STATE OF ALASKA ITB NUMBER 25SWS0820A
AMENDMENT NUMBER FOUR

RETURN THIS AMENDMENT TO THE ISSUING OFFICE AT:

Department of Public Safety
Division of Administrative Services
Address 5700 E Tudor Road
Anchorage, AK 99507

THIS IS NOT AN ORDER **DATE AMENDMENT ISSUED: October 24, 2025**

ITB TITLE: Rabinowitz Courthouse Bi-Directional Amplifier
Amendment One: Issued to answer vendor-submitted questions and provide clarifications

ITB AMENDED OPENING DATE AND TIME: October 31, 2025 at 10:30 AM Alaska Time.

In order for your bid to be considered responsive, this amendment must be signed below and received by the issuing office with your bid prior to the time set for the bid opening.

Questions Submitted by Vendors

Question 1: Will the AHJ require the BDA to be installed at the Fire Alarm Control Panel?

Answer: This requirement is waived by the AHJ. All installation and design documentation, the acceptance test report, and a completed permit application be submitted to document the system installation.

Question 2: Will the AHJ require the BDA to be protected by a smoke detector above the BDA?

Answer: This requirement is waived by the AHJ.

Question 3: It was noted the existing fire alarm panel does not have a smoke or heat detector installed above it. Will this project require a device to be installed per code?

Answer: This requirement is waived by the AHJ.

Question 4: It was noted the comm rooms only have 20-minute fire rated doors/frames.

Answer: This requirement is waived by the AHJ.

Question 5: During the bid walk, we discussed the requirements for the system design to be submitted to the Authority Having Jurisdiction (AHJ). Please confirm if the City of Fairbanks (assumed AHJ) will require a submittal and to witness any testing. Since the City of Fairbanks Fire Department shares the Emergency Frequencies (at least per conversation while onsite), it's expected this system will likely need to meet their requirements.

Answer: This requirement is waived by the AHJ.

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Question 6: The BDA System shall be provided with an annunciator by code requirements in 18.14.2.1 of the NFPA 1225 (2022) in the fire command center. A fire command center does not exist in this building since it is not a high rise, so the next logical location is near the existing main FACP. Is this where the BDA Annunciator shall be installed? Based on the site visit, it didn't appear locating the annunciator in the detention area control room was optimal based on the space limitations.

Answer: This requirement is waived by the AHJ.

Question 7: The BDA System is required to be monitored by the Building Fire Alarm system per section 18.4.1.2 of NFPA 1225 (2022). A minimum of six (6) signals are required to be monitored by the fire alarm system per this code section. Please confirm adding modules to the existing Siemens Desigo Modular Fire Alarm system is a required portion of the project scope.

Answer: This requirement is waived by the AHJ.

Question 8: Please clarify the expected power source requirements for the system. Is the minimum 12 hours of backup sufficient for this project?

a. The Scope of work document asks for 24 hour minimum standby in a NEMA 4/4X enclosure and an 8 hour UPS Power Backup.

b. NFPA 1225 (2022) 18.13.2 requires a minimum of 12 hours of backup @ 100 percent capacity or 2 hours of battery if the system is connected to a facility generator that can support the load for up to 12 hours

Answer: A/C Powered with 12 hour backup. See attached AHJ Waiver document.

Question 9: Please confirm this new system must be installed in parallel with any existing radio systems.

Answer: There are two radio systems existing inside the building, and a passive antenna system. The conventional radio system located on the top floor will be removed. The ALMR / trunking base station downstairs will remain, however, it can be disabled until the BDA system is activated. The external antenna and the path the existing transmission line takes can be removed to allow for the new ERCES backbone cable and new donor antenna to be placed. The APSCS office will install a new antenna using the signal from the BDA as its source signal. The passive antenna system can be removed entirely.

Question 10: Section 13.5.2 of NFPA 1225 (2022) requires all cabling to be installed within some form of metal raceway. Metallic cable trays are an option, which would permit installation of plenum rated coax cable in the metallic cable tray. Is there an existing metallic cable tray above suspended ceilings that can be provided in an as-built drawing like those requested in three (3) above? Can it be confirmed that the metallic cable tray (if existing) only contains circuit types as listed below from NFPA 70 (2020) – the referenced version of NFPA 70 from NFPA 1225 (2022)?

Answer: This requirement is waived by the AHJ. Utilize existing trays or provide J Hooks for cable management.

Question 11: What frequencies are the ALMR public safety radio services operating at? (Currently the FCC search licensing database is inaccessible due to the government closure.)

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Answer: Donor Site: Birch Hill Ch.1 (Control Channel) TX 154.6625 RX 140.0125 Ch. 2 TX 154.8125 RX 140.1625 Ch.3 TX 155.4875 RX 140.8375 Ch.4 TX 155.6875 RX 140.3125 Ch.5 TX 155.925 RX 140.3625 Ch. 6 TX 156.0875 RX 140.7125 Ch.7 TX 156.2375 RX 140.8625

Question 12: Is there an existing DAS installation for other radio systems?

Answer: No.

Question 13: Is there an existing passive antenna system in place to attempt to provide service at the requested frequencies?

Answer: Yes.

Question 14: Is the new system's purpose to cover RF voids, or to cover the entire building?

Answer: To cover the entire building. Critical area is the 1st floor and JS Control Area.

Question 15: If my bid is under 100k, will I need to complete the Construction Contractors Program Bonding Part IV page 4?

Answer: See Amendment Two, Question 1. Bonding requirements may still be required if the cost is more than $80,000 or if the project aggregate may exceed $100,000.

Clarification 1: Bid bonds may have a copy included with the electronic bids. Originals must be post marked prior to the deadline for proposals and mailed to:

Dept. of Public Safety Headquarters
ATTN: Kelly Pahlau
5700 E Tudor Road
Anchorage, AK 99507

Clarification 2: See attached AHJ Waiver document which is made part of the solicitation.

Kelly Pahlau
Contracting Officer
PHONE: (907) 269-8493

NAME OF COMPANY

SIGNATURE DATE

Waiver Document: Rabinowitz Courthouse ERCES / BDA Project. Items highlighted in RED have been waived by the Fairbanks Fire Marshall's Office. The License Holder (State of Alaska / APSCS) will be the POC and approving authority for this project.

Under the 2018 International Fire Code (IFC), installation and survivability standards for Bi-Directional Amplifiers (BDAs) are primarily covered in Section 510, with critical circuit protection addressed in Section 1203. BDAs are a key component of Emergency Responder Radio Coverage (ERRC) systems.

BDA installation requirements (IFC Section 510)

Coverage standards

- **Signal strength**: The ERRC system must provide a minimum signal strength of -95 dBm:
    - For 95% of the floor area in general building spaces.
    - For 99% of the floor area in critical areas such as emergency command centers, fire pump rooms, and stairwells.
- **Acceptance testing**: Following installation, a test must be conducted with the License Holder (State of Alaska) confirm the required signal strength is achieved. Testing involves dividing each floor into a grid and using a calibrated portable radio.

Equipment and enclosures

- **Design Plans must be submitted to frequency / system owner for approval prior to construction. patrick.thornton@alaska.gov**
- **Class A BDA Only**
- **NEMA-rated cabinets**: All signal booster components must be housed in a National Electrical Manufacturer's Association (NEMA) Type 4 or 4X cabinet, which is waterproof. Rechargeable standby batteries may be in a NEMA 3R or higher-rated enclosure.
- **FCC certification**: All equipment, including signal boosters, must be certified by the FCC for public safety use before installation.
- **Isolation**: 20 dB or greater isolation must be maintained between the donor antenna (exterior) and all interior antennas.

- **Oscillation prevention**: BDAs must include circuitry to prevent signal oscillation.
- **AHJ approval**: The installation of the amplification system must be coordinated and approved by the local fire code official.

BDA survivability requirements (IFC Sections 510 and 1203)

Critical circuit protection (IFC Section 1203)

The survivability of critical circuits that support the ERRC system must be protected using *one* of the following methods:

- **Fire-rated cable**: Cables must be listed under UL 2196 with a fire-resistance rating of not less than 1 hour.
- **Fire-rated electrical systems**: Electrical circuit protective systems must have a fire-resistance rating of at least 1 hour and be installed per their listing.
- **Fire-rated construction**: Enclosing the circuit within construction with a fire-resistance rating of at least 1 hour

Power supply and supervision

- **Battery backup**: An approved emergency power source, such as a battery backup, is required. The 2018 IFC requires a 12-hour backup duration.
- **Supervision**: The ERRC system must be supervised with a fire alarm control unit that provides a supervisory signal for faults such as loss of normal AC power, battery charger failure, or signal booster failure.

Relationship with NFPA 1221/1225

The IFC works in conjunction with National Fire Protection Association (NFPA) standards, specifically NFPA 1221 (standard for the installation, maintenance, and use of emergency services communications systems). The IFC references NFPA requirements for ERRC systems to ensure unified standards. For example, the NFPA standard may influence specific testing procedures referenced by the IFC.

The International Fire Code (IFC) 2018, in Section 510, governs the installation, acceptance testing, and survivability of Emergency Responder Radio Coverage (BDA) systems. The

specific requirements are often augmented by local ordinances and depend on the authority having jurisdiction (AHJ). The code references additional standards, particularly those from the National Fire Protection Association (NFPA).

Installation requirements

- **Radio coverage:** All new buildings, and some existing ones, must have approved radio coverage for emergency responders throughout the building. This is measured based on the public safety communication system in use by the local jurisdiction.
- **Coverage areas and percentages:**
    - **General floor areas:** A minimum of 95% radio coverage is required on each floor.
    - **Critical areas:** 99% coverage is mandated for crucial locations like fire command centers, elevator lobbies, exit stairs, and fire pump rooms.
- **Equipment standards:** Components, including the bi-directional amplifier (BDA), repeaters, and signal boosters, must be listed by a Nationally Recognized Testing Laboratory (NRTL), such as UL. UL 2524 is the specific standard for in-building 2-way emergency radio communication enhancement systems.
- **Enclosures:** Equipment, including signal boosters and battery systems, must be in enclosures that meet NEMA 4 or 4X standards. The 2018 IFC allows battery enclosures to be NEMA 3R.
- **FCC compliance:** BDAs must have type acceptance from the Federal Communications Commission (FCC).
- **Monitoring and alarms:** The system must be monitored by the fire alarm panel. A failure of the signal booster or loss of AC power must trigger a trouble signal at the fire alarm panel.

Survivability requirements

The survivability requirements ensure the system remains functional during a fire. Power sources and circuits for the BDA and related critical systems must be protected.

- **Circuit protection:** Critical circuits must be protected using one of the following methods:
    - Cables with a fire-resistance rating of not less than 1 hour, listed under UL 2196.
    - Electrical circuit protective systems with a fire-resistance rating of at least 1 hour.
    - Construction with a fire-resistance rating of at least 1 hour.
- **Backup power:** The system must have a reliable source of standby power, such as a battery backup, to operate in the event of a power outage. The 2018 IFC requires a minimum of 12 hours of backup power.
- **Fire-rated pathways:** Riser coaxial cables must be routed through a 2-hour fire-rated enclosure.
- **Lightning protection:** All systems must have lightning protection that complies with NFPA 780.

Acceptance testing requirements

Upon completion of the installation, an acceptance test is required to verify the system's performance.

- **Procedure:**
    - Each floor must be divided into a minimum of 20 equal test areas.
    - Testing is done using a calibrated portable radio of the type used by the local AHJ and License Holder (State of Alaska)
- **Signal strength:** The test must confirm the required signal strength and voice quality levels throughout the building, including the 95% general area coverage and 99% critical area coverage.
- **Final approval:** The installation and testing must be approved by the License Holder (State of Alaska)

- **All testing documents, initial design, as-built and final coverage testing results to be electronically submitted to the license owner.**
  (patrick.thornton@alaska.gov)