LSN LAW P.A.

March 5, 2026

Mr. Glenn Marcos
Procurement Services Department Director
City of Fort Lauderdale
101 NE 3 Ave
Fort Lauderdale, FL 33301

Re: RFP Event No. 549, P25 Radio Communication System Refresh-Replacement - Rebid

Dear Mr. Marcos:

As you know, this law firm represents Communications International, Inc., ("Ci") in connection with the City of Fort Lauderdale's (the "City") RFP Event No. 549, P25 Radio Communication System Refresh-Replacement – Rebid (the "RFP"). Ci is a leading provider of mission-critical radio communications systems with a proven track record working with agencies across the country.

On January 29, 2026, Ci filed with your office a letter of protest, attached as **Exhibit A**, arguing that the proposal submitted by Motorola Solutions, Inc. ("MSI"), the vendor recommended for award, is non-responsive for two reasons: (1) it is improperly conditioned on the receipt of a waiver from the Federal Communications Commission (the "FCC"); and (2) it proposes an equipment warranty that fails to meet the RFP requirements. Ci also reserved the right to amend its protest pending the receipt of additional relevant documents that the City had yet to produce. On February 6, 2026, after receiving additional public records from the City, Ci filed a supplemental letter of protest highlighting another fatal flaw in MSI's proposal, namely its failure to include roof shields, a critical piece of equipment that the RFP explicitly requires. That same day, the City sent our firm a letter, attached as **Exhibit B**, indicating that the City had decided to stay the award process to further investigate the issues raised in Ci's letters of protest. On March 2, 2026, the City provided a formal written response denying Ci's protest (attached as **Exhibit C**).

Pursuant to Section 2-182(c)(2) of the City Code, Ci submits this notice of appeal of the City's denial of Ci's protest and respectfully requests that the protest be set for consideration by the City Commission. Ci maintains that MSI's proposal is non-responsive because (1) MSI's proposal is conditioned on a regulatory gamble, namely receiving a waiver of applicable FCC rules; (2) MSI's proposed equipment warranty fails to meet the RFP requirements; and (3) MSI's proposal does not include roof shields, a piece of equipment that the RFP requires. As explained below, these material deviations from the RFP requirements render MSI's proposal non-responsive. Under Florida law, the City is not permitted to waive these deviations via negotiations or clarifications after proposal submission. Therefore, Ci urges the City to discard MSI's proposal as non-responsive and initiate contract negotiations with Ci, the highest-ranked vendor to submit a responsive proposal that meets the City's needs.

I. Statement of Facts

a. The RFP

On November 21, 2025, the City issued the RFP to procure a turnkey P25 (Project 25) emergency radio communication system. *See* Section 3, RFP, attached as **Exhibit D**. More specifically, the City solicited a new and comprehensive radio system that provides essential City departments, including the Police Department and Fire Rescue, with reliable encrypted voice coverage throughout the city and surrounding areas. *See id.* This system is critical to ensuring interoperability and seamless, reliable communication between different critical City agencies, as well as between City personnel and that of neighboring jurisdictions.

The RFP includes an extensive scope of services and technical specifications that all bidders must satisfy to ensure the City receives the system it needs. *See id.* As is customary in solicitations like this, the RFP explains that a proposer's failure to satisfy the RFP's technical specifications and requirements will render that proposer's bid non-responsive. *See* Sections 3.1.4.3 & 2.11.1, RFP. The RFP specifications require bidders to provide a certain level of geographic coverage. For example, the RFP requires bidders to provide "mobile radio user coverage throughout the City and two miles outside of the City at 97% coverage . . . ," *See* Section 3.15.2, RFP. In addition, bidders must "guarantee coverage in all schools at no less than 95% coverage . . . ." *See* 3.15.5, RFP. These coverage requirements are meant to ensure radios work where needed and to eliminate dead zones in which emergency personnel cannot communicate.

The RFP also requires bidders to provide the City with a "comprehensive warranty (maintenance and support) on ***all*** infrastructure and end-user equipment required by the new P25 radio system." *See* Section 3.1.5, RFP (emphasis added). The RFP states that "all warranty and post-warranty services shall be comprehensive and must cover the entire system, ***including*** but not limited to Vendor provided OEM and ***all third-party equipment***." *See* Section 3.45.1.1, RFP (emphasis added). Lastly, the RFP mandates that proposals include certain critical components such as roof shields to safeguard radio equipment from environmental damage and other physical hazards: "***[A] roof shield shall be provided and installed*** by the Contractor, above the equipment shelter and of sufficient size to adequately protect the shelter and personnel from falling materials via the nearby radio site's tower." *See* Section 3.27.1.3, RFP (emphasis added).

b. MSI's Proposal

On December 18, 2025, the City received proposals from three (3) bidders: Ci, MSI, and EF Johnson Technologies, Inc. ("EF Johnson").

Ci submitted a proposal that adheres in all material respects to the RFP requirements. In fact, Ci's proposed system exceeds some of the RFP's most critical technical specifications and requirements. For example, Ci's proposed system would provide the City with 97% coverage in schools and critical buildings, which exceeds the 95% coverage requirement in the RFP. Ci also offered the City a comprehensive, five-year warranty on all infrastructure and end-user equipment that forms part of its proposed system, including all third-party equipment. *See* Ci Oral Presentation Slides, p. 24, attached as **Exhibit E**.

MSI, however, submitted a proposal that deviates from several RFP requirements. First, MSI conditioned its proposal upon the receipt of a waiver from the FCC. *See* MSI Presentation Writeup, pp. 5-6, attached as **Exhibit F**. MSI's proposal is littered with admissions that its proposed solution cannot meet the RFP coverage requirements unless MSI secures a waiver of the FCC's Region 9 Regional Planning Committee's Radio Communications Plan. *See* MSI Proposal, pp. 3-27, 3-102, 3-103, 3-104, 1-1, attached as **Exhibit G**. MSI acknowledges the uncertainty and risk inherent in its proposal's conditional nature, offering strategies to "justify" the waiver and "maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design . . . ." *See* MSI Proposal, pp. 3-102, 3-103, 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, attached as **Exhibit H**.

Second, MSI's proposed equipment warranty fails to meet the minimum requirements of the RFP. While the RFP requires each proposer to provide a comprehensive warranty on ***all*** system components, including third-party equipment, MSI offers a limited warranty that expressly carves out third-party equipment. MSI states that "it will use commercially reasonable efforts to provide replacement parts for Motorola manufactured subscriber equipment for five (5) years and for Motorola manufactured fixed infrastructure equipment ***exclusive*** of third-party IT equipment . . . ." *See* MSI Proposal, pp. 3-7, 3-241, attached as **Exhibit I** (emphasis added).

Third, MSI's proposal clearly excludes roof shields, an essential component that protects the City's radio equipment and preserves the operational life and signal quality of the communications system.

c. Oral Presentations, Evaluation of Proposals, and Notice of Intent to Award

On January 12, 2026, a five-member Evaluation Committee convened for the first of two meetings. During its first meeting, the Evaluation Committee met with the City's technical consultant for the RFP to discuss technical matters regarding the solicitation, its requirements, and the proposals submitted in response to the RFP. The Committee and the City's consultant immediately identified the deficiencies in MSI's proposal. Below is an exchange between the Evaluation Committee and the City's technical consultant regarding MSI's inability to meet the City's geographic requirements without securing a special FCC waiver:

> **Procurement Conference Room**: "Coverage summary, yeah . . . ***out of the three . . . there seem to be asterisks on the Motorola response*** . . . the waiver to exceed the two-mile boundary."
>
> **Dean Hart/TUSA Consulting:** "I mean, I view that, you know, okay, they said they could exceed it. They did some explanation of why that's important to the City of Fort Lauderdale, with some language as far as especially fire EMS response outside of your own jurisdiction. And that was all good. ***But then they put that asterisk on it, but would require a waiver. They have a high confidence that the waiver is possible with the Florida licensing and actually provided language to do that. However, that requires it to be done.***"

> *See* Evaluation Committee Meeting Transcript, pp. 51-52, attached as **Exhibit J** (emphasis added).

The Evaluation Committee and the City's technical consultants also identified and discussed Motorola's failure to provide a comprehensive warranty, as required under the RFP:

> **Rebecca Norwood (TUSA)**: "So the ***not comprehensive*** . . . . Motorola very clearly writes that they'll do an extended warranty to five years for F&E fixed network equipment, things that they sell, things that integrate within the racks with their equipment, but that ***does not extend to . . . third party stuff.***"
>
> *See* Page 43, Evaluation Committee Meeting Transcript, attached as **Exhibit K** (emphasis added).

Ms. Norwood, one of the City's consultants, went on to explain that Ci's proposed warranty, on the other hand, is truly comprehensive: ***"For Ci, basically what they're saying is, if you bought it as part of this system, it's comprehensive, it's included in the five-year warranty."*** *See id.*

On January 20, 2026, the Evaluation Committee reconvened to hear oral presentations, ask clarifying questions, and score the proposals. *See* Evaluation Committee Meeting Transcript, p. 74. After hearing oral presentations, the Evaluation Committee scored and ranked the proposals. *See id.* Ultimately, the Committee ranked MSI first, Ci second, and EF Johnson third. *See* Final Ranking, attached as **Exhibit L**. On January 22, 2026, the City published notice of its intent to award the contract to MSI. *See* Notice of Intent to Award, attached as **Exhibit M**. On January 29, 2026, Ci timely filed the instant protest.

II. Argument

a. MSI's Proposal is Non-Responsive Because it is Conditioned on Receiving an FCC Waiver, a Regulatory Gamble

Under Florida law, a municipality may not accept a bid that materially deviates from the municipality's RFP specifications. *Robinson Electrical Co. v. Dade County*, 417 So.2d 1032 (Fla. 3d DCA 1982).While a municipality may waive minor deviations or irregularities in an otherwise valid proposal, it may not waive material irregularities or deviations from the RFP's requirements. *Tropabest Foods, Inc. v. State, Dept. of General Services*, 493 So.2d 50, 52 (Fla. 1st DCA 1986). A deviation or irregularity is material if it would "deprive the municipality of its assurance that the contract will be entered into, performed, and guaranteed according to its specified requirements." *Robinson Electrical*, 417 So.2d at 1034. It is well-established that conditional proposals, i.e., proposals that are contingent upon the occurrence of some other event, are non-responsive as a matter of law because their conditional nature deprives a procuring agency of this assurance. *See id; Phoenix Mowing and Landscaping Inc. v. Dep't of Transp.*, DOAH Case No. 01-0371BID (2001). The RFP also makes clear that the City may not accept conditional proposals. *See* Section 2.11.1, RFP.

In this case, MSI's proposal deprives the City of its assurance that the contract will be performed in accordance with the RFP specifications because MS's proposal is conditioned upon securing a waiver from the FCC. In other words, for MSI to deliver its proposed solution, the FCC must agree to suspend the application of certain rules with regard to MSI and its proposed system. If, for whatever reason, MSI fails to obtain this waiver, MSI will be incapable of delivering its proposed system. MSI's proposal is marred by risk and uncertainty. Indeed, MSI's entire proposal hinges on winning a regulatory gamble.

More specifically, MSI acknowledges in its proposal that its solution cannot meet the RFP's geographic coverage requirements unless MSI secures a waiver from the FCC. Put simply, when a company builds a P25 radio system, the radio signals spread out from the system's towers like ripples in a pond, and the FCC must ensure that one system's ripples do not interfere with those of its neighbors. The FCC, therefore, imposes geographic restrictions on a radio system's signals. In this case, MSI's proposed solution cannot satisfy the City's geographic coverage requirements unless the FCC waives certain geographic restrictions.

In its letter denying Ci's protest, the City suggests that the FCC waiver in question is not unique to MSI. The City states that "an FCC waiver reflects an implementation approach common to all proposers" because "all proposers must relicense frequencies due to migration to Phase II/TDMA technology." This, however, is incorrect and contradicted by the record. As one Evaluation Committee Member noted, "***they're not all asking for the waiver***." *See* Evaluation Committee Meeting Transcript, p. 55 (emphasis added).

The City is conflating two distinct processes that carry different levels of risk. MSI's proposal hinges on receiving a waiver of applicable geographic regulations, a complex—and uncertain—process. MSI admits the risks inherent in its conditional proposal, stating that "in the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary." *See* MSI Proposal, p. 3-102. The City's technical consultant also flagged the risks associated with MSI's proposal: *"In the Motorola proposal response, they state an exceeds on coverage requirements. They then state they cannot meet this guarantee without a waiver from Region 9 Planning Committee. They state coverage could be reduced if not approved. They do not state what the guarantee would be if not approved." See* Email from Dean Hart to Glenn Marcos dated February 10, 2026, attached as **Exhibit N**.

Ci, on the other hand, to reduce the risks associated with attempting to secure an FCC waiver, designed its proposed coverage to meet the RFP requirements and the applicable geographic coverage requirements. In other words, Ci intentionally proposed a system that does not require an FCC waiver like the one in question here.

b. MSI Proposed an Insufficient Warranty that Fails to Meet the RFP's Requirements

Under Florida law, any deviation or irregularity in a proposal that affects price is material and renders that proposal non-responsive. *Mercedes Lighting and Elec. Supply v. State, Dep't of General Services*, 560 So.2d 272 (Fla. 1st DCA 1990). This is largely because these deviations or irregularities often place the proposer in a position of advantage over others. *See id.*

MSI's proposal, particularly its proposed warranty, contains such a deviation, an issue that the City's technical consultant identified during the first of two evaluation committee meetings. In its proposal, MSI states that it "will use commercially reasonable efforts to provide replacement parts for Motorola manufactured subscriber equipment for five (5) years and for Motorola manufactured fixed infrastructure equipment ***exclusive*** of third-party IT equipment . . . ." *See* MSI Proposal, pp. 3-7, 3-241 (emphasis added). This is a material deviation from the RFP requirement that "***all*** warranty and post-warranty services shall be comprehensive and must cover the entire system, ***including*** but not limited to Vendor provided OEM and ***all third-party equipment***." *See* Section 3.45.1.1, RFP (emphasis added). By proposing a warranty that fails to meet the RFP requirements, MSI was able to offer the City a lower price than it would have had it complied with the explicit requirements of the RFP, thereby giving MSI an unfair advantage over other bidders. As noted by the City's technical consultant, MSI's inadequate warranty, if accepted, would have significant impacts on price and future costs. *See* Evaluation Committee Transcript, p. 44 (noting that ***"[MSI] will pass through whatever warranty comes with that third party piece of equipment,"*** and that MSI's proposed warranty will likely have cost implications down the road) (emphasis added).

In denying Ci's protest on these grounds, the City simply states that "the record demonstrates MSI acknowledged the requirement and agreed to comply subject to clarification during negotiations," and that "requests for clarification regarding scope or administration of warranty obligations are consistent with competitive negotiation procurements and do not render a proposal non-responsive where compliance is not expressly disclaimed." The City, in other words, is suggesting that it may ignore the unambiguous language in MSI's proposal in favor of a post-submittal modification to the terms of its proposed warranty. The City's response, however, runs afoul of the basic tenets of the competitive bidding requirement. Under Florida law, a procuring agency may not allow a proposer to bring its proposal into compliance after proposal submission. *Harry Pepper & Associates, Inc., v. City of Cape Coral*, 352 So.2d 1190 (Fla. 2d DCA 1977). This basic principle safeguards competition and the integrity of the public procurement process, for "if officials charged with the letting of public contracts should be permitted in their discretion to permit bids to be changed after they have been received and opened, it would open the door to the abuses which it is the purpose of the requirements of competitive bidding to prevent and suppress." *Id.* (quoting *Coller v. City of Saint Paul*, 223 Minn. 376, 26 N.W.2d 835, 842 (1947)). In its proposal, MSI explicitly excluded third-party IT equipment from its warranty, a material, nonwaivable deviation from the RFP's requirements that cannot be cured after submittal.

c. MSI's Proposal Excludes Roof Shields, a Mandatory Requirement of the RFP

MSI also deviated from the material requirements of the RFP by failing to include roof shields in its proposal: "Motorola does not typically install roof shields in climates where ice is not a factor. However, ***Motorola can provide this at an additional cost if requested***." *See* MSI Proposal, p. 3-132, attached as **Exhibit O** (emphasis added). Put simply, MSI skirted a requirement of the RFP and, as a result, was able to offer the City a lower price proposal than it would have had it complied with the RFP's requirement regarding roof shields. This deviation from the RFP's requirements, like MSI's exclusion of third-party equipment from its warranty, renders MSI's

proposal non-responsive because it clearly impacts price in a way that grants MSI an unfair advantage over other bidders. *See Mercedes Lighting and Elec. Supply v. State, Dep't of General Services*, 560 So.2d 272 (Fla. 1st DCA 1990).

The City, in denying Ci's protest on these grounds, counters with two points. First, the City claims that Ci failed to raise the issue within the protest timeframe laid out in the City Code. As noted above, Ci identified MSI's failure to include roof shields in a supplemental letter of protest because the City did not provide a copy of MSI's proposal prior to the protest filing deadline. In other words, the fact that MSI failed to include roof shields in its proposal was not discoverable before the protest filing deadline because the City had yet to fulfill Ci's public records request. The City's position, in sum, is that Ci should have raised an issue it had no way of knowing existed. The City's position, however, creates a perverse incentive that eviscerates the intent behind competitive bidding and Florida's public records law. If the City were permitted to delay producing relevant documents until after the protest deadline and claim that any protest based on those documents is untimely, the City's protest procedures would be rendered meaningless. The City, for example, would be able to protect non-responsive bidders by delaying document production. In effect, the City would be able to determine protest outcomes by controlling the timing of the production of relevant documents.

Setting aside the alleged timeliness issue, the City argues that MSI's exclusion of roof shields was not a problem because MSI agreed to change its proposal following the proposal submission deadline: "MSI expressly indicated its willingness to comply upon clarification." The City adds that MSI's language regarding roof shields "reflects customary industry practice." However, as explained above, Florida law prohibits the City from allowing MSI to bring its proposal into compliance via post-submittal modifications or clarifications. Doing so would defeat the purpose of Florida's procurement rules, undermine competition, and open the door to corruption in public contracting. Per MSI's own admission, the exclusion of roof shields from its proposal directly affects the price of its solution, and it is not relevant whether this exclusion "reflects customary industry practice." *See Bellsouth Communication Systems, Inc., v. Dep't of the Lottery*, DOAH Case No. 99-3956BID, Recommended Order (1999) ("It is of no legal significance in determining the materiality of the deviations that Bellsouth considered its clarifications and modifications commercially reasonable . . . ."). This exclusion constitutes a material, nonwaivable deviation from the RFP's requirements and renders MSI's proposal non-responsive.

III. Conclusion

Based on the issues discussed above, Ci urges the City to reject MSI's proposal as non-responsive and begin contract negotiations with Ci, the highest-ranked bidder to submit a responsive proposal that meets the City's needs.

Respectfully submitted,

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Exhibit A

LSN LAW P.A.

January 29, 2026

Mr. Glenn Marcos
Procurement Services Department Director
City of Fort Lauderdale
101 NE 3 Ave
Fort Lauderdale, FL 33301

Re: RFP Event No. 549, P25 Radio Communication System Refresh-Replacement - Rebid

Dear Mr. Marcos:

This law firm represents Communications International, Inc., ("Ci") in connection with the City of Fort Lauderdale's (the "City") RFP Event No. 549, P25 Radio Communication System Refresh-Replacement – Rebid (the "RFP"). Ci is a leading provider of mission-critical radio communications systems with a proven track record working with agencies across the country.

Pursuant to Section 2-182 of the City Code, Ci is submitting this letter of protest because the proposal submitted by Motorola Solutions, Inc., ("MSI"), the vendor recommended for award, contains fatal flaws that render it non-responsive. More specifically, MSI's proposal violates Florida procurement law because it is improperly conditioned upon the receipt of a waiver from the Federal Communications Commission (the "FCC"), and it proposes a warranty that fails to meet the minimum requirements laid out in the RFP. As you know, the RFP is vital to the City's ability to keep the public safe, so it is particularly important that the City receive a proven system that meets the City's needs. Therefore, Ci urges the City to discard MSI's proposal as non-responsive and initiate contract negotiations with Ci, the highest-ranked vendor to submit a responsive proposal.

I. Statement of Facts

a. The RFP

On November 21, 2025, the City issued the RFP to procure a turnkey P25 (Project 25) emergency radio communication system. *See* Section 3, RFP, attached as **Exhibit A**. More specifically, the City solicited a new and comprehensive radio system that provides essential City departments, including the Police Department and Fire Rescue, with reliable encrypted voice coverage throughout the city and surrounding areas. *See id.* This system is critical to ensuring interoperability and seamless, reliable communication between different critical City agencies, as well as between City personnel and that of neighboring jurisdictions.

The RFP includes an extensive scope of services and technical specifications that all bidders' proposed solutions must satisfy to ensure the City receives the system it needs. *See id.* As is customary in solicitations like this, the RFP explains that a proposer's failure to satisfy the RFP's

technical specifications and requirements will render that proposer's bid non-responsive. *See* Sections 3.1.4.3 & 2.11.1, RFP. The RFP's requirements include, in pertinent part, that a bidder's proposed system provide a certain level of geographic coverage (i.e., that it function within a defined geographic area). For example, the RFP requires that proposed systems provide "mobile radio user coverage throughout the City and two miles outside of the City at 97% coverage . . . ." *See* Section 3.15.2, RFP. It also requires that the vendor "guarantee coverage in all schools at no less than 95% coverage . . . ." *See* 3.15.5, RFP. These coverage requirements are meant to ensure radios work where needed and to eliminate dead zones in which emergency personnel cannot communicate. Lastly, the RFP also requires that bidders provide the City with a "comprehensive warranty (maintenance and support) on **all** infrastructure and end-user equipment required by the new P25 radio system." *See* Section 3.1.5, RFP (Emphasis added). The RFP states that "all warranty and post-warranty services shall be comprehensive and must cover the entire system, including but not limited to Vendor provided OEM and **all third-party equipment**." *See* Section 3.45.1.1, RFP.

b. MSI's Proposal

On December 18, 2025, the City received proposals from three (3) bidders, namely Ci, MSI, and EF Johnson Technologies, Inc. ("EF Johnson"). Ci submitted a proposal that adheres in all material respects to the RFP's requirements. In fact, Ci's proposed system exceeds some of the RFP's most critical technical specifications and requirements. For example, Ci's proposed system would provide the City with 97% coverage in schools and critical buildings, which exceeds the 95% coverage requirement applicable to these structures under the RFP. Ci also offered the City a comprehensive, five-year warranty on all infrastructure and end-user equipment that forms part of its proposed system, including all third-party equipment. *See* Page 24, Ci Oral Presentation Slides, attached as **Exhibit B**. MSI and EF Johnson, however, submitted proposals with several material deviations from the RFP's requirements. For the purposes of this protest, this letter will focus on MSI's proposal, particularly as it relates to the coverage and warranty requirements laid out in the RFP.

First, MSI's proposal raises doubts regarding MSI's ability to provide the City with the needed levels of coverage because its proposed coverage is conditioned upon the receipt of a waiver from the FCC. *See* Pages 6-7, MSI Presentation Writeup, attached as **Exhibit C**. MSI admits that, in order to meet the RFP's coverage requirements, it would have to secure some sort of approval from the FCC that it currently lacks: "MSI has conducted due diligence to conclude that the waiver which is required to implement a 4-site system for Fort Lauderdale, which meets the stringent in-building coverage requirements, has a high probability of success based on the channels proposed and methodology outlined." *See id.* In other words, MSI admits that it cannot meet the RFP's coverage requirements under the current regulatory framework. *See id.* In fact, MSI makes clear that it would need to secure two separate approvals in order to meet the RFP's coverage requirements—it would first need to secure the approval of the applicable Regional Planning Committee, after which it would have to obtain final approval from the FCC. *See* Page 12, MSI Oral Presentation Slides, attached as **Exhibit D**.

Second, MSI's proposal includes a warranty that does not satisfy the minimum requirements laid out in the RFP. *See* Pages 43-44, Evaluation Committee Meeting Transcript,

attached as **Exhibit E**. More particularly, MSI proposed a warranty that excludes third-party equipment, in violation of the RFP's explicit requirements. *See id.*

c. Oral Presentations, Evaluation of Proposals, and Notice of Intent to Award

On January 12, 2026, a five-member evaluation committee convened for the first of two evaluation committee meetings. During its first meeting, the evaluation committee met with the City's technical consultant for the RFP to discuss technical matters regarding the solicitation, its requirements, and the three proposals submitted in response to the RFP. *See* Page 1, Evaluation Committee Meeting Transcript. The committee and the City's consultant soon identified the issues with MSI's proposed coverage and equipment warranty. Here is an exchange between the evaluation committee and the City's technical consultant regarding Motorola's coverage:

> **Procurement Conference Room**: "Coverage summary, yeah . . . out of the three . . . **there seem to be asterisks on the Motorola response** . . . the waiver to exceed the two mile boundary."
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> **Dean Hart/TUSA Consulting:** "I mean, I view that, you know, okay, they said they could exceed it. They did some explanation of why that's important to the City of Fort Lauderdale, with some language as far as especially fire EMS response outside of your own jurisdiction. And that was all good. **But then they put that asterisk on it, but would require a waiver. They have a high confidence that the waiver is possible with the Florida licensing and actually provided language to do that. However, that requires it to be done**."
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> *See* Pages 51-52, Evaluation Committee Meeting Transcript (Emphasis added).

The committee and the City's technical consultants also identified and discussed the issue with Motorola's proposed equipment warranty during this first meeting:

> **Rebecca Norwood (TUSA)**: "So the **not comprehensive** . . . . Motorola very clearly writes that they'll do an extended warranty to five years for F&E fixed network equipment, things that they sell, things that integrate within the racks with their equipment, but that **does not extend to . . . third party stuff**."
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> *See* Page 43, Evaluation Committee Meeting Transcript (Emphasis added).

Ms. Norwood went on to explain that Ci's proposed warranty, on the other hand, is truly comprehensive: "For Ci, basically what they're saying is, if you bought it as part of this system, it's comprehensive, it's included in the five-year warranty." *See id.*

On January 20, 2026, the evaluation committee met for the second and final time to hear oral presentations from the proposers, ask them relevant clarifying questions, and score the proposals. *See* Page 74, Evaluation Committee Meeting Transcript. After hearing all oral presentations, the evaluation committee reconvened to hold final deliberations regarding the proposals and, finally, score and rank the proposals. *See id.* Ultimately, the committee ranked MSI first, Ci second, and EF Johnson third. *See* Final Ranking, attached as **Exhibit F**. Lastly, on January 22, 2026, the City published notice of its intent to award the contract to MSI. *See* Notice of Intent to Award, attached as **Exhibit G**.

II. Argument

MSI's proposal is non-responsive for two main reasons: (1) it—particularly its proposed coverage—is improperly conditioned on the receipt of a waiver from the FCC, which violates Florida procurement law; and (2) it proposes a warranty that fails to meet the RFP's requirements, a material deviation that gives MSI an unfair advantage by allowing it to propose a lower price than it would have been able to had it adhered to the RFP's requirements.

Under Florida law, a proposal contains a material, nonwaivable deviation or irregularity—and is non-responsive—if (1) the deviation or irregularity would "**deprive the municipality of its assurance** that the contract will be entered into, performed, and guaranteed according to its specified requirements"; or if (2) the deviation or irregularity "would **adversely affect competitive bidding by placing a bidder in a position of advantage over other bidders** or by otherwise undermining the necessary common standard of competition." *Robinson Electrical Co. v. Dade County*, 417 So.2d 1032 (Fla. 3d DCA 1982) (Emphasis added).

It is well established that a conditional bid, i.e., a bid that is contingent upon the occurrence of some other event, is non-responsive because it deprives a procuring agency of its assurance that the contract will be entered into and performed as required. *See Vertex Standard v. Dep't of Transportation*, DOAH Case No. 07-0488BID, Recommended Order (April 30, 2007); *Guiding Light Enterprise v. Dep't of Transportation*, DOAH Case No. 04-2163BID, Recommended Order (August 25, 2004). Also, Florida courts have consistently found that any deviation or irregularity in a proposal that affects price is material and, therefore, renders the proposal non-responsive. *See Mercedes Lighting and Elec. Supply v. State, Dep't. of General Services*, 560 So.2d 272 (Fla. 1st DCA 1990); *TMS Joint Venture v. Commission for the Transportation Disadvantaged*, DOAH Case Nos. 10-0030BID, 10-0051BID, Recommended Order (2010).

In this case, MSI's proposal deprives the City of its assurance that MSI can provide the required levels of coverage because it is improperly conditioned upon securing a waiver from the FCC. In order for MSI to deliver its proposed solution, the FCC must agree to suspend the application of certain rules with regard to MSI and its proposed system. If, for whatever reason, MSI fails to obtain this waiver, MSI would be left incapable of delivering its proposed solution. This violates both Florida law and the terms of the RFP, which make clear that the City may not accept proposals that are conditional in nature. *See* Section 2.11.1, RFP. MSI's proposal is marred by risk and uncertainty—it hinges on winning a regulatory gamble.[1]

[1] Ci, on the other hand, intentionally proposed a coverage design that meets the City's coverage requirements and adheres to applicable regulations to minimize risk and ensure a deliverable system.

Lastly, MSI's failure to propose a comprehensive warranty that includes third-party equipment constitutes a material deviation from the requirements of the RFP, rendering its proposal non-responsive. As noted by the City's technical consultant, MSI's inadequate warranty, if accepted, would have significant impacts on price and future costs. *See* Page 44, Evaluation Committee Meeting Transcript (noting that MSI "will pass through whatever warranty comes with that third party piece of equipment," and that MSI's proposed warranty will likely have cost implications down the road). By ignoring one of the RFP's explicit requirements and proposing an insufficient equipment warranty, MSI was arguably able to offer the City a lower, more appealing price than it would have otherwise—thereby giving MSI a leg up on the other bidders.

III. Conclusion and Reservation to Amend

Based on the issues discussed above, Ci urges the City to reject MSI's proposal as non-responsive and begin contract negotiations with Ci, the highest-ranked bidder to submit a responsive proposal that meets the City's needs.

Please note that Ci submitted to the City a public records request for copies of documents relevant to this matter. However, as of the writing of this protest, Ci has received only a partial response to its request. Therefore, Ci reserves the right to amend this letter of protest as additional facts become available.

Respectfully submitted,

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3800 NE 1st Ave., Suite 200
Miami, FL 33137
305-742-2810
jpessoa@lsnlaw.com

Exhibit B

February 6, 2026

John A. Pessoa, Esq.
LSN Law, P. A.
3800 NE 1st Ave., Suite 200
Miami, FL 33137

VIA EMAIL: jpessoa@lsnlaw.com

RE: Staying the Award Process- Request for Proposals (Event) No. 549, P25 Radio Communication System Refresh-Replacement Rebid

Dear Mr. Pessoa:

The City of Fort Lauderdale ("City") is in receipt of your timely protest with a non-refundable protest application fee of five thousand dollars ($5,000) on Communications International, Inc. ("Ci") regarding Request for Proposals No. 549, Radio Communication System Refresh-Replacement Rebid.

Pursuant to the City of Fort Lauderdale Procurement Ordinance, Section 2-182.1(c)(1), you are hereby informed that I am staying the award process to further investigate your allegations.

Respectfully,

Glenn Marcos, CPPO, CPPB, FCPM, FCPA
Chief Procurement Officer / Director of Procurement

cc: Rickelle Williams, City Manager
Shari McCartney, City Attorney
Yvette Matthews, Assistant City Manager
Ron McKenzie, Director, Information Technology
Eric Abend, Senior Assistant City Attorney
Laurie Platkin, Senior Procurement Specialist
Jason Swift, Division Manager, Information Technology
File

Exhibit C

March 2, 2026

John A. Pessoa, Esq.
LSN Law, P.A.
3800 NE 1st Ave.
Suite 200
Miami, FL 33137

VIA EMAIL: jpessoa@lsnlaw.com

RE: Response to Protest of the Award- Request for Proposals (RFP) No. 549, P25 Radio Communication System Refresh-Replacement- Rebid

Dear Mr. Pessoa:

The City of Fort Lauderdale ("City") acknowledges receipt of the timely protest submitted by Communications International, Inc. ("Ci"), together with the required non-refundable protest application fee in the amount of five thousand dollars ($5,000), concerning Request for Proposals ("RFP") No. 549, *Radio Communication System Refresh-Replacement – Rebid*.

Ci protests the City's recommendation for award to Motorola Solutions, Inc. ("MSI") pursuant to Section 2-182 of the City of Fort Lauderdale Procurement Ordinance, asserting that MSI's proposal contains alleged material defects rendering it non-responsive.

I. Standard of Review
In resolving a procurement protest, the Chief Procurement Officer determines whether the challenged procurement action:

1. Violated the City's Procurement Ordinance, the solicitation requirements, or applicable law; or
2. Was arbitrary, capricious, or unsupported by competent substantial evidence contained within the procurement record.

The protestor bears the burden of demonstrating that the recommended award is legally deficient or that the evaluation process materially deviated from the solicitation requirements.

II. Background
The City issued RFP No. 549 seeking proposals for replacement and refresh of the City's P25 radio communication system. Proposals were evaluated by a duly appointed

Evaluation Committee with assistance from the City's independent technical consultant, TUSA Consulting Services ("TUSA").

Following evaluation of the proposals, negotiations were recommended with Motorola Solutions, Inc. ("MSI") as the highest-ranked responsive and responsible proposer.

Ci filed a protest alleging MSI's proposal is non-responsive due to purported failures to comply with technical coverage requirements, warranty provisions, and certain infrastructure requirements.

III. Allegations Raised in the Protest
Ci contends that MSI's proposal fails to comply with certain mandatory technical and contractual requirements of the RFP, specifically:

1. **System Coverage Requirements** — whether MSI satisfies the requirement for mobile radio user coverage throughout the City and two (2) miles beyond City limits at 97% coverage with Delivered Audio Quality (DAQ) 4.0, as required by RFP Section 3.15.2; and

2. **School Coverage Requirements** — whether MSI guarantees no less than 95% coverage at 25db within all schools pursuant to RFP Section 3.15.5.

Ci further asserts that MSI conditioned its proposal upon receipt of a Federal Communications Commission ("FCC") waiver and therefore admitted an inability to meet RFP requirements under the existing regulatory framework.

Additionally, Ci alleges MSI's warranty provisions fail to comply with Sections 3.1.5 and 3.45.1.1 of the RFP, which require comprehensive warranty and post-warranty services covering the entire system, including vendor-provided OEM and third-party equipment.

In support of its position, Ci references discussions reflected in the Evaluation Committee Meeting Transcript dated January 12, 2026.

IV. Stay of Award and Investigation
Pursuant to Section 2-182.1(c)(1) of the Procurement Ordinance, the City stayed the award process on February 6, 2026, pending investigation of the protest allegations.

V. Findings of Fact
After review of the protest submission, Evaluation Committee materials, consultant input, and procurement record, the undersigned makes the following findings:

A. Coverage Requirements
The RFP requires:

- 97% mobile radio coverage at Delivered Audio Quality (DAQ) 4.0 throughout the City and two miles beyond City limits (Section 3.15.2); and
- Minimum 95% in-building coverage at 25db within schools (Section 3.15.5).

Ci asserts MSI conditioned compliance upon receipt of an FCC waiver and therefore admitted noncompliance.

The City consulted TUSA, including Mr. Dean Hart and Ms. Rebecca Norwood (Exhibit A).

TUSA confirmed:

- All proposers must relicense frequencies due to migration to Phase II/TDMA technology;
- MSI's reference to an FCC waiver reflects an implementation approach common to all proposers rather than a condition or exception;
- Evaluation discussions identified clarification items anticipated prior to negotiations and did not constitute findings of noncompliance.

The procurement record contains no evidence that MSI rejected or conditioned compliance with mandatory coverage requirements.

B. Warranty Requirements

Ci alleges MSI's warranty excludes third-party equipment contrary to Sections 3.1.5 and 3.45.1.1 of the RFP.

The record demonstrates MSI acknowledged the requirement and agreed to comply subject to clarification during negotiations. Requests for clarification regarding scope or administration of warranty obligations are consistent with competitive negotiation procurements and do not render a proposal non-responsive where compliance is not expressly disclaimed.

No material exception to the warranty requirement was taken by MSI.

VI. Supplemental Protest Filing

On the same date the stay was issued, Ci submitted a supplement to amend its protest based upon additional documents produced by the City as part of Ci's public records request. The supplement was filed outside the protest period prescribed by Section 2-182(d) of the Procurement Ordinance.

The Ordinance expressly provides that failure to submit a written protest within the prescribed timeframe constitutes a waiver of protest rights. The Ordinance contains no provision authorizing post-deadline supplements. Accordingly, the supplemental protest is procedurally improper and prohibited.

Notwithstanding this procedural defect, the City addresses the additional allegation herein for completeness of the administrative record.

VII. Roof Shield Requirement (Supplemental Allegation)
Ci asserts MSI materially deviated from the RFP requirement mandating provision and installation of a roof shield above the equipment shelter to protect personnel and equipment from falling materials from the adjacent tower. Ci relies upon MSI's statement that roof shields are not typically installed in climates where ice is not a factor but may be provided at additional cost if requested.

Upon review, MSI's proposal does not reject or take exception to the requirement. Rather, MSI expressly indicated its willingness to comply upon clarification. The statement cited by Ci reflects customary industry practice, not a refusal to meet contractual requirements. Accordingly, MSI's proposal does not constitute a deviation from the RFP nor does it create a competitive pricing advantage.

VIII. Findings
Based upon the foregoing findings, the Chief Procurement Officer determines:

1. MSI's proposal is responsive to the material requirements of the RFP.
2. References to FCC licensing actions do not constitute conditional pricing or conditional performance.
3. Warranty and infrastructure items identified by Ci are matters appropriate for clarification and negotiation under a competitive RFP process and do not constitute material deviations.
4. The Evaluation Committee acted within its discretion and consistent with the RFP and Procurement Ordinance.
5. The recommendation for award is supported by competent substantial evidence contained within the procurement record.
6. Ci has failed to meet its burden of proving that the procurement process was arbitrary, capricious, contrary to law, or inconsistent with the solicitation.

Even assuming in arguendo that clarification results in additional costs, the record reflects such adjustments would not alter MSI's competitive standing or provide an unfair competitive advantage.

In summary, both TUSA and the Procurement Services Department independently finds that MSI's proposal does not contain a conditional offer or a non-responsive submission. As with any competitive procurement, certain technical and contractual details remain subject to clarification and negotiation with the highest-ranked responsive and responsible proposer in the City's best interest.

IX. Conclusion
For the reasons stated herein, the protest submitted by Communications International, Inc. is **Denied**.

The stay of award is hereby lifted, and the City will proceed with the procurement process in accordance with the Procurement Ordinance.

Respectfully,

Glenn Marcos, CPPO, CPPB, FCPM, FCPA
Chief Procurement Officer / Director of Procurement

cc: Rickelle Williams, City Manager
Shari McCartney, City Attorney
Eric Abend, Senior Assistant City Attorney
Yvette Matthews, Assistant City Manager
Ron McKenzie, Director, Information Technology Services
William Schultz, Chief of Police
Stephen Gollan, Chief of Fire-Rescue
Laurie Platkin, Senior Procurement Specialist
File

Attachments
Exhibit A

From: Dean Hart
To: Glenn Marcos
Cc: Rebecca Norwood; Laurie Platkin
Subject: [EXTERNAL:CAUTION!]- Re: Protest - RFP No. 549, P25 Radio Communication System Refresh-Replacement Rebid (PART I)
Date: Tuesday, February 10, 2026 4:45:07 PM
Attachments: image001.png
image002.png

Glenn,

Please see Rebecca's and my response in regard to the protest and your questions.

Rebecca -
In the Motorola proposal response there are conflicting statements as to the warranty and maintenance. As a matter of preparing the client for negotiation TUSA reports the "worse case" statement. Only with a red lined proposal, could the desired result be contractually accepted.

- Pg 17 "Motorola Solutions' excellent warranty services provide five years of FNE and five years of subscriber support."
- Pg 49 "Motorola exceeds this requirement and has included a 4-year (48-month) comprehensive warranty on all infrastructure equipment."
- Pg 276 "Motorola will provide a five-year warranty"

Dean -
Per RFP section 3.3.1.4 The vendor is responsible for providing a licensable system design subject to applicable local, state, regional, and federal laws.

- Pg 148 Section 3.15.2.2 The system shall support no less than 95% coverage/DAQ-3.4 within residential structures and Law/Fire/EMS facilities and municipal buildings throughout all areas of the Customer.

Motorola states exceeds but then goes on to say:
"In the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary to shrink the 40 dBμV/m contour sufficiently to satisfy the above rule or to the extent that the Regional Planning Committee authorizes.

In the Motorola proposal response they state an exceeds on coverage requirements. They then state they cannot meet this guarantee without a waiver from Region 9

Planning Committee. They state coverage could be reduced if not approved. They do not state what the guarantee would be if not approved.

This was a concern from TUSA to make it aware to the Evaluation Committee. However, TUSA doesn't believe this is a valid reason to make a vendor non-responsive. All vendors face this same risk as they must relicense the system proposed due to the change to Phase II/TDMA. It was just stated by Motorola with a plan to make it happen with the waiver.

Please let me know if you need further or any questions.

Dean Hart dean.hart@tusaconsulting.com

tusaconsulting.com

On Fri, Feb 6, 2026 at 8:02 PM Glenn Marcos <GMarcos@fortlauderdale.gov> wrote:

Dean/Rebecca:

The City, via the Procurement Services Department, received the attached protest that has been filed by Communications, International, Inc ("***Ci***"). The file is large so I must send it in different parts. I will be staying the award because ***Ci's*** assertions are based on technical aspects of Motorola's proposal and some statements made by Rebecca and you during the Evaluation Committee (EC) meeting. I need you to respond to the protest based on your technical expertise. I will be reaching out to you next week to discuss.

Respectfully,

GLENN MARCOS, CPPO,CPPB, FCPM, FCPA | CHIEF PROCUREMENT OFFICER / PROCUREMENT DIRECTOR
Procurement Services Department
City of Fort Lauderdale
101 NE 3rd Avenue, Suite 1650, Fort Lauderdale, FL 33301
O: 954-828-5677

E: gmarcos@fortlauderdale.gov
WeAreFTL

Exhibit D

SECTION I – INTRODUCTION AND INFORMATION

1.1 Purpose

The City of Fort Lauderdale, Florida (City) is seeking qualified, experienced and licensed firm(s), hereinafter referred to as Contractor, Proposer, Vendor, to provide the City with a new P25 700/800 MHz Digital Simulcast Trunked radio network capable of meeting current and future communication needs, reliably and functionally for the City, in accordance with the terms, conditions, and specifications contained in this Request for Proposals (RFP).

1.2 Point of Contact

For information concerning procedures for responding to this solicitation, contact Procurement Specialist Laurie Platkin at (954) 828-538 or email at lplatkin@fortlauderdale.gov. Such contact shall be for clarification purposes only.

For information concerning technical specifications, please utilize the question / answer feature provided by the City's on-line strategic sourcing platform. Questions of a material nature must be received prior to the cut-off date specified in the RFP Schedule. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. Contractors please note: Proposals shall be submitted as stated in PART IV – Submittal Requirements. No part of your proposal can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the Contractor has familiarized themselves with the nature and extent of the work, and the equipment, materials, and labor required. The entire proposal must be submitted in accordance with all specifications contained in this solicitation. The questions and answers submitted in the City's on-line strategic sourcing platform shall become part of any contract that is created from this RFP.

1.3 Pre-proposal Conference and Site Visit

There will be a pre-proposal conference and/or site visit scheduled for this Request for Proposal. It is strongly suggested that all Contractors attend the pre-proposal conference and/or site visit.

While attendance is not mandatory, tours at other times might not be available. It is the sole responsibility of the Contractor to become familiar with the scope of the City's requirements and systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. It is strongly suggested that all Contractors attend the pre-proposal meeting and/or site visit.

It will be the sole responsibility of the Contractor to attend the pre-proposal/site visit to inspect the City's location(s) facilities systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the Proposer has familiarized themselves with the nature and extent of the work, equipment, materials, and labor required.

If a person decides to appeal any decision made by the board, agency, or commission with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.

1.4 CITY'S ON-LINE STRATEGIC SOURCING PLATFORM

The City of Fort Lauderdale uses the City's on-line strategic sourcing platform to administer the competitive solicitation process, including but not limited to soliciting proposals, issuing addenda, posting results and issuing notification of an intended decision. There is no charge to register and download the RFP from the City's on-line strategic sourcing platform. Proposers are strongly encouraged to read the supplier tutorials available in the City's on-line strategic sourcing platform well in advance of their intention of submitting a proposal to ensure familiarity with the use of the City's on-line strategic sourcing platform. The City shall not be responsible for a Proposers inability to submit a Proposal by the end date and time for any reason, including issues arising from the use of the City's on-line strategic sourcing platform.

It is the sole responsibility of the Proposer to ensure that their proposal is submitted electronically through the City's on-line strategic sourcing platform no later than the time and date specified in this solicitation. PAPER PROPOSAL SUBMITTALS WILL NOT BE ACCEPTED. PROPOSALS MUST BE SUBMITTED ELECTRONICALLY VIA the City's on-line strategic sourcing platform.

1.5 Electronic Bid Openings/Proposal Closings

Please be advised that effective immediately, and until further notice, all Invitation to Bids, Request for Proposals, Request for Qualifications, and other solicitations led by the City of Fort Lauderdale will be opened electronically via the City's on-line strategic sourcing platform at the date and time indicated on the solicitation. All openings will be held on the City's on-line strategic sourcing platform.

Anyone requesting assistance or having further inquiry in this matter must contact the Procurement Specialist indicated on the solicitation, via the Question-and-Answer forum on the City's on-line strategic sourcing platform before the Last Day for Questions indicated in the Solicitation.

END OF SECTION

SECTION II - SPECIAL TERMS AND CONDITIONS

2.1 General Conditions

RFP General Conditions (Form G-107, Rev. 02/22) are included and made a part of this RFP.

2.2 Addenda, Changes, and Interpretations

It is the sole responsibility of each firm to notify the Buyer utilizing the question / answer feature provided by the City's on-line strategic sourcing platform and request modification or clarification of any ambiguity, conflict, discrepancy, omission, or other error discovered in this competitive solicitation. Requests for clarification, modification, interpretation, or changes must be received prior to the Question and Answer (Q & A) Deadline. Requests received after this date may not be addressed. Questions and requests for information that would not materially affect the scope of services to be performed or the solicitation process will be answered within the question / answer feature provided by the City's on-line strategic sourcing platform and shall be for clarification purposes only. Material changes, if any, to the scope of services or the solicitation process will only be transmitted by official written addendum issued by the City and uploaded to the City's on-line strategic sourcing platform as a separate addendum to the RFP. Under no circumstances shall an oral explanation given by any City official, officer, staff, or agent be binding upon the City and should be disregarded. All addenda are a part of the competitive solicitation documents, and each firm will be bound by such addenda. It is the responsibility of each to read and comprehend all addenda issued.

2.3 Changes and Alterations

Proposer may change or withdraw a Proposal at any time prior to Proposal submission deadline; however, no oral modifications will be allowed. Modifications shall not be allowed following the Proposal deadline.

2.4 Proposer's Costs

The City shall not be liable for any costs incurred by Proposers in responding to this RFP.

2.5 Pricing/Delivery

All pricing should be identified on the Excel Pricing Worksheets provided in this RFP. No additional costs may be accepted, other than the costs stated in the Excel Pricing Worksheets. Failure to use the City's Pricing Worksheets and provide costs as requested in this RFP may deem your proposal non-responsive.

Contractor shall quote a firm, fixed price for all services stated in the RFP. All costs including travel shall be included in your proposal. The City shall not accept any additional costs including any travel associated with coming to the City of Fort Lauderdale.

All pricing must include delivery and installation and be quoted FOB: Destination.

2.6 Price Validity

Prices provided in this Request for Proposals (RFP) shall be valid for at least One Hundred and Twenty (120) days from time of RFP opening unless otherwise extended and agreed upon by the City and Bidder/Proposer. The City shall award contract within this time period or shall request to the recommended awarded vendor an extension to hold pricing, until products/services have been awarded.

2.7 Invoices/Payment

The following payment schedule shall apply:

- 10% at Contract execution.
- 10% at delivery of inventory by the City or their designee of radio equipment and accessories to the City's designated location(s).
- 10% at successful completion of radio acceptance testing.
- 10% upon issuance of the portable radio equipment including completion of applicable training.
- 10% upon installation of the mobile radio and control station equipment including completion of applicable training.
- 45% upon Final Acceptance
- 5% upon receipt of Documentation.

Payment terms will be considered Net 45 days after the date of satisfactory delivery at the place of acceptance and receipt of correct invoice at the office specified, whichever occurs last, in accordance with the Florida Local Government Prompt Payment Act. Proposer may offer cash discounts for prompt payment, but they will not be considered in determination of award.

2.8 Related Expenses/Travel Expenses

All costs including travel are to be included in your bid. The City will not accept any additional costs.

2.9 Payment Method – N/A

2.10 Mistakes

The proposer shall examine this RFP carefully. The submission of a Proposal shall be prima facie evidence that the consultant has full knowledge of the scope, nature, and quality of the work to be performed; the detailed requirements of the specifications; and the conditions under which the work is to be performed. Ignorance of the requirements will not relieve the consultant from liability and obligations under the Contract.

2.11 Acceptance of Proposals / Minor Irregularities

2.11.1 The City reserves the right to accept or reject any or all proposals, part of proposals, and to waive minor irregularities or variances to specifications contained in proposals which do not make the proposal conditional in nature and minor irregularities in the solicitation process. A minor irregularity shall be a variation from the solicitation that does not affect the price of the contract or does not give a respondent an advantage or benefit not enjoyed by other respondents, does not adversely impact the interests of other firms, or does not affect the fundamental fairness of the solicitation process. The City also reserves the right to reissue a Request for Proposal.

2.11.2 The City reserves the right to disqualify Proposer during any phase of the competitive solicitation process and terminate for cause any resulting contract upon evidence of collusion with intent to defraud or other illegal practices on the part of the Proposer.

2.12 Modification of Services

2.12.1 While this contract is for services provided to the department referenced in this RFP, the City may require similar work for other City departments. Successful Proposer agrees to take on such work unless such work would not be considered reasonable or become an undue burden to the Successful Proposer.

2.12.2 The City reserves the right to delete any portion of the work at any time without cause, and if such right is exercised by the City, the total fee shall be reduced in the same ratio as the estimated cost of the work deleted bears to the estimated cost of the work originally

planned. If work has already been accomplished and approved by the City on any portion of a contract resulting from this RFP, the Successful Proposer shall be paid for the work completed on the basis of the estimated percentage of completion of such portion to the total project cost.

2.12.3 The City may require additional items or services of a similar nature, but not specifically listed in the contract. The Successful Proposer agrees to provide such items or services and shall provide the City prices on such additional items or services. If the price(s) offered are not acceptable to the City, and the situation cannot be resolved to the satisfaction of the City, the City reserves the right to procure those items or services from other vendors, or to cancel the contract upon giving the Successful Proposer thirty (30) days written notice.

2.12.4 If the Successful Proposer and the City agree on modifications or revisions to the task elements, after the City has approved work to begin on a particular task or project, and a budget has been established for that task or project, the Successful Proposer will submit a revised budget to the City for approval prior to proceeding with the work.

2.13 Non-Exclusive Contract

Proposer agrees and understands that the contract shall not be construed as an exclusive arrangement and further agrees that the City may, at any time, secure similar or identical services from another vendor at the City's sole option.

2.14 Sample Contract Agreement

A sample of the formal agreement template, which may be required to be executed by the awarded vendor can be found at our website: https://www.fortlauderdale.gov/home/showdocument?id=1212

2.15 Responsiveness

In order to be considered responsive to the solicitation, the firm's proposal shall fully conform in all material respects to the solicitation and all its requirements, including all form and substance.

2.16 Responsibility

In order to be considered as a responsible firm, firm shall be fully capable to meet all of the requirements of the solicitation and subsequent contract, must possess the full capability, including financial and technical, to perform as contractually required, and must be able to fully document the ability to provide good faith performance.

2.17 Minimum Qualifications

Proposers shall be in the business of Project 25 (P25) radio communications and telecommunications equipment and must possess sufficient financial support, equipment, and organization to ensure that it can satisfactorily perform the services if awarded a Contract. Proposers must demonstrate that they, or the key staff assigned to the project, have successfully provided services with similar magnitude to those specified in the scope of services to at least one entity similar in size and complexity to the City of Fort Lauderdale or can demonstrate they have the experience with large scale private sector clients and the managerial and financial ability to successfully perform the work.

Proposers shall satisfy each of the following requirements cited below. Failure to do so may result in the proposal being deemed non-responsive.

2.17.1 Proposer or principals shall have relevant experience in radio communications and telecommunications equipment. Project manager assigned to the work must have experience in successful implementation of a P25 700/800 MHz Digital Simulcast Trunked radio network and have served as project manager on similar projects.

2.17.2 Before awarding a contract, the City reserves the right to require that a Proposer submit such evidence of qualifications as the City may deem necessary. Further, the City may consider any evidence of the financial, technical, and other qualifications and abilities of a firm or principals, including previous experiences of same with the City and performance evaluation for services, in making the award in the best interest of the City.

2.17.3 Firm or principals shall have no record of judgments, pending lawsuits against the City or criminal activities involving moral turpitude and not have any conflicts of interest that have not been waived by the City Commission.

2.17.4 Neither firm nor any principal, officer, or stockholder shall be in arrears or in default of any debt or contract involving the City, (as a party to a contract, or otherwise); nor have failed to perform faithfully on any previous contract with the City.

2.18 Lobbying Activities

ALL CONTRACTORS PLEASE NOTE: Any contractor submitting a response to this solicitation must comply, if applicable, with City of Fort Lauderdale Ordinance No. C-11-42 & Resolution No. 07-101, Lobbying Activities. Copies of Ordinance No. C-11-42 and Resolution No. 07-101 may be obtained from the City Clerk's Office on the 4th Floor of One East Broward Boulevard, Suite 444, Fort Lauderdale, Florida. The ordinance may also be viewed on the City's website at: http://www.fortlauderdale.gov/home/showdocument?id=6036.

2.19 Local Business Preference – N/A

2.20 Disadvantaged Business Enterprise Preference – N/A

2.21 Protest Procedure

2.21.1 Any Proposer who is not recommended for award of a contract and who alleges a failure by the city to follow the city's procurement ordinance or any applicable law, may follow the protest procedure as found in the city's procurement ordinance within five (5) days after a notice of intent to award is posted on the city's web site at the following link. https://www.fortlauderdale.gov/government/departments-a-h/finance/procurement-services/notices-of-intent-to-award

2.21.2 The complete protest ordinance may be found on the city's web site at the following link: https://library.municode.com/fl/fort_lauderdale/codes/code_of_ordinances?nodeId=COOR_CH2AD_ARTVFI_DIV2PR_S2-182DIREPRAWINAW

2.22 Public Entity Crimes

Contractor represents that the execution of this Agreement will not violate the Public Entity Crime Act, Section 287.133, Florida Statutes (2024), as may be amended or revised, which essentially provides that a person or affiliate who is a contractor, consultant, or other provider and who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to City, may not submit a bid on a contract with City for the construction or repair of a public building or public work, may not submit bids on leases of real property to City, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under an Agreement with City, and may not transact any

business with City in excess of the threshold amount provided in Section 287.017, Florida Statutes (2024), as may be amended or revised, for category two purchases for a period of 36 months from the date of being placed on the convicted vendor list. Violation of this Section shall result in termination of this Agreement and recovery of all monies paid by City pursuant to this Agreement and may result in debarment from City's competitive procurement activities.

2.23 Subcontractors

2.23.1 If the Contractor proposes to use subcontractors in the course of providing these services to the City, this information shall be a part of the bid/proposal response. Such information shall be subject to review, acceptance, and approval of the City, prior to any contract award. The City reserves the right to approve or disapprove of any subcontractor candidate in its best interest and to require Contractor to replace subcontractor with one that meets City approval.

2.23.2 Contractor shall ensure that all of Contractor's subcontractors perform in accordance with the terms and conditions of this Contract. Contractor shall be fully responsible for all of Contractor's subcontractors' performance, and liable for any of Contractor's subcontractors' non-performance and all of Contractor's subcontractors' acts and omissions. Contractor shall defend, at Contractor's expense, counsel being subject to the City's approval or disapproval, and indemnify and hold harmless the City and the City's officers, employees, and agents from and against any claim, lawsuit, third-party action, or judgment, including any award of attorney fees and any award of costs, by or in favor of any Contractor's subcontractors for payment for work performed for the City.

2.23.3 Contractor shall require all its subcontractors to provide the required insurance coverage as well as any other coverage that the contractor may consider necessary, and any deficiency in the coverage or policy limits of said subcontractors will be the sole responsibility of the contractor.

2.24 Proposal Security

2.24.1 A proposal security payable to the City of Fort Lauderdale shall be submitted with the proposal response in the amount of five percent (5%) of the total proposed amount. A proposal security can be in the form of a bid/proposal bond or cashier's check. Proposal security will be returned to the unsuccessful contractor as soon as practicable after opening of proposals. Proposal security will be returned to the successful Proposer after acceptance of the Payment and Performance Bond, if required; acceptance of insurance coverage, if required; and full execution of contract documents, if required; or other conditions as stated in Special Conditions or elsewhere in the RFP.

2.24.2 The Proposer shall deliver the original, signed and sealed bid/proposal bond within five (5) business days from the solicitation end date, or it will be determined as non-responsive. A bid/proposal security in the form of a cashier's check must be an original document and must be submitted at time of the bid/proposal due date. If choosing the cashier's check method, plan in advance to send via United States Postal Service or air freight carrier to ensure cashier's check arrives on or before bid opening/proposal closing deadline.

A. Deliver via United States Postal Service or air freight carrier to:
City of Fort Lauderdale, Procurement Services Department, 101 NE 3rd Avenue, Suite 1650, Fort Lauderdale, FL 33301.

B. Include company name, solicitation number and title clearly indicated outside of the envelope.

2.24.3 Failure of the successful Proposer to execute a contract, provide a Performance Bond, and furnish evidence of appropriate insurance coverage, as provided herein, within thirty (30) days after written notice of award has been given, shall be just cause for the annulment of the award and the forfeiture of the proposal security to the City, which forfeiture shall be considered, not as a penalty, but as liquidation of damages sustained.

2.24.4 Failure of the successful Proposer to execute a contract, provide a Performance Bond, and furnish evidence of appropriate insurance coverage, as provided herein, within thirty (30) days after written notice of award has been given, shall be just cause for the annulment of the award and the forfeiture of the proposal security to the City, which forfeiture shall be considered, not as a penalty, but as liquidation of damages sustained.

2.25 Payment and Performance Bond

2.25.1 The Proposer shall within fifteen (15) working days after notification of award, furnish to the City a Payment Bond in the amount of one hundred percent (100%) of the Contract price would likewise be required. The Payment Bond must be from a surety company authorized to do business in the State of Florida with a rating of A- or better in the most current edition of the A.M. Best Insurance Report. The cost of the Payment Bond shall be the responsibility of the Contractor.

2.25.2 A Performance Bond in the amount of one hundred percent (100%) of the Contract Price shall be provided by the Contractor in the event a contract is subsequently awarded through either a sole-source or competitive procurement process. The Performance Bond shall be exercised by the Customer for failure of the Contractor to perform according to the terms of the Contract, i.e., an uncured default condition that results in Contract Cancellation. The Performance Bond shall be in place prior to a notice to proceed. The cost of the Performance Bond shall be the responsibility of the Contractor. The Performance Bond must be executed by a surety company or recognized standing to do business in the State of Florida and having a resident agent.

2.25.2 The Proposer must have a Financial Size Categories (FSC) rating of no less than "A-" by the latest edition of Best's Key Rating Guide, or acceptance of insurance company that holds a valid Florida Certificate of Authority issued by the State of Florida, Department of Insurance, and are members of the Florida Guarantee Fund.

2.25.3 Acknowledgement and agreement is given by both parties that the amount herein set for the Payment and Performance Bond is not intended to be nor shall be deemed to be in the nature of liquidated damages nor is it intended to limit the liability of the Contractor to the City in the event of a material breach of this Agreement by the Contractor.

2.26 Insurance Requirements

2.26.1 As a condition precedent to the effectiveness of this Agreement, during the term of this Agreement and during any renewal or extension term of this Agreement, the Contractor, at its sole expense, shall provide insurance of such types and with such terms and limits as noted below. Providing proof of and maintaining adequate insurance coverage are material obligations of the Contractor. The Contractor shall provide the City a certificate of insurance evidencing such coverage. The Contractor's insurance coverage shall be primary insurance for all applicable policies. The limits of coverage under each policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under this Agreement. All insurance policies shall be through insurers

authorized or eligible to write policies in the State of Florida and possess an A.M. Best rating of A-, VII or better, subject to approval by the City's Risk Manager.

2.26.2 The coverages, limits, and endorsements required herein protect the interests of the City, and these coverages, limits, and/or endorsements shall in no way be relied upon by the Contractor for assessing the extent or determining appropriate types and limits of coverage to protect the Contractor against any loss exposures, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under this Agreement.

2.26.3 The following insurance policies and coverages are required:

Commercial General Liability
Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- $1,000,000 each occurrence and $2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- $1,000,000 each occurrence and $2,000,000 aggregate for Products and Completed Operations

Policy must include coverage for contractual liability and independent contractors.

The City, a Florida municipality, its officials, employees, and volunteers are to be included as an additional insured with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City, its officials, employees, and volunteers.

Professional Liability
Coverage must be afforded for Wrongful Acts in an amount not less than $1,000,000 each claim and $2,000,000 aggregate.

Contractor must keep the professional liability insurance in force until the third anniversary of expiration or early termination of this Agreement or the third anniversary of acceptance of work by the City, whichever is longer, which obligation shall survive expiration or early termination of this Agreement.

Crane and Rigging Liability
If contractor is going to be utilizing crane and rigging, coverage must be afforded for any crane operations under the Commercial General or Business Automobile Liability policy as necessary, in line with the limits of the associated policy.

Business Automobile Liability
Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than $1,000,000 combined single limit each accident.

If Contractor does not own vehicles, Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Workers' Compensation and Employer's Liability

Coverage must be afforded per Chapter 440, Florida Statutes. Any person or entity performing work for or on behalf of the City must provide Workers' Compensation insurance. Exceptions and exemptions will be allowed by the City's Risk Manager, if they are in accordance with Florida Statute.

Contractor waives, and Contractor shall ensure that Contractor's insurance carrier waives, all subrogation rights against the City, its officials, employees, and volunteers for all losses or damages. The City requires the policy to be endorsed with WC 00 03 13 Waiver of our Right to Recover from Others or equivalent.

Contractor must be in compliance with all applicable State and federal workers' compensation laws.

2.26.4 Insurance Certificate Requirements

- **a.** The Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than ten (10) days prior to the start of work contemplated in this Agreement.
- **b.** The Contractor shall provide to the City a Certificate of Insurance having a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.
- **c.** In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of the Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
- **d.** In the event the Agreement term or any surviving obligation of the Contractor following expiration or early termination of the Agreement goes beyond the expiration date of the insurance policy, the Contractor shall provide the City with an updated Certificate of Insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.
- **e.** The Certificate of Insurance shall indicate whether coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the Certificate of Insurance must show a retroactive date, which shall be the effective date of the initial contract or prior.
- **f.** The City shall be named as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
- **g.** The City shall be granted a Waiver of Subrogation on the Contractor's Workers' Compensation insurance policy.
- **h.** The title of the Agreement, Bid/Proposal/Contract number, event dates, or other identifying reference must be listed on the Certificate of Insurance.

The Certificate Holder should read as follows:
City of Fort Lauderdale
Attn.: Procurement Services Department
401 SE 21st Street
Fort Lauderdale, FL 33316

2.26.5 The Contractor has the sole responsibility for all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for adding the City as an Additional Insured shall be at the Contractor's expense.

2.26.6 If the Contractor's primary insurance policy/policies do not meet the minimum requirements, as set forth in this Agreement, the Contractor may provide evidence of an Umbrella/Excess insurance policy to comply with this requirement.

2.26.7 The Contractor's insurance coverage shall be primary insurance as respects to the City, a Florida municipal corporation, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the City, a Florida municipal corporation, its officials, employees, or volunteers shall be non-contributory.

2.26.8 Any exclusion or provision in any insurance policy maintained by the Contractor that excludes coverage required in this Agreement shall be deemed unacceptable and shall be considered breach of contract.

2.26.9 All required insurance policies must be maintained until the contract work has been accepted by the City, or until this Agreement is terminated, whichever is later. Any lapse in coverage shall be considered breach of contract. In addition, Contractor must provide to the City confirmation of coverage renewal via an updated certificate should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.

2.26.10 The Contractor shall provide notice of any and all claims, accidents, and any other occurrences associated with this Agreement shall be provided to the Contractor's insurance company or companies and the City's Risk Management office as soon as practical.

2.26.11 It is the Contractor's responsibility to ensure that any and all of the Contractor's independent contractors and subcontractors comply with these insurance requirements. All coverages for independent contractors and subcontractors shall be subject to all of the applicable requirements stated herein. Any and all deficiencies are the responsibility of the Contractor.

2.27 Award of Contract

A Contract (the "Agreement") may be awarded by the City Commission. The City reserves the right to execute or not execute, as applicable, a contract with the Proposer(s) that is determined to be in the City's best interests. The City reserves the right to award a contract to more than one Proposer, at the sole and absolute discretion of the City.

2.28 Unauthorized Work

The Successful Proposer(s) shall not begin work until a Contract has been awarded by the City Commission and a notice to proceed has been issued. Proposer(s) agree and understand that the issuance of a Purchase Order and/or Task Order shall be issued and provided to the Successful Proposer(s) following Commission award; however, receipt of a purchase order and/or task order shall not prevent the Successful Proposer(s) from commencing the work once the City Commission has awarded the contract and notice to proceed is issued.

2.29 Damage to Public or Private Property

Extreme care shall be taken to safeguard all existing facilities, site amenities, irrigation systems, vehicles, etc. on or around the job site. Damage to public and/or private property shall be the responsibility of the Contractor and shall be repaired and/or replaced at no additional cost to the City.

2.30 Safety

The Contractor(s) shall adhere to the Florida Department of Transportation's Uniform manual on Traffic Control for construction and maintenance work zones when working on or near a roadway. It will be the sole responsibility of the Contractor to make themselves and their employees fully aware of these provisions, especially those applicable to safety.

2.31 Uncontrollable Circumstances ("Force Majeure")

The City and Contractor will be excused from the performance of their respective obligations under this agreement when and to the extent that their performance is delayed or prevented by any circumstances beyond their control including, fire, flood, explosion, strikes or other labor disputes, act of God or public emergency, war, riot, civil commotion, malicious damage, act or omission of any governmental authority, delay or failure or shortage of any type of transportation, equipment, or service from a public utility needed for their performance, provided that:

2.31.1 The non-performing party gives the other party prompt written notice describing the particulars of the Force Majeure including, but not limited to, the nature of the occurrence and its expected duration, and continues to furnish timely reports with respect thereto during the period of the Force Majeure;

2.31.2 The excuse of performance is of no greater scope and of no longer duration than is required by the Force Majeure;

2.31.3 No obligations of either party that arose before the Force Majeure causing the excuse of performance are excused as a result of the Force Majeure; and

2.31.4 The non-performing party uses its best efforts to remedy its inability to perform. Notwithstanding the above, performance shall not be excused under this Section for a period in excess of two (2) months, provided that in extenuating circumstances, the City may excuse performance for a longer term. Economic hardship of the Contractor will not constitute Force Majeure. The term of the agreement shall be extended by a period equal to that during which either party's performance is suspended under this Section. Notwithstanding anything to the contrary, a Force Majeure event shall not include any of the following: (a) changes in economic or market conditions, (b) fluctuations in costs or prices, or (c) the imposition, change, or repeal of any taxes, duties, tariffs, or trade restrictions by a governmental authority.

2.32 Canadian Companies

In the event Contractor is a corporation organized under the laws of any province of Canada or is a Canadian federal corporation, the City may enforce in the United States of America or in Canada or in both countries a judgment entered against the Contractor. The Contractor waives any and all defenses to the City's enforcement in Canada, of a judgment entered by a court in the United States of America. All monetary amounts set forth in this Contract are in United States dollars.

2.33 News Releases/Publicity

News releases, publicity releases, or advertisements relating to this contract, or the tasks or projects associated with the project shall not be done without prior City approval.

2.34 Manufacturer/Brand/Model Specific Request

This is a manufacturer/brand/model specification. No substitutions will be allowed.

2.35 Contract Period

The initial contract term shall commence upon date of award by the City and shall expire five (5) years from that date. The City reserves the right to extend the contract for three (3), additional five (5) year terms, providing all terms conditions and specifications remain the same, both parties agree to the extension, and such extension is approved by the City.

In the event services are scheduled to end because of the expiration of this contract, the Contractor shall continue the service upon the request of the City as authorized by the awarding authority. The extension period shall not extend for more than 270 days beyond the expiration date of the existing contract. The Contractor shall be compensated for the service at the rate in effect when this extension clause is invoked by the City.

2.36 Cost Adjustments

Prices quoted shall be firm for the term of the contract.

2.37 Service Test Period – N/A

2.38 Contract Coordinator

The City may designate a Contract Coordinator whose principal duties shall be:

- Liaison with Contractor.
- Coordinate and approve all work under the contract.
- Resolve any disputes.
- Assure consistency and quality of Contractor's performance.
- Schedule and conduct Contractor performance evaluations and document findings.
- Review and approve for payment all invoices for work performed or items delivered.

2.39 Contractor Performance Reviews and Ratings

The City Contract Coordinator may develop a Contractor performance evaluation report. This report shall be used to periodically review and rate the Contractor's performance under the contract with performance rating as follows:

Excellent	Far exceeds requirements.
Good	Exceeds requirements
Fair	Just meets requirements.
Poor	Does not meet all requirements, and contractor is subject to penalty provisions under the contact.
Non-compliance	Either continued poor performance after notice or a performance level that does not meet a significant portion of the requirements. This rating makes the Contractor subject to the default or cancellation for cause provisions of the contract.

The report shall also list all discrepancies found during the review period. The Contractor shall be provided with a copy of the report and may respond in writing if he takes exception to the report or wishes to comment on the report. Contractor performance reviews and subsequent reports will be used in determining the suitability of contract extension.

2.40 Substitution of Personnel

It is the intention of the City that the Contractor's personnel proposed for the contract will be available for the contract term. In the event the Contractor wishes to substitute personnel, he shall

propose personnel of equal or higher qualifications, and all replacement personnel are subject to City approval. In the event substitute personnel are not satisfactory to the City and the matter cannot be resolved to the satisfaction of the City, the City reserves the right to cancel the Contract for cause. See Section 5.09 General Conditions.

2.41 Ownership of Work

The City shall have full ownership and the right to copyright, otherwise limit, reproduce, modify, sell, or use all the work or product produced under this contract without payment of any royalties or fees to the Contractor above the agreed hourly rates and related costs.

2.42 Condition of Trade-In Equipment

It shall be the sole responsibility of the Contractor to inspect the trade in equipment or to assure himself of their condition. No variation in trade in credit shall be permitted based upon a claim of ignorance. Submission of a bid/proposal will be considered evidence, by the City, that the Contractor has familiarized himself with the condition of the trade in equipment.

The City understands that the condition of the equipment may change prior to shipment or pick up of the equipment by Contractor. No warranty or guarantee of the condition of the equipment is offered or implied. The Contractor agrees to take the equipment, at the trade in credit price bid/proposal, in the condition the equipment is at the time it leaves the City. The only commitment the City makes is to continue the same (whichever is applicable) maintenance service, operational standards, or storage conditions from the time the solicitation is issued until trade in equipment shipment or pick up by Contractor.

2.43 Conditions of Trade-In Shipment and Purchase Payment

All Prices of purchase items are to be Free on Board (FOB) Destination delivered to the specified City Agency. All Trade-in equipment prices are to be FOB City Agency. City will ship trade-in equipment FOB City Agency freight, collect to the address specified by the Contractor, or Contractor can arrange to pick up.

No City release of trade in equipment will be allowed prior to receipt and acceptance of purchased equipment will be allowed unless prior arrangements have been made with the City Agency and approved by the Procurement Services Department.

Payment for the net cost to the City (purchase price less trade-in credit) will be made within 45 days from acceptance of the purchase equipment or receipt of a correct invoice, whichever occurs last.

2.44 Verification of Employment Status

Any Contractor/Consultant assigned to perform responsibilities under its contract with a State agency is required to utilize the US Department of Homeland Security's E-Verify system (per Executive Order Number 11-02) to verify the employment eligibility of: (a) all persons employed during the contract term by the Contractor to perform employment duties within Florida; and (b) all persons (including subcontractors) assigned by the Contractor to perform work pursuant to the contract with the State agency.

E-VERIFY Affirmation Statement must be completed and submitted with Proposer's response to this RFP.

2.45 Service Organization Controls

The Contractor must provide a current SSAE 18, SOC 2, Type I report with their proposal. **A proposer shall be deemed non-responsive for failure to submit its SSAE 18, SOC 2, Type**

1 report with its proposal at time of deadline. Successful Proposer will be required to provide an SSAE 18, SOC 2, Type II report annually during the term of this contract.

Where respondents propose systems that are not reliant on offsite infrastructure (cloud hosting), SOC-2 is not necessary.

2.46 Warranties of Usage

Any estimated quantities listed are for information and tabulation purposes only. No warranty or guarantee of quantities needed is given or implied. It is understood that the Contractor will furnish the City's needs as they arise.

2.47 PCI (Payment Card Industry) Compliance – N/A

2.48 Remedies

Remedies shall be part of any Contract awarded and negotiated with the Successful Vendor.

2.48.1 The scope of these remedies will become part of a negotiated contract and shall minimally include a graduated set of monetary penalties for unexcused late or delayed performance by the Contractor.

2.48.2 The project schedule's indicated completion date shall be the basis for assessment of completion remedies.

2.48.3 Remedies shall be applied as follows:

2.48.3.1 Unexcused project completion delays of between 1 day and 30 days beyond the Contract's indicated completion date shall be assessed a penalty of $1,000 per day.

2.48.3.2 Unexcused completion delays that extend from Day 31 through Day 70 beyond the Contract's indicated completion date shall be assessed with a penalty of $1,500 per day.

2.48.3.3 Unexcused completion delays beyond 70 days shall be assessed as a remedy of $2,000 per day.

2.48.3.4 Any unexcused project completion delay that exceeds 180 days from the Contract's indicated completion date shall trigger an automatic default of the Contract.

2.48.3.5 If the Contractor is unable to cure the reason for its completion failure within 45 additional days, the Contract will self-cancel and the Owner will initiate action against the Contractor's performance bond unless some acceptable accommodation is reached by the Contractor with the Owner. During the 45-day default period, remedies will be assessed at the rate of $3,000 per day. Remedies shall also apply to warranty repair service.

2.48.3.6 The RFP and its subsequent contract with the Successful Vendor will include a mandatory warranty period where repair services performed in the field will be necessary. This RFP contains response time periods within which the Contractor is required to provide services and materials. A failure to perform on the part of the Contractor to meet its contracted response time requirements shall result in a financial penalty of the scope and amount indicated by this RFP or as modified during contract negotiations.

END OF SECTION

SECTION III - TECHNICAL SPECIFICATIONS/SCOPE OF SERVICES

3.1 Project Requirements

3.1.1 Project Manager

City will assign a Project Manager as a single point of contact between the City and the Consultant. Proposer's Project Manager shall be approved by the City or designee prior to assignment.

*Attach supporting Project Manager documentation for this section.

The City reserves the right to require replacement of the Proposer's Project Manager or its Sub-Contractors at any time during the project should those party's specific workmanship fall below Industry-accepted levels and/or where mandatory project submittals are deficient, are of poor quality or are materially delayed.

3.1.2 Project Team

3.1.2.1 The vendor shall provide resumes of all project team members assigned to this project.

*Attach Project Team Members supporting documentation for this section.

3.1.3 Subcontractors

3.1.3.1 It is intended that a single City have total turnkey responsibility for the subsequent City project so as to ensure a successful radio deployment project.

3.1.3.2 Therefore, any Vendor desiring to use Sub-Contractor (s) must include within their response a list and description of potential, qualified Sub-Contractors).

3.1.3.3 The City requires documentation and references to ensure the qualification of a proposed Sub-Contractor.

*Attach Subcontractor Description and Qualifications Documentation: File Attachment

*Attach Subcontractor Disclosure Form.

3.1.4 Vendor Standards

3.1.4.1 The Proposer must have delivered and installed at least three projects including radio equipment of comparable technology (700/800 MHz Project-25 TDMA) having comparable size, scope, and with similar features from a manufacturer that has delivered equipment and software for at least three similar projects .

A. These three radio deployments shall be described with enough information that the City and its Consultant can reasonably determine their project equivalency.

B. RFP responses must include a detailed summary of the radio deployment and its significant operational features/components, as well as a current Contractor contact, including name, address, and phone number, title, department, and their responsibility.

*Attach Information on Project 1.
*Attach Information on Project 2.
*Attach Information on Project 3.

3.1.4.2 Vendors will likewise be required to provide sufficient information necessary to support claims that proposed radio equipment will be functionally and operationally compatible with public safety 700MHz channels (764-767MHz and 773-776MHz, paired with 794-797MHz and 803-806MHz, respectively) as well as the newly configured 800MHz NPSPAC channel plan as a result of FCC-Ordered 800MHz Rebanding.

3.1.4.3 Failure to propose equipment capable of operations on this new spectrum and/or unable to support Project-25 Phase 1 and Phase 2 operations shall be considered non-responsive, and that Vendor's response shall be given no further consideration.

*Attach Required Documentation.

3.1.4.4 The following standards shall apply, as a minimum, to all equipment, installation methods and materials:

A. EIA/TIA-Electronic/Telecommunications Industry Association

B. NEC - National Electric Code

C. NEMA - National Electrical Manufacturer's Association

D. IEEE - Institute of Electrical and Electronic Engineers, Inc.

E. FCC - Federal Communications Commission

F. FAA - Federal Aviation Administration

G. NFPA - National Fire Protection Association

H. International Building Codes for State where project is located

I. OSHA - Occupational Safety and Health Administration

J. (R56) Motorola Standards and Guidelines for Communications Sites or equivalent

K. ISO - International Organization for Standards

3.1.4.5 A factory authorized service center that is fully staffed and trained to support the proposed radio equipment, and all related features, and accessory equipment, must be located within a 120-minute (2 hour) response time of the City to be considered adequate to satisfy initial installation, configuration, warranty and ongoing maintenance needs.

*Attach Information about service and support.

3.1.4.6 The Contractor and all envisioned subcontractors, if any, must be able to legally conduct business within the State of Florida.

3.1.5 Warranty / Ongoing Maintenance and Support

3.1.5.1 Fort Lauderdale requires, at a minimum, a three-year (36-month) comprehensive warranty (maintenance and support) on all infrastructure and end-user equipment required by the new P25 radio system.

A. The Warranty term will commence upon Final System Acceptance.

B. Ongoing Maintenance and Support will commence upon expiration of the

initial three-year comprehensive warranty period and will continue in conjunction with the remainder of the first five (5)-year term and renewable with the remaining three (3) five (5)-year terms.

*Attach Maintenance Program Description and Timeline

3.1.6 Warranty of Performance

3.1.6.1 The Vendor acknowledges by submitting a response, that it has carefully reviewed the functional requirements and warrants that the proposed radio features shall function according to equipment specifications, industry standards, and the minimum operative characteristics specified herein in this RFP.

3.1.6.2 Radios certified by the factory shall be tested in the field for all relevant operations based on the features and functions included in the proposal response.

3.1.7 Workmanship

3.1.7.1 All proposed workmanship supportive of the RFP must conform to normal and accepted standards for the telecommunications industry.

3.1.7.2 All electrical wiring, antennas, mounts, etc. are to be installed by or under the supervision of the Contractor.

3.1.7.3 The Contractor must completely remove and properly dispose of residue due to its work, return the vehicles and site to a usable state each day and will be responsible for the cost of repairing all damage caused by the Contractor or its Sub-Contractors during equipment installation.

3.1.7.4 The City and/or its Consultant reserves the right to halt any radio equipment or civil installation process due to poor workmanship, housekeeping, scheduling, work interruptions, etc.

3.1.7.5 Work halts that are the result of poor workmanship would not relieve the Contractor of their responsibility to conform to the installation time requirements as stated by Contract.

3.1.8 Project Timeline

3.1.8.1 The Project's anticipated time frame for completion is no greater than eighteen (18) months from a formal Notice to Proceed.

3.1.8.2 The project should be completed within twenty-four (24) months of contract execution.

3.1.8.3 The Project will not be deemed completed until all radio equipment has been installed; all training has been completed; receipt of configuration documentation has occurred; and a Certificate of Substantial Completion has been issued by the City for any remaining punch list items.

*Attach Project Timeline: Summary

*Attach Project Timeline: Full

3.1.9 Materials

3.1.9.1 All equipment, except with the expressly written permission of the City and its Consultant, must be new and unused, meet telecommunications industry standards,

and, where applicable, be registered with and approved by the Federal Communications Commission.

A. The City and its Consultant reserve the right to reject and require the return, at the Contractor's expense, of any defective components that fail to comply with this RFP or lack FCC type approval.

B. Rejections of material for cause would not provide an extension of time to the Contractor in the performance of contracted requirements. Such rejections or returns will neither validate nor invalidate the remainder of any Contract

*Attach FCC Type Acceptance for Proposed Equipment

3.1.9.2 Vendors must indicate any special requirements, i.e., architectural, mechanical, electrical, including electrical grounding, civil or structural modifications, that their equipment may need at either City-owned or non-City-owned locations or in vehicles that are intended to have new equipment installed.

A. Costs for these special requirements shall be clearly identified and disclosed specifically in the RFP Response.

B. Failure to ask questions on special requirements or provide costs can result in a proposal being scored down or deemed non-compliant.

C. Failure to provide costs does not omit the special requirements; work must still be performed by the Contractor at no additional cost.*

*Attach List of Special Requirements

3.1.10 Parts Availability

3.1.10.1 All proposed radio equipment, antennas, and associated repair parts shall remain commercially available for a minimum of fifteen (15) years following the date of Final Acceptance.

3.1.10.2 All proposed system and backbone infrastructure components, inclusive of microwave/backhaul equipment and repair parts shall be commercially available for at least fifteen (15) years from the date of Final System Acceptance.

3.1.10.3 In the event any required part becomes unavailable after best effort to supply said part during the specified fifteen (15) year period, the Contractor may provide a suitable replacement or upgraded component, provided that:

A. The replacement maintains full functionality and usability with the existing system; and

B. The replacement cost does not exceed the cost of the original part had it remained commercially available.

3.1.10.4 Parts availability shall be irrespective of status of a maintenance contact.

3.1.11 Decommissioning of Old Equipment

3.1.11.1 The Contractor must remove the existing system, backhaul, and user subscriber radios as approved by the Customer.

3.1.11.2 These costs and related engineering services must be included in the RFP Response Pricing Pages.

3.1.12 Training: The City considers training to be of paramount importance.

3.1.12.1 Telecommunicator training shall be more extensive and will involve all designated regular and relief telecommunicators employed by the City at the time of system operational testing.

3.1.12.2 Administrative and telecommunicator training shall be completed onsite by the Contractor's personnel.

3.1.12.3 The Contractor shall provide administrative training for five (5) Communication Network Managers.

3.1.12.4 Software training shall be provided which will enable these personnel to perform functionality/feature changes to fixed site equipment and portables/mobiles, poll the network diagnostics perform traffic and feature usage studies, etc.

3.1.12.5 It is the desire of the City and Partner Agencies, Wilton Manors Police Department and Oakland Park Public Works, that such training commences within 60 days upon completion of contract approval by the Fort Lauderdale, FL Board of Commissioners and final execution, and be completed prior to Fort Lauderdale, FL Comprehensive Design Review (CDR) meeting or a suitable time as desired by the City.

3.1.12.6 Refresher training shall be offered prior to system cut-over as required by the City. This cost shall be included in the pricing pages. Cost of unused training shall be applied as a credit to the contract after final system acceptance.

3.1.12.7 Additionally, the Vendor shall develop and train radio system telecommunicators in the proper operation of radio console and backup control station equipment, as is necessary to operate the new P25 trunked radio system.

3.1.12.8 The Vendor shall coordinate all training, and all sessions must be approved by the City.

3.1.12.9 Vendor shall work with City staff on training room availability on City property first before reserving off campus facilities.

3.1.12.10 Administration, maintenance personnel, and network manager follow-up training shall be provided and scheduled no more than sixty (60) days after project completion for the purpose of training reinforcement.

3.1.12.11 All training costs, direct or indirect, such as meeting rooms, instructor travel, lodging and transportation, must be included in the final proposed price.

3.1.12.12 Additionally, the Vendor must provide comprehensive maintenance training for five (5) people, whereby the City's service/support personnel are qualified in the proper diagnostic, maintenance and repair service skills needed to quickly resolve 700/800MHz communications equipment malfunctions as well as microwave backhaul operational problems.

3.1.12.13 The Vendor is required to provide operational and full maintenance training for all City service/support personnel, either on site or at remote factory locations.

3.1.12.14 This level of training will be essentially equivalent to the level of service training required by the Vendor for its employed maintenance providers.

3.1.12.15 Additionally, the Vendor must develop and train City service/support personnel in those aspects of maintenance necessary to ensure the highest availability

and reliability of infrastructure resources.

3.1.12.16 The Vendor shall be responsible for all travel related costs associated with vendor and City service/support personnel traveling outside of the service area for training.

3.1.12.17 Preventative maintenance training shall encompass all elements of proposed infrastructure equipment, inclusive of base stations, trunking controllers, network switches, microwave backhaul, standby generator equipment, battery plants, battery charging systems, tower light systems, site grounding systems, alarm systems and all other subsystems directly or indirectly related to infrastructure reliability and operations.

3.1.12.18 This maintenance alternative should also include a full complement of test equipment to provide the services as required by the maintenance training.

3.1.13 Parallel Implementation

3.1.13.1 In developing RFP responses, Vendors must consider that the new land mobile radio system must be installed in parallel with the existing radio system.

3.1.13.2 The current system is the Customer's only Public Safety Voice communications system and must operate 24/7/365.

3.1.13.3 No interruptions in service of any duration may be allowed without prior approval of the City or their designee.

3.1.13.4 Therefore, fully duplicated voice radio systems will coexist for some time.

3.1.13.5 Remedies similar to those listed in section 2.28 in this RFP apply if radio operation is disrupted beyond scheduled installation services.

3.1.14 Acceptance Testing Process

3.1.14.1 Acceptance testing procedures will be defined during Contract Negotiations.

3.1.14.2 These procedures shall test and verify the performance of the hardware/software features; coverage performance on the existing system; reliability and interoperability with neighboring jurisdictions.

A. A field certification completed prior to deployment run on the same equipment expected to be used for preventative maintenance during the warranty and maintenance periods of the contract.

B. The field certification shall include 100% of radios included in the proposal response. This includes an auto test and auto tune.

1. Vendor shall provide documentation on each radio upon completion of field certification.

2. Vendors shall include in their sample test plan attached to this section, the minimum data points they will document as part of this acceptance test plan.

C. System Acceptance Test shall minimally include:

1. A Factory Staging Verification of System and network functionality;

2. An installed determination of compliance with Industry standards and

published RFP requirements of the various equipment elements provided under the Contract;

3. Functionality of standby power systems;
4. Functionality and path reliability of microwave link segments and the overall network as a whole;
5. A successful completion of a set of voice quality and signal level coverage tests of sufficient scope to confirm that the outdoor, in-vehicle and in-building coverage required by the Contract has been achieved;
6. Completion of a mandatory 30-day reliability burn in absent of any major network failures (i.e., loss of tower site, loss of 25% of network capacity, unreliable m/w functionality, etc.). All major failures will result in a restart of the 30-day reliability burn. Restart of burn in test shall commence within thirty (30) days of failure.

D. The Radio Acceptance Test shall minimally encompass:

1. A bench test of all required functions and features listed in this RFP.
2. An installed determination of compliance with Industry standards and published RFP requirements of the various radios provided under the Contract;
3. Functionality of various charging systems;
4. A successful completion of a set of voice quality and signal level coverage tests of sufficient scope to confirm that the outdoor, in-vehicle and in-building coverage has not been negatively impacted by the new equipment;
5. Test of accessory equipment

*Attach Sample Acceptance Test Plan

3.2 Identified User Needs and Requirements

3.2.1 General

3.2.1.1 The intent of this RFP is to provide a P25 700/800 MHz Digital Simulcast Trunked Mobile Radio System that shall include multiple tower sites provided with equipment shelters, generators, and additional site hardware, including HVAC to support the Vendor's proposed infrastructure.

3.2.1.2 New buildings must accommodate all proposed radio/microwave equipment, battery plants, DC power supplies, and ancillary equipment as necessary.

3.2.1.3 The Vendor shall be responsible for conducting tower and foundation or rooftop structural analysis and reinforcement as necessary to any of the existing radio towers in use by the City. This includes structural analysis of any rooms inside existing buildings that may be used to store equipment operating on the roof of the building.

3.2.1.4 Vendors are required to propose a comprehensive set of equipment and services that satisfy this RFP's minimum requirements and are encouraged to describe specific areas within their proposal solutions that materially exceed these

minimum objectives.

3.2.1.5 Since the existing radio system exhibits a lack of reliable portable in-building radio coverage Citywide, the Vendor shall propose new tower sites (in addition to the current locations) as necessary to satisfy the coverage requirements listed within this document.

3.2.1.6 Section 3.38 provides for specific workmanship standards for communications facilities that must be met by the Contractor in the course of constructing the system.

3.2.1.7 This RFP provides a baseline of technical requirements coupled with functional objectives that must be considered by responding Vendors.

3.2.1.8 RFP allows flexibility in the selection of sites and antenna placements by responding Vendors such that their response fully addresses the coverage reliability/audio quality requirements contained in Section 3.13 Coverage Criteria.

3.2.2 Current Usage Requirement

3.2.2.1 A comprehensive radio system study has been previously undertaken.

3.2.2.2 A summarized detail of user needs, and expectations follows:

A. Improved Coverage

1. The greatest area of concern communicated during the various user interviews was the lack of coverage being provided to support operations. Mobile and portable radio coverage deficiencies are reported by the users to exist in multiple areas throughout the customer service area defined in section 3.15 Service Area.
2. The Customer desires that the radio system coverage be improved to meet best practices in Public Safety. Vendors can find a complete list of the coverage requirements in Section 3.13 Coverage Criteria.

B. Current Operable Aspects

1. City's agencies utilize the existing Land Mobile Radio System for daily communications as defined in **Appendix A: Current Infrastructure.**
2. The dispatch center consoles are identified in **Appendix A: Current Infrastructure**.
3. Interoperability requires sharing radios with neighboring agencies such as mutual aid, city, county, and state agencies.
   a. An ISSI gateway connects the current P25 system to the dispatch consoles. This functionality must be maintained by the proposed system.
   b. The subscriber radios used by the end users are identified in **Appendix A: Current Infrastructure**.

C. Typical Current Radio User Configuration

1. Most users are equipped with hand-carried portable radios. These radios are operated on-hip, some with an accessory speaker-microphone device installed. While a leather carry case is sometimes used, most simply clip the radio to their belts. This configuration allows good positioning flexibility

yet exposes the radio to more physical damage as compared to radios holstered into leather carry cases.

2. Historically, radios have been without a preventative maintenance plan and are repaired on a 'break-fix' basis only.
3. Radio ergonomics are important to users, which is one reason why an electrically shortened antenna configuration for portable radio units has been defined in Section 3.13 Coverage Criteria.
4. Feature available for use by the system already enabled in the radio subscribers includes:
   a. Emergency Button

3.2.3 System General Objective

3.2.3.1 Talk Paths

A. Each of the agencies operable within the current LMR radio system utilize individual talk paths that are used for existing operations.

B. Additional information may be obtained from **Appendix B: Existing Channel Structure.**

C. The Vendor shall ensure the P25 radio talk path needs for the system will include triple (3x) those of the existing configuration, plus a net 25% growth/expansion potential of actual in-service talk paths shall be made available.

D. The current radio configuration's talk-group structure is described in **Appendix B: Existing Channel Structure.**

3.2.3.2 Call Privacy

A. The replacement P25 Land Mobile Radio System shall include voice-layer encryption (described herein).

B. This provision must offer sufficient flexibility such that the desirable features of monitoring shall be retained while permitting privacy to confidential conversations.

C. The new network should be software-configurable to support the P25 control channel encryption standard as developed by TIA. ANSI/TIA 102.AABB, P25 Trunking Control Channel Formats, May 2002.

D. This document defines the format of trunking control channel transmission for P25 Systems.

E. The formats are compatible with the Common Air Interface defined by ANSI/TIA/EIA102.BAAA and both encrypted and non-encrypted formats are defined.

F. Vendor shall describe the scope and operation of such provisions inherent or planned within their solution that prevents the types of undesired radio monitoring discussed above.

3.2.3.3 Voice Encryption

A. Digital voice 256-bit Advanced Encryption Standard (AES) encryption, using Advanced Multi-Band Excitation +2 (AMBE+2 or newer) vocoder

technology coupled, shall be included in the system. Encryption shall be FIPS 140-3 compliant.

B. Three modes of encrypted digital voice operation expected are:

1. Unit-to-unit, where conversations transacted in an encrypted talk group are secure. These cannot be monitored at a dispatch or control point;

2. Telecommunicator-to-unit, where conversations between the Customer's dispatch center(s) and field units.

3. P25 Smartphone Application call transactions (via commercial cellular and FirstNet) to typical field/telecommunicator operations within the system.

C. The enhanced P25 System shall provide encrypted transmission functionality so that user radio access delays are equal to those in the clear (non-encrypted) mode to comply with published TIA P25 standard specifications.

D. Encrypted transmissions shall not degrade the operation of clear-voice features nor lengthen system access or audio transport delays to other users.

E. Encryption shall not impair the range of coverage to any level less than that for typical P25 clear-mode digital performance.

3.2.3.4 End User Equipment

A. Requirements for end-user equipment and training is detailed in Section 3.42 Minimum Subscriber Specifications.

3.2.3.5 Gateway and ISSI Interfaces

A. The utilization of gateway technology is necessary for the System and provides a useful and important function in the integration of outside trunked and non-trunked radio systems. Interoperability.

B. Further requirements are provided in **Appendix I: Interoperability Needs.**

C. Base Station Gateway technology shall be provided to interface both analog and digital land mobile radio base stations, on a talkgroup or channel basis, within the P25 trunked solution.

D. By so doing, it would then be possible for radio users equipped with P25 radios operable on the System to select, monitor and individually control these various link-radio resources.

E. Broadband Gateway functionality shall be provided within the System to permit selected outside third-party Smartphone users equipped with the appropriate application software to communicate with users/agencies via allowed System talkgroups.

F. Inter RF Sub-System Interface (ISSI) technology and associated cost shall be provided which allows P25 core controllers of disparate radio systems to transact communications across systems/technologies.

G. Customer requires the implementation of each of these gateway technologies as part of the Vendor's proposed configuration as further described by RFP Section 3.9 Minimum Equipment Requirements.

3.2.3.6 Roaming

A. The Vendor's solution shall support future seamless agency user roaming across jurisdictional boundaries via ISSI connections.

B. Functionally, a field radio user who initiates and is in communication with telecommunicators or others on a specific talkgroup within a specific P25 radio system must remain affiliated with those parties while driving across the coverage footprint of ISSI-linked P25 systems.

C. This roaming feature must operate automatically without the need for field users to physically change systems/talk-groups while traversing across tower site/system coverage zones.

D. The Vendor shall describe radio user roaming functionality within its proposal. This description shall include an explanation of the process used by user radios to determine when to transition onto the next system, in conjunction with an explanation of radio availability while this ongoing adjacent-system availability determination is underway. Next systems are defined as the same manufacturer P25 cores with similar or different software/hardware revisions to other manufacturers P25 cores.

E. The need for a radio user to manually transition between tower site/system coverage zones within a Vendor's proposed network configuration is unacceptable. A manual approach shall be down-graded during the proposal evaluation.

3.3 Infrastructure System Configuration

3.3.1 General

3.3.1.1 The Customer has valid licenses for its current radio and microwave network, as outlined in **Appendix E: FCC License**.

3.3.1.2 The Contractor will be required to undertake necessary FCC license modifications, as required, to accommodate the modernized/expanded System.

3.3.1.3 Any frequency modifications and site additions will be coordinated with the Regional Planning Committee.

3.3.1.4 The vendor is responsible for providing a licensable system design subject to applicable local, state, regional, and federal laws.

3.3.2 System Configuration

3.3.2.1 The Vendor is required to provide a comprehensive, functional and technical solution for a new P25-compliant System. The new digital radio configuration shall utilize the necessary number of infrastructure sites, as determined by the Vendor, to meet the Customer's expressed coverage requirements as described in the Coverage Criteria section.

3.3.2.2 The system must be designed and deployed to utilize both P25 Phase 1 FDMA & P25 Phase 2 TDMA modulation formats.

3.3.2.3 In addition, the system shall be capable of a five-channel 700/800MHz NPSPAC analog conventional mutual aid subsystem having the capability of being electronically patched to the system's 700/800MHz talk-groups via conventional

base station gateway interfaces with the coverage requirements described the Section 3.13 Coverage Criteria.

3.3.2.4 The proposed system shall utilize both existing and Vendor-recommended radio infrastructure sites and shall include, minimally, a primary and secondary/ redundant network controller.

3.3.2.5 These network controllers shall be located at sites that provide a geo-redundant configuration to be mutually agreed between the Vendor and the Customer.

3.3.2.6 The Vendor shall indicate a guaranteed level of portable and mobile area coverage and delivered audio quality indicative of their designed solution.

3.3.2.7 The Customer recognizes that portable radio coverage to the same degree as required for mobile operations increases system complexity.

3.3.2.8 These requirements are outlined in Section 3.13 Coverage Criteria.

3.3.2.9 Physical plant modifications to newly-proposed tower sites, rental sites, existing Customer-owned sites, or the dispatch center(s) as necessary to accommodate the Vendor's proposed system configuration shall be the responsibility of the Contractor and must be clearly identified and factored into the Vendor's Cost Proposal.

3.3.2.10 The Vendor's failure to disclose physical plant modifications (and cost) is contrary to the Customer's turnkey project requirement and shall result in an unfavorable grade of the Vendor's proposal or non-compliant rating if not separately listed; all physical plant modifications and costs will be at the cost of the Contractor without a change order.

3.3.2.11 The Vendor shall provide all pertinent information concerning their equipment, relative to electrical, mechanical, structural and physical space requirements.

3.3.2.12 The Vendor must consider enhanced physical security, cybersecurity, and environmental issues in preparing their response.

3.3.2.13 It shall be the responsibility of the Contractor to provide a turnkey system and to install Industry-accepted standard electrical grounding systems and lightning protection devices to protect proposed equipment from damage due to electrical transients on antenna systems, power, telephone and/ or control cables including upgrading existing facilities if the Contractor plans on reuse of any of those facilities in their proposal.

3.3.2.14 These facilities include all tower and dispatch center sites. This includes the ANSI/TIA/EIA222-H standard.

3.3.2.15 The Vendor shall identify in its Technical Response any proposed sites that may be subject to flooding. For each such site, the Vendor shall include documentation indicating the site's Federal Emergency Management Agency (FEMA) flood zone designation and status.

3.3.2.16 All engineering analyses and flood mitigation designs shall be based on the most current FEMA 100-year floodplain data available at the time of proposal submission.

3.3.2.17 Flood mitigation measures shall include, as necessary, elevating equipment shelters or other critical components such that all new equipment is installed at least twenty-four.

3.3.2.18 Vendors who fail to identify sites subject to this requirement shall, at their own

expense and without entitlement to a change order, perform all necessary modifications to achieve compliance with this specification.

3.3.2.19 The delivery and installation of equipment shelters, security systems, standby and emergency power systems, towers, antenna systems, electrical grounding systems, lightning protectors, transmission lines, cable attachment hardware, transmission line shields, tower-to-building cable tray hardware, and all necessary permitting is part of this project and must be furnished by the Vendor.

3.3.2.20 All transmit/receive site-related equipment is to be backhaul-connected via digital microwave linkages to be supplied by the Contractor.

3.3.2.21 The microwave backhaul layer shall be designed and configured as a monitored, hot-standby, loop-protected ring (or rings) interconnecting all radio tower sites, simulcast control points, dispatch centers, and network controller locations.

3.3.2.22 Microwave paths utilizing a spur configuration shall be permitted only as an approved alternative or cost-savings option and shall not compromise overall network reliability or redundancy.

3.3.2.23 The primary operating frequency band for the new microwave backhaul layer shall be 6 GHz.

3.3.2.24 Microwave links operating in the 11 GHz band shall be permissible only for path segments less than four (4) miles in length, and where path design criteria and reliability objectives can be fully maintained.

3.3.2.25 If 11 GHz licensing is unavailable, the vendor must prove that the required spectrum is unavailable and then provide solutions to ensure the proposed path will meet all the requirements outlined in the RFP.

3.3.2.26 The Contractor shall furnish and install all required radios, antennas, waveguides, cabling, mounting hardware, interface electronics, and all other materials necessary to achieve complete and fully functional implementation and operation of the microwave backhaul system and its associated equipment groupings.

3.3.2.27 All such work shall be included within the Contract Price, with no additional cost to the Customer.

3.3.3 System Planning and Capacity

3.3.3.1 The system shall support the Customer's current user capacity, three times the current channels/talkgroups plus no less than a 25% growth in net traffic.

3.3.3.2 This will include all necessary, hardware, software, and frequencies.

3.3.3.3 Please refer to **Appendix B**: **Existing Channel Structure** for details.

3.3.3.4 The Contractor shall utilize best engineering practices in selecting the system's frequency plan to maximize the effectiveness of channel resources.

3.3.3.5 The proposed hardware and frequency plan must ensure that frequencies installed at sites cause no adverse receiver desensitization because of intermodulation products and, further, that the Contractor's frequency plan complies with FCC regulations with respect to co-channel and adjacent-channel interference protection criteria.

3.3.3.6 The Vendor's Technical Response must fully describe its frequency engineering

process and must include an initial frequency plan for its proposed configuration (since differences between the Vendor's plan and the existing-system's frequency plan are anticipated).

3.3.3.7 The Vendor must describe its best-practice approach to the monitoring of noise floor levels/degradation at radio tower sites and the steps it would undertake to identify and resolve interference issues, both internal to the radio system's infrastructure, as well as external.

3.3.3.8 The Vendor must provide a contingency plan, should the initial frequency plan not be available for implementation.

*Attach Contingency Plan

3.4 Major System Equipment Groupings

3.4.1 The Vendor shall provide and shall describe, minimally, the following major equipment groupings as contained within the proposed configuration:

3.4.1.1 Radio Network Controller (Primary and Secondary)

3.4.1.2 Auxiliary power generators

3.4.1.3 Interoperability Link Base Stations

3.4.1.4 ISSI Gateways

3.4.1.5 Base Station Gateways

3.4.1.6 Broadband Device Gateways

3.4.1.7 Contractor shall furnish and install all wiring hardware, cable trays, interface electronics, terminal blocks, and materials necessary to complete the successful implementation and operation of this site and its equipment groupings.

3.4.1.8 Infrastructure equipment proposed for the Control Point must meet the minimum requirements specified by Section 3.9 Minimum Equipment Requirements.

3.4.1.9 The Vendor is required to incorporate a dual primary / redundant, geographically separated network control point design into its proposed infrastructure solution.

3.4.1.10 This requirement is mandatory and an RFP Response failing to include such a dual-site redundancy configuration will be considered as being non-responsive.

3.4.1.11 This redundancy requirement also applies to the simulcast control point.

3.4.1.12 The Vendor shall describe its network controller and simulcast control point redundancy configuration scheme and, if virtualized controller/control point configurations are proposed, the number of such configurations allowable within the proposed solution.

3.4.1.13 The Vendor shall describe the method used to automatically transition to such backup configurations and the transitional latency such transitions apply to the radio network, in seconds or milliseconds.

3.4.1.14 This description shall include the time necessary for the proposed system to sync to the network controller or the simulcast control point, should a system failure require it.

3.4.2 Typical Infrastructure Site Deployment

3.4.2.1 The Contractor is required to supply a turnkey solution to include: all technical support, equipment, material and labor necessary to develop each proposed infrastructure radio site into a functional P25 digital radio facility, fully incorporated.

3.4.3 A typical P25 radio infrastructure site equipment shelter shall contain, minimally, the following major equipment groupings:

3.4.3.1 700/800MHz P25 Phase 1/Phase 2 Base Stations

3.4.3.2 Infrastructure equipment proposed for all radio sites must meet or exceed the Characteristics, and 3.9 Minimum Equipment Requirements.

3.4.3.3 GPS-Disciplined Frequency Standard (Redundant)

3.4.3.4 Transmitter Combiner System

3.4.3.5 Transmitter Antenna Systems

3.4.3.6 Receiver Multi-Coupler System

3.4.3.7 Antenna System

3.4.3.8 Remote Site MPLS Microwave Linkage

3.4.3.9 Local Area Network Equipment

3.4.3.10 700/800MHz Mutual Aid Subsystem

3.4.3.11 Mutual Aid Antenna System

3.4.3.12 Conventional Base Station Gateway

3.4.3.13 Site Alarm Equipment

3.4.3.14 Battery Plant & Charger Systems

3.4.3.15 Standby Generator Transfer Switch

3.4.3.16 Infrastructure equipment proposed for all radio sites must meet or exceed the minimum requirements specified by Sections 3.7 Minimum Operative Characteristics and 3.9 Minimum Equipment Requirements.

3.4.4 Tower Site Equipment Configuration

3.4.4.1 The P25 simulcast configuration and conventional radio base stations shall operate from a 48 VDC battery-based power source, sized for no less than 8-hours of uninterrupted operation at 100% duty cycle of proposed equipment.

3.4.4.2 The battery system shall utilize sealed, long-life lead-calcium, or similar modern cells and 100% redundant battery charger components rated for telecommunication service.

3.4.4.3 An automatic, low voltage disconnect device shall be provided to protect the battery plant from discharge-related damage.

3.4.4.4 Electrical power switching/disconnect capability shall exist at all sites such that rectifiers, batteries as well as commercial power sources may be separately

isolated in a way each component may be serviced safely.

3.4.4.5 This switching/disconnect capability shall be designed and configured such that radio network operation is otherwise unimpaired and uninterrupted during any repair or maintenance cycle.

3.4.4.6 Base stations shall be housed in open equipment racks. Racks shall be free standing and incorporate drilled rails to accept standard 19" rack panels. At sites with shared equipment rooms, locking cabinets are required.

3.4.4.7 A minimum of six (6), but no more than twelve (12) DC-operated base stations should be located within a single equipment rack.

3.4.4.8 Each equipment rack shall incorporate a circuit-breaker power distribution panel incorporating protection for power amplifier, exciter and receiver groupings.

3.4.4.9 Individual base station ventilation fan(s), if required, shall be DC powered, thermostatically controlled, internally installed, and shielded.

3.4.4.10 Each equipment rack shall be protected by a DC-power circuit breaker, sized for nominal load plus 35% overload factor.

3.4.4.11 The primary battery chargers, low-voltage disconnect equipment, and a primary DC circuit breaker panel shall be installed in a freestanding enclosed cabinet unit.

3.4.4.12 Likewise, the network's primary/backup controllers and related LAN switch/router devices shall be housed in freestanding equipment racks like those used for repeater stations providing for security of the equipment inside rooms with multiple entities having access.

3.4.4.13 Auxiliary tower site electrical loads essential to proper system operation (i.e. tower top preamp, redundant GPS reference oscillators and receiver multi-coupler) shall be interconnected directly to the site's battery system.

3.4.5 Infrastructure Functionality

3.4.5.1 The system shall:

- **A.** Utilize the TIA specified P25 Common Air Interface (CAI) digital control channel scheme, in which user-initiated feature requests and talk-group/working channel assignments are processed digitally over site-specific control channels.
- **B.** Ensure the remaining channels at sites shall operate as working channels for digital voice traffic.
- **C.** Utilize an interference-monitored control channel scheme with a level of redundancy that is sufficient to meet the overall requirements and intent of this RFP for a no-break, life-critical, radio communications system.
- **D.** Ensure the control channel configuration will automatically rotate to other channels, in sequence, should an abnormal number of carrier hits occur on the pre-set control channel.

3.4.6 Failover Scenario Equipment Descriptions

3.4.6.1 The Vendor shall furnish a description of the effect each of the below listed failure modes would have on their proposed P25 system configuration.

3.4.6.2 The Vendor shall also describe appropriate mitigation/restoration steps to return

the system to full operational capability in response to each of the below listed failure conditions, and the time required to achieve restoration.

3.4.6.3 Loss of transmitter(s) operation

3.4.6.4 Loss of receiver(s) operation

3.4.6.5 Failure of console/audio interface

3.4.6.6 Failure of tower site controller

3.4.6.7 Commercial power failure

3.4.6.8 Site generator failure

3.4.6.9 Failure of entire tower site

3.4.6.10 Loss of Control Channel(s)

3.4.6.11 Loss of Control Point/Prime Site

3.4.6.12 Loss of Secondary Control Point/Prime Site (Assume Primary Control Point/Prime Site is unavailable)

3.4.6.13 Loss of Primary Network Controller

3.4.6.14 Loss of Redundant Network Controller

3.4.6.15 Loss of single/multiple microwave path connectivity

3.4.6.16 Loss of ISSI, Base Station or Broadband Gateway Devices

3.4.7 Tower Site Antenna Systems

3.4.7.1 The Contractor shall:

A. Furnish and install antenna systems designed to meet the coverage requirements and objectives described by Section 3.13 Coverage Criteria.

B. Equip all antenna transmission lines with gas tube lightning arrestor devices (Polyphaser or equivalent).

C. Ensure all coaxial cable elements used as interconnecting jumpers for outdoor-mounted equipment or indoor transmitter/receiver components are 1/2" Andrew FSJ4-50B or equal.

D. Furnish and install hot dip galvanized side mount hardware sufficient to extend the transmitter and receiver antennas a minimum of 60-inches from the nearest tower-structure element.

E. Ensure transmission lines are grounded at the antenna, at 200-foot tower intervals, at the topmost part of the tower location, at the midpoint (for all towers greater than 200-feet in height), at the location where the transmission lines enter the cable bridge and at the equipment shelter's transmission line copper entry port.

F. Utilize only manufacturer-approved grounding strap kits for the type of transmission line installed.

G. Ensure all connecting hardware will be a hanger block type of a size designed for the cable. No tie wraps or electrical tape will be allowed for attaching cables to towers.

H. Utilize antenna system mounting brackets, components and associated transmission line attachment hardware that are either stainless steel or hot-dipped galvanized steel.

3.4.8 Network/Audio Control Scheme

3.4.8.1 The Vendor shall provide detailed descriptions of how the system incorporates high levels of redundancy to ensure continued trunked system operation.

3.4.8.2 To provide the highest level of trunked reliability, site/system control schemes shall be IP-based, fully redundant and utilize distributed processor technology to the maximum extent possible.

3.4.8.3 Primary/Redundant Network and Site control schemes must include protected, redundant power supply units so that the loss of a single power supply will not interrupt control scheme operations.

3.4.8.4 Radio site controllers shall minimally provide the following features:

- **A.** Working channel assignment.
- **B.** Verification of user identification.
- **C.** Assignment of call priority.
- **D.** Electronic tracking of call type, caller/called, call time, channel assignment, etc.
- **E.** Monitor/control of special system features.
- **F.** Ability to disable/enable call access to specific field units.

3.4.9 Radio Network Alarm System

3.4.9.1 The Contractor shall furnish and install an automatic alarm system to monitor and alert, at a minimum, operational status (per site) for the following parameters:

- **A.** The following Major Alarm Conditions (Defined as a condition that could lead to equipment failure in less than 2 hours).
- **B.** Primary Network Controller Failure
- **C.** Network Controller Failure
- **D.** Simulcast Control Point/Prime Site
- **E.** Secondary Simulcast Control Point/Prime Site
- **F.** Site Channel Failure
- **G.** Channel Failure
- **H.** Console/Audio Controller Failure
- **I.** ISSI/Base Station Gateway Failure
- **J.** Receive Multi-coupler Failure / Tower Top Amplifier
- **K.** AC Power Failure
- **L.** High Reflected Power - TX Antenna
- **M.** Battery Charger Failure
- **N.** Major Generator Failure/Shutdown
- **O.** Tower Light Failure
- **P.** Over/Under Temperature Alarm (HVAC failure)
- **Q.** Low Transmitter Output (each transmitter)
- **R.** Microwave Link Failure

3.4.9.2 The Contractor shall furnish and install an automatic alarm system to monitor and alert, at a minimum, operational status (per site) for the following parameters:

A. The following Minor Alarm Conditions (Defined as a condition that has little, to no risk of leading to equipment failure prior to arrival of technical staff).

1. Generator Running
2. Door Alarm
3. Tripped DC Breakers(s)
4. Battery Charger Failure, Minor
5. Low Fuel

3.4.9.3 Alarm Monitoring

A. The use of a software-based alarm network scheme is desired since this would allow for off-site maintenance personnel to interrogate the system in response to agency/user-reported operational deficiencies.

B. Designated personnel should be able to log in to view alarms remotely.

C. In addition, the Contractor shall provide:

1. A summed major/minor alarm indication should be displayed on each alarm system terminal position.
2. These alarm positions will be located at both network controller locations and the Customer dispatch location.
3. This alarm indication should appear as both an audible alert and a flag at a conspicuous area on the flat-screen display field.
4. Determination of specific alarm point conditions shall be obtainable from any dedicated alarm system terminal position.
5. These alarms must be capable of email or other common messaging alert to the Customer-designated or proper technical personnel.
6. This solution shall allow for a view of individual component functionality and status involving, at a minimum, base stations, controllers, gateways, charging systems, GPS timing equipment, and other devices essential to the System's operation.

D. Vendor shall include, as an optional service, Network Operation Center (NOC) monitoring of the system.

E. The Vendor shall include a description of this service as part of their Response.

3.4.10 Regional Interoperability

3.4.10.1 Customer has a frequent need to communicate with the neighboring agency systems that may utilize their own P25 system or are a part of a regional P25 radio system including the State of Florida's Statewide Law Enforcement Radio System SLERS.

3.4.10.2 Seamless interoperability between the P25 digital voice radio networks is a requirement. The ability to monitor and/or patch to the VHF or UHF systems is also desired.

3.4.10.3 The Customer will use subscriber equipment to operate on these neighboring systems directly where possible and though a gateway otherwise.

3.4.10.4 In preparation for such regional interoperability, the Customer requires the capabilities outlined in 3.4.11, 3.4.12 and, 3.4.13

3.4.11 ISSI Gateway

3.4.11.1 Vendors shall describe how the proposed System can be interfaced to other regional P25 radio networks now in operation, under development or procurement planning.

3.4.11.2 Further, the Vendor shall describe each operational feature that is supported by its proposed ISSI technology.

3.4.11.3 A minimum of four (4) ISSI connections with twenty talk paths each shall be provided and installed by the Contractor as part of this project's implementation.

3.4.11.4 Vendors shall propose as an option a redundant gateway configuration that will automatically become operable should the primary gateways sustain an electronic/ functional failure.

3.4.11.5 The Vendor shall describe its planned ISSI redundancy scheme and functionality.

3.4.12 Base Station Gateway

3.4.12.1 It is important for The Customer to be able to include effective radio interoperability linkages to external radio systems operated by federal, state, and other non-public safety agencies in the future.

3.4.12.2 The Vendor shall provide:

A. Base Station Gateway devices shall be located at the radio tower sites and allow the interconnection of legacy analog, and other digital radio systems onto the new radio network.

B. The location of the gateways should be part of the vendor's design and located to best serve the interoperability requirements of Customer.

C. The Base Station Gateway shall additionally facilitate appropriate Radio-to-IP interfaces and Four-Wire 'Ear and Mouth' (4W E/M) interfaces that are compatible with new radio system's infrastructure and dispatch center configuration.)

D. The furnished Gateway shall provide the below-listed functionality:

1. Base Station Gateway shall allow System users to initiate and drop appropriate control link/base stations via talk-group selection on appropriately-programmed System user radios.

2. Any control station or radio device that is interfaced to the Base Station Gateway shall be steerable to a minimum of sixteen (16) channels or talkgroups.

3. Users shall be able to monitor traffic on the external radio systems, via the Base Station Gateway device.
4. The Customer radio telecommunicators shall have the ability to patch the System's Base Station Gateway channel traffic onto other P25 network talkgroups on an ad-hoc, as-needed basis.

3.4.13 Broadband Gateway Solution

3.4.13.1 The ubiquitous use of commercial broadband Smartphone devices presents new opportunities for providing P25 radio access to those entities having the need for communications with The Customer's user agencies.

3.4.13.2 Vendor shall provide:

A. Furnish and install a Broadband Gateway solution designed to support connectivity with outside cellular device users.

B. The Broadband Gateway Solution shall be located in conjunction with both the primary and redundant Network Controllers.

C. Each Gateway shall, as an option, be configured as an "automatic-protected" from whereas if the primary Broadband Gateway at a Network Controller site should fail, the equipment would "self-heal" and automatically transition to the backup, redundant Gateway device.

D. The Vendor shall identify the required smartphone and licensing for Broadband users. The Vendor shall provide the capability and quantity of users that are included with the design.
1. The quantities for additional user licensing and increments shall also be estimated at quantity of 3000.

E. The Broadband Gateway Solution shall support normal P25 voice radio user functionality, inclusive of AES 256-bit encryption.

F. The Vendor shall provide a functional description of its proposed Broadband Gateway platform or solution, including automatic failure-recovery modes and alarm notification processes.

*Attach functional description of proposed Broadband Gateway platform or solution

G. This Broadband Gateway Solution shall be required to interface with FirstNet as well as other commercial cellular carriers utilized by the Customer.

3.4.14 System Voice Encryption

3.4.14.1 The following components, at a minimum, require system voice encryption:

A. Each of the network's P25 trunked digital RF channels shall be equipped to support voice encryption using the Advanced Multiband Excitation +2 (AMBE+2) or newer vocoder.

B. Encrypted mobile and portable units shall be of the same physical size and general configuration as non-encrypted units.

C. Encrypted units shall be certified for FIPS 140-3 along with any associated equipment to support the functionality.

D. Accessory equipment shall be compatible with both types of units.

E. Proposed Phase 1, or Phase 2, radio coverage throughout the area defined in Section 3.13 Coverage Criteria, in the digital encrypted mode, shall be equal to that in the digital clear mode.

F. The System shall be configured and include both Over-the-Air-Programming (OTAP) and Over-the-Air-Rekeying (OTAR) of user radio equipment as an option. Both of these configurations must include the server to accommodate this functionality.

3.4.15 NPSPAC 800MHz Mutual Aid Sub-System

3.4.15.1 If NPSPAC channels are utilized in the proposed system, the Vendor shall describe in detail the configuration of its NPSPAC 800MHz Mutual Aid subsystem that is optimized to provide mobile radio coverage and conforms to the following requirements:

3.4.15.2 The mutual aid subsystem will be comprised of five duplex channels that conform to the National Plan, as follows:

A. 8CALL90 - 851/806.0125MHz

B. 8TAC91 - 851/806.5125MHz

C. 8TAC92 - 852/807.0125MHz

D. 8TAC93 - 852/807.5125MHz

E. 8TAC94 - 853/808.0125MHz

F. All channels use CTCSS 156.7Hz

3.4.15.3 Contractor shall interconnect these various mutual aid base stations into the P25 trunked radio network via site-located conventional base station gateway devices. Radio tele-communicators shall be capable of monitoring each of these various mutual aid channels.

3.4.15.4 The Vendor shall provide a description of its proposed mutual aid subsystem configuration, inclusive of coverage maps depicting VHF, UHF and 700/800 MHz mobile coverage as applicable.

3.4.15.5 Further refinement of the mutual aid subsystem is anticipated and may be undertaken by the Customer as part of the project's design review meeting process.

*Attach any Configuration Diagrams and Coverage Maps

3.5 Physical Security

3.5.1 The Vendor shall propose a comprehensive set of physical and cybersecurity safeguards to protect the integrity of the new system.

3.5.2 The physical portion of the furnished communications network shall include:

3.5.2.1 Video surveillance of fixed remote infrastructure sites.

3.5.2.2 Storage of the video surveillance footage shall be stored internally to the cameras for a minimum of 90 days.

3.5.2.3 A mechanical keylock set and a keycard system shall be supplied for each of the remote tower site facilities.

3.5.3 The Customer currently uses a Honeywell ProWatch for keycard access.

3.5.4 The Vendor should provide a standalone Honeywell ProWatch keycard system for access to the proposed shelters. As an option, the Vendor is requested to use the existing Honeywell ProWatch system and provide proper connectivity and the interface. Vendor to determine versions and compatibility with the City's existing infrastructure.

3.6 Cybersecurity

3.6.1 The system may contain various entry points that include ISSI/CSSI and Broadband gateway connections to external radio communications facilities operated by others and the accessibility of the radio system to technical and engineering resources via the Internet. Each of these points must be appropriately secured using firewalls, data encryption, and other means to prevent intentional hacking of critical information or installing viruses and malware that could inhibit or disrupt mission-critical communications.

3.6.2 The Vendor shall provide, within its Technical Response, a detailed description of the various cybersecurity measures it would employ to protect the proposed new System, both initially and throughout the warranty and post-warranty maintenance periods.

3.6.3 The system and all of its associated equipment, connected either directly or indirectly, shall be SOC 2 Compliant where applicable. The Vendor shall supply certifications validating this compliance within their response.

3.6.3.1 Where respondents propose systems that are not reliant on offsite infrastructure (cloud hosting), SOC-2 is not necessary.

3.7 Minimum System Operative Characteristics

3.7.1 General

3.7.1.1 In this Section, channel usage characteristics for agencies now operable on the Customer's legacy radio system are presented. From this information, the Vendor can better determine the channel capacity (and subsequently the channel plan) needed to satisfy talk-group structure requirements for this project.

3.7.2 Minimum System Performance

3.7.2.1 The Vendor should assume that the current talk-group assignment/usage will be replaced with a P25 digital radio overlay having a similar trunked radio talk-group structure.

A. Appendix B contains a detail of the current talk-group structure now being utilized.

3.7.2.2 The Vendor can use this information and other statistics or information to structure capacity studies and related technical considerations necessary to develop a radio frequency channel/capacity plan for the system.

3.7.2.3 The minimally-acceptable Quality of Service Objective for the system shall be a call blocking rate of no more than 1%, with the delay for such calls that are queued to be no greater than 0.5 seconds.

3.7.2.4 The Vendor shall describe in the response:

A. Typical call setup times for trunked radio calls, which in no case shall exceed 0.5-seconds.

B. Typical audio processing delays, due to vocoding and digital signal processing, within the Vendor's specific radio technology solution. These delays shall be described for Emergency Calls, Group Calls, Patched Calls, ISSI Calls, Base Station Gateway Calls and Broadband Gateway Calls.

C. The various levels of call transaction priority as assigned to: Emergency Calls; Group Calls; Fleet Calls; Patched Calls; ISSI Calls; Base Station Gateway Call transactions and Broadband Gateway Calls.

D. How these various call transaction delays can potentially impact site capacity loading, and how does the Vendor mitigate this in the design process.

3.8 System Fleet/Talkgroup Requirements

3.8.1 Contractor shall assist the Customer and various user agencies in determining user identification and talk path assignments.

3.8.2 Contractor shall program all portable, mobile and control station radios, all System or site controllers and all other equipment to operate on the FCC-licensed operating frequencies and determined talk path profiles.

3.8.2.1 This includes existing equipment that is capable, and may operate on the System, at the time of cutover, supplied by other P25 subscriber manufacturers.

3.8.3 Contractor shall prepare and furnish to the Customer "as programmed" records for each control station radio and pager placed on the System.

3.8.4 Contractor shall provide training for System/Network Managers sufficient to permit the Customer's prime agencies to add users, create new, or delete obsolete talk paths and to access all other System software-controlled features.

3.8.5 Provisions shall be incorporated into the system to allow the Contractor, from its home office, to remotely interrogate the operating system, provide remote technical assistance and install software patches if requested by The Customer.

3.8.6 Contractor must provide eight (8) sets of radio and equipment programming software, appropriately equipped laptop/desktop computers, and all other support equipment and special cables necessary to program all control stations and dispatch consoles supplied by the Contractor.

3.9 Minimum Infrastructure Equipment Requirements

3.9.1 General

This Section describes minimally-acceptable requirements for fixed-site radio equipment.

3.9.2 All radio equipment installed or provided by the Contractor shall be FCC type accepted under Part 90 of the FCC Rules and Regulations. All supplied equipment shall be in current production and shall meet or exceed the requirements of this Section.

3.9.3 Base station/repeaters shall support P25 Phase 1 and Phase 2 modulation formats and shall support P25 trunked data technology.

3.10 Base/Repeater Stations

3.10.1 All Base/Repeater P25 radios proposed shall:

3.10.1.1 Meet APCO minimum recommendations and EIA/TIA standards for P25 Public Safety digital trunked/conventional radio systems (depending upon application within sites).

3.10.1.2 Furnished equipment must be capable of operation as a combined Phase 1 and Phase 2 infrastructure.

3.10.1.3 Be designed for 100% continuous-duty operation at full manufacturer specification.

3.10.1.4 In P25 multi-site and simulcast configurations, base stations shall utilize linear RF power amplifiers and function in a linear simulcast mode that minimizes to the greatest extent possible destructive time-delay interference within site coverage-overlap regions and minimizes digital modulation distortion, termed modulation fidelity.

3.10.1.5 Modulation fidelity, for this RFP, is a measurement of the degree of closeness that the transmitted modulation matches the ideal theoretical modulation for P25 Phase 2 waveforms.

3.10.1.6 Incorporate site monitor and infrastructure alarm systems having the ability to report major/minor infrastructure functionality alarms on multiple dispatch-located alarm console display devices. Additionally, the alarm reporting system shall have the capability of being remotely accessed for the monitoring and remote-interrogation of field/site related alarms, using a laptop configuration from any node within the network.

3.10.1.7 Utilize the proposed 48 VDC battery backup subsystem.

3.10.1.8 Include a "Fail-over/Fail-Soft" trunking scheme designed to maintain network performance as critical site components fail. System must be fault tolerant with redundant levels of computer hardware/software, as necessary, to maintain trunked operation during equipment failures.

3.10.1.9 Support special services, i.e. encrypted voice, data transmission, multiple Computer Aided Dispatch (CAD) system interfaces, Automatic Vehicle Location (AVL) interfaces, audio recording of talk groups, and collection of system operational data.

3.10.1.10 700/800MHz P25 Repeater station specifications are as follows:

*Attach supporting documentation for this section.

3.10.1.11 General Specifications:

- **A.** Frequency Range: 764-776MHz, 851 to 870MHz
- **B.** Number of Frequencies: One transmit; one receive
- **C.** Channel Spacing: 25/12.5KHz
- **D.** Channel Capacity: 10, minimally
- **E.** Input Voltage: 48 VDC operation
- **F.** Temperature Range: '-30°C to +60°C
- **G.** Humidity: 90 % relative humidity at 50°C (typical)

3.10.1.12 Transmitter specifications are as follows:

A. Output Impedance: 50 Ohms

B. Power Output: 100 watts

C. Stability: 0.01 PPM from -30 °C to +60 °C ambient, when referenced to site-based GPS-disciplined frequency standard.

D. Emission: 8K30F1W; 8K70D1W; 9K80F1D; 11K2F3E; 9K80F1D, 9K80D7W or comparable Phase 2 Emission

E. Modulation Deviation: +/-2.5KHz (12.5KHz), +/- 4KHz (NPSPAC)

F. Channel Spacing: 25KHz; 12.5 KHz

G. Audio Distortion: 2% at 1KHz

H. Audio Response: Within +1, -3db of 6dB/octave per EIA

I. Spurious/Harmonic: -65dB

3.10.1.13 Receiver specifications are as follows:

A. Frequency Range: 792-825MHz

B. Modulation Acceptance: 1KHz off channel

C. Selectivity: -70dB

D. Sensitivity: 0.25uv

E. Intermodulation: -80dB

F. Spurious/Image: -85dB

G. Frequency Stability: 0.01-PPM (GPS standard)

H. Channel Spacing: 12.5KHz

I. Audio Distortion: 2% at rated audio line level (600-Ohm)

J. Audio Response: Within +1/-3dB of 6dB/octave per EIA

K. Duty Cycle (EIA): Receiver 100%

3.10.1.14 General Specifications Minimum 800MHz Analog Base/Repeater station specifications:

A. Frequency Range: 806 to 869MHz

B. Number of Frequencies: One transmit; one receive

C. Channel Spacing: 25/12.5KHz

D. Channel Capacity: 10, minimally

E. Input Voltage: 48 VDC operation

F. Operating Temperature: -30°C to +60°C

G. Humidity: 90 % relative humidity at 50°C (typical)

3.10.1.15 Transmitter specifications are as follows:

A. RF Output Impedance: 50 Ohms

B. Power Output: 100 watts

C. Frequency Stability: 0.01 PPM from -30 °C to +60 °C ambient, when referenced to site-based GPS-disciplined frequency standard.

D. Modulation Deviation: 0 to +/- 5KHz (25KHz), 0 to +/- 4KHz (NPSPAC)

E. Modulation Type: Analog FM 16K0F3E

F. Channel Spacing: 25KHz; 12.5 KHz

G. Audio Distortion: 2% at 1KHz

H. Audio Response: Within +1, -3db of 6dB/octave per EIA

I. Spurious/Harmonic: -65dB

3.10.1.16 Receiver specifications are as follows:

A. Frequency Range: 806-825MHz

B. Modulation Acceptance: 1KHz off channel

C. Selectivity: -70dB (-80db for 25KHz channel)

D. Sensitivity: 0.25uv 5.2.10.3.5. Intermodulation: -80dB

E. Spurious/Image: -85dB

F. Frequency Stability: 0.01-PPM 5.2.10.3.8. Channel Spacing: 12.5KHz

G. Audio Distortion: 2% at rated audio line level (600-Ohm)

H. Audio Response: Within +1/-3dB of 6dB/octave per EIA

I. Duty Cycle (EIA): Receiver 100%

3.11 Fixed Microwave Equipment Requirements

3.11.1 The microwave network shall adhere to The Customer's network management plan as defined in **Appendix G: Network Management Requirements**.

3.11.2 Digital voice/data technology shall be used to minimize audio-phase delays and/or incompatibility of audio levels within the proposed network solution.

3.11.3 Where VoIP techniques are used to interconnect infrastructure sites, in lieu of traditional PCM multiplex channel schemes, a robust means shall be provided thereby assuring that the highest priority possible is given to voice packet delivery.

3.11.4 Redundant transmit, receive, and baseband equipment for each site, configured for automatic hot standby operation, shall be provided by the Vendor. This redundant equipment will automatically switch to the hot standby component(s) upon failure of the primary equipment.

3.11.5 A Microwave Alarm System shall be provided by the Vendor to monitor microwave site functions and to provide alarm status of abnormal operational parameters of equipment associated with the microwave system. Microwave major alarms shall be integrated within the radio alarm packaged supplied by the Vendor.

3.11.6 An orderwire channel with 4 wire E&M output and individual site handsets will be provided to link all microwave locations for testing and troubleshooting.

3.11.7 A separate 48 VDC microwave standby battery system will be provided and sized for 48-hours of continuous microwave equipment operation at each infrastructure site.

3.11.7.1 An automatic low-voltage disconnect system will be employed to protect the battery plant from deep-cycle discharge damage.

3.11.8 Microwave system availability shall be no less than 99.999%. 6GHz path segments longer than 12-miles must utilize space-diversity. The system shall be loop-configured with hitless directional switching.

3.11.9 Microwave antennas, radomes, and antenna mounts supplied and installed will be capable of surviving wind speeds of up to 150mph and maintaining reliable operations during sustained storm force winds of up to 125mph.

3.11.10 Each furnished antenna system will be equipped with dual stiff arms/ruggedized mounts to limit antenna vibration and flexing during high wind events.

*Attach supporting documentation for this section.

3.11.11 Minimum operational service parameters of each microwave link are as follows:

3.11.11.1 Unfaded Bit Error Rate (BER): Not Less Than 10-10

3.11.11.2 Calculated RF Link Fade Margin: Not Less Than 40dB

3.11.11.3 Link Outage Level: To coincide with 10-3 BER, to occur at a signal level not less than 3db in excess of the calculated RF link fade margin.

3.11.12 Microwave system shall incorporate a quadrature amplitude modulated adaptive protocol that automatically adjusts protocol to maintain critical communications during abnormally faded conditions.

3.11.12.1 This technique is intended to extend the microwave system's functionality to beyond that of the normal 40db flat fade margin.

3.11.13 Vendors may use high-power amplifiers (i.e., 36dBm to 39dBm), as may be necessary, to achieve the best balance between antenna size versus the 40db flat fade margin requirement.

3.11.14 In no case should antennas larger than 8ft. in diameter be considered for this project unless high-performance antennas are required due to interference mitigation requirements as noted by the Frequency Coordinator.

3.11.15 The Contractor shall be responsible for the engineering and filing costs for microwave system frequency coordination, prior coordination notification, FCC license application preparation and submittal of necessary microwave licensing documents on behalf of the Customer.

3.12 Additional Submittal Requirements:

3.12.1 The Vendor is not required to present a detailed fixed path design of the proposed microwave subsystem for the purpose of the Technical response, as such work is dependent upon exact antenna placements that will be resolved by the Vendor during the various design review meetings to be held prior to system construction.

3.12.2 The Vendor shall provide the following information as part of the Technical proposal:

3.12.2.1 Technical specification literature for its proposed microwave radio, antenna and related equipment.

*Attach supporting documentation for this section.

3.12.2.2 A sample path profile analysis indicative of the scope to be used during the actual microwave analysis process.

3.12.2.3 The sample analysis shall include all of the tower sites that encompass the Vendor's proposed radio infrastructure configuration.

*Attach supporting documentation for this section.

3.12.2.4 A sample test and alignment verification process, to be used during the commissioning of the new microwave subsystem.

*Attach supporting documentation for this section.

3.12.2.5 The Vendor may reuse/reconfigure the Customer's existing microwave equipment as this equipment if it is supported and is expected to have operational value within the new P25 System.

3.12.2.6 The Vendor will provide the bandwidth provided by the proposed microwave system.

A. This information should include the amount of bandwidth for all portions of the radio system and any other equipment/systems integrated in the proposed network.

B. It should also include any additional bandwidth that could be used by the Customer and the interface at each site for the additional bandwidth.

*Attach supporting documentation for this section.

3.13 Coverage Criteria

3.13.1 General

3.13.1.1 The System's P25 digital trunked radio network shall be designed to support portable hand-carried radio subscriber equipment on the hip with a speaker microphone, operated on-street, at physical locations throughout the identified service area.

3.13.1.2 The Vendor must fully determine and guarantee the coverage predicted for the proposed solution, as per the functional and operational requirements of this RFP.

3.13.1.3 The Vendor shall provide within the response a sample Coverage Test and Acceptance Plan that encompasses the elements described as follows.

3.13.2 Coverage parameters

3.13.2.1 The Vendor must consider the following operating parameters in the development of their coverage guarantee:

A. Shoulder/microphone units without antennas will be used with portable radio units in most instances and shall be the normal configuration considered for coverage design.

B. Body and obstruction losses must therefore be considered in the proposed network design for both talk-in/talk-out coverage analyses.

C. Flexible, quarter wavelength antennas shall be required for portable units. Coaxial-skirt type or ½ wave antennas are not acceptable due to size and other mechanical/ergonomic limitations.

1. User operations and portable subscriber configurations do not relieve the vendor of system design and testing requirements to a ¼ wave portable antenna.

D. Mobile unit configurations shall utilize low profile 3db gain 700/800MHz antennas. These antennas shall be located on the vehicle's trunk, having an average base level height of 3.5 feet.

E. All Loss factors for portable loss factors and testing will be clearly identified in contractor's response.

1. Failure to provide these loss factors will result in a lower score or consideration of the proposal being non-responsive.

3.13.3 Noise Floor & Interference

3.13.3.1 It is the intent and requirement that the system shall be designed such that the indicated coverage goals and requirements herein be met irrespective of external noise and interference.

A. It is essential that the Contractor undertake whatever measurements, surveys, and studies as necessary such that the state of the noise and interference environment is quantified prior to the system's final design.

B. The final system design shall make such allowances as necessary, including but not limited to reduced repeater site effective sensitivity (predictions) in the presence of noise and interference (as measured) to achieve the Customer's required degree of coverage.

3.13.3.2 The Contractor shall not be permitted to excuse a failure of any portion of the coverage test due to external noise or interference, with one exception:

A. If the Contractor can show, with certified measurement data, that the noise and/or interference environment has substantially changed between the initial pre-design measurements/surveys and the time of the performance of the coverage acceptance test.

B. If such findings can be demonstrated, then the coverage requirement for the affected portion of the coverage test may be conditionally accepted by the Customer as an exception.

3.13.3.3 As part of its proposal development, the Contractor shall undertake a best-faith effort to investigate the existence of abnormal noise/interference levels, if any, and shall incorporate those findings within its coverage map submittals for the proposed system.

3.13.3.4 These measurements shall be conducted between the hours of 8 a.m. – 5 p.m. Monday through Friday.

3.13.3.5 Off hours and holiday periods will not be acceptable periods for measurements.

3.13.3.6 Ultimate final acceptance of the affected portion of the completed system may be given only if the Customer is shown sufficient information to demonstrate that any observed degradation is beyond the reasonable, Industry-recognized control of the Contractor.

3.13.3.7 If, however, coverage degradation to the system is found to be within the Contractor's control, then whatever additions, modifications, or costs incurred to resolve the coverage deficiency shall be borne solely by the Vendor.

3.14 Intermodulation Study Requirement

3.14.1 The Vendor shall ensure that the proposed System will be within the accepted limits of Industry-accepted engineering practice, free of interference or degradation due to intermodulation (IM) noise/sideband products.

3.14.2 IM study shall be required to be provided by the Contractor prior to the project's the Customer Design Review (CDR) meeting, and subsequent meetings, as the new radio network is deployed.

3.14.3 This study shall investigate the impact of both trunked system channels as well as those channels utilized by the conventional mutual aid and interoperability subsystem.

3.14.4 This study shall also include any current co-located equipment that may be present in the shelter and/or tower.

3.14.5 As part of the Technical Response, the Vendor shall fully describe the planned methodology to develop and complete the required noise and IM studies.

3.14.6 The Vendor shall submit a representative sample of the noise and IM reporting documentation of sufficient scope and detail to support the methodology, as provided in the Technical Response.

3.15 Service Area

3.15.1 Portable radio on-street, on the hip with a speaker microphone coverage must extend throughout no less than 97% of that area within the land region encompassed by Fort Lauderdale, FL, including Wilton Manors and Oakland Park, and one-mile outside of Fort Lauderdale at Delivered Audio Quality (DAQ) 3.4 and -95 dBm.

3.15.2 The system shall support mobile radio user coverage throughout the City and two miles outside of the City at 97% coverage at Delivered Audio Quality (DAQ) 4.0.

3.15.2.1 Portable radio coverage within buildings is required.

3.15.2.2 The system shall support no less than 95% coverage/DAQ-3.4 within residential structures and Law/Fire/EMS facilities and municipal buildings throughout all areas of the Customer.

3.15.2.3 Residential structure is described as a **single-story** house based on local building codes with a minimum typical loss of 8 db.

3.15.2.4 Structures greater than one-story shall require coverage on all floors above grade.

3.15.2.5 In addition, portable radio coverage to this same or greater reliability and audio quality is required within a specific set of critical building locations and critical areas, as listed in **Appendix D: Critical Building/Area List**.

3.15.3 The system shall support no less than 95% coverage within critical buildings and other type 20dB structures within the city limits of the following cities plus one mile outside the border and along the corridor of major roads with a one-half mile boundary on either side.

3.15.4 The vendor should put an emphasis on providing reliable coverage in all schools regardless of the loss factor for each school.

3.15.5 The vendor will guarantee coverage in all schools at no less than 95% coverage at 25db.

3.16 All references to coverage reliability in this RFP refer to statistical area reliability.

3.16.1 For example, the phrase "95% coverage" indicates that the total area described shall exhibit at least 95% statistical probability that coverage areas, if tested, would be found to support electrical performance which equals or exceeds that minimum signal level necessary for that Contracted delivered audio quality.

3.16.2 Use of cellular capabilities will not be permitted in order to successfully pass a coverage grid. Only LMR coverage will be permitted.

3.16.3 It will not be acceptable to provide a coverage guarantee which includes a relatively large number of failed points within any single vicinity, while still meeting the overall goal of 95% coverage.

3.16.4 It will not be acceptable to have a failure of six or more contiguous test points/grids.

3.17 Propagation Analysis

3.17.1 The Vendor shall provide written descriptions of the processes and propagation models used to calculate proposed area coverage objectives.

3.17.2 Coverage maps and other pertinent calculations must be submitted with the following minimum information clearly defined for each map or submittal:

3.17.2.1 Transmitter site power output.

3.17.2.2 Antenna gain and type (Include transmission line losses).

3.17.2.3 Effective signal level necessary, at both infrastructure and user radio antenna ports, to produce DAQ 3.4 delivered audio quality in the typical land mobile radio environment (inclusive of noise floor degradation, if any).

3.17.2.4 Antenna height.

3.17.2.5 Portable unit effective radiated power.

3.17.2.6 Portable unit effective receiver sensitivity.

3.17.2.7 Transmitter site talk out range, individual sites as well as composite coverage.

3.17.2.8 Portable unit talk-in range, individual sites as well as composite coverage.

3.17.2.9 A statement defining the percentage of land area covered shall be provided for each submitted map configuration.

3.17.2.10 Okamura modeling should be used for propagation projection.

3.18 Radio System Coverage Acceptance Criteria

3.18.1 Verification of the installed system's coverage is a component part of the Test and Acceptance criteria described in Section 3.45 Phased Implementation.

3.18.2 Vehicular coverage testing (performed within a road vehicle during terrestrial coverage testing or watercraft when performing river or lake coverage testing) shall be done with computer-controlled test equipment.

3.18.2.1 This equipment shall automatically record the position of the test vehicle (by means of GPS positioning) at the time of a reading and records the signal strength of at least 200 signal samples over a 40-wavelength period for each reading taken within a test grid. Signal strength measurements shall be made continuously along the drive route.

3.18.3 Test grid sizes within all city limits shall utilize grid sizes no greater than 1320 feet x 1320 feet (1/4 mile). Grids sizes within rural areas shall be 2640 feet x 2640 feet (1/2-mile).

3.18.4 A minimum number of accessible grids, sufficient to provide statistical accuracy of results in the order of 1.25db or less, shall be tested.

3.18.5 The Customer and the Contractor shall mutually determine the size/location of grids and a suitable drive route that encompasses the entirety of accessible grids. This testing shall apply to any area capable of being traversed by a 4x4 vehicle. Inaccessible grids will be excluded from the coverage result calculations.

3.18.6 Field strength test results obtained throughout the coverage area, in accordance with minimally required reliability percentages, shall be of sufficient level to produce a Delivered Audio Quality (DAQ) rating of 3.4 or higher where required (see below - Figure 1 Chart) throughout the predicted service area to be considered passing.

3.18.6.1 Figure 1 Chart

DAQ Rating	Explanation
5	Reception is very clear, and the message is perfectly readable. No background noise is present, and every word is understood.
4	Reception is clear, but with slight background noise. Message is readable, and every word is understood.
3.4	Reception is clear, but with slight background noise. Message is readable and understood with few/occasional missing syllables.
3	Background noise is evident. Message is readable and understood even with missing syllables.
2	Background noise is prevalent. Message is readable with difficulty and requires repetition.
1	Evidence that transmission is being made. Voice message is barely discernible, and no words are understood. Unusable.
0	No transmission is heard. No activity on the channel is evident.
Notes	CPC is set to the midpoint of the Range. SINAD values are NOT to be used for system performance assessment.

3.18.7 Mobile radio signal strength measurements shall be made from either a terrestrial (land) vehicle moving at approximately 35 mph, or a watercraft (river/lake/ocean/waterway) vehicle traveling at approximately 20-knots.

3.18.8 The device used to measure field intensity shall be stable and have a dynamic range suitable for the conditions under test.

3.18.9 Prior to the execution of these test activities, all test equipment and data gathering equipment to be used shall be fully certified by an independent testing laboratory having calibration tools traceable to the National Institute of Standards and Technology. These

certification documents shall be presented to the Customer's project staff prior to coverage testing.

3.18.10 The test output shall be retained by a laptop computer or an equivalent computer device. The Contractor shall submit a written and/ or graphical report containing an analysis of the test results to the Customer daily, and a formal report at the end of the test.

3.18.11 The Contractor's analysis shall include maps of the coverage area divided into grids, with the test results for drive tests displayed in each grid on a separate map.

3.18.12 All test data, in its raw form, shall be made available for independent inspection.

3.18.13 The Customer reserves the right to reject any instrumentation or procedures.

3.18.14 During these tests, the system's P25 transmitter(s) output power shall be monitored by the Customer and no adjustments shall be made to the base station(s), antenna system(s), transmitter(s), portable/mobile radio units or test instrumentation after appropriate calibration of all involved equipment.

3.18.15 Optimization data for the infrastructure will be provided to the Customer prior to the commencement of these tests.

3.18.15.1 Optimization data will include at a minimum, antenna sweeps, TX power measured at the base station output and the combiner output, receive sensitivity, and any other data deemed necessary to prove the system is optimized and ready for testing.

3.18.16 Should The Customer reject any portion of the test, the Contractor shall correct the errors and omissions as defined by the Customer at no additional cost.

3.19 Audio Quality Test Process

3.19.1 In addition to the signal level collection method described above, the Contractor shall be required to conduct a voice audio quality test of the system.

3.19.2 The P25 digital portion of the new radio system shall encompass an automated BER Test for both in-bound and outbound transmission pathways.

3.19.3 The Contractor shall, as part of its Acceptance Test, produce a BER Test Report that correlates actual BER to predicted results.

3.19.4 Of those accessible grids evaluated because of the field-testing process, no fewer than 95% shall achieve a BER that is directly correlated to DAQ-3.4, as defined by EIA/TIA TSB-88D, as depicted by Figure 1.

3.19.4.1 A call transmission failure in either direction shall be considered a failure of the tested grid.

3.19.5 The BER test shall encompass the same grid structure as devised for the signal level test process.

3.19.6 A manually-conducted voice quality test simulating in-residence portable radio operations shall also be conducted.

3.19.6.1 In conducting portable voice quality testing, vehicular-mounted mobile radios and proposed portable radios will be utilized in Contractor-equipped vehicles, but with appropriate transmission line attenuators installed to replicate outdoor portable radio operations.

3.19.6.2 The Customer's service area shall be comprised of test grids equal to those used in BER testing.

3.19.6.3 Test calls for each grid will be transacted, as required vehicle-to-base/console and base/console-to-vehicle or portable-to-base/console and base/console-to-portable, with the results for each call segment scored as per TSB-88D recommendations.

3.19.6.4 No fewer than 97% of the total number of grids tested in this manner shall be ranked as achieving DAQ-3.4 audio quality, or higher.

3.19.6.5 A failure in either call direction shall be considered as a failure of the tested grid.

3.19.7 The following voiced audio quality verification process shall apply:

3.19.7.1 The portable radio voice quality testing shall be performed using a minimum of ten phonetically balanced phrases, to be supplied by the Contractor.

3.19.7.2 A successful test measurement shall be one which requires no repetition, and as defined in Figure 1 to understand the spoken phrase and with a DAQ-3.4.

3.19.7.3 A successfully tested grid is defined as one in which communications from a dispatch console to a field radio unit, as well as for the reverse path, are not less than DAQ 3.4 as described above.

3.19.8 The Customer shall designate the test team(s) to participate in coverage testing.

3.19.9 All test vehicles shall be provided by the Contractor and be off-road capable.

3.19.9.1 Where boats are required, these shall be provided by the Customer.

3.19.10 Testing shall commence daily at 8:00 AM and will cease at 4:30 PM.

3.19.11 At least three teams will conduct the tests in the interest of timely completion.

3.19.12 Failure of Contractor test equipment shall not be considered as an acceptable reason for a Contract time extension.

3.19.13 The Customer will not pay for retesting caused by delays or equipment failures.

3.19.14 Testing will proceed through weekends and during peak foliage until concluded.

3.19.15 Final System Acceptance shall not be achieved until the constructed system successfully equals or exceeds the coverage performance guaranteed by the Contract.

3.20 Critical Building Coverage Test Process

3.20.1 Coverage shall be no less than 95% inside of the listing of representative buildings contained in **Appendix D: Critical Building/Area List**.

3.20.1.1 It is desired that most of these building structures shall be supported by the proposed fixed infrastructure (tower sites).

3.20.1.2 However, the Vendor shall exercise good judgment in balancing the proliferation of costly infrastructure tower sites with the number of building sites.

3.20.1.3 The use of building amplifier systems, while necessary in some instances, shall likewise be minimized to the most practical and fiscally responsible extent possible.

3.20.2 The Vendor shall specifically identify those buildings from that list that are likely to require building amplifier systems in their proposal.

3.20.3 If any of these representative buildings fail to demonstrate 95% reliable coverage (DAQ 3.4 Audio Quality), the following procedure will be followed:

3.20.3.1 The Vendor must propose a detailed testing method showing how the failed building will be tested to verify that it does or does not meet the in-building coverage criteria. Testing shall not be limited to the ground floor.

3.20.3.2 If System radio coverage gaps are identified versus Vendor as-proposed coverage models, the Contractor will be responsible for modifying the System, at no additional cost to the Customer, to achieve the required coverage within the failed building.

3.20.3.3 Remediation may include any or all the following approaches, as mutually agreed by the City and its Consultant:

A. Bi-directional amplifier (BDA) system installed in the building.

B. Passive repeater systems installed in the building.

C. Satellite receiver systems in or near the building.

D. Modifying/adjusting repeater site antenna systems.

3.20.3.4 The determination to utilize a BDA within any structure shall be engineered as a part of a comprehensive system design.

A. The Contractor shall not install any BDA system in structures that shall introduce interference into the overall P25 System operation.

3.20.3.5 If any changes are made to the fixed sites (such as re-orienting antenna patterns) in order to resolve building coverage failures, then a complete re-test of coverage shall be required at no additional cost to the Customer.

3.21 Dispatch Console Requirements

3.21.1 The Customer requires new Dispatch Consoles as part of this project.

3.21.2 Parallel Implementation

3.21.2.1 The vendor shall be responsible for ensuring the Customer's existing/legacy radio configuration remain operationally available during the installation and acceptance phases of the P25 System.

3.21.2.2 The Customer will permit the co-location of new dispatch console equipment with this legacy equipment during the project's user migration phase and until project acceptance.

3.21.2.3 Any solution that would cause the temporary interruption of the existing radio system for any duration must be reviewed and approved, in advance, by the affected entities and the Customer.

3.21.3 Console Locations and Quantities

3.21.3.1 The Customer currently utilizes one dispatch center for 911, Law, Fire, EMS, and other public safety agencies.

A. The dispatch center is located at: [redacted]

B. There is a quantity of (6) consoles at this location.

3.21.3.2 Customer has a backup dispatch center.

A. This backup location will have eight (8) additional consoles.

B. The new location will include a monopole tower if required, microwave connectivity to the P25 radio system, and DC battery backup for the microwave.

1. Based on the system design, the vendor proposal should identify the heights and location of any tower required to meet the specifications and support the proposed design including this monopole.

C. The backup dispatch center is located at [redacted]

D. There is a quantity of (8) consoles planned for this location.

3.21.4 Installation Specifications

3.21.4.1 Vendor shall install new radio dispatch equipment cabling that must, likewise, be completed in a manner that causes no interference with the operation of the existing legacy network.

3.21.4.2 Vendor shall carefully evaluate dispatch facilities prior to initial design review to determine the most effective means to install and implement its new dispatch console equipment and associated subsystems.

3.21.4.3 The installation of the Video Display(s) used for the radio dispatch positions shall be capable of desk mounted on furniture or dispatch console furniture display arms.

3.21.4.4 Contractor-furnished cabling shall be neatly installed and protected from physical damage.

3.21.4.5 Installation plans must be reviewed and approved by the Customer prior to physical installation.

3.21.4.6 Cable raceways shall be used where possible.

3.21.4.7 No cabling shall create a safety or mobility problem for dispatch personnel.

3.21.5 Reliability/Resiliency

3.21.5.1 Due to the critical nature of the communications services provided by these public safety dispatch facilities, a high degree of reliability for the new radio dispatch console subsystem is required.

3.21.5.2 The console subsystem, to the greatest extent possible, shall:

A. Be automatically self-correcting.

B. Auto Diagnostics/Self-Healing and Diagnostic Features

1. The new dispatch console subsystem shall be equipped with several self-diagnostic elements that continuously monitor and verify the correct operation of each distributed microprocessor, each audio path in the console electronics, and between the console electronics and the system.

*Attach Self-Testing and Diagnosis Documentation

2. Diagnostic capability shall be distributed among independent and redundant subsystems and shall not rely on one central diagnostic circuit.

*Attach Distribution of Diagnostics Documentation

3. In the case of voice transactions using the Internet Protocol, specialized coding shall be used to assure the timely delivery of audio packets to destinations such that recovered or transmitted audio is absent of noticeable voice delays or audio truncation.

C. Alert the operator in the event of component or sub-system failure.

D. Allow continued operation of the remaining consoles in the event of failure to a specific console, through isolation of the defective console device.

E. Be of a design that eliminates single points of failure.

F. Utilize packet-based, in lieu of traditional circuit-switched, technologies.

G. Modularity is likewise envisioned to reduce the number of sub-systems affected by a single component failure.

H. Repair of sub-systems without totally disabling multiple radio console positions shall be required, as continued console operation is necessary during repair.

*Attach Console Modularity / Repair Documentation

3.21.6 Console Auxiliary I/O Functions

3.21.6.1 All external auxiliary input and/or output (Aux I/O [logic or relay]) functions shall be controlled through an auxiliary interface module.

3.21.6.2 These functions shall be controlled from the console position as required.

3.21.6.3 The Aux I/O shall be capable of operating an alternative 3-light status light/alert system, supplied by the Vendor, to indicate each position is operating a radio transmission, or telephone call, on each console position.

3.21.7 Console Minimum Features/Functionality

3.21.7.1 Electronic Specifications

A. Console electronic circuitry shall be housed in an equipment rack/enclosure specific for each dispatch console position.

B. When installed by the Contractor, sufficient space for front and rear servicing of this equipment shall be provided.

C. The use of a centralized console electronic bank that supports audio and control signaling between multiple dispatch console positions is non-compliant and will be rejected.

D. Console electronic enclosures shall contain the various microprocessors, console interfaces, auxiliary function interfaces and other interfaces needed for radio dispatch operations.

E. If multiple circuit cards are required within the Vendor's enclosure solution, these shall be of plug-in design and shall be able to be inserted and/or

removed with power applied and the location's other dispatch positions/equipment remaining on-line.

1. The digital voice network's radio dispatch subsystem shall include the circuitry required to operate remotely-controlled base stations and the system repeaters as described by this RFP.

F. At a minimum, each base station interface shall consist of a plug-in circuit card (or the software equivalent) containing VoIP-related circuitry, line driver amplifiers, two-wire and four-wire receive amplifiers, digital automatic level adjustment circuitry and fault diagnostic circuitry.

G. The interface shall also be capable of remotely controlling base stations via E/M multiplex-channel, and 2175Hz tone-burst signaling, as may be needed for legacy equipment.

* Power Supply/Backup Power Attach UPS Documentation

1. It is a critical requirement that power loss or surges shall not affect radio dispatch operations.
   - **a.** Power loss or surges shall not alter the system software or operating parameters at the radio dispatch positions
   - **b.** External power to each console shall be supplied by a nominal 120VAC, 60Hz, single-phase power source.

H. The proposed UPS will have a graphical display that shows battery life and voltage incoming and outgoing on the device.

I. All dispatch consoles shall be capable of operation without commercial power for at least 2 hours.

3.21.8 Flat Panel Display

3.21.8.1 A state-of-the-art color, non-interlacing minimum 22-inch display shall be provided.

3.21.8.2 Each operator shall have the ability to change screen displays to suit operator preferences.

3.21.8.3 No less than eight console preferences shall be configurable for each console.

3.21.8.4 The screen(s) are required to be touchscreen.

*Attach Flat Panel Display Documentation

3.21.9 Headset Jack

3.21.9.1 All radio consoles shall, at a minimum, accommodate both righthanded and left-handed operators.

3.21.9.2 All radio consoles shall be configured for dual headset and local microphone operations.

3.21.9.3 Each console shall provide independent transmit audio level settings for audio inputs from the headset microphone and a desktop microphone, such that telecommunicators may freely switch operation without affecting dispatch audio quality.

3.21.9.4 Dual headset jacks shall be provided at each position for training and supervisory purposes.

*Attach Headset Jack Documentation

3.21.10 Footswitch

3.21.10.1 The Contractor shall supply and install a switch for each console.

3.21.10.2 Each footswitch will operate PTT of the selected channel(s).

3.21.10.3 The footswitch shall be heavy duty, rated for constant and continuous use, and shall be designed so as not to skid on a smooth flooring surface.

*Attach Footswitch Documentation

3.21.11 Master Time Source

3.21.11.1 A time generator system shall be provided, by the Contractor, that references the Global Positioning System to synchronize all dispatch clocks and logging recorders at all radio console positions/centers.

A. The use of standard NTP server mechanisms over the internet is not an acceptable solution.

3.21.11.2 This time generator system shall be made to fully interface to and control the event-time display of the radio consoles, console audio recorder, radio network management tools, radio network alarm system, and microwave alarm system at each radio dispatch location.

A. The time generator must provide standard NTP server protocol via ethernet for use on the local and wide area network only.

B. Additionally, this time generator must include at least one additional ethernet port for providing an NTP source to an outside network that would not have access to the proposed radio network.

*Attach Master Time Source Documentation

3.21.12 Telecommunicator Headsets

3.21.12.1 Each position shall be capable of utilizing a wireless headset hardware for connectivity into the proposed radio console headset jack hardware.

3.21.12.2 The following headsets are currently in use by the Customer and should operate with the new dispatch consoles: Poly CA22CD-SC

*Attach Telecommunicator Headset Documentation

3.21.13 Digital Fixed Station Interface

3.21.13.1 The console system shall be capable of modern digital fixed-station interface (DFSI) connectivity to base stations and other fixed radios.

3.22 Fallback Control Stations

3.22.1 Each dispatch and supervisory position shall be equipped with a P25 trunked control station to permit radio dispatch operations to continue in the event of radio console equipment or connectivity failures.

*Attach Fallback Control Station documentation for this section

3.22.2 These control stations, in addition to the minimum requirements specified by the Control Station Specifications section of this RFP, must contain an alphanumeric display to provide information on talk-group selection and emergency call alerts.

3.22.3 Each control station shall be operated either by a stand-alone footswitch and headset jack or be integrated to the console and operate with the console footswitch and headset jack.

3.23 Training

3.23.1 A comprehensive training program must be established by the Vendor in its Technical Submittal, to be implemented if selected as the Contractor.

3.23.1.1 This program would include not only familiarize telecommunicators with physical features and functions of assigned Dispatch Console equipment, but also instruction pertinent to the System's talkgroup structure and how the System's infrastructure establishes local, wide-area and outside interoperable call transactions.

*Attach Telecommunicators Training Documentation

3.23.2 The Contractor's training program must include the necessary graphics, visual simulations, and printed media tools to establish an appropriate training process for users.

3.23.3 Training videos must be available to users on a private web-based portal, thereby allowing for individual refresher training.

3.23.4 The Contractor must also supply technical assistance during the initial warranty period that allows for ongoing modifications to these training resources, to keep them in-step with additions and changes to the operable and interoperable resources within the System.

3.23.5 The Vendor shall provide a detailed description of its proposed user/infrastructure training program for fallback control stations/portable radios. Examples of training tools developed for similar P25 regional trunked and conventional radio configurations shall be provided within the Vendor's Technical Proposal Submittal.

*Attach Fallback Training Documentation

3.23.6 The Customer must approve all training curriculum prior to training.

3.23.7 The Vendor shall propose training for up to 38 telecommunicators and 4 telecommunicator supervisors.

3.23.8 The Vendor must provide resumes of professional training staff that will train the telecommunicators on how the Dispatch Console and Fallback radios operate on the proposed system.

*Attach Trainer Resume Documentation

3.24 Logging Recorder Specifications

3.24.1 The vendor shall provide a new P25 capable and compatible Logging Recorder to provide capability for recording any talkgroup on the System and other capabilities as listed.

3.24.2 Comments:

3.24.2.1 The recorder shall include:

A. Capability to record from a standard NG911 Capable Call Handling solution, via IP recording, following the NENA i3 standard. (NENA-STA-010.3b-2021)

B. At least twenty-four (24) channel analog recorder inputs for telephone lines, and other analog audio sources. At least twenty-four (24) channel VOIP recorder inputs for telephone lines.

C. Screen Capture, Meta Data, & Quality Assurance Capabilities

D. Capable of being re-keyed via Over The Air Re-Keying (OTAR).

*Attach Logging Recorder Documentation

3.24.3 The vendor shall include any cost for hardware, software, and services to integrate the proposed system to the existing logging recorder.

3.24.3.1 There is no existing logging recorder.

3.25 Dispatch Console Positions Features and Functions

3.25.1 Vendor shall replace all existing radio dispatch consoles at the Customer's dispatch center(s) with an IP-based solution and have seamless integration with the newly proposed system radio network.

3.25.2 Each of the radio dispatch consoles shall include all controls that apply to the various channel/talk-groups and auxiliary functions for the console.

3.25.3 Each console position shall contain as a minimum:

*Attach Dispatch Console supporting documentation for this section.

3.25.3.1 Select Speaker – for audio from selected channels/talk-groups, with volume control.

3.25.3.2 Unselect speaker – for audio from unselected channels/talk-groups, with volume control.

3.25.3.3 Resource selectable speaker – Minimum of 1 additional speaker which allow for console audio resources to be dynamically assigned by the operator.

3.25.3.4 Transmit Function – a color-coded transmit function to control the push to talk (PTT) function for the selected transmitter(s) and/or talk-group(s).

3.25.3.5 All controls that apply to the various channel/talk-groups and auxiliary functions for the console.

3.25.3.6 CTCSS Monitor or Disable Function – shall disable the receiver CTCSS decoder of selected conventional base station(s) operating on conventional channels for monitoring purposes.

3.25.3.7 Clock – shall display time in twenty four-hour formats and shall be synchronized with the time server.

3.25.3.8 VU Meter or Audio Level Display.

3.25.3.9 Keypad or screen representation of a keypad for numeric data entry.

3.25.3.10 Microphone – desktop microphone type.

A. This microphone shall be resistant to interference, such as transmitting hum from lights, cathode ray monitors, or other devices used in the proximity of the console.

3.25.3.11 Dual Headset Jack – a dual headset jack shall be provided which will allow for use of a headset equipped with RJ-327 type plug with modular adapter.

A. Separate headset volume controls for radio and telephone audio output shall be provided.

3.25.3.12 Intercom – intercom between operator positions shall be provided.

A. A visual display shall be provided to identify both the calling and called parties by console name.

B. Multiple simultaneous intercom conversations between individual consoles shall be possible.

3.25.3.13 ID Display on the channel window for standard calls and emergency calls with a minimum of eight alphanumeric characters.

3.25.3.14 All Receiver Mute Function – a function, which will mute the received audio from all unselected channels, shall be provided.

A. This muting function shall be programmable in predetermined increments.

3.25.3.15 Simultaneous Select and Instant Transmit Function – controls shall be provided that allows the operator to manually select any combination of console controlled base stations for simultaneous transmissions.

A. Three selectable combinations shall be allowed at the discretion of the telecommunicator.

B. The patch shall utilize a single trunked channel when patching more than one talk group.

C. The Vendor will describe how the system will communicate from different type talkgroups or resources integrated to base station gateways.

1. P25 - P25 Talkgroup

2. P25 Encrypted Talkgroup - P25 Talkgroup

3. P25 Encrypted Talkgroup Key 1 - P25 Encrypted Talkgroup Key 2

4. Conventional - P25 Talkgroup

5. Conventional - P25 Encrypted Talkgroup

6. Base State Gateway P25 Talkgroup - P25 Talkgroup

7. Base Station GW P25 Encrypted Talkgroup - P25 Encrypted Talkgroup

3.25.3.16 Emergency/ Reset

A. Consoles shall receive emergency alerts from the trunked radio system regardless of the status of the channel control window.

B. Emergency messages shall be indicated by a flashing ID, emergency ID character and an audible alert.

C. Telecommunicator acknowledgment of the message shall silence the audible alert and stop the flashing display.

D. Multiple emergency messages shall be queued in the display stack and the emergency ID character shall continue to flash until all messages have been viewed and subsequently cleared by the telecommunicator.

3.25.3.17 Alert Tones

A. The console shall be provided with, at a minimum, three distinct tones used for alerting purposes over the air.

1. Each alert tone shall be immediately broadcast, when activated, on the selected radio channel.
2. Alert 1 – Steady Alert Tone – shall generate a nominal 1000 Hz steady tone.
3. Alert 2 – Warbling Tone – shall generate a warbling tone.
4. Alert 3 – Pulsed Alert Tone – shall initiate an automatic sequence, consisting of a nominal 1000 Hz tone, for a period of two (2) seconds.

3.25.3.18 Paging Encoders – Each console shall include a multi-tone paging/signaling encoder that is accessible, minimally, through the data entry keyboard.

3.25.3.19 Call Indication – a color-coded status call indicator shall be provided for each receiver in a channel control window on the display screen.

3.25.3.20 Individual Volume Adjust – shall be provided for each channel on the console. Associated color-coded status indicators shall continuously show whether the channel is in the full or adjustable volume control shall be automatically bypassed when a channel is placed in select status.

3.25.3.21 Talk-group/Channel Cross Patch

3.25.3.22 Channel/Group Name – designated channel/group control modules shall include a minimum of eight-character alphanumeric display symbols to identify the channel/group.

3.25.3.23 Talk-Group/Channel Busy Indication

3.25.3.24 NENA interface – Connectivity to existing E911 and future NG911/IP telephony system (provided by others) for single headset operation.

3.26 General Equipment and Shelter Requirements

3.26.1 Shelter Design Considerations

*Attach Shelter Design Documentation

3.26.1.1 Equipment shelters shall be of a concrete floor, bullet-resistant, concrete aggregate type designed to house radio communications, the standby power generator/transfer switch, and sensitive electronic equipment:

A. The exterior wall measurements shall be no less than 10ft high, 12ft wide and 30ft long. Interior dimensions shall include nominal wall, roof and floor dimensions, to be determined by Contractor.

B. Equipment shelters must provide an interior climate suitable for the operation of sensitive electronic equipment, that is, it must be dust proof, watertight and airtight.

1) Airtightness shall be measured by a door fan test equivalent to that used to pass a dry agent fire suppression pressure test of 10 minutes at 8 feet.

C. The shelter shall include a separate power generator equipment area that includes a separate access doorway and a fire-barrier separator that isolates the generator area from the HVAC-conditioned radio equipment space.

D. This generator equipment area shall also be equipped with a ceiling mounted, thermostatically controlled, electrical heater.

E. Each equipment shelter shall be supported by a reinforced concrete pad with attachment devices appropriate for securing the building assembly to survive hurricane or straight-line type force (no less than 150-mph) winds.

1. Construction detail for pad and **attachment** must be stamped by a licensed engineer.

F. Any sites located within a FEMA 100-Year Floodplain shall require elevation due to the increased flood risk. These equipment shelters shall be elevated upon approved concrete piers or galvanized steel framework. Failure to identify sites that meet this requirement does not excuse the Contractor from meeting the requirement and all work shall be performed at the Contactor's cost.

*Attach FEMA Floodplain documentation for this section.

1. The finished length of piers/framework shall extend, minimally, four feet above ground level but otherwise in accordance with FEMA's 100-Year floodplain elevation height plus a 24-inch contingency margin.

2. Any site located within a FEMA 500-Year Floodplain must be clearly identified by the vendor within the proposal.

*Attach list of proposed sites with indication of those in the FEMA floodplain.

G. Any metal components, attachment hardware, cross-braces and lifting eyes shall be hot-dip galvanized metal after fabrication.

3.27 Shelter Configuration Details

3.27.1 The exterior wall finish shall be exposed aggregate concrete. Seeding of aggregate for an exposed aggregate finish is not acceptable. Exterior walls must be bullet resistant as defined below.

3.27.1.1 The roof shall be a flat, tapered type having a minimum slope of 1/2" per foot from the roof centerline.

3.27.1.2 The roof shall be designed to support a minimum of 100-lbs/sq. ft. distributed load.

3.27.1.3 A roof shield shall be provided and installed by the Contractor, above the equipment shelter and of sufficient size to adequately protect the shelter and personnel from falling materials via the nearby radio site's tower.

3.27.2 All exterior wall, floor and roof joints shall be sealed using a compressible, resilient sealant. There shall be no exposed roof-to-wall or wall-to-floor joints.

3.27.3 Cement used in concrete shelters shall be standard Portland cement conforming to the requirements of the "Standard Specification of Portland Cement", ASTM Designation C150. Concrete aggregate shall conform to the requirements of the "Specifications for Concrete Aggregates" ASTM C33 and "Specifications for lightweight aggregates for structural concrete" ASTM C330.

3.27.4 Exterior concrete surfaces shall be sealed with a minimum of two coats of THOROGLAZE® H Concrete Sealer or approved equal.

3.27.5 The shelter's interior floor shall be covered with poured epoxy. It shall be navy in color with red and white flecks

3.27.5.1 The subfloor shall be designed to support a minimum of 200 lbs. / sq. ft. distributed floor load, while on foundation, or as needed to support proposed equipment.

3.27.5.2 Consideration should be given to the area(s) for the proposed 48VDC battery plant weight load.

3.27.6 Walls shall have a minimum thermal insulation factor of R11.

3.27.7 The shelter's roof shall have a minimum thermal insulation factor of R19.

3.27.8 Interior wall surfaces shall be faced with white vinyl/coated wood paneling.

3.27.8.1 The interior ceiling surface shall be white, vinyl coated plywood. Seams in the plywood shall be trimmed with batten strips painted to match the ceiling.

3.27.9 Building openings for the door, air-conditioners, transmission line entrance and other entries shall be framed and sealed in such a manner that moisture, nor insects cannot penetrate the insulation within the walls or the interior walls of the structure.

3.27.10 Each door measuring 36"W x 84"H x 3" made of thick insulated bullet-resistant steel, and equipped with a three-point latch, shall be provided. All door hardware shall be stainless steel and incorporate three external hinges having non-removable hinge pins. Door shall open outward to maximize internal building utilization.

3.27.10.1 The term 'bullet-resistant" is defined, for this RFP, as unable to be penetrated by a .30-06 or .308 commercial cartridge firing a lead tipped, 160-grain projectile, at no more than 2600 fps muzzle velocity. The projectile will be test-fired at a range of 100 yards. The structure/material must not be completely penetrated at that distance.

3.27.11 Aluminum exterior awnings shall be provided to protect the door entrance(s) and air-conditioner units.

3.27.12 All hardware used on the exterior surfaces of this shelter shall be either hot-dipped galvanized or stainless steel. Wafer, MDF (Medium-Density Fiberboard), or particleboard wood products are not an acceptable construction material for this project.

3.27.13 Contractor shall provide detailed fabrication drawings for the concrete foundation (or steel frameworks), designed to adequately support the proposed building structures and wind loads.

3.27.13.1 Additionally, the building frame shall be mechanically bonded to the concrete/steel foundation. Strapping and anchor materials shall be hot-dipped galvanized protected.

3.27.14 Building, and foundation detail drawings and related calculations must be reviewed, approved and stamped by a licensed Professional Engineer (P.E.), licensed in the State of construction.

3.28 Shelter Electrical Requirements

3.28.1 Each shelter shall be equipped with overhead cable trays located above all planned equipment rack groupings.

3.28.1.1 Auxiliary cable trays shall be provided to support transmission lines and telecommunications cables, as necessary.

3.28.1.2 All cable tray joints shall be electrically bonded using No. 6 AWG copper wire jumpers with approved compression fittings.

3.28.1.3 Trays shall be bonded to the interior ground halo.

3.28.2 Individual, properly grounded with home run grounds, 120VAC, 20A electrical circuits shall be provided to each of the equipment racks/cabinets.

3.28.3 Each shall be terminated as a single, duplex outlet mounted on the cable tray directly above the center of each planned equipment rack.

3.28.4 Individual, properly grounded with home run grounds, 240VAC, 30A electrical circuits shall be provided for each battery charger unit.

3.28.5 Sufficient flexible conduit shall be provided above the rack to permit interconnection to chargers located at the bottom of the rack.

3.28.6 DC wiring for the radio network's battery plant and interconnection to the various equipment groupings shall be furnished and installed, as required.

3.28.7 Install eight (8), properly grounded with home run grounds, quad 120VAC convenience outlets, two each on the two longest walls and one each on each of the remaining walls.

3.28.8 Install four (4), properly grounded with home run grounds, quad 120VAC convenience outlets shall be installed within the generator space.

3.28.9 No fewer than twelve (12) 120VAC ceiling mounted outlet boxes shall be provided, each with one (1) duplex receptacle and home run ground. These receptacles should be spaced according to areas of located 120VAC equipment or future expansion space areas.

3.28.10 The Contractor shall furnish and install no fewer than one circuit breaker panel board. Panel board shall be sized for all the indicated branch circuits, equipment loads plus a fifty (50%) growth factor.

3.29 Electrical/Transient Grounding System

3.29.1 The Contractor shall furnish and install an interior and buried exterior electrical grounding system and power surge protection for each location, as follows:

3.29.1.1 A single #2AWG copper conductor ground halo shall be installed on all four interior walls, spaced approximately six inches below ceiling level.

3.29.1.2 The halo shall include a twelve-inch gap/break at the furthest point from the single-point ground attachment, which shall coincide with the RF transmission line entrance.

3.29.1.3 Ground halo shall be mounted on six-inch standoffs, located on twelve-inch centers. It shall be affixed to the transmission line ground entry-port buss bar.

3.29.1.4 This ground entry-port buss bar must be equipped with an Alarm, connected to the network's alarming system, to indicate ground failure, tamper, or theft.

3.29.1.5 All equipment cabinets, racks, transmission line entrance and cable trays shall be individually bonded to the halo using #6AWG copper conductors with approved compression fittings.

3.29.1.6 Interior halo shall be bonded to an exterior, buried ground network using low impedance copper conductors.

3.29.1.7 Electrical transient protectors shall utilize MOV and avalanche clamp devices such as the Transector Systems Model 1101-808 series or equivalent. This device shall be installed on the commercial power feed as well as the standby generator feed to the power transfer switch.

3.29.1.8 A single, stranded #00AWG copper exterior ground system shall be installed about the building and tower perimeter, located below the frost line, as identified locally, and exothermically bonded to the building frame, interior halo, transmission line ladder, generator system, ice shields, and radio tower legs.

3.29.1.9 All site grounding practices and methods shall meet a recognized telecommunications standard such as IEEE, Motorola R56 or the current revision of Harris AE/LZT 123 46181/1.

3.30 Shelter Lighting Requirements

3.30.1 Install LED light fixtures as necessary to provide effective illumination for each equipment rack, and within the generator room.

3.30.2 Install emergency exit and interior lighting as required by fire code.

3.30.3 Exterior lights above the door(s) and area lights on each of the exterior shelter corners shall be controlled by, at a maximum, two light switches located just inside the main door opening on the side away from the hinges at shoulder height.

3.30.4 LED lights are permitted on exterior walls with prior approval by the Customer.

3.30.4.1 LED lights should be tested to limit interference with system operation. Lighting that causes interference shall be replaced at the expense of the Vendor

3.31 HVAC Requirements

3.31.1 The Contractor shall furnish and install a redundant heating and air conditioning system appropriately sized to maintain an average temperature of 70 degrees Fahrenheit and less than 60% relative humidity. Redundancy shall mean that the failure of one air conditioner shall not cause the room temperature to exceed 80 degrees F and/or 75% relative humidity.

3.31.2 The HVAC system , due to shelter hardening, should consist of split unit compressors and air handlers to minimize wall penetrations. The air handler units shall include a condensation collection and removal system with an alarm for high water level/pump failure. The alarm will be wired and configured for access by a remote network management client.

3.31.3 Vendors are permitted to submit alternative or cost savings options in addition to the HVAC requirements listed in Section 3.31.

3.31.4 For heat load calculations, Contractor shall include all continuous duty equipment and assume all transmitters will be operating at a 50% duty cycle. Heat load shall also include a building loss factor appropriate for the location's historical high temperature average (previous 5 years) and the shelter's overall insulation rating. Heat from future growth equipment shall also be included in the initial load. Heat from interior lighting and service outlets may be excluded.

3.31.5 The HVAC system shall provide the heating capacity necessary to maintain a room temperature of 60 degrees Fahrenheit with all equipment powered off. Heating capacity shall be based on the shelter's overall insulation rating and an outdoor temperature from the location's historical low temperature average for the previous 5 years.

3.31.6 HVAC configuration must include a lead-lag controller to rotate use of the air conditioner units. The lead unit shall be rotated after each cycle. The controller shall support the number of HVAC units proposed, including any secondary stages, plus 1 additional similar unit for future expansion and redundancy. The controller shall support industry standard wiring used by the leading manufacturers.

3.31.7 The HVAC Controller should include the following sensors and alarms:

3.31.7.1 Indoor Temperature Sensor

3.31.7.2 Outdoor Temperature Sensor

3.31.7.3 Indoor Humidity Sensor

3.31.7.4 Fire Suppression System Shutdown Input

3.31.7.5 Ethernet Connectivity for Remote Management (wired and configured for remote access)

3.31.7.6 NO/NC Dry Contact Outputs (wired and configured for remote access)

A. Controller Primary Power Fail

B. Generator Active

C. Controller Failure

D. Unit Lock Out (ea.)

E. Emergency Shutoff High Temperature (ea. sensor)

F. Low Temperature

G. High Humidity

H. Filter Alarm

I. Emergency Ventilation Fan

J. Theft Alarm

3.31.8 Each AC unit shall incorporate circuitry to ensure that multiple compressors do not attempt to restart at the same time.

3.31.9 The HVAC configuration shall include appropriate sensors to cause multiple air conditioners to run simultaneously, as needed, to reduce the internal temperature more rapidly to a safe operating level.

3.31.10 Equipment shall be furnished with compressor anti-cycle circuitry to prevent short-cycle starts against high compressor head pressure.

3.31.11 Equipment shall be furnished with a compressor hot gas bypass (or its equivalent) to minimize electrical power surges because of compressor cycling.

3.31.12 The design of HVAC system shall take into consideration local environmental conditions and include appropriate coatings where units are exposed to salty air.

3.31.13 Buildings shall incorporate a thermostatically controlled Emergency Ventilation System (EVS) designed to operate in the event of a total HVAC failure and where the building's interior temperature exceeds 90°F.

3.31.13.1 The EVS shall be capable of remote activation and deactivation.

3.31.13.2 When installed in a room with an automatic fire suppression system, the EVS will include circuitry to close all dampers and disable the fan.

3.31.14 The EVS shall incorporate appropriate motorized dampers, screens, and filters to limit dust and insect entry into the building.

3.31.15 A second EVS shall be installed within the generator room (for indoor generators).

3.31.16 Customer requires separate compressors and Air Handler Units (AHU)

3.31.16.1 Compressors shall be mounted on the platform with shelter.

3.31.16.2 AHU's can be ceiling mounted or floor mounted, with alarmed external condensation tray.

3.32 Shelter Alarm Systems

3.32.1 The Contractor shall furnish and install an over/under temperature sensor, continuously adjustable over the range of 40°F to 90°F, having independent Form-C output contacts suitable for high/ low temperature alarm activation.

3.32.2 The Contractor shall furnish and install a door entry alarm sensor, magnetic type, having a Form-C contact closure output.

3.32.3 The Contractor shall furnish and install single-loop smoke/ fire detection system with relay alarms output to the site alarm block independent of any alarms that may be provided by an engineered fire suppression system.

3.32.4 Smoke/fire alarm sensors shall be mounted above battery charger equipment, in the generator room, and in vicinity of AC power distribution panel board.

3.32.4.1 Smoke/fire alarm panel shall have visual indicators depicting individual alarm sensor status.

3.32.4.2 Smoke/fire alarm panel shall operate from both 120VAC and 12VDC battery power sources.

3.32.4.3 The Customer's Fire Marshal shall inspect the proposed fire alarm system.

3.32.5 All shelters shall be equipped with an inert gas fire suppression system that is environmentally approved and not injurious to communications personnel.

3.32.5.1 The system shall be connected to the shelter fire/smoke system alarms.

3.32.5.2 Trigger of the system causing a gas discharge shall cause the air conditioners and fans to automatically shut off.

3.32.6 Where the HVAC equipment is disabled by the Fire Suppression system, a method for remote restarting of the HVAC shall be provided.

3.33 Generator Requirements

3.33.1 LPG Generator Equipment Requirements

3.33.1.1 A standby dual-fuel power generator system shall be furnished by the Contractor for each infrastructure site. For its proposed infrastructure sites, the Vendor shall include:

A. The necessary labor and materials, as required, to furnish and install LPG fuel tanks, automatic transfer switches, manual-operated auxiliary generator connector facilities, alarm functionality and electrical wiring services to provide fully operational standby power systems.

B. A generator housed inside the provided equipment shelter, in accordance with the manufacturer's specifications for shock and vibration mounting, ventilation, fuel supply and electrical connections.

C. The radiator air inlet shall incorporate a baffle to protect the radiator core from exterior wind-blown debris damage.

D. It shall be the responsibility of the Contractor to provide, install and test a complete and operable standby power generator with automatic transfer switch.

E. Equipment shall be new, factory tested at 0.8 power factor for 3-hours and shall be installed within the required equipment shelters, in accordance with local area building and electrical codes.

F. The following documentation shall be supplied by the Contractor for the generator set and transfer switch supplied:

1. Specification and data sheets for the exact type and model generator and transfer switch supplied pursuant to this procurement, including all options and accessories included.
2. Manufacturer's certification of prototype testing.
3. Manufacturer's warranty documents.
4. Shop drawings showing plan and elevation views of the equipment.
5. Interconnection wiring diagrams showing all external connections required; with field wiring terminals marked in a consistent point-to-point manner.
6. Manufacturer's installation instructions.
7. Operator's and maintenance manuals that outline routine maintenance and troubleshooting procedures.
8. Transfer switch manual and wiring diagram.

G. Start-Up Service shall be included with the following requirements:

1. A factory authorized service representative shall provide initial start-up service and shall conduct on-site acceptance testing.

2. The representative must remain until site acceptance is completed, as witnessed by the Customer.
3. Load test records for the installed generator system shall be furnished to The Customer.

H. The following type of engine configuration will be used:

1. The generator package shall include an LPG configured engine coupled with low reactance, brushless 120/240vac single-phase, 60Hz generator.

I. The generator package shall be equipped with:

1. A temperature compensated automatic voltage regulator;
2. Under/over-speed protection function;
3. A control panel;
4. Engine block heater;
5. High ambient-temperature cooling system.

J. Output power rating of the generator shall be sized for the full calculated load of the affiliated site, inclusive of a 50% excess load factor.

K. In no instance shall the proposed generator be configured for less than 45KW output.

L. The generator shall also be capable of continuous 24-hour operation, full single-phase output at 1.0 pf.

M. The following specifications shall also apply:

1. Voltage Regulation: Maintained with +/- 2% of rated voltage for constant load between no load and full load.
2. Frequency Regulation: Maintained within 0.5% from steady state no load to steady state rated load.
3. Single-Step Load Pickup: 100% of rated output power, less applicable derating factors, with the engine generator at operating temperature.

N. The generator shall have the following Set Controls:

1. The generator shall be a remote-start type compatible with the automatic transfer switch to be supplied pursuant to this procurement.
2. Manual starting and stopping shall be provided from the control panel.
3. Cranking control: Shall provide a minimum of three cranking cycles of at least 15-seconds before lockout and activation of an over-crank alarm condition.
4. The generator shall automatically shut down and lock out upon:
   a. Failure to start (over-crank)
   b. Over speed
   c. Low lubricating oil pressure
   d. High engine temperature

e. Low Coolant level

f. Other factors that may be harmful to the generator

5. Alarm contacts shall be provided to allow transmission of fault alarms for any of the above conditions, plus low oil pressure pre-warning, high coolant temperature pre-warning, low coolant temperature, low fuel and an alarm indication when the generator set is running.

   a. These alarm contacts shall be wired into, and shall be reported by, the radio network alarm system.

6. Meters shall be provided and located both at the generator and within the equipment shelter, to indicate output voltage, output current, running time, and frequency/RPM.

7. An AC rheostat (or electronic equivalent) shall be supplied for fine tuning of the generator's output voltage.

8. These devices shall be mounted either on the transfer switch door or a separate, remote panel.

9. Each generator must have the capability to communicate to a central control software terminal, via the IP network, to allow for remote start and other diagnostic capabilities.

10. Each LPG-Generator shall have the following Fuel Supply requirements:

    a. The Contractor shall supply a new, corrosion-proof, 1,000-gallon LPG storage tank to be installed on a concrete or elevated steel foundation, as dependent upon site flood plain conditions.

    b. The fuel tank shall provide sufficient fuel to provide ninety-six (96) hours of continuous operation of the generator set at full load under low ambient temperature.

    c. The fuel tank shall have a shield installed above to prevent debris from the nearby tower puncturing or damaging the tank shell.

    d. The tank shall be refilled after the conclusion of radio network acceptance tests.

    e. Fuel lines shall be buried below the frost line, as determined by the location. At any point at which the fuel line exits above grade, the line shall be insulated to reduce condensation at the regulator.

    f. A low fuel level alarm shall be provided.

    g. All fuel supply lines will be sized accordingly for the generator running at full load.

    h. All necessary regulators, drip pots, piping, meters, or other supplies needed for installation that meets local fire and building codes shall be furnished and installed.

    i. Contractor shall supply a full fuel tank at time of System Acceptance.

    j. Generator shall be capable of being connected to a natural gas line with constant supply of natural gas rather than the supplied tank with

the option to switch to the LPG tank if the natural gas supply is interrupted.

11. A residential-grade exhaust silencer shall be installed on the generator.

12. Battery and Charger specifications are as follows:

a. A lead acid starting battery, rated for the engine type to be supplied, shall be furnished and installed with the generator package.

b. This battery shall be float charged by a 10-ampere, voltage-regulated charger which is powered by a protected 120VAC source.

c. Float, taper and equalize charge settings shall be provided.

d. Battery charger shall be physically located within the generator transfer switch enclosure.

e. Battery and charger must be able to operate in, as low as, 0 degrees F.

f. Form-C charging system alarm contacts shall be provided and connected to the network's alarm system to report loss of AC power, low battery voltage and excessively high battery charging current.

13. The following Cooling System components are required:

a. A radiator-cooled engine is required.

b. The radiator shall be filled with a water/coolant mixture in accordance with the engine manufacturer's recommendations.

c. A thermostatically-controlled water jacket coolant heater shall be provided and installed in accordance with the manufacturer's recommendations.

14. The Generator Base shall have the following characteristics:

a. The generator set shall be mounted on a heavy-duty steel base which is anchored to a Contractor-furnished building foundation.

b. The base shall maintain alignment between generator set components and shall include vibration isolators.

3.33.1.2 Customer prefers a non-proprietary controller (e.g. Basler or approved equal).

3.33.1.3 Customer prefers GM 5.7-liter engine.

3.33.1.4 Customer requires baffling of the hot air exhaust

3.33.2 The Generator Transfer Switch

3.33.2.1 An automatic transfer switch which provides switching of the equipment shelter electrical load between commercial power and generator power shall be supplied and installed for each Vendor proposed standby generator.

A. Each transfer switch shall be completely factory assembled and shall contain electronic controls designed for surge voltage isolation, with voltage sensors on all phases of both input power sources.

B. Permanently attached manual handles shall also be installed on the transfer switch.

C. The switch shall provide positive mechanical and electrical interlocking, and mechanically-held contacts.

D. Quick-make and quick-break contact mechanisms shall be provided for manual transfer under load.

E. Each transfer switch shall be installed in a key locking, UL listed, NEMA rack to be mounted on a wall within the radio equipment shelter.

F. The switch shall be fully wired and integrated with the engine generator set in accordance with local electrical and fire codes.

G. A manually-operated transfer switch, as well as appropriate power connectorization, shall be provided to allow the interconnection of an auxiliary, trailered generator set should the permanently-located generator fail in operation, utilizing an Appleton plug. Vendor shall include terminals for auto start contact closure for the temporary generator solution.

H. All transfer switches and accessories shall be U.L. listed and labeled, tested per U.L. Standard 1008 and CSA Approved.

I. Transfer switches shall be double-throw electrically and mechanically interlocked and mechanically-held in both positions.

J. Main switch contacts shall be high-pressure silver alloy.

K. Contact assemblies shall have arc chutes for positive arc extinguishment. Arc chutes shall have insulating covers to prevent inter phase flashover.

L. Form-C contacts shall be provided in each main switch position for alarm reporting purposes.

M. These contacts shall be connected to the network's alarm system for reporting transfer status.

N. Each transfer switch shall be continuously rated for operation in ambient temperature ranges of -40 to +50 degrees Celsius.

O. Transfer switches shall be rated, minimally, to carry the generator's full rated output, inclusive of the 50% added capacity over calculated equipment loading.

P. The Line-In, Generator-In and Load side terminations for the automatic transfer switch shall be protected from lightning transients using a combination of Metal Oxide Varistor (MOV) and avalanche Zener diode technologies.

Q. All alarm and instrumentation wiring from the generator, that enters the equipment shelter, must likewise include appropriate lightning surge protection in the form of solid-state, fast-acting voltage clamp devices whose clamping voltage is closely matched to normal individual-alarm signal amplitudes.

R. Transfer switch control shall be solid state and designed for a high level of immunity to power line surges and transients.

S. The device shall be tested in accordance with IEEE Standard 587-1980 (or latest revision).

T. Controls shall have optically isolated logic inputs, and isolation transformers for AC inputs.

U. Relays shall be installed on all outputs.

V. Solid state under voltage sensors shall simultaneously monitor all phases of the standby power source and the commercial power source.

W. Pick up and drop out voltage settings shall be adjustable.

X. Voltage sensors shall allow for adjustment to sense partial loss of voltage on any phase.

Y. Controls shall be provided with solid state over voltage sensors, adjustable from 100-130% of nominal input voltage to monitor the source.

Z. An adjustable time delay shall be provided.

AA. Automatic controls shall signal the engine generator to start upon signal from normal source sensors.

BB. A time delay start, variable from 0 to 5 seconds, shall be provided to avoid nuisance startups.

CC. Battery voltage starting contacts shall be gold, dry type contacts which have been factory wired to a field wiring terminal block.

DD. The switch shall transfer when the emergency source reaches the set point voltage and frequency.

EE. A time delay shall be provided for transfer that shall be continuously variable from 0 to 120 seconds.

FF. The switch shall retransfer the load to commercial power after a delay.

GG. This time delay shall be variable (adjustable) from 0 to 30 minutes to avoid short engine run times.

HH. The retransfer time delay shall be immediately bypassed if the emergency generator fails.

II. A control shall automatically signal the engine generator to stop after a time delay, which shall be adjustable from 0 to 10 minutes, the time starting upon return to commercial power.

JJ. Power for transfer operation shall be from the source to which the load is being transferred.

KK. Diagnostic indicators shall be provided to allow the last successful step in the sequence of control functions to be pinpointed.

LL. The present status of the control functions shall also be indicated.

MM. These functions, at a minimum, shall include:

1. Source 1 OK
2. Start generator set
3. Source 2 OK.

4. Transfer timing
5. Transfer complete
6. Retransfer timing
7. Retransfer complete
8. Timing for stop

NN. A key-operated Front Panel selector switch shall be provided which will provide the following functions:

1. Test to simulate commercial power loss to allow testing of the generator set with or without transfer of the load.
2. Normal - leaves the transfer switch in its normal operating position.
3. Retransfer a momentary position which will provide an override of the retransfer time delay and cause immediate return to the commercial power source (if available).

OO. An Exerciser Clock setting shall be included which allows setting the day, time and duration of a generator set exercise/test period. Tests under load or with no load shall be selectable.

3.34 Tower Requirements

3.34.1 All vendors shall comply with the Customer tower ordinances and local codes in addition to the requirements listed in this RFP.

3.34.2 Basic Design

3.34.2.1 The basic standard for the design of newly required steel antenna towers, wave guide bridges and supporting structures, shall be ANSI/TIA-222-H.

3.34.2.2 Towers shall be triangular shaped, solid-rod structure having an overall height to be determined by the Vendor, based on the requirements of area coverage and availability of unobstructed microwave paths for site connectivity.

A. Limits of available space in certain areas may dictate the use of self-supported towers.

3.34.2.3 Each tower shall be designed for a minimum sustained 150-mph wind speed with the full complement of necessary antennas and required lights and other Federally-required equipment.

3.34.2.4 Antenna loads shall be as determined by Vendor; however, the design shall include a minimum growth factor in the top 1/3 of the tower to support a future 6' high performance microwave dish and 2 antennas comparable to the vendors choice for the coverage design.

A. Vendors are encouraged to investigate local tower code information and respond accordingly.

B. All other loading requirements required by existing codes or lease agreements, shall be in addition to this growth requirement.

3.34.2.5 All fabricated tower assemblies and parts shall be hot-dipped galvanized after fabrication per ASTM Standard A123.

A. Hardware shall be galvanized per ASTM Standard A153 and B695. Other types of zinc coating or plating are not acceptable.

3.34.2.6 Towers shall be supplied with a full-length transmission line ladder(s) designed to accept transmission lines needed for the proposed design plus one extra 6GHz waveguide and two 1-5/8" coax runs for future growth.

A. Cable ladder future growth area shall be design for unstacked lines.

3.34.2.7 Towers shall be equipped with an outside climbing ladder/cable type safety devices and LED lighted in accordance with FAA and current OSHA regulation 29 CFR 1910.27.

A. This device shall not interfere with the ease of climbing from one rung of the ladder to the next.

B. There must be at least two sources of climbing safety belts compatible with the safety climb anti-fall system, as supplied with the tower.

3.34.2.8 Tower lighting shall conform to FAA Advisory Circular AC 70/7460-1M, or current revision, Obstruction Marking and Lighting. VHF, UHF and 800 MHz radio equipment may be operational/co-located at the various trunked radio sites.

A. Therefore, it is imperative that only shielded, RFI-conditioned lighting devices be provided.

3.34.2.9 The Vendor shall provide detailed tower lighting equipment specification literature in its response sufficient in scope where the Customer can determine the suitability of the proposed lighting system with respect to planned or anticipated radio operations.

3.34.2.10 The Contractor shall install tower lighting controls in a temporary fixture adjacent to the tower, operated by a photo control, and provide a Form-C contact wired into the alarm panel.

A. Note:

1. This controller device is to be relocated within the site equipment shelter once fully constructed.
2. Please allow sufficient lighting control cable slack to allow for re-installation inside the equipment shelter.

3.34.2.11 All antennas, tower top amplifier (TTA), and transmission lines specified by the licensed frequencies and Contractor's system design shall be furnished and installed by the Contractor.

3.34.2.12 A site's Electrical Grounding System shall be furnished and installed by the Contractor in accordance with the following minimum practices:

A. Install a ground ring around the base of the tower, consisting of 10'x 5/8" ground rods driven to a depth necessary to meet the required resistance measurement of the specifications, adjacent to the foundation of the tower at each leg.

B. Ground rods shall be interconnected by a minimum #00AWG stranded copper wire, which is to be exothermically welded to the top of each ground rod.

C. Maximum spacing between rods shall not exceed twice the length of the ground rod.

D. Each tower leg shall be bonded to the ground ring using #00 AWG stranded tinned copper cable, which has been exothermically welded to a flat, 4-inch square solid steel tab located near the base of each tower leg.

E. Each cable lead will run to the closest ground rod through an insulated sleeve to minimize wire damage.

F. The upper end of the sleeve should be sealed with a non-shrinking compound such as RTV to prevent water from collecting within the sleeve.

G. The Contractor shall avoid making any acute bends as the ground wire transitions from the foundation.

H. Bends should be a minimum of 9-inches in radius.

I. To complete the exothermic welding process, attachment area on the tower tab shall be cleaned and coated with a cold galvanizing compound.

J. The ground bar must be tamper and theft resistant. The wire lead must be sleeved so that it is protected from physical damage.

K. Like above, the upper end of the sleeve shall be sealed with a non-shrinking compound like RTV to prevent water from entering and collecting within the sleeve.

L. This ground wire lead shall be installed at the time the tower ground ring is installed.

M. The ground rod/ring system shall extend around the perimeter of the equipment shelter, transmission line copper entrance port into the shelter and to the perimeter fence.

N. Ground system ring around the tower base shall be located a minimum of 36 inches away from the tower foundation.

O. The tower ground system ring shall be connected to the equipment shelter ground ring in at least two places, on the closest corners of the shelter ring.

P. The Contractor shall electrically bond all transmission line outer shields to the structure at the top of the tower immediately below the antenna and at the line midpoint if the tower's height is over 200-feet.

Q. Likewise, bond all transmission line shields near the bottom segment of the tower, approximately one-foot above the bend made to enter the waveguide-bridge and again at the shelter's antenna entry port/panel.

R. Use only transmission line grounding kits approved by the manufacturer for use on the type and diameter of transmission lines provided. All installed grounding kits shall be weather sealed.

S. Fencing shall be grounded to the ground ring via #2 AWG solid copper wires, bonded via exothermic welding at each fence post.

T. Exothermic welds shall be cleaned and protected with a minimum two coats of cold galvanized material. Gates shall utilize braided, flexible straps.

U. The shelter's interior halo ground and transmission line copper inside entrance port (buss bar) shall exothermically bond to the outdoor ground.

V. A ground test well shall be provided at a minimum of two locations along the ground loop.

W. One test well shall be located adjacent to the tower and the other at the far side of the equipment shelter loop.

X. Each test well shall consist of a minimum 6-inch diameter PVC material that extends down to the depth of two feet and shall allow the attachment of a test wire to measure ground resistance.

Y. A screw on or drop on cover that is easily removable to allow testing shall be provided.

Z. Grounding system resistance shall be measured to be 3-ohms or less between any point on the ground system and earth ground.

AA. Measurement shall be done with a 4-point ground resistance tester and not by a clamp on resistance tester.

3.34.2.13 Vendors will supply a sample tower design for each type of proposed tower.

*Attach sample tower design documentation for this section.

3.35 Guy Wires

3.35.1 Galvanized guy strand shall conform to the minimum requirements of ASTM Standard A475 Extra High Strength (EHS) or equivalent recognized standard.

3.35.2 Preformed guy grips and dead-ends shall be designed specifically for the length, size and type of cable being used. This shall include the size, number, and lay of the wires and electrochemical compatibility of the material.

3.35.3 An adequate bend radius shall be provided, as per the manufacturer's recommendations, at the inside of cable attachments consisting of a thimble.

3.35.4 Shackles used to connect guy assemblies shall be forged from AISI grade 1035 or 1045 steel or equivalent and suitably heat-treated (quenched and tempered, normalized or annealed).

3.35.5 Turnbuckle devices shall be installed at the anchor end of the guy assembly for adjusting the guy tension.

3.35.5.1 In initial installations, the minimum take-up adjustment available after the structure is plumb and the guy tensions are set shall be 6 inches for guys with normal diameter of 0.5-inches and 10-inches for guys with normal diameter greater than 0.5 inches.

3.35.5.2 All guy wires shall be bonded to ground rods using, minimally, a #2AWG solid, tinned copper wire.

3.35.5.3 Bonding shall include use of guy wire grounding clamps that are tin-plated bronze (or similar type material) to prevent electrolysis.

3.35.5.4 Grounding attachment clamps shall be installed above the guy wire turnbuckle.

3.35.6 Guy wire anchor plates are to be grounded using, minimally, a #2AWG solid, tinned copper wire that is exothermically welded to the anchor plate. Welds shall be cleaned and treated with cold galvanized coatings to prevent rusting.

3.35.7 All guy wires shall include ice clips ahead of the preforms.

3.35.8 Turnbuckle safety cables must use a "Figure 8" configuration.

3.36 Required Tower Submittals

3.36.1 The Contractor shall furnish wind-load stress, geotechnical reports and foundation calculations used in the design of the proposed tower structure.

3.36.1.1 Existing towers shall be evaluated for structural, electrical grounding and foundation stability, inclusive of identification/resolution of corrosion within tubular members and the suitability to support additional antenna loads as necessary to accommodate the newly added Contractor-furnished equipment.

3.36.2 The Contractor shall furnish documentation approved by a registered professional engineer, licensed in the State of Florida certifying that the proposed new tower(s) and foundation(s), as well as required modifications to be made to existing towers, meet the requirements of EIA/TIA-222-H.

3.36.3 Prior to initial design review, Contractor shall perform soil pH value testing at all proposed new tower sites.

3.36.4 The Contractor shall furnish written certification that all installed tower components on both new and existing towers have been properly constructed and hot-dipped galvanized.

3.36.5 The Vendor shall furnish documentation as to any special condition or restriction applied to the use of materials, products or equipment contained in their response.

3.36.6 Contractor shall provide to The Customer, a minimum of three (3) sets of completed "as-builts" on each tower and shelter installed or modified in this project. In the case of new structures, this shall include engineering and design documentation from the tower and shelter manufacturer.

3.36.7 Installed structural members or welded structural assemblies, except for standard hardware, shall have a part number.

3.36.7.1 The part numbers shall correspond with the Contractor's assembly drawings.

3.36.7.2 Part numbers are to be permanently attached (stamped, welded lettering, and/or stamped on a plate that is welded to the member, etc.) before all protective coatings are applied.

3.36.7.3 Attached/affixed part numbers shall have a minimum character height of 0.50 inches.

3.36.8 The Contractor shall provide a detailed report of electrical ground resistance measurements of the completed, as-installed, electrical grounding system, on a per-site basis with field drawings to indicate the measurement at a specific location.

3.37 Identified Candidate Sites for New Towers

3.37.1 Customer Owned Land

3.37.1.1 Any Customer identified candidate tower sites from customer owned land, that may be proposed by the Vendor, is identified in **Appendix C**: **Tower Candidate Sites List**. Use of these sites is not required. Should the design criteria require other sites, the proposing vendor should identify those specific sites and the respective availability to support the proposed design.

3.37.2 Partnership Towers

3.37.2.1 Any Customer identified candidate tower sites made available through partnerships, that may be proposed by the Vendor, are identified in **Appendix C**: **Tower Candidate Sites List**. Use of these sites are not required. Should the design criteria require other sites, the proposing vendor should identify those specific sites and the respective availability to support the proposed design.

3.37.2.2 The customer has a legacy tower and shelter at the Utilities Site that will be used in the RF design.

3.37.2.3 The customer has a planned tower and shelter at the collocated SLERS Site that will be used in the RF design.

3.37.2.4 The customer has a legacy tower and equipment room at the [redacted] that will be used in the RF design.

3.37.2.5 The towers will require the vendor to perform a load study to be completed after the removal of the legacy feed horns.

A. The vendor will provide pricing as a part of this proposal to remove these feed horns. Should any of the metal have any value from a recycling center, the vendor will reimburse the City as part of the cost to remove the feed horns.

B. As an alternative, the City reserves the right to have the contractor leave the metal on site for the City to dispose of the metal with their own disposal process.

3.37.2.6 The shelter(s)/equipment room will be considered by the vendor and will be used for the new proposed equipment.

A. Any grounding updates for the shelter will be considered and priced as part of this proposal.

3.37.2.7 A generator load study will be completed by the vendor, and a new generator will be provided per the generator specifications in Section 3.34.

3.37.2.8 The vendor should confirm with the customer and the vendor that there will be no leased fees for the identified Partnership towers and land.

3.38 Site Work Requirements

3.38.1 Site Preparation and Sub-grading

3.38.1.1 General

A. Site clearing, initial earthwork, rough grading, and final grading as needed for installation of towers and equipment shelters is the Contractor's responsibility. The following describes a set of minimum requirements for the execution and completion of site-related construction activities.

B. A nationally recognized soil database should be used to determine expected soil conditions and all cost associated with anticipated soil conditions should be included in the Vendor's Cost Proposal.

3.38.1.2 Dewatering of the Site

A. Control grading around excavations to prevent surface water from flowing into excavation areas.

B. Drain or pump as required, thereby maintaining all excavations, trenches, and pier holes free of water from any source and discharge to approved drains or channels. Commence dewatering action when water first appears and continue until work is complete to the extent that no damage will result from hydrostatic pressure, flotation, or other causes.

C. Use pumps of adequate capacity to ensure rapid drainage of area, and construct and use drainage channels and sub-drains with sumps, as required.

D. Remove unsuitable excessively wet sub-grade materials and replace with approved backfill material.

3.38.1.3 Soil Compaction

A. Compact sub-grades, fills, embankments and backfills using spreading equipment, tamping rollers, rubber-tired rollers, vibratory compactors, or power tampers, as required to obtain reasonable uniformity.

1. Nuclear soil testing results are required to be provided in a report to the Consultant.

B. Perform within moisture content range as specified to obtain required results with equipment used.

C. Achieve minimum densities specified as references to:

1. Cohesive soils - 95 percent maximum density at optimum moisture, AASHTO T99.
2. Cohesionless Soils – 70 percent of maximum relative density.
3. ASTM, STP 479 Bunnister method.
4. USBR - E12 relative density.
5. Relative density, ASTM D204911.2. Drilled Pier Foundations

3.38.1.4 General

A. Extent of Work: Perform all drilling and excavation and supply all labor and materials to construct drilled pier foundations, as necessary.

3.38.1.5 Performance

A. Quality Assurance will be met with a field inspection of the Customer's quality control designee.

B. The Customer's Project Representative will be designated to be responsible for field inspection of the drilled pier foundations.

1. The representative will transmit, in writing, to the consultant and contractor any materials or methods observed that do not conform to this specification and, if required, will not be considered for payment.
2. The Customer's Project Representative must inspect each drilled pier.

3. Specific responsibilities of The Customer's Project Representative will be:

   a. Observe drilling excavation of drilled pier foundations.

      1) Ensure the placement of anti-caving physical barriers or the use of special drilling mud to prevent excessive cavitation.

   b. Inspect bearing elevation of drilled piers.

   c. Observe placement of concrete and rebar within the drilled pier foundation to match design specification.

      1) Ensure that no excessive earth contamination occurs. Contamination of poured concrete is sufficient to cancel the pour and request engineering inspection.

   d. The Customer's representative shall photograph or film all foundation excavation and pouring activities Contractor's Qualifications.

   e. The Contractor's qualifications must be minimum of two-year's experience in drilled pier construction, including experience with similar subsurface material, water conditions, shaft sizes, and special techniques as required.

3.38.1.6 Drilled Pier Details

A. Drilled pier shaft dimensions and top elevations shall be in accordance with foundation design calculations and drawings.

B. The drilled pier shaft bearing, or bottom elevation shall be at the elevation indicated, unless it is determined by the Customer that the bearing elevation should be adjusted.

C. The excavated pier shaft shall be drilled to required dimensions and elevations as indicated. Sidewall stability will be maintained during drilling and extend excavation to suitable material.

D. Inspection of each pier will be by The Customer's Project Representative and Contractor to determine suitability of supporting material for drilled piers.

E. Remove from bottom of drilled piers, loose material or free water in quantities sufficient to cause settlement or affect concrete strength as determined by the Customer.

F. Install temporary casing, where required, to prevent caving of drilled pier sides or excessive seepage.

G. Dewater all drilled pier excavations prior to cleaning, inspection, and placing concrete.

H. Each drilled pier must be inspected and approved by The Customer's Project Representative before any concrete may be placed.

I. Dispose of any excavated material at locations approved for that purpose.

3.38.1.7 Reinforcing Steel

A. Place reinforcement for drilled piers in accordance with foundation design documents.

B. Place bars as shown on foundation drawings with concrete cover of not less than 3-inches where exposed to soil.

C. A reinforcing cage shall be designed as a structural element and braced to retain its configuration throughout the placing of concrete and the extraction of the casing (if used) from the shaft.

D. Dewater drilled piers and maintain the excavation free of water prior to placing concrete.

E. Place concrete immediately after final inspection.

F. Place concrete immediately after completion of excavation and after The Customer's Project Representative has completed his inspection. Do not leave uncased excavations open overnight.

G. Free fall concrete (not over 6 feet) may be used provided it is directed through a hopper, or equivalent; such that fall is vertical down center of shaft without hitting sides.

1. Vibrate concrete only after casing, if used, has been pulled.

H. Place concrete in pier in one continuous pour operation from bottom to top.

I. The Customer's Project Representative will provide inspection during the removal of casing and placing of concrete.

1. Withdraw casing, if used, only as shaft is filled with concrete.
2. Always maintain an adequate head of concrete to balance outside soil and water pressure above the bottom of the casing during withdrawal.
3. Specific procedures that the Contractor will follow to accomplish this objective shall be submitted for approval.

J. Where the casing is removed, provide specifically designed concrete with a minimum slump of 5-inches and with a retarder to prevent arching of concrete (during casing pulling) or setting concrete until after casing is pulled.

1. Check concrete level prior to, during, and after pulling casing.
2. Pull casing before slump decreases below 5-inches as determined by testing.

K. During casing extraction, upward movement of the reinforcing steel shall not be permitted. Downward movement should not exceed 2-inches per shaft length.

L. Remove all water and concrete contaminated with soil, or water before resuming concrete placement.

M. Center reinforcing cages in the drilled pier excavation and suspend them in an approved manner prior to placement of concrete to the cutoff elevation.

N. Leave forms on pier for a period of three days.

O. Set anchor bolts to the manufacturer's required tolerances, using substantial templates or other approved method.

3.38.2 Concrete, Forms and Reinforcement

3.38.2.1 General

A. This RFP includes concrete, forms, and steel reinforcement.

B. This includes drilled pier foundations with square caps for steel structures, concrete pads for transformers and breakers, equipment shelter and tower foundations, and cable trenches.

3.38.2.2 Quality Assurance and Applicable Standards

A. American Concrete Institute (ACI)

1. ACI 304 - Recommend Practice for Measuring, Mixing, and Placing Concrete.

2. ACI 305 - Committee Report on Hot-Weather Concreting.

3. ACI 306 - Committee Report on Cold-Weather Concreting.

4. ACI 315 - Manual of Standard Practice for Detailing Reinforced Concrete Structures.

5. ACI 318 - Building Code Requirements for Reinforced Concrete.

B. American National Standards Institute (ANSI)

1. B 1 8.2.1 - Square and Hex Bolts and Screws, Including Askew Head Bolts, Hex Screws, and Lag Screws.

2. B 1 8.2.2 - Square and Hex nuts.

C. American Society for Testing and Materials (ASTM)

1. Midwest Concrete Industry Board (MCIB)

2. A36 - Structural Steel.

3. A82 - Cold-Drawn Wire.

4. 85 - Welded Steel Wire Fabric for Concrete Reinforcement.

5. A307 - Low-Carbon Steel Externally and Internally Threaded Standard Fasteners.

6. A615 - Deformed Billet Steel Bars for Concrete Reinforcement.

7. C31 - Making and Curing Concrete Compression and Flexure Test Specimens in the Field.

8. C33 - Concrete Aggregates.

9. C39 - Compressive Strength of Cylindrical Concrete Specimens.

10. C94 - Ready-Mixed Concrete.

11. C 143 - Slump of Portland Cement Concrete.

12. C 150 - Portland Cement.

13. C309 - Liquid Membrane-Forming Compounds for Curing Concrete.

D. Equipment and Materials

1. Concrete Materials

a. Cement must conform to ASTM C 150.

b. Portland cement Type 1.

c. Water shall be clean and free from injuries amounts of oil, acids, alkaline, or other deleterious substances. Any potable drinking water will be acceptable.

d. Fine Aggregates such as Clean natural sand. Manufactured sand may be used upon written approval of The Customer's designee. They shall Conform to ASTM C33.

e. Coarse aggregates such as Clean crushed stone or processed gravel, not containing organic materials shall conform to ASTM C33.

f. 4-6 percent air shall be used in all concrete.

g. Water reducing admixture shall conform to ASTM C494, Type A.

2. **Concrete Mix**
   a. Ready-mixed Concrete shall meet requirements of ASTM C94, and of materials and proportions specified.

   b. Ready-mixed concrete plant shall be subject to approval of The Customer's Project Representative.

3. **Form materials**
   a. Exterior grade plywood minimum 5/8 inch thick.

   b. Approved wood fiberboard.

   c. Dressed lumber, free of loose knots.

   d. Form tires shall be approved break-back type.

4. **Steel Reinforcement**
   a. Reinforcement bars shall conform to ASTM A615, Grade 60 for all bars No. 4 or larger.

   b. Tie and-all No.3 bars shall conform to ASTM A615, Grade 40.

   c. Welded wire fabric shall conform to ASTM A185, using bright basic wire conforming to ASTM A82. Wire gauge No. 11 or smaller shall be galvanized.

5. **Anchor Bolts**
   a. All anchor bolts required for complete installation shall be provided.

   b. Anchor bolts and accessories shall conform to ASTM A307 using A36 steel.

   c. Use hexagonal bolts and nuts conforming to ANSI B 1 8.2.1 and B 1 8.2.2.

   d. All exposed area of anchor bolts and nuts, plus a minimum of three inches of embedded area, shall be hot-dipped galvanized.

   e. Install as indicated on foundation drawings.

E. **Performance**
   1. Field Testing
      a. Field testing of concrete and making of the concrete test cylinders will be performed by an independent testing laboratory approved by the Customer's Permit Department.

2. **Laboratory Testing**

   a. Laboratory for testing shall be selected and paid by the Contractor.

   b. Laboratory will furnish cylinder molds with cap seals or adequate means of identification.

   c. Cylinders shall be tested conforming to ASTM C39.

      1) Average strength of two test cylinders (at 28 days) shall be used as result of the test.

      2) Break one test cylinder after 7-days curing, one after 14-days, and two after 28-days.
         a) Results shall be provided to the Project Representative in a formal report. A copy shall be provided to the Consultant and Contractor.

3. **Low Strength Concrete**

   a. Low strength is defined as concrete whose 7-day and 14-day test (average of 2 cylinders) is less than 70% and 85%, respectively, of the specified minimum 28-day compressive strength.

   b. Concrete shall remain accessible with no other work performed that relates to or depends upon the questionable concrete until a formal decision as to the disposition of the concrete is given by the Customer's Project Representative.

   c. Low strength concrete shall be removed and replaced if requested by the Customer's designee.

4. **Preparation and Placing of Concrete**

   a. Clean bonding surfaces free from laitance and foreign materials.

   b. Place concrete on property prepared and unfrozen sub grade and only in dewatered excavations.

   c. Do not deposit partially hardened concrete or concrete contaminated by foreign materials.

   d. Placing the concrete shall Conform to ACI 304.

   e. Place concrete within 60 minutes after mixing, except The Customer's designee may extend the period to 90 minutes (maximum) dependent upon weather conditions.

   f. Place in horizontal layers not exceeding 18-inches.

   g. Vibrate concrete to produce solid mass without honeycomb or surface air bubbles.

5. **Curing of Concrete**

   a. Cure with liquid membrane-forming compound conforming to ASTM C309, Type I. Apply per manufacturer's recommendations.

   b. Apply curing compound to all exposed surfaces immediately after removing form or after finishing concrete.

   c. Keep formwork wet until stripped.

   d. Placing Concrete in Cold Weather

1) Conform to the practice recommended in ACI 306 when the temperature is below 40-degrees F or is likely to fall below 40-degrees F during a twenty-four-hour period after placing.
2) Protect pier caps and other concrete from freezing using insulating blankets.

6. **Placing Concrete in Hot Weather**
   a. Conform to practices recommended in ACI 305 when temperature is 90-degrees Fahrenheit or above or is likely to rise above 90-degrees Fahrenheit within a twenty-four-hour period after placing.

7. **Concrete Construction Joints**
   a. Locate where indicated. Conform to AC 318.

   b. Clean and break laitance or other foreign material from bonding surface. Bed with 1-inch of grout for bonding in horizontal joints.

   c. Concrete Surface Float Finish
      1) Compact, accurately screed, and wood float all slabs to a true uniform surface.

      2) Test surface with straightedge and eliminate high and low spots of more than 1/8-inch in 10 feet.

      3) Use this finish in addition to the finishes specified below for all surfaces as indicated.

      4) Use a final finish for footing slabs not exposed.

8. **Concrete Hand-troweled Finish**
   a. Finish surface as in Float Finish and in addition, trowel and steel trowel to obtain a smooth dense finish after concrete has hardened to ring under the trowel.

   b. Use this finish on all floors, slabs, and equipment bases not specifically designated for a different finish.

   c. Concrete Broom Finish

      1) Finish surface as in Float Finish and, in addition, draw a stiff bristled broom across the previously floated surface.

      2) Corrugations shall be uniform in appearance, not more than 1/16-inch in depth and shall be perpendicular to direction of traffic.

      3) Use this finish on all outdoor slabs subject to vehicular or pedestrian traffic and areas to receive grout.

9. **Concrete Burlap Finish**
   a. Apply burlap surface treatment to exposed edges of slabs, curbs and foundations.

   b. Wet and fill all voids using mortar with the same sand-cement ratio as original concrete. Use approximately 20 percent white cement to match concrete color.

   c. Strike off all excess mortar flush with the surface using a burlap or canvas cloth with a circular motion.

d. Remove all rough spots and rub with cloth to leave a surface of uniform texture and appearance.

e. Finish shall result in a coating of mortar that will fill all small voids and air holes leaving a smooth surface.

f. Cure as specified under Curing Concrete.

10. Defective Concrete Surface Treatment

a. After removal of forms, remove all fins, projections and form ties.

b. Grout and cure all voids, damaged areas, and tie holes.

11. Concrete Forms

a. Treat forms with an approved oil or lacquer prior to placing reinforcement.

b. Wet forms with clean, clear water prior to placing concrete.

c. Adequately brace and stiffen forms to prevent deflection and settlement.

12. Steel Reinforcement

a. Place accurately, tie at intersection, and support on chairs. Conform to ACI 318.

b. Tie securely with 16 gauge or larger annealed iron wire.

c. Splice steel not less than 30 bar-diameters for A615, Grade 40, and 42 bar-diameters for A615, Grade 60, unless otherwise indicated.

d. Splice plain bars not less than twice that for deformed bars.

e. Lap welded wire fabric not less than the length of one mesh.

f. No.3 bars to be Grade 40, with all others to be Grade 60.

g. Provide ¾-inch chamfer for all exposed edges of concrete, vertical and horizontal.

3.39 Fences and Gates (Chain-Link Security Type)

3.39.1 General

3.39.1.1 Quality Insurance and Applicable Standards

A. Federal specification RR-F-191 - Fencing, wire and post, metal and gates, chain-link fence fabric, chain-link and accessories.

B. RR-F-191 - Fencing, wire and post, metal and gates, chain-link fence fabric, chain-link and accessories.

C. RR-F-221 - Fencing, wire, barbed wire, woven-wire and netting, fence post and accessories.

D. All installed fences and gates must meet Category IV wind ratings and be designed by a Professional Engineer.

3.39.2 Requirements

3.39.2.1 Manufacturer's standard materials where such materials conform to these specifications or have been approved by The Customer.

3.39.2.2 Conform to FS RR-F-191 except as indicated or specified otherwise.

3.39.2.3 Fence height – 8 feet high galvanized chain link with 3-strand barbed wire at top (9½ feet overall height).

3.39.2.4 Gate widths as indicated on layout drawings.

3.39.2.5 Finish for fence framework and appurtenances (excluding fabric) – Galvanized with minimum weight for zinc per square foot as follows:

A. Pipe – 1.8 ounces.

B. Hardware and accessories – conform to FS RR-F-191.

C. Barbed wire – 0.80 ounce.

3.39.2.6 Finish for Fence Fabric

A. Galvanized per ASTM A392, Class-2 with 1.8-ounce, minimum weight, for zinc per square foot or, aluminum coated per ASTM A491, Class-2 with 0.40-ounce, minimum weight, for aluminum per square foot.

B. All fence and gates to have 3-strand barbed wire at top.

C. All materials furnished shall comply with the above requirements.

3.39.2.7 Fence Fabric

A. No.9 gauge, 2-inch diamond mesh chain-link fabric.

B. Top and bottom selvage twisted and barbed.

C. Fabric fastenings of 9-gauge galvanized wire ties.

3.39.2.8 Post, Top Rail, and Braces

A. Post

1. End, angle, corner or pull posts – 3-inches O.D. at 5.79 pounds per foot.

2. Line posts – 2.5-inches O.D. at 3.65 pounds per foot.

B. Top Rail

1. 1.625-inch O.D. standard weight steel pipe.

2. 18-foot minimum length of each section.

C. Expansion Type Coupling for Each Joint.

1. Diagonal truss rods 3/8 inch in diameter equipped with truss tightened.

2. Horizontal braces – 1.660-inch O.D. at 2.27 pounds per foot.

D. Post tops shall be designed as a weather tight closure cap for tubular post.

E. Top Rail Expansion Type Coupling for Each Joint.

F. Malleable Iron or Pressed Steel Barbed Wire Supporting Arms

1. Single arm at 45-degrees with vertical, sloping to outside of fence.

2. Constructed for attaching three rows of barbed wire to each arm and designed as a weather tight closure cap for tubular posts.

3. Designed for 200-pound minimum pull-down load.

4. Attached to steel posts or integral with post top.
5. Provided with openings to receive top rail.

G. Malleable Iron or Pressed Steel Stretcher Bars

1. One-piece, full height of fabric.
2. 3/6-inch x ¾-inch, galvanized.
3. Bands of galvanized steel or malleable iron.

H. Malleable Iron or Pressed Steel Bolts

1. Zinc coated.
2. Conform to FS FF-B-575.

3.39.2.9 Barbed Wire

A. Two-strand, I2½ gauge wire with 4-point barbs 5 inches O.C.

B. Conform to FS RR-F-221, Type 1, Style 2.

C. Three rows required on all fence and gates.

3.39.2.10 Gates

A. Framing

1. Frames of tubular members, 2-inch O.D. at 2.72 pounds per foot.
2. Intermediate horizontal and vertical members for proper gate operation and for attachment of fabric, hardware and accessories.
3. Frames assembled by welding or watertight galvanized steel rigid fittings.
4. Diagonal cross bracing of 3/8 inch diameter adjustable truss rods to provide frame rigidity.
5. Diagonal cross bracing of 3/8 inch diameter adjustable truss rods to provide frame rigidity.

B. Gate hardware hinges shall be of pressed or forged steel, or malleable iron, non-lift- off type, 1 to 1.2 pair per leaf.

C. Latches and Gate stops – Double Leaf.

1. Plunger-bar type latch, full gate height, designed to engage gate stop of flush-plate type with anchors.
2. Locking device and padlock eyes an integral part of latch.
3. Keeper to automatically engage gate leaf and secure free end of gate in full 90-degrees open position.

D. Latches – Single Leaf

1. Forked type to permit operation from either side of gate.
2. Padlock eye as integral part of latch.

3.39.2.11 Performance and Fence Installation

A. Follow general contour of ground and properly aligned.

B. Fence Post

1. Set in concrete retaining wall. Trowel finish tops of footings and dome to direct water away from posts.
2. Install plumb and in straight alignment.
3. Temporarily brace until concrete in bases has set.
4. Spaced 10 feet center-to-center, maximum.

C. Post Bracing
1. Installed at each end, at the gatepost, and on each side of corner posts.
2. Install after the concrete in post base has set.
3. Install so posts are plumb when diagonal rod is under tension.

D. Top Rails
1. Run continuously through post caps or barbed wire supporting arms.
2. Install expansion coupling at each joint.

E. Tension wire shall be weaved through the fabric and tie to each post with minimum 6-gauge galvanized wire.

F. Fabric
1. Stretch taut with equal tension on each side of line posts.
2. Fasten to top rail and steel posts with wire ties.
3. Space wire ties at 12-inches O.C. maximum on posts and at 24-inches O.C. maximum on top rail.

G. Stretcher Bars
1. Thread through or clamp to fabric 4-inches on center.
2. Secure to posts with metal bands spaced 15-inches on center maximum.
3. Install at each gate, pull and end post, and each side of corner post.

H. Barbed Wire
1. Attach three rows to each barbed wire supporting arm.
2. Pull wire taut and fasten securely to each arm.
3. Install four rows above fabric and on extended gate end members of gates.

I. Gates
1. Install plumb, level, and free swinging through full opening without interference.
2. Install all hardware, including keepers, ground set items and flush plate in concrete to engage gate stop.
3. Furnish and install gate alarms.

J. Repairing Damaged Coatings
1. Repair any damaged coating in the shop or field by recoating with compatible and similar coating.
2. Apply per manufacturer's recommendations.

3. Furnish and install Danger signs as approved by the Customer's designee.

3.40 Crushed Rock Surface

3.40.1 This section includes crushed rock surface and method of depositing for the placement of permanent crushed rock surfacing in equipment shelter areas.

3.40.2 Applicable Standards

3.40.2.1 American Society for Testing and Materials

A. C117 – Test for Materials Finer than No. 200 Sieve in Mineral Aggregate by Washing.

B. C131 – Test for Abrasion of Coarse Aggregates by Use of Los Angeles Machine.

C. C136 – Test for Sieve or Screen Analysis of Fine and Coarse Aggregates.

D. D423 – Test for Liquid Limit of Soils.

E. D75 – Sampling Stone, Slag, Gravel, Sand and Stone Block for Use as Highway Materials.

3.40.2.2 American Association of State Highway and Transportation Officials (AASHTO)

A. T99–Test for the Moisture Density Relations of Soils Using a 5.5-Pound Rammer and a 12-Inch Drop.

3.40.2.3 Sample and Testing

A. Test to determine conformance with all requirements for material quality and properties specified herein will be performed by an independent laboratory approved by the Customer and compensated by the Contractor.

B. Obtain representative samples of material in accordance with ASTM D75 for testing. Furnish the Customer's designee sufficient materials for testing from each sample at the time obtained.

C. Furnish specific schedule for sampling to provide the Customer's designee the opportunity to observe sampling.

3.40.2.4 Submittals. Includes, but not limited to, the following:

A. Test result reports from testing laboratory indicating conformance with the specifications.

B. Certification of conformance with the specifications.

3.40.3 Materials

3.40.3.1 Crushed rock surface shall consist of ¾-inch aggregate placed on top of a 6-mil polyvinyl barrier.

3.40.3.2 Aggregate shall consist of Crushed limestone or crushed natural gravel, free from lumps or balls of clay or other objectionable matter, and reasonably free from thin and elongated pieces of dirt.

3.40.3.3 Aggregates shall consist of angular fragments, durable and sound, and shall be reasonably uniform in density and quality.

3.40.4 Performance and General Requirements

3.40.4.1 Stockpiles

A. Only with approval of the Customer's designee in specified locations.

B. Clear and level storage sites prior to stockpiling.

C. Place in a manner and at locations designated by the Customer, providing separate stockpiles for materials from separate sources.

3.40.4.2 Preparation of Sub-Grade

A. Clean off all foreign substances.

B. Correct any ruts, depressions, or soft yielding spots and areas with inadequate compaction.

C. Treat all sub-grade areas with soil sterilant.

D. The Customer's Project Representative will inspect, prior to placing crushed rock surface, for adequate compaction and surface tolerances.

3.40.4.3 Grade Control

A. Establish and maintain by means of grade stakes, properly spaced so string lines may be stretched between stakes.

3.40.4.4 Placing of Materials

A. Deposit and spread material in a uniform lift/layer and compact to the thickness indicated and as specified. Spread material uniformly on the prepared sub-grade from moving vehicles or spreader boxes.

B. Level material to the required contour and grades.

C. Remove those portions of the layer, which became segregated or mixed with sub-grade material in spreading and replace with new material as required by the Customer's designee.

D. Remove and repair sub-grade areas damaged during application of the crushed rock surface.

3.40.4.5 Shaping and Compacting Materials

A. Compact layers no less than 3-inches or more than 6-inches thick.

B. Roll to specified compaction requirements throughout full depth of layer with power rollers, rubber-tired rollers or combination.

C. Shape and smooth by blading and rolling with power roller, rubber-tired roller, or both.

D. Hand tamp in places not accessible to rolling equipment.

E. Base compaction on weight per cubic foot of material passing ¾-inch sieve and compact to at least 100 percent of maximum density at optimum moisture.

F. Determine and control compaction in accordance with AASHTO T99.

G. Surface shall show no deviation in excess of 3/8-inch in any 10 feet when tested with a 10-foot straightened applied parallel with and at right angles to the center lines of the paved area.

H. Correct any deviation specified in excess of this amount by loosening, adding or removing material, reshaping, watering, and compacting as requested by the Customer's designee.

3.41 Herbicide Applications

3.41.1 Equipment and Materials

3.41.1.1 Sprayers and applicators shall be suitable for intended use.

3.41.1.2 Mix herbicide per manufacturer's recommendations.

3.41.1.3 Herbicide shall be Krover (1) as manufactured by DuPont, Inc., or approved equal.

3.41.1.4 Do not apply herbicide if it is too windy or where other adverse weather conditions exist.

3.41.1.5 Apply at a rate of 10 pounds of product per acre, or in accordance with manufacturer's recommendations.

3.41.2 Performance

3.41.2.1 Apply only after final sub-grade has been established.

3.41.2.2 Apply before installation of vegetation barrier cloth and placement of crushed rock.

3.41.2.3 Follow manufacturer's recommendations on timing of application with respect to weather and barrier/crushed rock placement.

3.42 Minimum Subscriber Specifications

3.42.1 A list of radio/subscriber needs by agency is attached. **See Appendix G**.

3.42.2 Requirements for Subscriber Equipment: This includes all portable, mobile, and control station equipment.

3.42.2.1 All radio equipment proposed by Vendors and installed by the Contractor shall be FCC type accepted under Part 90 of the FCC Rules and Regulations.

A. Vendor shall submit documentation verifying this type of acceptance.

*Attach FCC Type Acceptance Documentation

3.42.2.2 All supplied equipment proposed by the Vendor and provided/installed by the Contractor shall be in current production. No equipment announced as "end-of-life" or "end-of-support" are permitted to be proposed. Vendor shall supply a current end-of-support and end-of-life product list.

*Attach End-of-Support/End-of-Life Product List

3.42.3 APCO P25 Related Specifications

3.42.3.1 The Vendor shall provide documentation, and demonstrate P25 operational compliancy with, minimally, BK Technologies (RELM), EF Johnson/Kenwood, L3Harris, Motorola Solutions, & Tait portable, mobile, and control station radios. These radios must have been tested and certified to function on its proposed infrastructure technology. Documentation of P25 CAP certification shall be submitted as part of the response.

*Attach P25 CAP certification documentation

A. The Vendor shall also describe those processes and methods it employs to confirm where software releases and hardware changes to its products,

included in the proposal, are verified for continued compatibility with P25 equipment manufactured and offered for purchase by others.

*Attach P25 Compliance Management Documentation

B. Allow operations on P25 trunked and conventional (analog/P25) systems with priority scan of talk groups or channels on both system types in the same scan list.

C. Must meet APCO minimum recommendations and EIA/TIA standards for P25 Public Safety digital trunked radio systems. Furnished equipment must be operable on conventional and both Phase 1 and Phase 2 infrastructures.

D. Offer digital voice, using an Advanced Multi-Band Excitation +2 (AMBE+2) or Newer P25 Phase 1 and Phase 2 vocoder.

E. All equipment proposed shall be capable of standards-based voice encryption: federally approved P25 AES 256 coding to provide enhanced security during transmission and reception of sensitive communications; DES-OFB and other modes of voice encryption may be proposed as optional.

3.42.3.2 Support special services, i.e. encrypted voice, Computer Aided Dispatch (CAD), and Automatic Vehicle Location (AVL).

*Attach Special Services Documentation

3.42.3.3 Temperature Range: -30 °C to +60 °C Humidity: 95% relative humidity at 50 °C

3.42.3.4 All radio units are expected to be equipped with electronic, alphanumeric display(s) of a minimum of eight characters, used to readily identify selected talk groups and operating modes, (i.e. clear voice, encrypted voice, system availability, channel/talk group selection, incoming user ID, call alerts and operational status such as scan and channel busy).

3.42.3.5 Talk Group Selection must be selectable by a rotary-knob style input. Additional selection types are optional.

3.42.3.6 Talk Group Capacity: 16 minimum, per system

3.42.3.7 Channel Capacity: 500 channels (Single band radio), 700 channels (Multi-band radio)

3.42.3.8 The volume control is expected to be fully adjustable from zero to maximum audio output level.

3.42.3.9 Radio operating information shall be contained in an electrically erasable memory device. Unit will be fully programmable from a laptop/desktop computer, via the accessory receptacle.

3.42.3.10 Include transmit time out timer to warn the user that the radio may be transmitting longer than a predetermined time limit and then disable the transmitter.

3.42.4 Programming and Key Loading

3.42.4.1 The vendor shall provide to the Customer no less than eight (8) sets of radio programming software, appropriately configured laptop computers, and all other support equipment and special cables necessary to program and encrypt (key load) each type of radio and control station equipment/device supplied by the Proposer.

*Attach Programming Documentation

3.42.4.2 The vendor shall provide to the Customer no less than one Key Loading device and appropriate cables as are necessary to manage encryption on all proposed equipment.

*Attach Key Loading Documentation

3.42.4.3 Radio operating information shall be contained in an electrically erasable memory device.

A. Unit will be fully programmable from a laptop/desktop computer, via the accessory receptacle, or remotely over WiFi or Bluetooth.

3.42.5 Portable Radio Equipment Specifications

3.42.5.1 Size, Weight, and Durability Specifications

A. Small enough to be carried and manipulated with both bare and gloved hands.

B. Lightweight enough to limit fatigue while being carried for a full twelve (12) hour shift.

C. Include heavy duty construction and weather-sealed cases to meet Military Standards 810 D, E, F and G for shock, vibration, dust, humidity, high/low temperature and blowing rain.

*Attach MIL-STD Documentation

D. Include top mounted rotary controls with positive stops for volume and channel selection. Control placement must allow gloved hand operation, as is typically needed by the fire service or during cold weather events.

E. Contain no protruding push-to-talk switch, thereby preventing accidental transmitter operation or potential damage to the switch caused by impact.

F. Include a protected emergency button to allow easy access when needed but incorporating an ergonomic design in which the emergency function could not be accidentally activated.

3.42.5.2 Antenna, Accessory, and Carrying Case Specification

A. An accessory receptacle shall be provided for the connection of external devices such as remote microphones or combination remote speaker/microphone units (with or without antenna), vehicular adapters, and mobile data computer equipment.

*Attach Portable Radio Accessory Documentation

B. Radios are expected to be capable of operation with traditional speaker/ microphones as well as sub-miniature radio surveillance accessories.

C. All speaker microphones must have noise cancelling capabilities and 3.5mm jack for the ability to use a Receive-Only earpiece.

D. Carrying case alternatives should include leather carrying case with swivel mounts, as well as chemical resistant cases (nylon or similar plastic material) for use by hazardous material groups.

*Attach Portable Radio Carrying Case Option Documentation

E. The antenna should be physically short and in keeping with the size of the radio package. Units are expected to be operable, within the coverage area using the smallest unity-gain flexible antenna available.

*Attach Antenna Specifications Documentation

F. Each Portable radio should be supplied with, at a minimum, a belt clip

3.42.5.3 Electrical Specifications

A. Transmitter specifications are as follows:

1. Frequency Range: 764 to 870
2. RF Output Impedance: 50 ohms
3. Output Power: 3 W 700/800MHz
4. Frequency Stability: 1.5 PPM from -28°C to +58°C
5. Emissions: 16K0F3E; 11K0F3E; 8K10F1D; 8K10F1E; 9K80F1D, 9K80D7W or comparable Phase 2 Emission
6. Modulation Deviation: +/-2.5KHz for 12.5KHz channel; +/-3 KHz for NPSPAC;
7. Audio Response: +/-3 dB of a 6 dB/octave
8. Audio Distortion: Less than 2% at 1 KHz
9. Spurious/Harmonic: -50 dB 12.2.3.1.10. Hum and Noise: -35 dB 12.2.3.1.11. Duty Cycle: Intermittent

B. Receiver specifications are as follows:

1. Frequency Range: 764 870MHz
2. Channel Spacing: 12.5/6.25 KHz/NPSPAC
3. Adjacent Channel: -60dB (Single band radio), -65dB (Multi band radio) Rejection
4. Digital Sensitivity: 5% BER: 0.25 µV
5. Intermodulation Rejection: -72 dB (Single band radio) -74 dB (Multi-band radio)
6. Spurious Response Rejection: -72 dB (Single band radio) -70 dB (Multi-band radio)
7. Frequency Stability: 1.5 PPM from -30° to +60°C
8. Audio Output: 1.5 W12.2.3.2.9. Audio Distortion: No more than 2% at 1 KHz12.2.4. Power and Charging Specifications

C. Battery Pack Specifications

1. Radio unit battery packs are expected to operate to provide sufficient power for a full twelve-hour work period.

   *Attach Power Calculations Documentation

2. Environmental: MIL-STD 810 C, D, E, F and G for shock, vibration, humidity and high/low temperature.
3. Temperature Range: -30°C to +60°C

4. Humidity: 95% relative humidity at 50°C
5. The battery packs should provide a reasonably long-life (i.e., two years) within the typical operational profile of 5% transmit, 5% receive and 90% standby/on.

D. A range of accessories is expected to be available to support in-field battery charging.

1. Provide single-unit 120VAC rapid charger capable of fully charging a discharged high-capacity battery pack within a one-hour period.
2. Provide alternative 120VAC multi-bank chargers with a minimum of 6 slots.
3. Provide optional single-unit 12VDC rapid charger for vehicular operation.

3.42.6 Mobile Radio Equipment Specifications

3.42.6.1 Front mount and rear mount, dual control-head with single rear mount radio and dual radios with single control-head configurations must be available to meet the needs of the different public safety users. Rear mount radios may require weatherproof control heads, speakers, microphones, hand-held controllers, and other accessories (specific for fire operations).

*Attach Mounting Options Documentation

3.42.6.2 Be capable of providing 9.6kb/s data-messaging transmission capabilities.

3.42.6.3 Primary Input Voltage: 11 to 16 VDC, negative ground Battery Drain: (a) Standby: 1.5 amperes, max. (b) Receive: 4.0 amperes, max. (c) Transmit: 15.0 amperes, max.

3.42.7 Electrical Specifications

3.42.7.1 Transmitter Specifications

A. Frequency Range: 764 to 870MHz

B. RF Output Impedance: 50 ohms

C. Output Power: 30 W (700MHz)/35W (800MHz) (Single band radio); 50 W (VHF) (Single Band Radio); 35 W (Multi-band radio)

D. Channel Spacing: 12.5/6.25 KHz/NPSPAC

E. Spurious/Harmonic: At least 64 dB below carrier

F. Frequency Stability: 1.5 PPM from -30°C to 60°C

G. Frequency Speed: 24MHz (700MHz)/18MHz (800MHz)

H. Emission: 16K0F3E; 11K0F3E; 8K10F1D; 8K10F1E; 9K80F1D, 9K80D7W or comparable Phase 2 Emission

I. Modulation Deviation: +/- 2.5KHz for 12.5KHz Channel; +/- 3KHz for NPSPAC

J. Audio Distortion: Less than 5% at 1KHz

K. Audio Response: +/-3dB of a 6dB/octave pre-emphasis characteristic from 300Hz to 3KHz

L. Hum and Noise: -45dB

M. Duty Cycle: Transmitter 20%

3.42.7.2 Receiver Specifications

A. Channel Spacing: 12.5KHz/6.25KHz; NPSPAC

B. 0.25 µV 5% Bit error Rate (BER)

C. Adjacent Channel: Rejection: -60dB

D. Frequency Stability: 1.5 PPM from -30° to 60°C

E. Frequency Spread: 24MHz (700MHz); 18MHz (800MHz)

F. Intermodulation: -75dB (Single band radio)

G. Rejection: -80dB (Multi band radio)

H. Spurious Response Rejection: -75dB (Single band radio) -80dB (Multi band radio)

I. Audio Output: 10 W (Single band radio), 12 W (Multi-band radio)

J. Audio Distortion: No more than 2% at 1KHz

K. Duty Cycle: Receiver 100%

3.42.8 Control Station Equipment Specifications

3.42.8.1 Power Specifications

A. Available either as an integrated 120VAC powered desktop radio rack or a remotely located, AC powered radio package with separate remote-control unit.

B. Primary Input Voltage: 120 VAC, 60 Hz, single-phase with 3-conductor grounded line cord.

C. Control station and control unit shall have an alternative provision to operate from standby 12VDC source upon failure of AC power.

D. Optional Battery: 12 VDC designed for 8 hrs. of operation

3.42.8.2 Control and Location Specifications

A. Alternatives shall be provided for local and remote-control operation of the control station.

*Attach Local and Remote-Control Option Documentation

B. All Control Stations proposed for interoperability solutions must be capable of a minimum of 16 channel/talkgroup steering through the base station gateway by a dispatch console.

C. Control station packaging shall incorporate sufficient electromagnetic shielding of radio and power supply components to allow multiple control stations to be located at the same site without causing unit-to-unit interference.

3.42.8.3 Electrical Specifications

A. Transmitter Specifications

1. Channel Spacing: 12.5/6.25 KHz, NPSPAC
2. RF Power Output: 18 W (700 MHz); 30 W (800 MHz)
3. RF Output Impedance: 50 ohms
4. Spurious/Harmonic: At least 70 dB below
5. Frequency Stability: 1.5 PPM from -25 °C to 60 °
6. Emission: 16K0F3E; 11K0F3E; 8K10F1D; 8K10F1E; 9K80F1D, 9K80D7W or comparable Phase 2 Emission
7. Modulation Deviation: +/-2.5KHz for 12.5KHz channel, +/-4 KHz NPSPAC
8. Audio Distortion: Less than 2% at 1 KHz
9. Audio Response: +/-3 dB of a 6 dB-per-octave pre-emphasis, characteristic, 300Hz to 3KHz
10. Duty Cycle: Transmitter 20-80% 12.4.3.1.11. Hum and Noise: -35dB

B. Receiver Specifications

1. Channel Spacing: 12.5/6.25 KHz/NPSPAC
2. Adjacent Channel Rejection: -63 dB
3. Digital Sensitivity: 5% BER: 0.35 µV
4. Frequency Stability: 1.5 PPM from -25 °C to 60 °C
5. Intermodulation Rejection: -75 dB
6. Spurious Response Rejection: -75 dB
7. Audio Output: Not less than 3W
8. Audio Distortion: No more than 2% at 1 KHz 12.4.3.2.9. Duty Cycle (EIA): Receiver 100%

3.42.9 Radio User Training

3.42.9.1 A comprehensive training program must be established by the Vendor in its Technical Submittal, to be implemented if selected as the Contractor.

A. This program would include not only user familiarization with physical features and functions of assigned radio equipment, but also instruction pertinent to the System's talkgroup structure and how the System's infrastructure establishes local, wide-area and outside interoperable call transactions.

3.42.9.2 The Contractor's training program must include the necessary graphics, visual simulations, and printed media tools to establish an appropriate training process for users.

A. Training videos must be available to users on a private web-based portal, thereby allowing for individual refresher training.

3.42.9.3 The Contractor must also supply technical assistance during the initial warranty period that allows for ongoing modifications to these training resources, to keep them in-step with additions and changes to the operable and interoperable resources within the System.

3.42.9.4 The Vendor shall provide a detailed description of its proposed user training program.

A. Examples of training tools developed for similar P25 regional trunked and conventional radio configurations shall be provided within the Vendor's Technical Proposal Submittal.

*Attach Training Description

3.42.9.5 The Customer must approve all training curriculum prior to training.

3.42.9.6 The Vendor must provide resumes of professional training staff.

*Attach Training Staff Resumes

3.42.9.7 The Vendor shall propose train-the-trainer subscriber training.

3.42.9.8 Any additional training for specialized radios and equipment including accessories or application-based radios must be provided by the vendor.

3.42.9.9 The Vendor shall provide training for the programming of all radios and features included in the Proposal.

3.43 Installation Guidelines

3.43.1 Contractor Project Management

3.43.1.1 Contractor will assign a Project Manager as a single point of contact between the Customer and the Contractor for the full duration of the project.

3.43.1.2 The Contractor's PM shall conduct an initial Design Review Meeting whereby the project's order of task progression, site/facility layout details, tower engineering studies, coverage design and related items will be presented to The Customer for review, comment and approval for the Contractor to proceed with production tasks.

3.43.1.3 During the period prior to the Design Review Meeting, the Contractor will initiate monthly progress meeting with the Customer whose purpose is to update on progress made in preparation for the Design Review Meeting.

3.43.1.4 The Contractor's PM is responsible for developing and maintaining an updated Project Timeline.

A. Project Timeline updates/revisions, commencing with the Customer's official Notice to Proceed to the Contractor, shall be submitted by the PM on the last day of each project-month for review and approval by the Customer.

B. The monthly Project Timeline submittal shall depict:

1. Progress made per task in the preceding 30-day period;
2. Work/tasks to be accomplished in the next 30-day period;
3. Identification of critical path items and;
4. Work/tasks to be undertaken by the Customer (if any).

C. Coincident with the production of the updated Project Timeline, the Contractor's PM shall identify any known or anticipated issues that will cause a delay to the project's implementation schedule that are not within the Contractor's control.

1. Failure by the Contractor's PM to identify such issues in advance will negate any opportunity for schedule relief to the Contract's specified Project Completion Date.

3.43.1.5 Failure by the Contractor to produce a monthly updated Project Timeline within the period specified herein will result in an automatic 7-day reduction of the Contract's specified Project Completion Date (or that Project Completion Date as previously modified by The Customer's executed Change Order if any.

3.43.1.6 Any change in PM, anytime during the full duration of the project, must be approved by the Customer and the new PM shall be selected by the Customer via an interview process.

3.43.1.7 The Contractor's Key Personnel shall be approved by the Customer prior to assignment. The Customer reserves the right to require replacement of the Contractor's Key Personnel at any time during the project.

3.43.2 Engineering Drawings

3.43.2.1 Contractor shall furnish detailed drawings at the project's initial Design Review Meeting and updated drawings prior to installation of each major portion of the System as follows:

A. Transmitter Site(s)

B. Receiver Site(s)

C. Site Antenna and Grounding System(s)

D. Receiver Voter Equipment

E. System Controller Equipment

F. Dispatcher Console Equipment

G. Fiber Optic Equipment Terminal(s)

3.43.2.2 Drawings shall, as a minimum, illustrate:

A. Relative rack/rack locations

B. Equipment power wiring (primary and emergency)

C. Equipment interconnection wiring (signal and control)

D. Appropriate signal/voltage levels to facilitate alignment of level-sensitive components.

3.43.2.3 Civil drawings showing location details of equipment to be placed in existing or new facilities shall be provided by Contractor.

3.43.2.4 Contractor shall provide a comprehensive test record of alignment levels, settings and software versions installed in System. In addition, contractor shall provide service manuals for all System equipment furnished.

3.43.2.5 In addition, the Contractor shall conduct baseline noise floor site measurements and shall develop, plan and resolve any determination of site/system-induced noise degradation as caused by the Contractor's design or work.

3.43.2.6 The scope and detail of the comprehensive equipment test and acceptance plan shall be completed prior to Contract Execution with the Contractor.

3.43.2.7 Prior to the commencement of acceptance testing procedures, the Contractor shall ensure that all installed system equipment has been furnished or upgraded to the latest software releases available for those equipment items/groupings.

3.43.2.8 Contractor shall supply true copies of Final Project Record Documents, including the Engineering Drawings, software releases, and alignment details listed above, but amended to show system and equipment "as-built" at the time of acceptance by the Customer.

3.43.2.9 The documentation package shall include in this document submittal a Permissible Exposure Study, as required by the FCC, for each radio infrastructure site.

3.43.2.10 The total number of documentation sets to be provided shall include one site-specific set for each infrastructure site and three comprehensive System documentation sets for the Customer's use.

3.43.2.11 Final Project Record Documents must be submitted to the Customer within thirty days after system acceptance testing has been successfully concluded.

3.43.2.12 Submissions shall also include electronic versions of all documents submitted.

3.43.2.13 Final payment for Contracted services shall not be released by the Customer until this documentation submittal has been successfully completed by the Contractor and reviewed and approved by the Customer.

3.43.3 Workmanship

3.43.3.1 All workmanship shall be in accordance with Industry-accepted best practices and the National Electric Code.

3.43.3.2 Work areas shall be maintained in a neat, orderly fashion.

3.43.3.3 Work sites shall incorporate Contractor-provided trash containers and residue of the work shall be discarded as the work is underway.

3.43.3.4 All sites will be cleaned up at the end of each workday, swept clean, tools picked-up, and walkways free of obstacles and obstructions.

3.43.3.5 The installation of audio, signal, data and control cables within equipment racks, enclosures, racks and cable trays must be properly routed such that wires/cables do not cross over each within cable bundles.

3.43.3.6 Cables must be properly labeled, routed and secured.

3.43.3.7 To the maximum extent possible, cables carrying AC power, low-level audio, RF and digital signals must be grouped separately.

3.43.3.8 All DC wiring, particularly those areas where battery terminals and power distribution buss bars are located, must incorporate insulation barriers to prevent the accidental short-circuiting of otherwise exposed conductors.

3.43.3.9 The Customer shall have the ability to temporarily stop work progress by the Contractor if workmanship falls below acceptable levels and shall have the authority to require the Contractor to remove and/or correct all observed instances of poor wiring practice, inappropriate use of installation materials and other obvious installation defects because of apparently poor workmanship.

3.43.3.10 The Customer shall provide the Contractor with approval to resume installation work activities once an agreement is reached to resolve observed workmanship defects.

3.43.3.11 The determination of Contractor workmanship acceptability, as well as the suitability of any proposed rework plans offered by the Contractor, shall remain with the Customer.

3.43.4 Equipment Storage

3.43.4.1 The Contractor shall provide the necessary storage space and skilled labor needed to receive, inventory and maintain supplies and consumables throughout the term of the contract. Customer reserves the right to inspect and inventory equipment at any time.

3.43.5 Factory Staging

3.43.5.1 The Customer shall require a full factory staging of the Contractor's radio configuration within the manufacturing facilities used by the Contractor.

A. The Contractor shall install, configure and conduct a pre-test of the manufactured equipment and subsystems prior to inviting the Customer to participate in functional test processes on the **configured System's** equipment.

3.43.5.2 The Contractor shall provide a detailed description of functional tests to be undertaken as part of the factory staging process. These tests shall be pre-approved by the Customer prior to the conducting of any on-site system verification.

3.43.5.3 The factory staged equipment shall not be shipped to the Customer and the Contractor's staging area until:

A. the most recent levels of software version have been properly installed in the system's various components, and

B. all portions of the functional staging test have been successfully completed and approved by the Customer.

3.43.5.4 Wiring and construction anomalies, if observed during staging, must likewise be fully resolved and corrected prior to shipment of the equipment.

3.43.5.5 The Vendor shall, as part of its Technical Response, submit a sample staging test plan representing those functional tests anticipated for a project of this scope and complexity.

3.43.5.6 Staging shall occur for any RF and/or microwave equipment and shall not start until no less than 70% of the sites are constructed or under construction.

3.43.5.7 The Customer or its designee shall approve the date for staging of the equipment.

3.43.5.8 The Vendor is responsible for all travel and lodging costs associated with factory staging.

3.43.5.9 Travel and lodging shall be approved by the customer.

3.43.5.10 All equipment shall be of current revision and all software shall be of latest revision at the time of staging.

3.44 Phased Implementation

3.44.1 Transition Planning

3.44.1.1 As part of their response, the Vendor must prepare and submit a preliminary migration plan that will prevent disruption of communication on the existing radio network and provide a smooth transition to the proposed system:

A. The Vendor must supply a preliminary sequence of events for the installation of the system showing any effect the different stages of installation may have on existing systems.

1. Any relocation or modification to existing equipment by the Contractor as part of its work must be stipulated and prior approval obtained from the Customer.

B. The Vendor shall provide a completion period (in days) for the project, based on the Customer's execution of a Notice to Proceed.

1. The Vendor shall provide a schematic representation of the implementation process as well as a hypothetical migration plan.

C. These required proposal responses will be used by the Customer to evaluate the Vendor's ability and understanding of the RFP requirements to perform this work in a manner that offers no disruption to ongoing public safety communications operations.

3.44.1.2 Upon contract award, the Contractor shall provide:

A. A detailed time schedule for the training of system managers, telecommunicators, radio managers and other personnel.

B. Contractor will supply time schedules for the orderly transfer of departments onto the system and the estimated time-period when the transfer could be completed.

C. A detailed repair maintenance training plan for the Customer's in-house technical staff members.

D. It shall encompass all operational elements of the System to include:

1. Network Controllers
2. Base Stations Gateways
3. Dispatch Consoles
4. Radio Control Stations, related appurtenances, and all third-party equipment.
5. This training shall be completed prior to the System's Acceptance Testing activity and is to be performed in the Customer's selected location.
    a. Training locations and dates will be determined between the Customer and the Contractor.
6. All curriculums for the training plan must be approved by the Customer prior to the commencement of training.
    a. The Contractor must provide training and identify necessary tools, to include test equipment and software, to the Customer's technical

staff, as they would to their internal or contracted technical staff.

7. Coordinate the orderly transfer of services to the system network only after having successfully concluded equipment alignment and installation procedures, successful completion of the project's acceptance test, and completion of manager, telecommunicator, user, and staff training programs.

3.44.1.3 Contractor must not dismantle or modify the existing trunked radio system without prior approval of the Customer.

3.44.1.4 Some portions of the existing system may remain operational after acceptance of the new system.

3.44.1.5 The Customer will notify the Contractor when elements of the old infrastructure equipment may be reallocated to meet interoperability needs or otherwise can be decommissioned.

A. It is the Contractor's responsibility to remove or relocate all the old infrastructure equipment.

B. The Customer desires a trade in value on any existing equipment that is part of current communications system.

3.44.1.6 Contractor shall assist the Customer in preparing user talkgroups, initial priority levels and shall complete the necessary user equipment installation, programming and record keeping, as required. This activity must be completed prior to service cutover.

3.44.1.7 All talkgroup structure documentation will be provided to the Customer by the Contractor.

3.44.1.8 As part of contract negotiations with the successful Vendor, the Customer and successful Vendor will jointly develop a final comprehensive test and acceptance plan that addresses, minimally, the following major functionality and operability issues:

A. Microwave Network

1. Provide RF power and Receive measurements for the microwave;
2. Test path fade loss for each direction on each path of the microwave network;
3. Test for proper frequency, modulation, digital signaling and stability;
4. Verify data integrity on the microwave system including network components utilizing BER Testing.

B. Transmitter Equipment

1. Provide RF power stage measurements at different levels of the transmitter system such as transmitter, filters, combiner, cable, antenna, etc.;
2. Test RF components for specified insertion loss (i.e., transmission line return loss);
3. Test for proper frequency, modulation, digital signaling and stability;

4. Test and report of delivered audio quality and signal margins throughout proposed service area.

C. Receiver Equipment

1. Test of compliance to specifications of equipment provided;
2. Provide log of signal gain or loss to equipment within the receiver system such as antenna, cable, preamp, splitter, or receiver antenna port;
3. Test of audio quality and level (reciprocal of that required for the transmit path) of system balance;

D. Console Audio/ System Controllers

1. Test of compliance to manufacturer's published specifications of equipment proposed;
2. Test of audio quality and level;
3. Verification of network failure modes in response to forced failures of individual communications/ control lines and complete site failures complete written explanation is required;
4. Verification of compliance to TIA/EIA P25 ISSI/CSSI Standards that allow for seamless interoperability with P25 radio networks fielded by other manufacturers;
5. Bit error-rate and voiced audio quality testing of System infrastructure, backhaul and site-specific local area networking infrastructure;
6. Fade margin verification of microwave link segments as used to interconnect radio sites, network controllers and radio dispatch facilities;

E. Dispatch Centers

1. Provide written results of testing of operational features per dispatch position;
2. Test system operation during simulated failures of system components i.e. console electronics, power loss, etc.

F. Third Party Vendor Equipment

1. Provide functional testing and verification of any third-party equipment used;

G. Contractor shall provide all test equipment, diagnostic services, documentation, software, personnel, vehicles and other items as necessary to test the delivered and installed radio network in accordance with the Contracted Test and Acceptance Plan, inclusive of operational features, to complete a total system functional test.

H. The Vendor shall disclose test procedures and equipment that will be used to verify radio system coverage as specified in Section 3.13 Coverage Criteria.

I. The Vendor shall attach to their response a sample test and acceptance plan that is representative of the scope and complexity of the proposed system radio network infrastructure.

*Attach Sample Test and Acceptance Plan

3.44.2 Implementation

3.44.2.1 Contractor is responsible for the provisions and cost of warehousing, insurance, storage and security of radio network infrastructure prior to and during the construction and installation phases of the project.

3.44.2.2 Prior to installation of any portion of system, the Customer must approve Contractor furnished detail drawings as specified in Section 3.43 Installation Guidelines.

3.44.2.3 Each portion of the P25 System must follow those technical parameters specified in the approved Testing and Acceptance Plan.

3.44.2.4 Contractor must supply comprehensive training for system diagnostics, management systems, preventative and routine maintenance and system operation for System Managers and designated Customer staff as required.

3.44.2.5 Contractor is responsible for any site modifications required to accommodate infrastructure equipment proposed for location in Customer-owned, as well as in non-Customer-owned properties.

3.44.2.6 Contractor shall provide technical support/engineering as required to modify existing FCC licenses or to acquire additional licenses required to facilitate operation of the system.

3.44.2.7 This activity shall include all FCC licensing application development, frequency coordination and engineering fees. Any frequency work will be coordinated with the State of Florida Frequency Coordinator.

3.44.2.8 Any modification or relocation of existing equipment will require prior approval by Customer. Contractor shall supply "as built" drawings and complete written and electronic documentation of modifications or relocation to existing systems to facilitate maintenance of this equipment in the future.

3.44.2.9 The Contractor's PM shall develop, monitor, and adapt/update the project's implementation schedule. The schedule shall be presented using Microsoft Project. Schedule updates must be submitted by the Contractor weekly on days that are approved by the Customer, or sooner if implementation issues require more frequent schedule updates.

3.44.2.10 The Contractor's PM shall, in addition to Item 3.45.2.9, prepare and submit, weekly on days approved by the Customer, a project status report that details the anticipated accomplishments, work to be completed and risks for the period depicted by the revised, updated schedule.

3.44.2.11 Specific attention should be made to those items and due dates to be met by the Customer to facilitate the unimpeded completion of the work.

3.44.2.12 The Contractor's System Engineer shall develop and submit appropriate block and level diagrams, site-specific configuration drawings, field technician workbooks and other related technical materials necessary for the accurate, timely completion of the work.

A. The Contractor's PM shall present the Contractor's internal Quality Control/Quality Assurance plan that depicts the steps and safeguards being undertaken to eliminate field issues with respect to hardware and software quality.

B. This material and process shall be orally presented by the Contractor as part of its Design Review Meeting with the Customer, prior to the commencement of any field installation activities by the Contractor.

3.45 Warranty and Maintenance Guidelines

3.45.1 Warranty

3.45.1.1 Equipment Warranty

A. The following conditions shall apply for equipment Warranty:

1. The Vendor will provide post-warranty maintenance and services comparable to the same services proposed for the warranty period.

a. All warranty and post-warranty services will be clearly identified and provided in a matrix.

*Attach Warranty and Post-Warranty Matrix

b. All warranty and post-warranty services shall be comprehensive and must cover the entire system, including but not limited to Vendor provided OEM and all third-party equipment.

1) These services will be priced individually for customer information.

c. The Customer can optionally remove any post-warranty services as determined by the Customer's need to provide in-house or subcontract any of these respective services.

2. The Vendor shall warranty all provided network equipment furnished as part of the Contract and associated radio infrastructure, related user equipment and software for not less than three years, after the date of Final System Acceptance.

d. This includes, but is not limited to, the P25 Trunking, Microwave, and Mutual-Aid portions of the Contract.

3. The System Warranty period will commence at the time of Final System Acceptance, and the Contractor shall provide all labor and parts for maintenance and repair, including preventative maintenance, of all system equipment provided in the proposed network.

4. All costs for the three-year warranty services will be absorbed by the Contractor.

5. Replacement parts must be of new or current manufacture and meet or exceed the specifications of the original supplied equipment (OEM).

6. Post-warranty replacement parts service for emergency infrastructure equipment repair, not available locally, shall be shipped out on the first available flight. Any parts required for non-emergency repair that are not available locally should be shipped out for next day delivery.

7. The Contractor shall have factory-trained technicians and system engineers available by telephone 24x7x365.

e. The technicians or system engineers must respond by telephone within thirty (30) minutes of observed or reported service outage and

be on-site, in response to a reported service outage, within two (2) hours.

f. Contractor shall be required to provide a list of certified factory-trained technicians performing maintenance on the system including all sub systems and equipment.

g. The Vendor should provide documentation that supports the current certifications of factory-trained technicians.

1) The Vendor is responsible for keeping all credentials and certifications required to maintain the system current and up to date.

8. Service providers responding to emergency service outages must provide continuous non-stop support until the problem is resolved.

9. Non-critical service requests response will be within one (1) working day.

10. When a critical system failure occurs, more stringent requirements shall be met by the Contractor.

a. A critical system failure is defined as a significant reduction in the ability to communicate.

b. Examples of such failures are:

1) Site off the air,

2) Dispatch console failure at a location with no backup console available,

3) Primary and Secondary Network Controller failure such as the system does not have the ability to operate on trunked calls,

4) Site link failure due to network equipment,

5) Or 50% or more failed base/repeaters at a radio site.

6) Radio system not simulcasting.

11. In the event of a critical system failure, Contractor will notify The Customer of the failure.

12. Critical failures shall have service restored within six (6) hours or less from notification to the Contractor, via The Customer notifying the Contractor, or monitored software notification.

13. Original Equipment Manufacturers (OEM) shall have a fully qualified, staffed, and equipped service facility positioned and capable of meeting this RFP's response time criteria during the warranty and maintenance agreement periods.

a. Any subcontractors used during the warranty and post-warranty maintenance period must be pre-approved by the Customer.

B. The Vendor will supply as part of the technical response, a list or services and preventative maintenance to be provided during the warranty period as well as a schedule at which these services will occur.

C. The Contractor must make available replacement parts for all Contractor-manufactured components of the digital radio infrastructure for 15 years following Final System Acceptance.

D. In the event any required part becomes unavailable during the specified fifteen (15) year period, the Contractor may provide a repaired or upgraded component, provided that:

1. The replacement maintains full functionality and interoperability with the existing system; and

2. The replacement cost does not exceed the cost of the original part had it remained commercially available.

D. The Contractor must identify lifecycle and parts availability of all OEM and third-party equipment proposed.

E. Post-warranty replacement parts service for emergency infrastructure equipment repair, not available locally, shall be shipped out on the first available flight.

F. Any parts required for non-emergency repair that are not available locally should be shipped out for next day delivery.

G. Contractor must guarantee the system's operating software, inclusive of user equipment software, for a one-year period following Final System Acceptance.

H. The Contractor shall provide all system software updates, at no additional cost, for the entire period under which The Customer has committed for Contractor-provided post-warranty maintenance services.

I. Contractor shall resolve all known software defects or "bugs" to system software during warranty and post-warranty period via patch, or system software updates.

J. Prior to Final System Acceptance, System shall be updated to the latest system software release that is approved for shipping and generally available.

3.45.2 Remedies

3.45.2.1 In the event of default on the response time to reported service outages, the Vendor agrees to pay The Customer the following penalties for response remedies:

A. Contractor shall pay $250 for each occasion that it fails to meet the response time obligation for a reported infrastructure service outage.

B. Contractor shall pay $500 per twenty-four-hour period in which a failed infrastructure site is not restored to operational status.

C. Should any specific equipment item (such as a repeater station, station circuit board, power amplifier, etc.) be submitted for repair three times during the warranty or post-warranty term, Contractor will replace that equipment item with a new item at no cost to the Customer and warranty the replacement for one additional year from the time of accepted replacement.

3.45.3 Maintenance

3.45.3.1 During the initial warranty period, the Contractor shall be responsible for:

A. Annual Preventative maintenance of all proposed System equipment and any supplied equipment;

B. Repair maintenance of infrastructure equipment, inclusive of antenna systems;

3.45.3.2 Updates of software, to include, but are not limited to; security updates, firmware updates and any new default features.

3.45.3.3 Contractor-provided maintenance during the warranty period will be monitored by the Customer.

3.45.3.4 The Contractor must supply monthly service logs listing the site(s) where service is performed, the equipment involved and service details.

3.45.3.5 Failure of individual units, subassemblies and/or components must be reported in writing to the Customer. This report must, as a minimum, include unit identification (description and serial number), explanation and cause of failure, and corrective action taken.

3.45.3.6 Contractor is responsible for all actions of its employees or subcontractors. Any equipment failure(s) caused by any act or omission of Contractor's employee or subcontractor shall be the responsibility of the Contractor.

3.45.3.7 The Contractor shall submit a maintenance work plan that identifies the tasks required in accordance with Section 3.1, a listing of Contractor supplied personnel and identification of a 24x7x365 Single Point of Contact (SPOC) responsible for Contractor maintenance issues.

3.45.3.8 All required service logs and repair reports must be submitted to the Customer.

3.45.4 Service/Maintenance Software

3.45.4.1 The Contractor shall provide:

A. A suite of software applications for the Customer to be able to view and monitor all alarms and faults on the system, both non-critical and critical.

B. The contractor shall provide the Customer with access to an electronic ticketing system for the duration of the warranty and post-warranty maintenance term that gives the Contractor and the Customer the ability to submit and track service/repair tickets along with assets associated with the system.

C. Software capable of decoding an encrypted control channel in real-time, over the air, should encrypted control channels be utilized at system acceptance, or a later time during the period of this contract.

D. As part of its cost submittal, the Vendor shall provide for optional maintenance services that are equivalent to those provided by the initial warranty. The term of each optional extended maintenance support option shall be five (5) years to be paid annually by the Customer.

E. The Customer reserves the right to utilize outside or outsourced contract labor for maintaining its infrastructure equipment and end user devices. For outside contractor needs, the term of this extended maintenance service shall be as long as fifteen years, structured into three 5-year optional service

intervals. Vendors shall provide a detailed description of services (along with service exclusions) available for this extended post-warranty maintenance service, including infrastructure software updates, hardware updates required to support newer software, defective parts replacements, and spare parts.

F. Contractor shall propose optional cybersecurity services for the System, inclusive of network security monitoring service, system security patch subscription service, security patch installation service (on-site vs. remote), automated antivirus subscription & installation services available to the Customer. Including pricing options for warranty and post-warranty periods.

G. Contractor shall propose Network Monitoring services to provide 24x7x365 System surveillance and dispatch services of on-site field maintenance teams during the warranty period and the optional price to extend this service beyond warranty.

H. The Contractor will supply as part of the technical response, a list or services and preventative maintenance to be provided during the warranty period as well as a schedule at which these services will occur.

3.45.5 Spare Parts Support

3.45.5.1 Contractor must provide and maintain a stock of spare parts, as determined necessary by the Contractor, to maintain all components of the System's infrastructure for the warranty period. These spare parts shall be located either at selected System radio infrastructure sites or at the Contractor's local maintenance service facility. A list of these spare parts determined to be necessary by the Contractor shall be provided to the Customer.

3.45.5.2 As spare parts are consumed during routine or repair maintenance, the Contractor shall immediately replenish its stock of locally housed spare parts, where necessary.

A. A report of the utilization frequency and rate of all spare materials shall be made available. If at any time the Contractor is aware of any equipment repair or recall notifications, the Contractor shall notify the Customer by electronic and routine mail.

B. Trends of unusual System or component failure shall be brought to the attention of the Customer by the Contractor.

3.45.5.3 If spares from the initial list are not available to maintain the proper working order of the proposed System, the Contractor shall add additional spares at no cost to the Customer.

3.45.5.4 The spares inventory will be supplied and shipped as part of the required staging event.

A. This applies to all spare parts recommended by the Contractor16. Infrastructure Pricing Considerations

3.45.6 General Pricing Information

3.45.6.1 This equipment-pricing portion of this RFP shall serve as a guide for the Vendor. The necessary information is provided to the Customer to conduct an accurate assessment of the proposed price. This information is illustrative of the detail

required for each infrastructure site, inclusive of sites having only dispatch-related equipment.

3.45.6.2 Proposers shall provide a per-site granular price detail of proposed equipment, towers, generators, site civil engineering, program management, system engineering, installation services, and maintenance services.

*Attach Per-Site Granular Detail

A. As this is a turnkey project, any pricing omission of a scope typically considered part of a P25 simulcast trunked radio system of this type will be provided for by the Contractor at no additional cost to the Customer.

3.45.6.3 The Vendors are required to provide finance pricing options for the infrastructure, subscribers, and maintenance proposed.

A. This information should include at a minimum terms, interest percentages, and payment terms.

3.45.8 Site Modification Costs

3.45.8.1 For equipment to be installed at the Customer-owned sites which have requirements for site preparatory work involving architectural, mechanical, electrical, civil or structural construction modifications, a description and cost of the modifications required must be provided by the Vendor for each individually named site.

3.45.8.2 Vendors who fail to identify sites subject to this requirement shall, at their own expense and without entitlement to a change order, perform all necessary modifications to achieve compliance with this specification.

3.45.8.1 For newly-added sites, the price provided by the Vendor shall include services typical and customary for the development and commissioning of a new system site, exclusive of access roadway development.

A. The Customer will provide site access roadways if the property is the Customer-owned.

3.45.9 Lifecycle Costs

3.45.9.1 The Customer reserves the right to perform a lifecycle analysis on the proposed system to determine the best price value.

A. A critical part of such research involves knowledge of the overall lifecycle of the various OEM and 3rd Party elements making up a Vendor's System solution.

B. From general availability to manufacture discontinue and all phases in between, the production age of the proposed system affects the ability to source spare parts, software upgrade, and support services.

C. Lifecycle analysis is a critical factor in determining the operational life of the proposed P25 technology and supporting products.

3.45.9.2 Vendors shall disclose key lifecycle dates of the proposed system, including subscribers, P25 System software, infrastructure, network elements, and 3rd Party supporting equipment. Include general availability (GA) release dates to manufacture discontinue (MD) dates along with important OEM hardware and software support dates for standard, extended and out-of-support milestone

dates. Please detail how software support dates/phases affect service availability and pricing.

3.45.9.3 Vendors shall disclose as part of their Cost Proposal when System was first released for sale to the Public.

3.45.9.4 Vendors shall also provide a life-cycle roadmap, referenced by year and so depict when any third-party equipment is likely to be discontinued and when parts/software support will cease to be available.

3.45.10 Warranty and Post-Warranty Maintenance Costs

3.45.10.1 Costs for the initial warranty and extended post-warranty maintenance service, inclusive of infrastructure software updates, hardware updates required to support newer software, defective/failed parts replacements, and spare parts, shall be included as part of the Vendor's cost proposal. Multi-year pricing shall be detailed by the Customer fiscal year (October 1, through September 30).

3.45.10.2 The Vendor shall provide detailed pricing for all system support services proposed under the post- warranty maintenance timeframe.

3.45.10.3 Post-warranty maintenance services will replicate all services available during the warranty year period, to include all third-party equipment proposed.

3.45.10.4 The Vendor will provide post-warranty system services as an extended warranty service from the start of post warranty to 20-years.

3.45.10.5 The Vendor will provide post-warranty depot services as an annual price from the start of warranty through 20-years.

3.45.11 Pricing Summaries

3.45.11.1 Pricing Summaries for Infrastructure equipment shall be provided as part of the response.

A. All summary information will be supported by detailed cost information as detailed further in this Section.

3.45.11.2 Pricing Summaries shall include;

A. Infrastructure Equipment

B. Project Management, Engineering, & Installation Services

C. Subscriber radios with options and accessories

D. Subscriber Programming and Installation Services

E. Infrastructure Discount

F. Subscriber Discount

G. Turnkey Discount

H. System Maintenance (annual basis, after warranty expiration)

I. Subscriber Maintenance (annual basis, after warranty expiration)

J. Total Cost of Ownership at 5, 10, 15 and 20 years (Provide comprehensive breakdown, attached to Section VI: Cost Proposal Page.)

3.45.11.3 Optional Requests Future Purchase Considerations

A. The Customer intends to operate this new radio communications network for, minimally, the next twenty years. Therefore, the Customer must receive reasonable safeguards regarding future Vendor equipment and maintenance services pricing to establish a total long-term cost of ownership.

B. Include with Cost Proposal Page annual price increase amounts for equipment and maintenance services.

3.45.12 Immediate Future Discounts

3.45.12.1 For all purchases within five (5) years after the System's acceptance date, the discount percentage received by the Customer will be identical to the discount percentages derived from list-price unit equipment costs and Vendor-submitted unit costs as designated in 3.45.10 l.

3.45.13 Purchase Price Discount Years 6 – 10

3.45.13.1 For years six (6) through ten (10) after the System's acceptance date,

3.45.13.2 The Customer's discount from the manufacturer's published equipment list price, as delivered to their authorized sales agents, shall be as follows:

A. Fixed Site Equipment

B. Antenna Related Equipment

C. Console Equipment

D. Control Station Equipment

E. Spare Parts

F. Managed & Support Services

3.45.14 Price Discount Years 11 – 15

3.45.14.1 For years eleven (11) through fifteen (15) after the System's final acceptance date, The Customer' discount from the manufacturer's published equipment list price as delivered to their authorized sales agents, shall be as follows:

A. Fixed Site Equipment

B. Antenna Related Equipment

C. Console Equipment

D. Control Station Equipment

E. Spare Parts

F. Managed & Support Services

3.45.15 Price Discount Years 16 – 20

3.45.15.1 For years sixteen (16) through twenty (20) after the System's acceptance date, The Customer's discount from the manufacturer's published equipment list price as delivered to their authorized sales agents, shall be as follows:

A. Fixed Site Equipment

B. Antenna Related Equipment

C. Microwave Equipment

D. Console Equipment

E. Network Equipment

F. Control Station Equipment

G. Spare Parts

H. Managed & Support Services

3.45.16 Infrastructure Pricing Analysis Worksheets

3.45.16.1 The vendor shall provide pricing worksheets to develop the Infrastructure Price Submittal. These worksheets are indicative of the detail required and may be amended or expanded by the Vendor as necessary. These worksheets shall be provided as part of the bid submittal in Microsoft Excel format.

3.45.16.2 Any omission or error in developing the pricing proposal, shall be the sole responsibility of the Contractor.

3.45.16.3 The City reserves the right to ask for additional pricing detail in the pricing worksheets at any time during contract negotiations or any time prior to final acceptance.

3.46 Additional Requirements

3.46.1 Fire/EMS Paging System: Not required for this RFP

3.46.2 Alternative Shared System Infrastructure

3.46.2.1 The Customer is sensitive to the costly nature of P25 systems. Therefore, vendors are encouraged to submit creative additional proposals that may utilize any or all capabilities, software, and hardware of other systems that are already being provided by the vendor. This may include systems that are currently under construction but can be modified to accommodate additional equipment added for the purposes of this RFP, or systems that are complete and in normal operation (Further referenced as "existing system").

3.46.2.2 Alternative system configuration technical requirements.

A. Alternative configurations must have redundant network connection points into the existing system.

1. Additionally, the proposed optional configuration must be able to continue regular trunking operations and communications in the event of network connectivity failure to the existing system.

2. This includes dispatch consoles having direct network access into the remaining RF sites, or RF connectivity.

B. Alternative configurations must have redundant network connection points into the existing system.

1. Additionally, the proposed optional configuration must be able to continue regular trunking operations and communications in the event of network connectivity failure to the existing system.

2. This includes dispatch consoles having direct network access into the remaining RF sites, or RF connectivity.

C. Alternative System Configuration Pricing Requirements:

1. Within the pricing proposal of the alternative system configuration, key cost differences (whether savings or additional cost) shall be identified and marked as such for comparison purposes.
2. An example of this is if a specific item is needed in a stand-alone system, but already exists with the alternative solution, the vendor shall highlight this cost savings.
    a. Within the pricing proposal of the alternative system configuration, key cost differences (whether savings or additional cost) shall be identified and marked as such for comparison purposes.
    b. An example of this is if a specific item is needed in a stand-alone system, but already exists with the alternative solution, the vendor shall highlight this cost savings.

D. Alternative System Configuration Submittal Requirements:

1. Any alternative system configuration proposal must follow all dates and guidelines as prescribed in this RFP, including the separation of its pricing from the technical proposal.
2. Additionally, any alternative system configuration that requires joining an existing system or site, must include written authorization from the owner of the existing system or site.
3. This authorization must be included within the technical proposal submittal for the alternative system configuration.

E. Additional Connectivity:

1. Any additional connectivity required by Commercial type service (fiber, etc.) to meet any redundancy requirements must be clearly identified in the proposal with costs listed as an alternative.

END OF SECTION

SECTION IV – SUBMITTAL REQUIREMENTS

4.1 Instructions

4.1.1 The City of Fort Lauderdale uses its own on-line strategic sourcing platform to administer the competitive solicitation process, including but not limited to soliciting proposals, issuing addenda, responding to questions / requests for information. There is no charge to register and download the RFP from the City's on-line strategic sourcing platform. Proposers are strongly encouraged to read the supplier tutorial available in the City's on-line strategic sourcing platform well in advance of their intention of submitting a proposal to ensure familiarity with the use of the City's on-line strategic sourcing platform. The City shall not be responsible for a Proposer's inability to submit a proposal by the end date and time for any reason, including issues arising from the use of the City's on-line strategic sourcing platform.

4.1.2 Careful attention must be given to all requested items contained in this RFP. Proposers are invited to submit proposals in accordance with the requirements of this RFP. Please read entire solicitation before submitting a proposal. Proposers must provide a response to each requirement of the RFP. Proposals should be prepared in a concise manner with an emphasis on completeness and clarity. Notes, exceptions, and comments may be rendered on an attachment, provided the same format of this RFP text is followed.

4.1.3 All information submitted by Proposer shall be typewritten or provided as otherwise instructed to in the RFP. Proposers shall use and submit any applicable or required forms provided by the City and attach such to their proposal. Failure to use the forms may cause the proposal to be rejected and deemed non-responsive.

IN THE EVENT OF ANY CONFLICT OR DISCREPANCY BETWEEN BID/PROPOSAL PRICE(S) SUBMITTED BY BIDDER/PROPOSER ELECTRONICALLY INTO THE CITY'S ON-LINE STRATEGIC SOURCING PLATFORM UNIT PRICE FIELD(S), ANY OTHER FORMS OR ATTACHMENTS (WHETHER PART OF THE CITY'S SOLICITATION DOCUMENTS OR DOCUMENTS CREATED AND UPLOADED BY THE BIDDER/PROPOSER), OR ANOTHER SECTION/FIELD OF THE SYSTEM, THE ONLINE UNIT PRICE(S) INPUTTED ELECTRONICALLY INTO THE SYSTEM BY BIDDER/PROPOSER SHALL GOVERN.

4.1.4 Proposals shall be submitted by an authorized representative of the firm. Proposals must be submitted in the business entities name by the President, Partner, Officer or Representative authorized to contractually bind the business entity. Proposals shall include an attachment evidencing that the individual submitting the proposal, does in fact have the required authority stated herein.

4.1.5 All proposals will become the property of the City. The Proposer's response to the RFP is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters, or other material submitted in connection with this RFP and the Contract to be executed for this RFP, subject to the provisions of Chapter 119.07 of the Florida Statutes. Any language contained in the Proposer's response to the RFP purporting to require confidentiality of any portion of the Proposer's response to the RFP, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Proposer submits any documents or other information to the City which the Proposer claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Proposer shall clearly designate that it is a Trade Secret and

that it is asserting that the document or information is exempt. The Proposer must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Proposer's response to the RFP constitutes a Trade Secret. The city's determination of whether an exemption applies shall be final, and the Proposer agrees to defend, indemnify, and hold harmless the city and the city's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the city's treatment of records as public records. In the event of Contract award, all documentation produced as part of the Contract shall become the exclusive property of the City.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT PRRCONTRACT@FORTLAUDERDALE.GOV, 954-828-5002, CITY CLERK'S OFFICE, ONE EAST BROWARD BOULEVARD, SUITE 444, FORT LAUDERDALE, FLORIDA 33301.

Contractor shall:

1. Keep and maintain public records required by the City in order to perform the service.

2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2024), as may be amended or revised, or as otherwise provided by law.

3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this contract if the Contractor does not transfer the records to the City.

4. Upon completion of the Contract, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

4.1.6 By submitting a response Proposer is confirming that the firm has not been placed on the convicted vendors list as described in Section §287.133 (2) (a) Florida Statutes; that the only person(s), company or parties interested in the proposal as principals are named therein; that the proposal is made without collusion with any other person(s), company or parties

submitting a proposal; that it is in all respects fair and in good faith, without collusion or fraud; and that the signer of the proposal has full authority to bind the firm.

4.2 Contents of the Proposal

The City deems certain documentation and information important in the determination of responsiveness and for the purpose of evaluating proposals. Proposals should seek to avoid information in excess of that requested, must be concise, and must specifically address the issues of this RFP. The City prefers that proposals be no more than 100 pages in one complete pdf document. The proposals should be organized, divided, and indexed into the sections indicated herein. These are not inclusive of all the information that may be necessary to properly evaluate the proposal and meet the requirements of the scope of work and/or specifications. Additional documents and information should be provided as deemed appropriate by the respondent in proposal to specific requirements stated herein or through the RFP.

4.2.1 Table of Contents

The table of contents should outline in sequential order the major areas of the submittal, including enclosures. All pages should be consecutively numbered and correspond to the Table of Contents.

4.2.2 Executive Summary

Each Offeror must submit an executive summary that identifies the business entity, its background, main office(s), and office location that will service this contract. Identify the officers, principals, supervisory staff, and key individuals who will be directly involved with the work and their office locations. The executive summary should also summarize the key elements of the proposal.

4.2.3 Experience and Qualifications

Indicate the firm's number of years of experience in providing the professional services as it relates the work contemplated. Provide details of past projects for agencies of similar size and scope, including information on your firm's ability to meet time and budget requirements. Indicate the firm's initiatives towards its own sustainable business practices that demonstrate a commitment to conservation. Indicate business structure, IE: Corp., Partnership, LLC. Firm should be registered as a legal entity in the State of Florida; Minority or Woman owned Business (if applicable); Company address, phone number, fax number, E-Mail address, web site, contact person(s), etc. Relative size of the firm, including management, technical and support staff; licenses and any other pertinent information shall be submitted.

4.2.4 Approach to Scope of Work

Provide in concise narrative form your understanding of the City's needs, goals and objectives as they relate to the project, and your overall approach to accomplishing the project. Give an overview on your proposed vision, ideas, and methodology. Describe your proposed approach to the project.

As a part of the response, a design plan and diagram(s) shall be presented to the City for approval.

The Proposer shall also propose a scheduling methodology (timeline) for effectively managing and executing the work in the optimum time. The delivery time shall be stated in calendar days from the date of City notification of award or notice to proceed with delivery. Such timeline information and proposed dates shall include, but not necessarily be limited

to: delivery, installation, acceptance testing, personnel, and other related completion dates, in accordance with the RFP specifications.

NOTE: The project must be completed and accepted within 120 days from the City Notice to Proceed.

Also provide information on your firm's current workload and how this project will fit into your workload. Describe available facilities, technological capabilities, and other available resources you offer for the project.

Additionally, the proposal should specifically address:

A. Who
B. What
C. When
D. Where
E. Why
F. How

4.2.5 References

Provide at least three references, preferably government agencies, for projects with similar scope as listed in this RFP. Information should include:

- Client Name, address, contact person telephone and E-mail addresses.
- Description of work.
- Year the project was completed.
- Total cost of the project, estimated and actual.

Note: Do not include City of Fort Lauderdale work or staff as references to demonstrate your capabilities. The Committee is interested in work experience and references other than the City of Fort Lauderdale.

4.2.6 Minority/Women (M/WBE) Participation

If your firm is a certified minority business enterprise as defined by the Florida Small and Minority Business Assistance Act of 1985, provide copies of your certification(s). If your firm is not a certified M/WBE, describe your company's previous efforts, as well as planned efforts in meeting M/WBE procurement goals under Florida Statutes 287.09451.

4.2.7 Subcontractors

Proposer must clearly identify any subcontractors that may be utilized during the term of this contract.

4.2.8 Required Forms

A. Proposal Certification

Complete and attach the Proposal Certification provided herein.

B. Non-Collusion Statement

This form is to be completed, if applicable, and inserted in this section.

C. E-Verify Affirmation Statement
This form must be completed and returned with your proposal.

D. Pricing Sheets as Separate Attachment
Provide firm, fixed, costs for all services/products using the Excel document provided in this request for proposal. These firm fixed costs for the project include any costs for travel and miscellaneous expenses. No other costs will be accepted.

E. Sample Insurance Certificate
Demonstrate your firm's ability to comply with insurance requirements. Provide a previous certificate or other evidence listing the Insurance Companies names for the required coverage and limits.

F. W-9 for Proposing Firm
This form must be completed and returned with your proposal.

G. Active Status Page from Division of Corporations – Sunbiz.org
Provide PDF of current page with your proposal.

END OF SECTION

SECTION V – EVALUATION AND AWARD

5.1 Evaluation Procedure

5.1.1 Bid/Proposal Tabulations/Intent to Award

Notice of Intent to Award Contract/Bid/Proposal, resulting from the City's Formal solicitation process, requiring City Commission action, may be found at: https://www.fortlauderdale.gov/government/departments-a-h/finance/procurement-services/notices-of-intent-to-award. Tabulations of receipt of those parties responding to a formal solicitation may be found at: https://www.fortlauderdale.gov/government/departments-a-h/finance/procurement-services/bid-results, or any interested party may call the Procurement Services Division at 954-828-5933.

5.1.2 Evaluation of proposals will be conducted by an Evaluation Committee, consisting of a minimum of three members of City Staff, or other persons selected by the City Manager or designee. All committee members must be in attendance at scheduled evaluation meetings. Proposals shall be evaluated based upon the information and references contained in the responses as submitted.

5.1.3 The Committee may short list Proposals that it deems best satisfy the weighted criteria set forth herein. The committee may then conduct interviews and/or require oral presentations from the short-listed Proposers. The Evaluation Committee shall then re-score and re-rank the short-listed firms in accordance with the weighted criteria.

5.1.4 The City may require visits to the Proposer's facilities to inspect record keeping procedures, staff, facilities and equipment as part of the evaluation process.

5.1.5 The final ranking and the Evaluation Committee's recommendation may then be reported to the City Manager for consideration of contract award.

5.2 Evaluation Criteria

5.2.1 The City uses a mathematical formula to determine the scoring for each individual responsive and responsible firm based on the weighted criteria stated herein. Each evaluation committee member will rank each firm by criteria, giving their first ranked firm a number 1, the second ranked firm a number 2, and so on. The City shall multiply that average ranking by the weighted criterion identified herein to determine the total points for each Proposer. The lowest average final ranking score will determine the recommendation by the evaluation committee to the City Manager.

5.2.2 Weighted Criteria

Understands the Scope of the Project	10%
Staff Qualifications, References, Past Performance, Years in Business	5%
Technical Merits of the Project, Flexibility of Technology Proposed, Quality of Proposed Equipment	15%
Hardening and Redundancy	20%
Performance and Radio Coverage	20%
Total Project Cost	30%
TOTAL PERCENT AVAILABLE:	**100%**

5.3 Proposal Evaluation

An evaluation committee of qualified City staff and or other persons selected by the City will conduct evaluation of proposals.

5.3.1 Contractors' technical proposals and supporting materials **shall have no pricing, cost breakdowns, or rates included in this portion of their proposal.**

A. Noncompliance will render their submission non-responsive.

5.3.2 All pricing is to be submitted in the provided **Excel Pricing Worksheets** as a separate attachment.

A. Noncompliance will render their submission non-responsive.

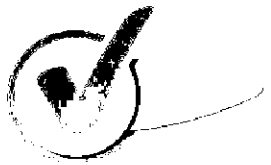
5.4 Contract Award

The City reserves the right to award a contract to that Consultant who will best serve the interest of the City. The City reserves the right, based upon its deliberations and in its opinion, to accept or reject any or all proposals. The City also reserves the right to waive minor irregularities or variations of the submittal requirements and RFP process.

END OF SECTION

Exhibit E

Warranty & Maintenance
5-year Bumper To Bumper



COMMUNICATIONS INTERNATIONAL
An Employee Owned Company

The warranty period starts upon system acceptance.

WARRANTY

During the warranty period, Ci will provide labor, parts, and shipping, along with the following services:

- Periodic preventive maintenance will be provided on all infrastructure and end-user equipment.
- Repair and maintenance of infrastructure equipment, including antenna systems.
- Repair and preventive maintenance will be provided on related end-user equipment during the warranty period and for the term of the maintenance plan, including software updates/revisions on subscribers.

GENERAL MAINTENANCE (Post Warranty)

- Customer's location subscriber pick-up and delivery
- Customer's location repair and management
- Depot repair and return
- 24/7/365 response time
- Preventive maintenance on L3Harris infrastructure
- Preventive maintenance on non-L3Harris infrastructure
- Local subscriber support

5-YEAR NETWORK OPERATIONS CENTER (NOC)

- NOC monitoring included during the warranty period
- 24/7 365 days per year

Exhibit F

5. Describe the proposed cloud-hosted ISSI solution, including architecture and levels of redundancy. Does this solution require a constant internet connection to operate?

Architecture and Local Redundancy

Our proposed cloud-hosted ISSI solution, powered by Critical Connect, establishes a secure, high-availability link from the City's dedicated Zone Core to Motorola Solutions' hardened geographically redundant (separated 500+ miles) cloud data centers. Within the cloud-based portion of the solution, services are fully redundant across geographically separated data centers as well as locally within each center.

To eliminate local single points of failure, we have included a redundancy option (as requested in RFP Section 3.4.11.4) for $60,884. With this option:

Both the Primary Core (State of Florida tower) and the Dynamic System Resilience (DSR) Backup Core (Utilities) are equipped to support ISSI and Critical Connect.

If the primary site fails, interoperability traffic automatically reroutes through the Backup Core.

Connectivity and Internet Requirements

A major differentiator of our proposal is the use of ASTRO Connectivity Services (ACS) for transport.

As Proposed (Private Transport): Our design utilizes ACS to provide a private, mission-critical connection from both core locations directly to our cloud data centers. Because this is a private circuit, a public internet connection is not required for the solution to operate as proposed.

Alternative (Internet Transport): While the solution can utilize a standard internet connection if the City chooses not to use ACS, this would require a continuous, high-quality internet connection to maintain interoperability.

By utilizing ACS, Fort Lauderdale gains the benefits of cloud-hosted interoperability without the security risks or reliability concerns associated with the public internet.

6. How does the required service agreement align with the RFP requirement for fifteen (15) years of parts support?

Motorola complies with the specification regarding parts availability for 15 years and removes our text stating that a current maintenance and upgrade agreement needs to be in place to do so.

7. Please elaborate on the need for any waiver(s) required to meet the specified coverage requirements. What additional costs are anticipated for ISSI connectivity with Broward County or other required ISSI connections?

The Challenge:

Physics of Building Penetration: The RFP requires 20 dB of building loss protection extending 1 mile beyond City limits. To achieve this, the signal must remain exceptionally strong at that 1-mile mark.

The Regulatory Conflict: The standard Region 9 Plan expects signal levels to drop significantly (to a 40 dBu field strength) by the 3-mile mark to avoid interference.

Operability and Interoperability for Fort Lauderdale and Broward County:

De Facto County-Wide Jurisdiction: While a municipality, Fort Lauderdale operates as a critical part of a regional framework. Through the Regional 911 system and the "Closest Unit Response" program, city units routinely respond to emergencies across Broward County, effectively extending their operational jurisdiction beyond city limits.

Operational Necessity for Safety: A limited municipal contour would create "dangerous operational gaps." To ensure the safety of both first responders and the public, the radio system must cover the entire area where units are dispatched to provide seamless, real-time communication.

Formal Legal Agreements: The city's regional role is formalized through Inter-local Agreements and Florida's "Emergency Management Act." These agreements mandate cooperation and "closest unit response" as normal day-to-day operations, not just for mutual aid during catastrophes.

Public Interest & Interoperability: Granting the waiver aligns with FCC goals to promote public safety and interoperability. A county-wide system ensures that Fort Lauderdale can communicate effectively with other Broward County agencies, which is essential for regional disaster response and daily emergency services.

Licensing Approach & Process

Channel Selection: Motorola Solutions selected channels with distant co and adjacent channel licensees, that adhere to the contour requirements of Region 9 Planning Committee.

RPC Approval: Precedent has been established throughout North America and specifically in Florida for RPC waiver approval because our contours do not impact incumbent concurrent licenses. Therefore RPC approval is highly likely.

FCC Approval: The FCC has set precedence that NSPAC channel licensing approved by the appropriate RPC is approved by the FCC.

Conclusion
There is a history of the FCC granting waivers to accommodate inter-agency cooperation and regional operational realities, including specific precedents for statewide mutual aid and county-level systems in Florida. MSI has conducted the due diligence to conclude that the waiver which is required to implement a 4-site system for Fort Lauderdale, which meets the stringent in-building coverage requirements, has a high probability of success based on the channels proposed and the methodology outlined.

1. Hosted Master Core to talk to Plantation and Coral Springs
2. SLERS - Potential Charge from L3Harris to the State of Florida
3. Broward
4. Future Requirement

8. Does pricing for service include optional dispatch center sites and equipment?

Yes, the service pricing includes dispatch sites and their relevant equipment as requested in the RFP.

9. What is the anticipated customer cost for ISSI to any Motorola networks that are required in this RFP, if a different vendor is chosen?

Motorola is committed to partnering with the City, regardless of which vendor you move forward with. Multiple factors go into an ISSI connection. Considering the scope, we recommend that the City should budget $350,000 per ISSI connection. Motorola would like to collaborate with the City on the final scope and pricing should this be required.

10. What would be the additional cost for service if the dispatch center option is chosen?

There is no additional service cost as the services cost for the dispatch center option is already included. There will be a cost deduct if the dispatch center is removed from the scope and below is the deduct shown for the total 20 years of SUA and Maintenance.
Infrastructure Lifecycle Deduct (SUA) - $332,367
Maintenance Deduct (Years 1-20) - $1,082,627
Total deduct (SUA & Maintenance) = $1,414,994
This would be in addition to the deduction of $3,381,782 (Equipment & Implementation) to remove the primary & backup dispatch along with its relevant MW and Monopole Tower.
Total Deduct (Equipment & Outyears) = $4,796,776

Exhibit G

3.3.3.5 The proposed hardware and frequency plan must ensure that frequencies installed at sites cause no adverse receiver desensitization because of intermodulation products and, further, that the Contractor's frequency plan complies with FCC regulations with respect to co-channel and adjacent-channel interference protection criteria.

Comply

3.3.3.6 The Vendor's Technical Response must fully describe its frequency engineering process and must include an initial frequency plan for its proposed configuration (since differences between the Vendor's plan and the existing-system's frequency plan are anticipated).

Comply

3.3.3.7 The Vendor must describe its best-practice approach to the monitoring of noise floor levels/degradation at radio tower sites and the steps it would undertake to identify and resolve interference issues, both internal to the radio system's infrastructure, as well as external.

Comply. Refer to Section 3.13.3.3 for noise floor information.

3.3.3.8 The Vendor must provide a contingency plan, should the initial frequency plan not be available for implementation.

Comply

*Attach Contingency Plan

Comply

The following information has also been provided in **Attachment 16 – 3.3.3.8 Contingency Plan** as directed by the RFP.

The published Region 9 Regional Planning Committee's Regional Communications Plan already allocates the 26 frequencies listed in Appendix B of the RFP, to the Fort Lauderdale area, and the City already holds FCC licenses for all 26 frequencies. This proposal only calls for the use of 10 of the 26 available frequencies already allocated to the City. While the FCC licenses will need to be modified to reflect the new design parameters and the use of TDMA modulation, there appears to be no risk that the proposed frequency plan will not be available for implementation. The coverage goals of the RFP will, however, require a waiver to the Region's rule which sets a 3-mile limit for the 40 dBu Protected Service Area Contour from the jurisdiction of the City/County.

3.4 Major System Equipment Groupings

3.4.1

The Vendor shall provide and shall describe, minimally, the following major equipment groupings as contained within the proposed configuration:

Comply

3.4.1.1 Radio Network Controller (Primary and Secondary)

3.14.6 The Vendor shall submit a representative sample of the noise and IM reporting documentation of sufficient scope and detail to support the methodology, as provided in the Technical Response.

Comply

3.15 Service Area

3.15.1 Portable radio on-street, on the hip with a speaker microphone coverage must extend throughout no less than 97% of that area within the land region encompassed by Fort Lauderdale, FL, including Wilton Manors and Oakland Park, and one-mile outside of Fort Lauderdale at Delivered Audio Quality (DAQ) 3.4 and -95 dBm.

Exceeds

Based on previous guidance provided by the City, Motorola Solutions exceeds this requirement by guaranteeing 97% portable radio on-street coverage extending to two miles outside of the tri-cities, these cities being Fort Lauderdale, Wilton Manors and Oakland Park, thereby exceeding the requested one mile. Testing methods shall follow TSB 88 recommended processes, as outlined in our proposed Coverage Acceptance Test Plan. Our guarantee is based on achieving the required Channel Performance Criterion (CPC) of DAQ-3.4 as measured by bit error rate testing. In a simulcast system as proposed here, received signal strength alone is not a reliable determinant of CPC. A received signal strength of -95 dBm is not required to achieve a CPC of DAQ-3.4 and is no longer a requirement of this RFP based on the City's guidance.

The design presented in this proposal requires a waiver to the Region 9 Regional Planning Committee's Radio Communications Plan requirement that "*The Protected Service Area Contour (PSAC) of a base station is the +40 dBu signal strength contour as calculated by FRIP. The geographical extent of the PSAC [Protected Service Area Contour] is limited to no more than three (3) miles beyond the boundary of the entity's legal jurisdiction*" or agreement by the Committee that the City's jurisdiction extends beyond city limits. To maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design, Motorola Solutions has selected channels from the City's current FCC licenses that are not used by nearby incumbents and will maintain the interference protection criteria to all other existing systems. In the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary to shrink the 40 dBµV/m contour sufficiently to satisfy the above rule or to the extent that the Regional Planning Committee authorizes.

3.15.2 The system shall support mobile radio user coverage throughout the City and two miles outside of the City at 97% coverage at Delivered Audio Quality (DAQ) 4.0.

Comply

Motorola complies with this requirement. The design presented in this proposal requires a waiver to the Region 9 Regional Planning Committee's Radio Communications Plan requirement that "The Protected Service Area Contour (PSAC) of a base station is the +40 dBu signal strength contour as calculated by FRIP. The geographical extent of the PSAC [Protected Service Area Contour] is limited to no more than three (3) miles beyond the boundary of the entity's legal jurisdiction" or agreement by the Committee that the City's jurisdiction extends beyond city limits. To maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design, Motorola Solutions has selected channels from the City's current FCC licenses that are not used by nearby incumbents and will maintain the interference protection criteria to all other existing systems. Motorola has also included a preliminary

write up to help the City of Fort Lauderdale justify the waiver request along with precedent examples where waivers were successfully approved.

3.15.2.1 Portable radio coverage within buildings is required.

Comply

3.15.2.2 The system shall support no less than 95% coverage/DAQ-3.4 within residential structures and Law/Fire/EMS facilities and municipal buildings throughout all areas of the Customer.

Exceeds

Motorola Solutions exceeds this requirement in two aspects by guaranteeing an area reliability of 97% portable coverage throughout the required areas, for a loss of up to 15 dB representing residential structures. These guaranteed areas extend to two miles outside of the tri-cities which include Fort Lauderdale, Wilton Manors and Oakland Park, thereby exceeding the requested 95% for residential structures of 8 dB loss. We comply to Law/Fire/EMS facilities and municipal buildings, which are covered at an area reliability of 95%, for a loss of up to 20 dB, representing municipal structures under the provisions of section 3.15.3.

The design presented in this proposal requires a waiver to the Region 9 Regional Planning Committee's Radio Communications Plan requirement that "*The Protected Service Area Contour (PSAC) of a base station is the +40 dBu signal strength contour as calculated by FRIP. The geographical extent of the PSAC [Protected Service Area Contour] is limited to no more than three (3) miles beyond the boundary of the entity's legal jurisdiction*" or agreement by the Committee that the City's jurisdiction extends beyond city limits. To maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design, Motorola Solutions has selected channels from the City's current FCC licenses that are not used by nearby incumbents and will maintain the interference protection criteria to all other existing systems. In the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary to shrink the 40 dBμV/m contour sufficiently to satisfy the above rule or to the extent that the Regional Planning Committee authorizes.

3.15.2.3 Residential structure is described as a single-story house based on local building codes with a minimum typical loss of 8 db.

Exceeds

Motorola Solutions exceeds this requirement by guaranteeing an area reliability based on a loss of 15 dB representing residential structures, thereby exceeding the requested 8 dB. Since the decibel (dB) scale is logarithmic, when considered in linear terms, this equates to more than a quadrupling of the tolerated building loss versus the requested loss.

3.15.2.4 Structures greater than one-story shall require coverage on all floors above grade.

Comply

Motorola complies as to the buildings listed in Appendix D and for schools up to 25dB of building loss. These structures will be tested per the procedure documented in the proposed Coverage Acceptance Test Plan.

3.15.2.5 In addition, portable radio coverage to this same or greater reliability and audio quality is required within a specific set of critical building locations and critical areas, as listed in Appendix D Critical Building/Area List.

Comply

3.15.3 The system shall support no less than 95% coverage within critical buildings and other type 20dB structures within the city limits of the following cities plus one mile outside the border and along the corridor of major roads with a one-half mile boundary on either side.

Comply

We understand the reference to "the following cities" to refer to the cities of Fort Lauderdale, Wilton Manors and Oakland Park.

The design presented in this proposal requires a waiver to the Region 9 Regional Planning Committee's Radio Communications Plan requirement that "*The Protected Service Area Contour (PSAC) of a base station is the +40 dBu signal strength contour as calculated by FRIP. The geographical extent of the PSAC [Protected Service Area Contour] is limited to no more than three (3) miles beyond the boundary of the entity's legal jurisdiction*" or agreement by the Committee that the City's jurisdiction extends beyond city limits. To maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design, Motorola Solutions has selected channels from the City's current FCC licenses that are not used by nearby incumbents and will maintain the interference protection criteria to all other existing systems. In the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary to shrink the 40 dBµV/m contour sufficiently to satisfy the above rule or to the extent that the Regional Planning Committee authorizes. To aid in the application of this waiver request, Motorola has provided a detailed document in Attachment 14 which can be used as a reference for the application.

3.15.4 The vendor should put an emphasis on providing reliable coverage in all schools regardless of the loss factor for each school.

Comply

Motorola Solutions has analyzed the predicted coverage using 25 dB as the maximum building penetration loss value for given test points for all schools. Schools will be tested per the procedure documented in the proposed Coverage Acceptance Test Plan, which states that failed test points that exceed 25 dB loss will be removed from the reliability calculations for the building.

3.15.5 The vendor will guarantee coverage in all schools at no less than 95% coverage at 25db.

Comply

Motorola Solutions has analyzed the predicted coverage using 25 dB as the maximum building penetration loss value for given test points for all schools. Schools will be tested per the procedure documented in the proposed Coverage Acceptance Test Plan, which states that failed test points that exceed 25 dB loss will be removed from the reliability calculations for the building.

3.16

All references to coverage reliability in this RFP refer to statistical area reliability.

Section 1

RFP Section 3.1.9.2.C List of Special Requirements

Justification for FCC Radio System Contour Waiver: Fort Lauderdale's County-Wide Public Safety Jurisdiction

1. Executive Summary: Fort Lauderdale's Critical Regional Role Warrants Waiver

The City of Fort Lauderdale's emergency services operate as an integral component of Broward County's comprehensive regional public safety framework. This integration is exemplified by the city's active participation in county-wide dispatching and the "Closest Unit Response" program. This operational reality effectively extends Fort Lauderdale's public safety jurisdiction across traditional municipal boundaries for emergency response.

An application of a limited municipal contour map rule for the city's proposed new radio system would directly impede the effectiveness of these established, life-saving regional initiatives. Consequently, a waiver from FRIPS is not merely a request for regulatory flexibility. Instead, it is an important step to ensure the highest level of public safety and seamless interoperability across Broward County. This report demonstrates that Fort Lauderdale's unique operational circumstances constitute the "special circumstances" and that granting the waiver demonstrably serves the "public interest," aligning with established FCC waiver criteria and precedents.

2. Fort Lauderdale's De Facto County-Wide Public Safety Jurisdiction

Fort Lauderdale's emergency response capabilities are deeply interwoven with Broward County's broader public safety infrastructure, creating an operational footprint that extends beyond its city limits. This extended reach is not an informal arrangement but a structured, formalized integration designed to optimize emergency services for all county residents.

Integrated Regional 911 and Closest Unit Response

Fort Lauderdale is an important participant in Broward County's Regional 911 system, a contracted service managed through the Broward Sheriff's Office (BSO). This system encompasses 28 of Broward County's 31 municipalities and is specifically designed to enhance emergency response times and ensure consistent performance metrics by dispatching the closest available unit to an emergency, irrespective of municipal borders. The Office of Regional Communications and Technology for Broward County maintains

Exhibit H

3.14.6 The Vendor shall submit a representative sample of the noise and IM reporting documentation of sufficient scope and detail to support the methodology, as provided in the Technical Response.

Comply

3.15 Service Area

3.15.1 Portable radio on-street, on the hip with a speaker microphone coverage must extend throughout no less than 97% of that area within the land region encompassed by Fort Lauderdale, FL, including Wilton Manors and Oakland Park, and one-mile outside of Fort Lauderdale at Delivered Audio Quality (DAQ) 3.4 and -95 dBm.

Exceeds

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The design presented in this proposal requires a waiver to the Region 9 Regional Planning Committee's Radio Communications Plan requirement that "*The Protected Service Area Contour (PSAC) of a base station is the +40 dBu signal strength contour as calculated by FRIP. The geographical extent of the PSAC [Protected Service Area Contour] is limited to no more than three (3) miles beyond the boundary of the entity's legal jurisdiction*" or agreement by the Committee that the City's jurisdiction extends beyond city limits. To maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design, Motorola Solutions has selected channels from the City's current FCC licenses that are not used by nearby incumbents and will maintain the interference protection criteria to all other existing systems. In the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary to shrink the 40 dBµV/m contour sufficiently to satisfy the above rule or to the extent that the Regional Planning Committee authorizes.

3.15.2 The system shall support mobile radio user coverage throughout the City and two miles outside of the City at 97% coverage at Delivered Audio Quality (DAQ) 4.0.

Comply

Motorola complies with this requirement. The design presented in this proposal requires a waiver to the Region 9 Regional Planning Committee's Radio Communications Plan requirement that "The Protected Service Area Contour (PSAC) of a base station is the +40 dBu signal strength contour as calculated by FRIP. The geographical extent of the PSAC [Protected Service Area Contour] is limited to no more than three (3) miles beyond the boundary of the entity's legal jurisdiction" or agreement by the Committee that the City's jurisdiction extends beyond city limits. To maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design, Motorola Solutions has selected channels from the City's current FCC licenses that are not used by nearby incumbents and will maintain the interference protection criteria to all other existing systems. Motorola has also included a preliminary

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3.15.2.1 Portable radio coverage within buildings is required.

Comply

3.15.2.2 The system shall support no less than 95% coverage/DAQ-3.4 within residential structures and Law/Fire/EMS facilities and municipal buildings throughout all areas of the Customer.

Exceeds

Motorola Solutions exceeds this requirement in two aspects by guaranteeing an area reliability of 97% portable coverage throughout the required areas, for a loss of up to 15 dB representing residential structures. These guaranteed areas extend to two miles outside of the tri-cities which include Fort Lauderdale, Wilton Manors and Oakland Park, thereby exceeding the requested 95% for residential structures of 8 dB loss. We comply to Law/Fire/EMS facilities and municipal buildings, which are covered at an area reliability of 95%, for a loss of up to 20 dB, representing municipal structures under the provisions of section 3.15.3.

The design presented in this proposal requires a waiver to the Region 9 Regional Planning Committee's Radio Communications Plan requirement that "*The Protected Service Area Contour (PSAC) of a base station is the +40 dBu signal strength contour as calculated by FRIP. The geographical extent of the PSAC [Protected Service Area Contour] is limited to no more than three (3) miles beyond the boundary of the entity's legal jurisdiction*" or agreement by the Committee that the City's jurisdiction extends beyond city limits. To maximize the likelihood of a successful waiver for the contour reach required by an RFP-compliant design, Motorola Solutions has selected channels from the City's current FCC licenses that are not used by nearby incumbents and will maintain the interference protection criteria to all other existing systems. In the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary to shrink the 40 dBμV/m contour sufficiently to satisfy the above rule or to the extent that the Regional Planning Committee authorizes.

3.15.2.3 Residential structure is described as a single-story house based on local building codes with a minimum typical loss of 8 db.

Exceeds

Motorola Solutions exceeds this requirement by guaranteeing an area reliability based on a loss of 15 dB representing residential structures, thereby exceeding the requested 8 dB. Since the decibel (dB) scale is logarithmic, when considered in linear terms, this equates to more than a quadrupling of the tolerated building loss versus the requested loss.

3.15.2.4 Structures greater than one-story shall require coverage on all floors above grade.

Comply

Motorola complies as to the buildings listed in Appendix D and for schools up to 25dB of building loss. These structures will be tested per the procedure documented in the proposed Coverage Acceptance Test Plan.

Section 1

RFP Section 3.1.9.2.C List of Special Requirements

Justification for FCC Radio System Contour Waiver: Fort Lauderdale's County-Wide Public Safety Jurisdiction

1. Executive Summary: Fort Lauderdale's Critical Regional Role Warrants Waiver

The City of Fort Lauderdale's emergency services operate as an integral component of Broward County's comprehensive regional public safety framework. This integration is exemplified by the city's active participation in county-wide dispatching and the "Closest Unit Response" program. This operational reality effectively extends Fort Lauderdale's public safety jurisdiction across traditional municipal boundaries for emergency response.

An application of a limited municipal contour map rule for the city's proposed new radio system would directly impede the effectiveness of these established, life-saving regional initiatives. Consequently, a waiver from FRIPS is not merely a request for regulatory flexibility. Instead, it is an important step to ensure the highest level of public safety and seamless interoperability across Broward County. This report demonstrates that Fort Lauderdale's unique operational circumstances constitute the "special circumstances" and that granting the waiver demonstrably serves the "public interest," aligning with established FCC waiver criteria and precedents.

2. Fort Lauderdale's De Facto County-Wide Public Safety Jurisdiction

Fort Lauderdale's emergency response capabilities are deeply interwoven with Broward County's broader public safety infrastructure, creating an operational footprint that extends beyond its city limits. This extended reach is not an informal arrangement but a structured, formalized integration designed to optimize emergency services for all county residents.

Integrated Regional 911 and Closest Unit Response

Fort Lauderdale is an important participant in Broward County's Regional 911 system, a contracted service managed through the Broward Sheriff's Office (BSO). This system encompasses 28 of Broward County's 31 municipalities and is specifically designed to enhance emergency response times and ensure consistent performance metrics by dispatching the closest available unit to an emergency, irrespective of municipal borders. The Office of Regional Communications and Technology for Broward County maintains

governance and oversight of this system, emphasizing transparency and accountability in service delivery.

The Fort Lauderdale Fire Rescue (FLFR) department is a highly active and critical component within this regional framework, responding to thousands of 911 calls annually, making it one of the busiest city department in Broward County. FLFR explicitly "actively partners with neighboring agencies to ensure the closest unit responds to emergencies," directly supporting the "Closest Unit Response" initiative. Fort Lauderdale was a Phase I participant in this program, which prioritizes the quickest possible response for high-priority calls such as chest pain, heart attacks, or difficulty breathing. This operational integration, enabled by the Regional 911 system, means that Fort Lauderdale's emergency services function with a practical jurisdiction that extends beyond its traditional municipal boundaries. This goes beyond mere mutual aid for extraordinary events; it represents a formalized, legally supported operational integration for daily emergency response across the county.

Formal Inter-local Agreements and Mutual Aid

The operational integration of Fort Lauderdale's emergency services across Broward County is supported by a robust legal and operational framework. Florida law, specifically Chapter 252 of the Florida Statutes, known as the "Emergency Management Act," empowers local governments to enter into "Mutual Aid Agreements" for reciprocal emergency assistance when incidents are "too extensive to be dealt with without assistance". These agreements can cover "major" or "catastrophic disasters" and, if no other agreement exists, "minor" disasters.

A particularly relevant document is the "Interlocal Agreement for Cooperative Fire, Rescue, Emergency Medical Services, Special Operations, and Emergency/Disaster Relief Response Through Mutual Aid, Automatic Aid, and Closest Unit Response". This agreement explicitly states its design is to enable participating parties, including Fort Lauderdale, to "make the most efficient use of their respective powers, resources and capabilities by cooperating" and to "provide for closest unit response as part of the normal day-to-day operations of all of the Parties". The agreement further acknowledges that Broward County residents voted for county-wide communications infrastructure to support these efforts. This demonstrates that Fort Lauderdale's cross-jurisdictional operations are deeply embedded in Florida's public safety policy and practice, making the city's operational area functionally county-wide for emergency response.

Furthermore, a "Regional Incident and Mutual Aid Network" is recognized as a "Regional Public Safety Communications Network" in Florida, fostering "collaboration, information sharing and voice interoperability" among 911 centers, local dispatch, and county Emergency Operations Centers. Florida Statutes also allow for a statewide radio communications system to serve local law enforcement agencies through "mutual aid channels," promoting "public safety and domestic security". The consistent emphasis on "collaboration, information sharing and voice interoperability" and the provision for "mutual aid channels" indicate that seamless communication across jurisdictional lines is a fundamental policy objective at both county and state levels. A radio system designed to cover the entire operational area, rather than being

constrained by municipal boundaries, directly supports this critical goal of interoperability, which is paramount for effective public safety and disaster response.

The following table summarizes Fort Lauderdale's integration into the regional public safety framework:

Table: Fort Lauderdale's Regional Public Safety Integration

Program/Agreement	Scope/Purpose	Fort Lauderdale's Role
Regional 911 System	Centralized dispatching for 28 of 31 Broward County municipalities; improves response times and ensures consistent metrics.	Participating municipality.
Closest Unit Response (CUR)	Dispatches nearest ambulance/fire truck regardless of municipal boundaries for high-priority calls; prioritizes quickest response.	Phase I participant; FLFR actively partners with neighboring agencies.
Interlocal Agreement for Cooperative Fire, Rescue, EMS, etc.	Formalizes mutual aid, automatic aid, and CUR as "normal day-to-day operations" across Broward County.	Signatory/Participating Party.
Regional Incident and Mutual Aid Network (State Level)	Fosters collaboration, information sharing, and voice interoperability across regional public safety entities.	Integrated into the broader state/regional communications framework.

3. Legal Precedent and Public Interest Justification for Waiver

The request for a waiver of contour map limitations for Fort Lauderdale's new radio system is firmly rooted in established FRIPS waiver criteria and supported by numerous precedents where the Commission has prioritized public safety operational realities.

FCC Waiver Criteria

The FCC consistently applies a two-pronged test for granting waivers of its rules. A waiver is considered appropriate only if (1) "special circumstances warrant a deviation from the general rule," and (2) "such deviation better serves the public interest". Applicants seeking a waiver face a "high hurdle" and must present a "compelling showing" to justify the deviation. Alternatively, a waiver may be granted "in view of unique or unusual factual circumstances".

This legal framework provides the precise context for Fort Lauderdale's waiver request. The city's unique operational integration within Broward County, as detailed previously, clearly constitutes the "special circumstances" or "unique factual circumstances" required. The subsequent discussion will demonstrate how a county-wide radio system demonstrably serves the "public interest" by enhancing regional emergency response.

Precedent for Inter-agency Cooperation

These precedents establish that the Commission is willing to grant waivers to accommodate the operational realities and public safety needs of inter-agency and inter-jurisdictional communication systems. The consistent thread through these cases is the prioritization of effective public safety operations and interoperability over strict adherence to rules when a compelling public interest is demonstrated. This demonstrates that Fort Lauderdale's situation, characterized by its county-wide operational reach and the need for broader coverage for regional response, aligns with scenarios where the FCC has historically shown flexibility. The FCC's consistent focus on "public interest," "interoperability," and "enhancing coverage" in past waiver decisions suggests that a waiver request from Fort Lauderdale, framed around these benefits for Broward County, aligns strongly with the Commission's stated objectives for public safety spectrum management.

Florida-Specific Precedents

Florida has a documented history of establishing and seeking regulatory flexibility for county-wide and statewide public safety radio systems, further supporting the Fort Lauderdale waiver request:

- **Statewide Mutual Aid System Waiver:** In a significant precedent, the State of Florida was granted an FCC waiver in 1985 to permit the "exclusive use of frequency without regard to loading for mutual aid purposes" on 853.3875 MHz/808.3875 MHz. This waiver facilitated the construction of 90 fixed stations to provide "complete statewide mutual aid coverage on this channel for all public safety agencies within Florida." This demonstrates the FCC's direct approval for a statewide system designed for broad mutual aid coverage, explicitly waiving rules to achieve this public safety objective.
- **Marion County Public Safety Radio System:** Marion County, Florida, operates a Public Safety Radio Communications System that incorporates microwave transmission and is authorized by FCC license rules. This system is designed to coordinate emergency communications for public safety agencies and entities, supporting both routine and emergency inter- and intra-agency communications, including out-of-county operations. It also facilitates mutual aid through dedicated talk groups, emphasizing the goal of maximizing public safety and first responder well-being. This exemplifies a county-level system with a broad operational scope.
- **Broward County Regional Interlocal Agreement:** The Regional Interlocal Agreement in Broward County, entered into pursuant to Florida Statutes §163.01, aims to establish a "county-wide interoperable public safety intranet that can support closest unit response in life-threatening emergencies and regional specialty teams." This agreement explicitly seeks to enhance radio interoperability by interconnecting county and city

public safety radio users and states that the Trunked Radio System will meet FCC-determined coverage, functionality, and availability parameters. This further underscores the established intent and framework for county-wide public safety communication in Broward.

- **Florida's Pursuit of Expanded Coverage:** While a specific waiver request by Florida to utilize 800 MHz Public Safety Category channels on non-standard centers was denied due to technical interference prediction methodology, the request itself highlighted Florida's aim to expand coverage for "Countywide" areas. The FCC had also previously granted similar "offset" waivers in Florida in the same area. This indicates a consistent effort by Florida entities to achieve broader radio coverage for public safety and the FCC's consideration of such requests.

Enhanced Public Safety as Public Interest

The core mission of public safety radio licensing, as explicitly recognized by the FCC, is to "promote public safety and emergency response". Eligibility for the Public Safety Pool is open to governmental entities for "communications essential to official activities of the licensee".

A radio system designed to cover Fort Lauderdale's operational reach across Broward County, rather than being confined to a limited municipal contour, directly supports the "Closest Unit Response" program's objective of delivering the "quickest possible response". This ensures seamless communication for emergency responders operating anywhere within the county as part of their routine duties, as formalized by the interlocal agreements. Such a system also enhances "collaboration, information sharing and voice interoperability" across all Broward County public safety agencies, which is a key objective of Florida's statewide radio communications system and mutual aid agreements.

The proposed radio system, by enabling county-wide coverage for Fort Lauderdale's emergency services, directly aligns with and significantly enhances the FCC's stated objective of promoting "public safety and emergency response" and the state's goal of "interoperability". The waiver, therefore, is not a deviation from regulatory intent but a facilitation of it in a complex operational environment where emergency response inherently transcends strict municipal lines. If Fort Lauderdale's emergency units are obligated to respond county-wide under the "Closest Unit Response" program, but their radio system cannot reliably cover that area due to a strict contour limit, it would create dangerous operational gaps. These gaps would directly compromise the safety of both responders and the public by impeding real-time communication during emergencies. This scenario would directly frustrate the underlying purpose of public safety rules by hindering critical emergency communications, thereby strengthening the argument for a waiver based on "special circumstances" and the paramount "public interest."

4. Conclusion: Operational Imperative for Regulatory Flexibility

The City of Fort Lauderdale's deep integration into Broward County's regional public safety system, particularly through the Regional 911 and "Closest Unit Response" programs, establishes a compelling case for its operational jurisdiction extending throughout the county for emergency services. This is further solidified by formal inter-local agreements and state-level mandates for interoperability.

Given this established operational reality, a strict application of a municipal-centric contour map rule would actively hinder the efficient and effective provision of emergency services. Such a limitation would directly undermine the public interest in rapid and seamless emergency response across Broward County.

Drawing upon established FCC waiver precedents for inter-agency cooperation and enhanced public safety, Fort Lauderdale's proposal for a radio system with county-wide coverage demonstrably constitutes the "special circumstances" and serves the "public interest" required for a waiver. Granting this waiver will enable a radio system that truly reflects and supports the critical, life-saving scope of Fort Lauderdale's public safety operations within Broward County, ensuring optimal emergency response for all residents.

Exhibit I

Comply. Motorola Solutions has accounted for all requirements as defined in Attachment 17, which includes our solution description. All relevant costs for items mentioned in Attachment 17 are included in our price proposal.

*Attach List of Special Requirements

Comply

See **Attachment 14 – 3.1.9.2 List of Special Requirements.**

3.1.10 Parts Availability

3.1.10.1 All proposed radio equipment and antennas and repair parts shall be commercially available for at least fifteen (15) years following the date of Final Acceptance.

Comply with Clarification

Motorola's goal is to provide parts and service support for five (5) years from product cancellation for portables and mobiles and for seven (7) years from product cancellation for fixed products. Consistent with this goal. Motorola will use commercially reasonable efforts to provide replacement parts for Motorola manufactured subscriber equipment for five (5) years and for Motorola manufactured fixed infrastructure equipment exclusive of third-party IT equipment (e.g. computers, switches, etc.) for seven (7) years, both from the date of last manufacture. Motorola reserves the right to supply either assemblies or piece parts. As long as the City of Fort Lauderdale stays on a current maintenance plan & upgrade agreement, the infrastructure will be supported for repair and replacement.

3.1.10.2 All proposed system and backbone infrastructure components, inclusive of microwave/backhaul equipment and repair parts shall be commercially available for at least fifteen (15) years from the date of Final System Acceptance.

Comply

Motorola Solutions will make all reasonable efforts for third-party and Motorola Solutions manufactured equipment, and will ensure that the technology and lifecycle plan is maintained yearly within the City of Fort Lauderdale Lifecycle and Services Agreement.

3.1.10.3 In the event any required part becomes unavailable after best effort to supply said part during the specified fifteen (15) year period, the Contractor may provide a suitable replacement or upgraded component, provided that:

A. The replacement maintains full functionality and usability with the existing system; and

Comply with making commercially reasonable efforts to maintain existing or comparable functionality.B. The replacement cost does not exceed the cost of the original part had it remained commercially available.

Comply provided the City maintains continuous service coverage as quoted throughout the term of the contract.

3.1.10.4 Parts availability shall be irrespective of status of a maintenance contact.

Comply with Clarification

Understood

C. Lifecycle analysis is a critical factor in determining the operational life of the proposed P25 technology and supporting products.

Understood

3.45.9.2 Vendors shall disclose key lifecycle dates of the proposed system, including subscribers, P25 System software, infrastructure, network elements, and 3rd Party supporting equipment. Include general availability (GA) release dates to manufacture discontinue (MD) dates along with important OEM hardware and software support dates for standard, extended and out-of-support milestone dates. Please detail how software support dates/phases affect service availability and pricing.

Comply

All equipment provided in this proposal is of current design and production and end of life has not been determined.
Once a product's end of life has been identified, Motorola will inform the City of the upcoming cancellation. Motorola will use commercially reasonable efforts to provide replacement parts for Motorola manufactured subscriber equipment for five (5) years and for Motorola manufactured fixed infrastructure equipment exclusive of third party IT equipment (e.g. servers, pc's) for seven (7) years, both from the last date of manufacture. Motorola reserves the right to supply either assemblies or piece parts.

Motorola's ASTRO Support Policy is attached.

3.45.9.3 Vendors shall disclose as part of their Cost Proposal when System was first released for sale to the Public.

Comply

Motorola will provide a life-cycle roadmap upon receipt of Non-Disclosure Agreement.

All equipment provided in this proposal is of current design and production and end of life has not been determined. Once a product's end of life has been identified, Motorola will inform the City of the upcoming cancellation. Motorola will use commercially reasonable efforts to provide replacement parts for Motorola manufactured subscriber equipment for five (5) years and for Motorola manufactured fixed infrastructure equipment exclusive of third party IT equipment (e.g. servers, pc's) for seven (7) years, both from the last date of manufacture. Motorola reserves the right to supply either assemblies or piece parts.No proposed Motorola or OEM or third party equipment has a determined end of life, manufacturer discontinue, or end of support date.

Motorola's ASTRO system was created in 1991.

In 2011, Motorola deployed ASTRO 25 systems with P25 Time Division Multiple Access (TDMA) trunking to double the voice capacity of Frequency Division Multiple Access (FDMA) technology. The P25 Phase 2 products were the first in the industry. ASTRO 25 is a land mobile radio (LMR) platform that was built to comply with the Project 25 (P25) standard.

3.45.9.4 Vendors shall also provide a life-cycle roadmap, referenced by year and so depict when any third-party equipment is likely to be discontinued and when parts/software support will cease to be available.

Comply

Exhibit J

Procurement Conf Room
No.

Rebecca Norwood (TUSA)
The being able to mix and match vendors, especially for subscribers, is really changing the way that people come to the table and propose this stuff.

Dean Hart/TUSA Consulting
Yeah, we, we've got several systems out there that are L3 Harris with Motorola subscribers.
In fact, we've got a Tate system that's going in North Carolina with Motorola subscribers, seen Motorola infrastructure with Harris subscribers.
So P25 has leveled that playing field in some ways and really actually made it more competitive.

Procurement Conf Room
Coverage summary, yeah.
They.
Out of the three.
Or there seem to be asterisks on the Motorola response.
I'm I'm not not picking on that. I just.
The the waiver to exceed the two mile boundary.
I'm not mistaken.
Would be due to the fact.
Of a neighbor? No.
So.
As far as that's concerned of our 24 channels or only what's called short spaced with six of those channels, that's what you're counting down. In theory, I think currently we may have some of those in our current set, but yeah, we do. So in theory we could.
Probably dance around that issue, but.
What's? What's juice take on on that?

Dean Hart/TUSA Consulting

I mean I I view that you know, OK, they said they could exceed it.
They did some explanation of why that's important to the city of Fort Lauderdale, with some language as far as especially fire EMS response outside of your own jurisdiction.
And that was all good.
But then they. But then they put that asterisk on it, but would require a waiver.
They have a high confidence that that waiver is is possible with with the Florida licensing and actually provided language to do that. However, that requires it to be done so.

Procurement Conf Room
Best.

Rebecca Norwood (TUSA)
Yeah. And Andy, if the vendors technically could apply for that waiver, but it they are, they are basically saying it's out of our hands. If they say no, we're back to what everybody else is doing.

Procurement Conf Room
Right.
But it seems that that it seems that that's white noise, so with plus two mile badge with waiver, well, that's not one aspect of that.
So it's just an asterisk to make us look good, but by the way, it's probably gonna cost us.
The administrative costs.
C is response seem to.
Like to use little emoji or stickers to highlight where they exceed.
And as a millennial, I'm, I'm not a big emoji person.
I should be, I guess.
I think we're splitting hairs though with.
Comply verse exceeds at 97% in in my opinion.
What our desired coverage footprint was, it's met I.
I just don't get lost in the.
While seeing the the shiny object and say Oh well this one exceeds so it must be better. So I the way my interpretation is.

Exhibit K

Think it this thing has windows on it.
You don't pay Microsoft a second time.
It allows you to take Windows off of this and put windows on this for the price of 0.
So that's the only thing that's identifying and it's it's for specific to a subscriber, correct? OK. Then I'm talking about not infrastructure, right?
And if you that does go bad, you buy another one, you buy another license, right?
You only with CI and Motorola not with Efj, right?
Right. But is that really relevant to the infrastructure?
So that's the point that that's that is really, it's really irrelevant to what we're talking.
We included we included subscriber pricing in your subscriber.
Attributes in this RFP, so we could we in case we do change that, yeah. Or if we have unfortunately if we wanted to buy radios, yes, we had it in there just so that it can be part of the simplification, correct.
And so for budgeting purposes to have a smell test.
So back to warranty.
Looks like 5-3 and five.
Asterisks. Asterisks.
So it's only only true 15, that's DI.
So can we. Can we talk about the asterisks a little bit on on the on the the one that's not, I don't think I said.

Rebecca Norwood (TUSA)
Sure.
So the not comprehensive Motorola very clearly writes that they'll do an extended warranty to five years for F&E fixed network equipment, things that are things that they sell, things that integrate within the racks with their equipment, but that does not extend to other systems parts 3rd.
Party stuff. So it is not, it is not.
A giant list of everything you purchased as part of the system for CI.
Basically what they're saying is.
Is if you bought it as part of the system, it's comprehensive. It's included in the five year warranty.

PR **Procurement Conf Room**
What percent of parts would that be?

Exhibit L

CITY OF FORT LAUDERDALE

RFP EVALUATION COMMITTEE TABULATION - Meeting 2

RFP# **549-3**

TITLE: **P25 Radio Communication System Refresh-Replacement - Rebid**

DATE: **1/20/2026**

EC Member #1 -James Baker

PROPOSING FIRM	Understands the Scope of the Project			Staff Qualifications, References, Past Performance, Years In Business			Technical Merits of the Project, Flexibility of Technology Proposed, Quality of Proposed Equipment			Hardening and Redundancy			Performance and Radio Coverage			Total Project Cost			Total Points Awarded
	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	
Communications International	0.10	1	0.10	0.05	1	0.05	0.15	2	0.30	0.20	2	0.40	0.20	1	0.20	0.30	3	0.90	**1.95**
EF Johnson	0.10	2	0.20	0.05	3	0.15	0.15	1	0.15	0.20	1	0.20	0.20	3	0.60	0.30	1	0.30	**1.60**
Motorola Solutions, Inc.	0.10	3	0.30	0.05	2	0.10	0.15	3	0.45	0.20	3	0.60	0.20	2	0.40	0.30	2	0.60	**2.45**

EC Member #2 - Fernando Duque

PROPOSING FIRM	Understands the Scope of the Project			Staff Qualifications, References, Past Performance, Years in Business			Technical Merits of the Project, Flexibility of Technology Proposed, Quality of Proposed Equipment			Hardening and Redundancy			Performance and Radio Coverage			Total Project Cost			Total Points Awarded
	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	
Communications International	0.10	2	0.20	0.05	2	0.10	0.15	1	0.15	0.20	1	0.20	0.20	2	0.40	0.30	3	0.90	**1.95**
EF Johnson	0.10	3	0.30	0.05	3	0.15	0.15	3	0.45	0.20	2	0.40	0.20	3	0.60	0.30	1	0.30	**2.20**
Motorola Solutions, Inc.	0.10	1	0.10	0.05	1	0.05	0.15	2	0.30	0.20	3	0.60	0.20	1	0.20	0.30	2	0.60	**1.85**

EC Member #3 - Wayne Gooden

PROPOSING FIRM	Understands the Scope of the Project			Staff Qualifications, References, Past Performance, Years in Business			Technical Merits of the Project, Flexibility of Technology Proposed, Quality of Proposed Equipment			Hardening and Redundancy			Performance and Radio Coverage			Total Project Cost			Total Points Awarded
	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	
Communications International	0.10	2	0.20	0.05	2	0.10	0.15	2	0.30	0.20	1	0.20	0.20	2	0.40	0.30	3	0.90	**2.10**
EF Johnson	0.10	3	0.30	0.05	3	0.15	0.15	3	0.45	0.20	2	0.40	0.20	3	0.60	0.30	1	0.30	**2.20**
Motorola Solutions, Inc.	0.10	1	0.10	0.05	1	0.05	0.15	1	0.15	0.20	3	0.60	0.20	1	0.20	0.30	2	0.60	**1.70**

EC Member #4 - Garrett Pingol

PROPOSING FIRM	Understands the Scope of the Project			Staff Qualifications, References, Past Performance, Years in Business			Technical Merits of the Project, Flexibility of Technology Proposed, Quality of Proposed Equipment			Hardening and Redundancy			Performance and Radio Coverage			Total Project Cost			Total Points Awarded
	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	
Communications International	0.10	2	0.20	0.05	2	0.10	0.15	1	0.15	0.20	1	0.20	0.20	2	0.40	0.30	3	0.90	**1.95**
EF Johnson	0.10	3	0.30	0.05	3	0.15	0.15	3	0.45	0.20	3	0.60	0.20	3	0.60	0.30	1	0.30	**2.40**
Motorola Solutions, Inc.	0.10	1	0.10	0.05	1	0.05	0.15	2	0.30	0.20	2	0.40	0.20	1	0.20	0.30	2	0.60	**1.65**

EC Member #5 - Steven Scelfo

PROPOSING FIRM	Understands the Scope of the Project			Staff Qualifications, References, Past Performance, Years In Business			Technical Merits of the Project, Flexibility of Technology Proposed, Quality of Proposed Equipment			Hardening and Redundancy			Performance and Radio Coverage			Total Project Cost			Total Points Awarded	Total Combined Points Awarded	Average Points Awarded	Total Final Score	FINAL RANKING
	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal	Weight Factor	Ranking	Point Subtotal					
Communications International	0.10	2	0.20	0.05	2	0.10	0.15	2	0.30	0.20	2	0.40	0.20	1	0.20	0.30	3	0.90	**2.10**	**10.05**	**8.37**	**10.05**	**2**
EF Johnson	0.10	3	0.30	0.05	3	0.15	0.15	3	0.45	0.20	1	0.20	0.20	3	0.60	0.30	1	0.30	**2.00**	**10.40**	**8.80**	**10.40**	**3**
Motorola Solutions, Inc.	0.10	1	0.10	0.05	1	0.05	0.15	1	0.15	0.20	3	0.60	0.20	2	0.40	0.30	2	0.60	**1.90**	**9.55**	**8.03**	**9.55**	**1**

Exhibit M

RFP/RFQ AWARD RECOMMENDATION / INTENT TO AWARD

PROCUREMENT SPECIALIST: Laurie Platkin

DATE: 01/21/26

RFP / RFQ#: 549-3 **ITEM / SERVICE:** P25 Radio Communication System Refresh-Replacement - Rebid

Attached is a tabulation for subject items/services requisitioned by the department.

RECOMMENDATION:

A. Which vendor has been recommended?

Motorola Solutions, Inc.

B. Does this meet specifications as per the department's request and as advertised? YES ✔ NO ☐

If NO, is the variance considered: MINOR ☐ or MAJOR ☐

Explain:

C. Is the recommendation the highest ranking firm? YES ✔ NO ☐

SIGNATURE: _____ Date: 1/22/26

Chief Procurement Officer or designee

THIS FORM MUST BE COMPLETED FOR ALL AWARD RECOMMENDATIONS OF $25,000 AND ABOVE.

Over $25,000 YES ✔ NO ☐

Exhibit N

From: Dean Hart
To: Glenn Marcos
Cc: Rebecca Norwood; Laurie Platkin
Subject: [EXTERNAL:CAUTION!]- Re: Protest - RFP No. 549, P25 Radio Communication System Refresh-Replacement Rebid (PART I)
Date: Tuesday, February 10, 2026 4:45:07 PM
Attachments: image001.png
image002.png

Glenn,

Please see Rebecca's and my response in regard to the protest and your questions.

Rebecca -
In the Motorola proposal response there are conflicting statements as to the warranty and maintenance. As a matter of preparing the client for negotiation TUSA reports the "worse case" statement. Only with a red lined proposal, could the desired result be contractually accepted.

- Pg 17 "Motorola Solutions' excellent warranty services provide five years of FNE and five years of subscriber support."
- Pg 49 "Motorola exceeds this requirement and has included a 4-year (48-month) comprehensive warranty on all infrastructure equipment."
- Pg 276 "Motorola will provide a five-year warranty"

Dean -
Per RFP section 3.3.1.4 The vendor is responsible for providing a licensable system design subject to applicable local, state, regional, and federal laws.

- Pg 148 Section 3.15.2.2 The system shall support no less than 95% coverage/DAQ-3.4 within residential structures and Law/Fire/EMS facilities and municipal buildings throughout all areas of the Customer.

Motorola states exceeds but then goes on to say:
"In the event that such approval is not granted, Motorola's guaranteed service area reliabilities would be reduced as necessary to shrink the 40 dBμV/m contour sufficiently to satisfy the above rule or to the extent that the Regional Planning Committee authorizes.

In the Motorola proposal response they state an exceeds on coverage requirements. They then state they cannot meet this guarantee without a waiver from Region 9

Planning Committee. They state coverage could be reduced if not approved. They do not state what the guarantee would be if not approved.

This was a concern from TUSA to make it aware to the Evaluation Committee. However, TUSA doesn't believe this is a valid reason to make a vendor non-responsive. All vendors face this same risk as they must relicense the system proposed due to the change to Phase II/TDMA. It was just stated by Motorola with a plan to make it happen with the waiver.

Please let me know if you need further or any questions.

Dean Hart dean.hart@tusaconsulting.com

tusaconsulting.com

On Fri, Feb 6, 2026 at 8:02 PM Glenn Marcos <GMarcos@fortlauderdale.gov> wrote:

Dean/Rebecca:

The City, via the Procurement Services Department, received the attached protest that has been filed by Communications, International, Inc ("***Ci***"). The file is large so I must send it in different parts. I will be staying the award because ***Ci's*** assertions are based on technical aspects of Motorola's proposal and some statements made by Rebecca and you during the Evaluation Committee (EC) meeting. I need you to respond to the protest based on your technical expertise. I will be reaching out to you next week to discuss.

Respectfully,

Exhibit O

G. Any metal components, attachment hardware, cross-braces and lifting eyes shall be hot-dip galvanized metal after fabrication.

Comply

3.27 Shelter Configuration Details

3.27.1 The exterior wall finish shall be exposed aggregate concrete. Seeding of aggregate for an exposed aggregate finish is not acceptable. Exterior walls must be bullet resistant as defined below.

Comply

3.27.1.1 The roof shall be a flat, tapered type having a minimum slope of 1/2" per foot from the roof centerline.

Comply

3.27.1.2 The roof shall be designed to support a minimum of 100-lbs/sq. ft. distributed load.

Comply

3.27.1.3 A roof shield shall be provided and installed by the Contractor, above the equipment shelter and of sufficient size to adequately protect the shelter and personnel from falling materials via the nearby radio site's tower.

Comply with Clarification

Motorola does not typically install roof shields in climates where ice is not a factor. However, Motorola can provide this at an additional cost if requested.

3.27.2 All exterior wall, floor and roof joints shall be sealed using a compressible, resilient sealant. There shall be no exposed roof-to-wall or wall-to-floor joints.

Comply

3.27.3 Cement used in concrete shelters shall be standard Portland cement conforming to the requirements of the "Standard Specification of Portland Cement", ASTM Designation C150. Concrete aggregate shall conform to the requirements of the "Specifications for Concrete Aggregates" ASTM C33 and "Specifications for lightweight aggregates for structural concrete" ASTM C330.

Comply

3.27.4 Exterior concrete surfaces shall be sealed with a minimum of two coats of THOROGLAZE® H Concrete Sealer or approved equal.

Comply

3.27.5 The shelter's interior floor shall be covered with poured epoxy. It shall be navy in color with red and white flecks

Comply