. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet.
2. Battery systems used for the emergency power source shall be contained in a NEMA 4-type waterproof cabinet.
3. The signal booster system and battery system shall be electrically supervised and monitored by a supervisory service, or when *approved* by the *fire code official*, shall sound an audible signal at a constantly attended location

4. Equipment shall have FCC certification prior to installation.

510.4.2.5 Additional frequencies and change of frequencies. The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC.

510.5 Installation requirements. The installation of the public safety radio coverage system shall be in accordance with Sections 510.5.1 through 510.5.4.

510.5.1 Approval prior to installation. Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC shall not be installed without prior coordination and approval of the *fire code official*.

510.5.2 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include both of the following:

1. A valid FCC-issued general radio operators license.
2. Certification of in-building system training issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed.

These qualifications shall not be required where demonstration of adequate skills and experience satisfactory to the *fire code official* is provided.

510.5.3 Acceptance test procedure. Where an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to verify that two-way coverage on each floor of the building is not less than 90 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.
3. Failure of not more than two nonadjacent test areas shall not result in failure of the test.
4. In the event that three of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than four nonadjacent test areas shall not result in failure of the test. If the system fails the 40-area test, the system shall be altered to meet the 90-percent coverage requirement.
5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered failure of that test area. Additional test locations shall not be permitted.

6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building *owner* so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building *owner* shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and subsequent annual inspections.

510.5.4 FCC compliance. The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations including, but not limited to, FCC 47 CFR Part 90.219.

510.6 Maintenance. The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections 510.6.1 through 510.6.3.

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510.6.1 Testing and proof of compliance. The emergency responder radio coverage system shall be inspected and tested annually or where structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

1. In-building coverage test as described in Section 510.5.3.
2. Signal boosters shall be tested to verify that the gain is the same as it was upon initial installation and acceptance.
3. Backup batteries and power supplies shall be tested under load of a period of 1 hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.
4. Other active components shall be checked to verify operation within the manufacturer's specifications.
5. At the conclusion of the testing, a report, which shall verify compliance with Section 510.5.3, shall be submitted to the *fire code official*.

*

510.6.2 Additional frequencies. The building *owner* shall modify or expand the emergency responder radio coverage system at his or her expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

510.6.3 Field testing. Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.