

**PROGRAM SOLICITATION
FOR
FUTURE ATTACK RECONNAISSANCE AIRCRAFT (FARA)
COMPETITIVE PROTOTYPE**

Solicitation Number
W911W6-19-R-0001

Issued By:

US Army Contracting Command – Redstone

On Behalf Of:

**Aviation Missile Research Development and Engineering Center
(AMRDEC), Aviation Development Directorate (ADD)**

For:

The Future Vertical Lift (FVL) Cross-Functional Team (CFT)

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1. GENERAL INFORMATION

1.1. Introduction

Under this Program Solicitation, the Army Contracting Command – Redstone Arsenal's (ACC-RSA's) solicits proposals for the Future Attack Reconnaissance Aircraft Competitive Prototype (FARA CP) using an Other Transaction Authority for Prototype (OTAP) in accordance with 10 United States Code (USC) 2371b.

This Program Solicitation is unrestricted. Small businesses are encouraged to propose to this Program Solicitation. Applicable NAICS codes are: 336411, Aircraft Manufacturing; 336416, Other Aircraft Part and Auxiliary Equipment Manufacturing; 334511, Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing; 541715, Aircraft, Aircraft Engine and Engine Parts. Proposals submitted shall be in accordance with the herein (See Section 5).

1.2. Agency Name

U.S. Army Contracting Command – Redstone Arsenal (ACC-RSA), Aviation Development Directorate – Eustis (ADD-E) Contracting Division on behalf of the U.S. Army Aviation Missile Research Development and Engineering Center (AMRDEC), Aviation Development Directorate (ADD).

2. PROGRAM DESCRIPTION

2.1. The Government solicits proposals for the FARA CP.

2.2. Objective. FARA CP funds a competitive prototyping effort to design, build, and test a FARA in an operationally relevant environment. The results of this prototyping and test effort will support a decision to enter into a formal program of record for subsequent full system integration, qualification and production as a rapid acquisition.

2.3. Background. Army Aviation must operate in highly contested/complex airspace and degraded environments against peer/near peer adversaries capable of an advanced integrated air defense system. The Army currently lacks the ability to conduct armed reconnaissance, light attack, and security with improved stand-off and lethal and non-lethal capabilities with a platform sized to hide in radar clutter and for the urban canyons of mega cities. To close this gap, the Army envisions an optionally manned, next generation rotorcraft with attributes of reduced cognitive workload, increased operational tempo (OPTEMPO) through ultra-reliable designs and extended maintenance free periods, and advanced teaming and autonomous capabilities. Teamed with unmanned systems and various air launched effects, this platform will be the center piece of the integrated air defense system (IADS) breaching team to provide freedom of maneuver in a multi-domain battle. This platform is the “knife fighter” of future Army Aviation capabilities, a small form factor platform with maximized performance. Critical to this envisioned platform is a resilient digital backbone designed

to allow rapid capability advancement in subsystems and software and affordable life cycle management. This purpose built aircraft will be fielded at echelons above division but other variants could be fielded across all aviation formations.

2.4. Strategy.

2.4.1. The Government expects the FARA CP to be designed and developed within a streamlined acquisition approach leveraging modern tools and processes, industry innovation, and a revolutionary Government approach through the recently implemented Army strategy of Cross Functional Teams. The intent for the aircraft developed under this Program Solicitation is to have an 'open architecture' on the platform to allow efficient integration of mission equipment throughout the lifecycle. However, it is anticipated that full mission capability will occur through integration efforts within a subsequent full system integration and qualification phase such as Engineering Manufacturing and Development (EMD) or equivalent and follow-on production phase. Coinciding with selection of the air vehicle for a subsequent full system integration, qualification and production phase, a focused acquisition decision will occur for the final digital aircraft architecture design, mission systems, and system integrator.

2.4.2. The Government intends to implement the typical efficiencies utilized during science and technology (S&T) project execution similar to the Army's Joint Multirole Technology Demonstration (JMR TD) program during this effort as further explained herein. Furthermore, leveraging the Performance Based Acquisition approach of a Statement of Objectives (SOO), the Government is providing herein, the overall goal and objectives for this effort to include some minimum requirements in the areas of airworthiness/qualification, government oversight and reviews, deliverables, and system performance. This will allow industry Offerors (The entities or business units proposing to and competing for an award under this Program Solicitation) to propose efficiencies in these areas and overall approach to meeting FARA CP goals and best prepare for, and streamline, the follow-on efforts to reach production and maintain affordability. Only industry participants selected for the preceding phase of the FARA CP program shall be eligible for any subsequent phases.

2.5 Approach.

2.5.1. This Program Solicitation describes the intent to develop necessary and sufficient data to transition from a CP to full system integration, qualification and production. The data development will occur through the design and build of competitive prototype air vehicles that address key attributes and requirements. In addition to data developed for the CP aircraft, there is also intent to develop additional data to accelerate transition to a post-CP program and into production. It is anticipated that an OTAP will be used to establish the partnerships for the FARA CP effort.

2.5.2. The FARA CP program will be executed with a phased approach:

In **Phase 1**, the initial set of Performers (the entities or business units that are the direct

recipients of the OT agreement) will be given nine months to develop preliminary designs and provide the Government team with the data and insight required for the Government to down-select to two (or possibly more based on funding available) Performers for Phase 2, after an Initial Design and Risk Review (ID&RR) (see Appendix 2), based on which technical solutions present the most advantageous outcome to the Government. Using initial design and approach data, the most advantageous outcome to the Government will be determined by an overall assessment using the following criteria:

- Re-application of initial evaluation criteria (Section 6) to additional information developed during the initial design period.
- Cost and schedule performance to date.
- Updated cost proposal and work plan for Phase 2.
- Degree of demonstrated collaboration and data sharing (with appropriate rights) with the Government.

The Government will make decisions regarding early procurement (prior to ID&RR) of long-lead material/items for the FARA CP. These requests for long-lead items are subject to Government 's review, acceptance of costs proposed and decision to fund by assessing cost, schedule and performance risk with each request in terms of:

- Extent to which the request enables them to meet Phase 2 fabrication and test schedule
- Impact on schedule if request is not funded
- Cost of the request
- Technical and schedule performance at the time of the request

In **Phase 2a**, the Performers selected in the first down-select will proceed to the detail design, build, and Performer-led test phase that includes all other necessary and supporting tasks. In November 2020 a Final Design & Risk Review (FD&RR) (See Appendix 2) will be executed with each Performer. Upon assessment of technical progress and risk, the Government will make the determination to approve continue or terminate the effort. Approximately 24 months are allocated for the aircraft build including subsystem testing with an anticipated first flight in November 2022. Prior to initiation of flight test and subsequent to the appropriate level of technical drawings finalized and subsystem testing complete (as proposed by the Offerors), an Initial Preliminary Design Review (IPDR) will be executed (around mid-2022) to provide the Government the required insight, data, and documentation to execute the efforts associated with accelerating planning and approval of a subsequent full system qualification and production phase.

In **Phase 2b**, the aircraft is provided to the Government for flight testing to evaluate performance and operational-type maneuver characteristics.

In **Phase 3**, the Government will evaluate if the Performers have successfully completed the competitive prototype project, as described in Section 2.6.3, and may

select a Performer for entry into a subsequent full system integration, qualification and production phase. The Government may use competitive prototype data, to include but not limited to, flight performance and IPDR results as part of the selection criteria. If the Government decides to down select to one vendor during Phase 3, the down selection criteria will be established upon completion of the ID&RR. The selected performer may be authorized to procure multiple sets of long-lead items prior to entering the Phase 4.

If executed, **Phase 4** is the formal, system integration and qualification and subsequent production effort. In accordance with 10.U.S.C. 2371b(f), and upon a determination that one or more of these prototype projects has been successfully completed, Phase 4 may include a design update, integration of mission equipment, additional component/system level qualification testing and the potential procurement of additional prototype aircraft. It is anticipated that the OTAPs established for the FARA CP effort will be used for these subsequent efforts. In addition, one or more of these competitively awarded prototype OTAs may result in the award of a follow-on production contract or transaction without the use of competitive procedures.

At all schedule milestones, as described in the table below, the Government team will review and assess the degree to which each Performer is likely to obtain the FARA CP program desired results (see Section 2.6.2.). After timely deliberation, the Government will provide instruction to continue as planned, continue with changes, or to discontinue the effort.

Schedule Milestones	Estimated Date	Purpose	Phase
Funding Instrument Awards	3Q FY19		Phase 1
System Requirements Review	1Q FY20	For information	
Initial Design and Risk Review (See Appendix 2)	2Q FY20	Provides basis for down-select decision	
Down Selection to Two Participants	3Q FY20	Down-select decision	
Final Design & Risk Review (See Appendix 2)	1Q FY21	Go/No-go decision to proceed to build/test	Phase 2a
Initial Preliminary Design Review / Data Submission to Support Decision to Enter Subsequent Full System Qualification and Production	3Q FY22	For information	
Test Readiness Review	Prior to first flight	Go/No-go to begin major testing	
Prototype First Flights / Flight Demos	1Q FY23		
Government Flight Testing	3QFY23 - 4Q FY23		Phase 2b

FARA CP Completion	4Q FY23	Down-select decision and transition to follow-on	Phase 3
Subsequent full system qualification and production phase	TBD		Phase 4

2.6. Scope.

2.6.1. The scope of Phases 1 and 2 of the FARA CP effort may include conceptual design; preliminary design; detail design; process refinement, component, subsystem and system level qualification testing; analysis; fabrication of hardware components; integration of aircraft systems; software coding and testing; development of systems integration labs (SILs); modification of test facilities; preparation of test plans, reports and airworthiness substantiation and documentation; and ground and flight testing of processes, subsystems, and the aircraft.

2.6.2. The Government seeks the following results from this development effort:

- Define, design, build and test prototype aircraft that meet mandatory attributes and other performance targets as described in Supplemental Information Package (SIP), SIP2: DESIGN GUIDANCE (See Section 8.4 for information on how to request the SIP and Appendix 6 of this Program Solicitation for a complete list and description of the information contains in the SIP).
 - Collaboration with the Government on developing cost models, physics-based engineering models and systems engineering models.
 - Ground testing, flight envelope expansion and vehicle characterization testing necessary to develop data required to demonstrate the FARA CP capabilities and requirements.
 - Data to support airworthiness and acquisition planning (e.g. manufacturing readiness level, supportability, suitability) for anticipated subsequent full system qualification and production activities.

2.6.3. To successfully complete the FARA CP effort, design validation of the FARA mandatory attributes through a combination of direct demonstration and credible analysis will be necessary. In addition, sufficient data will be provided for planning follow-on efforts.

2.7. Additional Guidance.

2.7.1. As described in the SIP2: DESIGN GUIDANCE, there are a few mandatory attributes that must be met. Liberty is provided to the proposer to offer streamlined and efficient trades in the other areas.

2.7.2. The FARA CP effort will include partial integration of mission systems as described in the SIP1: INTRODUCTION. The air vehicle shall be designed with a

modular open system approach (MOSA) that will allow a systems integrator to accommodate a requirements-compliant mission systems package at a future date (SIP3: AIRCRAFT AND MISSION SYSTEMS GUIDANCE). The full mission systems suite will be integrated during a subsequent full system integration and qualification program, after the down select to a single aircraft solution.

2.7.3. The aircraft shall be designed to accommodate production and supportability methods. Rapid prototyping methods may be used in order to meet the CP schedule constraints provided there is a low-risk path to a production and supportability approach.

2.7.4. Developmental ground and flight testing to characterize vehicle behavior and expand flight envelope shall be conducted as a combined test team with both Government and Industry Performer flight test personnel. After a sufficient developmental ground and flight testing period for envelope clearance and safety assurance, the competitive prototypes will be transferred to the Government with sufficient contractor logistics support (CLS) to perform Government flight testing. The intended scope of that testing is defined in Appendix 3: GOVERNMENT FLIGHT TEST SCOPE of this synopsis.

2.7.5. With the intent of timely decision making, reducing formal deliverable requirements, overall risk tracking, building a knowledge-base, and providing timely subject matter expert support, the Government team requires a collaborative approach with Industry participants that provides enduring, continuous, real-time access to technical and programmatic data, models and analyses developed during FARA CP. However, data should be revision controlled to ensure decision integrity is maintained and preserved for critical decisions (e.g. airworthiness, safety, etc.).

2.7.6. Data and information access may be provided through internet accessible data storage and collaboration sites, web-based meeting technology, telephone conferences, technical interchange meetings, etc. Along with carefully prescribed deliverables, the Government anticipates accessing data (virtual design, specifications, other design artifacts) using commercially available or licensed proprietary tools for collaboration and oversight purposes to include requirements tracking, assessing technical risk and maturity, airworthiness and qualification, program management, and preparations for life-cycle supportability.

2.7.7. As another means of program efficiency, both the Government and Industry participant teams should be right-sized (lean) for the effort. The internal business practices of each company/team should be tailored for maximum agility to quickly establish sub-awards, procure vendor support and react to technical, schedule and cost risks and issues that may occur internally, with suppliers or vendors, or other unknown cause.

2.7.8. The Army will be the airworthiness authority. A streamlined approach that relies heavily on company engineering rigor, and includes Government participation, is

encouraged. The Army desires an approach that satisfies the immediate “safety of flight” needs of the competitive prototype effort and, for the subsequent full system qualification and production effort, is also responsive to the full Airworthiness Qualification Plan (AQP) that is provided in Appendix 4: AIRWORTHINESS and SIP. The flight test effort shall comply with all laws and regulations associated with flying experimental public aircraft operation in the national airspace.

Note: Some appendices are included as additional information with this Program Solicitation (e.g. Description of Deliverables). However, other documents are in a SIP due to the sensitivity of the information. See Section 8, “INSTRUCTIONS TO OFFERORS” for guidance on how to obtain the SIP.

3. AWARD INFORMATION

3.1. Anticipated Award Date

The anticipated award date for funding instruments for Phases 1-2 is around June 2019.

3.2. Anticipated Funding for the Program

3.2.1. Anticipated funding will be split among all awards with the anticipation of completing two competitive prototyping efforts through the end of Phase 2. Each Phase 1 Performer will receive approximately \$15M between FYs 19-20 (\$8.5M in FY19 and \$6.5M in FY20) with an anticipated 4-6 Industry Performers (additional funding may be provided for long-lead Phase 2 activity with Government concurrence). While the Government anticipates 4 to 6 Performers will be participating in Phase 1, the decision is contingent on the technical merit of the proposed approaches. Therefore, based on its assessment of the proposal, the Government retains the discretion to award more, fewer or none. The two Industry Performers selected for Phase 2 in FY20 after ID&RR will receive a fixed funding level of approximately \$735M between FYs20-23. The Period of Performance for Future Vertical Lift (FVL) FARA CP is not anticipated to extend beyond FY23. The funding profile is FY19 - 1%, FY20 – 18%, FY21 – 27%, FY22 – 32%, FY23 – 22%. It is desired that proposals address Phases 1 and 2.

3.2.2. Costs associated with paper/proposal preparation and submission are not considered allowable direct costs to any resulting award. However, these costs may be allowable as indirect costs as specified in 48 CFR part 31.

3.2.3. Any estimated funding amounts are not a promise of assured funding in that amount. Funding is uncertain and is subject to change. Changes in availability may occur as a result of Government discretion or fiscal constraints.

3.3. Type of Business Arrangement

The business arrangement is an OTAP as authorized by 10 U.S.C. § 2371b. Eligibility is open to any U.S. company; however, there are conditions for traditional defense

contractors. Traditional defense contractors must either partner with a non-traditional defense contractor to a significant extent (see Section 4.2) or contribute at least one third of the cost of the project. In general, a non-traditional defense contractor is one who is not performing and has not performed for at least one year from the Program Solicitation date, work for DoD that is subject to full Cost Accounting Standards (CAS) coverage as prescribed under 41 U.S.C. § 1502 and the implementing regulations. Offerors should familiarize themselves with the applicable DoD guidance prior to proposal submission.

3.4. Number of Awards Anticipated

3.4.1. As presented in Section 2 above, the Government anticipates initially awarding between four and six funding instruments depending upon the technical merit (See section 6) of the proposals it receives and affordability of such proposals. The number of agreements will be reduced through down-select process at the end of Phase 1.

3.4.2. The Government reserves the right to negotiate with Offerors on the scope of the proposed prototyping effort.

3.5. Anticipated Period of Performance

The period of performance of the FARA CP program (phases 1 and 2) is anticipated to end September 2023.

3.6. Deliverables

3.6.1. All awards under this announcement shall require a kickoff meeting following award. All awards under this announcement shall require delivery of the following data items:

1. Baseline Data (design, life cycle cost, program management metrics)
2. Program Management Plan
3. Bi-monthly Technical Status Reports
4. Monthly Financial Status Updates / Bi-Monthly Financial Status Reports
5. Long Lead Item Procurement Plan
6. Cyber Security Requirements and Technical Guidance (CSRTG)
7. Open Systems Management Plan
8. Open System Verification Plan and Results
9. FARA Air Vehicle System Architecture Technical Data Package
10. FARA Air Vehicle System and Digital Backbone Design Technical Data Package
11. Model Management Plan
12. Airworthiness Substantiation Data
13. Test, Data Collection and Analysis Plan(s) to meet AQS
14. Initial Design and Risk Report and Program Cost & Plan Update
15. Final Design and Risk Report

16. Cost and Software Data Report
17. Initial PDR Data Package
18. Technical Reports
19. Meeting Presentations and Briefing Material
20. Final Report.

3.6.2. Descriptions of these data items, which should be considered as minimum essential information, are included in the Appendix 5: DELIVERABLES. All awards will include a requirement to present the results of the work in a final briefing at a Government location upon completion of all technical effort.

4. ELIGIBILITY INFORMATION

4.1. Eligibility.

Participation is limited to U.S. Firms as Prime Performers; however, foreign-owned entities can participate as sub-awardees (any business units other than the Performer subordinate to and engaged by a Performer via contract, agreement or any other means, with or without compensation, to perform effort under their OT prototype agreement) to U.S. prime Performers. The U.S. prime entity retains responsibility for compliance with U.S. export controls. Countries included in the U.S. State Department List of Countries that support Terrorism are excluded from participation. Interested entities shall address export compliance of any foreign partners/sub-awardees in its cost volume.

4.2. Non-Traditional Defense Contractors

In accordance with the DoD Other Transactions Guide for Prototype Projects dated January 2017:

It is in the DoD's interest to tap into the research and development being accomplished by nontraditional defense contractors, and to pursue commercial solutions to defense requirements. One use of this authority is to attract nontraditional defense contractors that participate to a significant extent in the prototype project. These nontraditional defense contractors can be at the prime level, team members, sub-awardees, lower tier vendors, or "intra-company" business units (provided the business unit makes a significant contribution to the prototype project). Examples of what might be considered a significant contribution include, but are not limited to, supplying new key technology or products, accomplishing a significant amount of the effort, or in some other way causing a material reduction in the cost or schedule or increase in the performance.

4.3 System for Award Management (SAM).

Offerors are required to register in the SAM database <https://www.sam.gov> prior to

award and continue to maintain an active registration with current information throughout the period of any Federal award.

5. PROPOSAL INSTRUCTIONS

5.1. Proposal Submission Process

5.1.1. Offerors may submit one or more proposals addressing the solicitation, and each proposal will be evaluated independently; however each proposal shall be limited to one aircraft design. Proposals should include all effort for FARA CP Phases 1-2. The most fidelity should be in the Phase 1 portion of the effort. Performers will be given the opportunity to update work plans and cost proposals for ID&RR. The US Government requires submission of electronic file(s) for each proposal.

5.1.2. Proposal Format:

Proposals shall consist of two volumes:

Volume 1 - Technical Proposal
Volume 2 – Cost/Price Proposal

For each volume, the following format shall apply:

Paper Size – 8.5-by-11-inch paper, 11 inch x 17 inch fold-out may be used for large images or diagrams

Margins – One-inch margins

Spacing – Single- or double-spaced

Font – Times New Roman, 12 point. Text embedded within graphics or tables in the body of the Project Description Form shall be legible and not smaller than 8 point.

Proprietary or Export Control Marking: Offerors are expected to appropriately mark proprietary and/or export controlled information contained in their proposals. For additional information regarding export controlled information, refer to 7.2 below.

5.1.3. Proposal Content

Each volume will include a cover page as follows:

- a. Program Solicitation number;
- b. Title of Proposal;
- c. Identity of prime Offeror and complete list of sub-awardees with the CAGE and DUNS, if applicable;
- d. Technical point of contact (name, address, phone/fax, electronic mail address);

- e. Administrative/business point of contact (name, address, phone/fax, electronic mail address);
- f. Duration of effort
- g. Prospective Offerors shall state the certifications in the SAM at www.sam.gov have been completed and shall provide the Certification Validity period; and
- h. The signature and title of an authorized representative of the entity submitting the proposal. If multiple organizations are participating, one signature from the principal/leading organization is acceptable.

Volume 1: Technical Proposal

The Offeror should organize Volume 1, Technical Proposal in accordance with the sections listed below to ensure thorough evaluation of proposals. Technical proposals shall be limited to 150 pages. The Statement of Work (SOW), Work Break-down Structure (WBS), Integrated Master Schedule (IMS) and copies of software licenses should be segregated and then are not subject to the page limitation. Each 11 inch x 17 inch fold-out will count as two pages. All proposal pages exceeding the page limit stated will not be evaluated. The Official Transmittal Letter, as well as the cover page, table of contents and resumes/biographical information about potential Performers in the proposal are not subject to the page limitation. The US Government requires submission of electronic file(s) for each proposal.

The Volume 1, Technical Proposal shall include the following sections:

Cover Page: This shall include the words “Technical Proposal”:

Table of Contents:

Executive Summary: Summarize the proposal and the expected benefits of the research effort.

Proposal: Describe the proposed FARA CP effort and the associated technical and management issues keeping in mind that evaluators will be reviewing the proposal consistent with the evaluation criteria listed in Section 6.1, Technical Evaluation Criteria. The Technical Volume shall provide detail that substantiates the selection of the solution proposed, to include benefits relative to the program desired results. The Technical Volume shall include a clear statement of the technical objectives and the specific approach to be pursued and supporting background experience.

Aircraft Design: The FARA CP aircraft design shall be described, as a minimum, at the conceptual level. Design trade-offs should be described and justified. The minimum data set is defined in Appendix 1: AIRCRAFT CONCEPTUAL DESIGN DATA Designs shall be guided by the FARA System Performance Specification (SPS) and informed by the FARA Initial Capability Refinement Document (ICRD) and other guidance as described in the SIP2: DESIGN GUIDANCE. Sufficiency of the maturity of

the design, constituent critical technology items, and critical design and fabrication processes shall be substantiated. The operational effectiveness and suitability to conduct the mission described in the ICRD shall also be described.

The Offeror should clearly define the aircraft attributes and design parameters, philosophy, goals, approaches and methods for all relevant aspects that include performance, agility and maneuverability, airworthiness, cyber resilience, software, safety, availability, reliability, maintainability, survivability, sustainment, and system life.

Detailed Technical Approach: The Technical Approach shall provide descriptive detail that substantiates the selection of the Offeror's approach to design, build and test the CP aircraft as well as to develop data to support planning for, and acceleration of the post FARA-CP program. The technical approach should reflect the development of a complex system on a constrained timeline. The approach should be suitable to identify, assess, communicate and act quickly and effectively on new technical, schedule, safety, security and cost risks and issues as they develop.

Offerors should identify applicable or tailored design guidance and standards used; and methods for determining the appropriate level of engineering rigor or design assurance levels for all aspects of the aircraft vehicle and mission systems hardware and software.

Offerors shall propose methods and degree of collaboration with the Government team with regular interactions, on program performance, analytical model development, and data usage. It is recommended that the Offeror maximizes use of their organic program organizational structure to incorporate Government subject matter experts and program management personnel into the Offeror's knowledge management routines. Note that the Government team does not currently plan to embed personnel at Industry participant's facilities on a long-term basis, so that should not be offered as the preferred solution. The Offeror should propose a method of providing the Government team access to FARA development data.

Any long-lead actions that represent significant cost or risk that may have to be executed before ID&RR should be specifically called out. Means of early review of those actions should be proposed. Details for long-lead items and complex development items (at a minimum drive system, rotor blades and software) should be provided. A suitable approach should be provided to identify, assess, communicate and act on new schedule risks and issues as they develop.

The Offeror should describe the approach for the safety analysis/assessment and identification of the hazards, the related safety requirements with associated level of rigor or design assurance level to mitigate the hazards and handling of residual risks.

The Offeror should propose an airworthiness approach that establishes "safety of flight" for the competitive prototype effort and is also responsive to the Airworthiness Qualification Plan (AQP provided as Supplemental Information) with an initial Airworthiness Qualification Specification (AQS). The Offeror should justify to the

Government that the approach has sufficient engineering rigor, processes and controls, and will be successfully applied. The streamlined approach should maximize leverage and minimize duplication of effort from initial company-led envelope expansion testing, through government-led testing and ultimately to full qualification (beyond the scope of the FARA CP).

The Government intends to provide Improved Turbine Engines as Government Furnished Property (GFP) to meet the FARA CP schedule. However, the Offeror should address the impact of non-availability of the ITE engine, and substitution of a T700-GE-701D as a temporary surrogate on the FARA CP build and flight test.

The Offeror should describe the approach to provide analysis and test data for an aircraft fully representative of a FARA Increment 1 aircraft (as defined by the ICRD for FVL Family of Systems (FoS) FARA, Increment 1) for the set of circumstances for which the CP configuration is not identical (e.g. weights and drag due to full mission systems integration).

The Offeror should describe the approach to monitor, maintain and assure data security and product integrity against cyber threats; and detect, report and recover against cyber attack for both the development environment and the developed system.

A contractor logistics support (CLS) plan should be proposed to support Government flight testing.

Statement of Work (SOW): The Technical Volume shall contain a detailed SOW in compliance with the following:

- a. Complies with the desired results of this Program Solicitation described in Section 2.6.2.
- b. Describes how each task will be performed and identifies sub-tasks, if appropriate.
- c. Accurately depicts the proposed technical approach in which known risks to performance, schedule and cost and the associated risk mitigations are addressed.

The negotiated SOW will be a self-standing document without any proprietary restrictions, which will be incorporated into or attached to the award.

Integrated Master Schedule: An illustrative overview schedule shall be provided with major tasks, milestones and decision points. In addition, an integrated schedule shall be provided to the same level as the SOW. The proposed schedule should be realistic; reflect the SOW / WBS, period of performance and available funding profile; follow a logical sequence of events with milestones and decision points; include a plan to enter into sub-awards and process purchase orders in a timely manner; and, as appropriate, be coordinated with vendors, suppliers, test facilities, GFP along with schedule implications if GFP cannot be provided.

Deliverables: In addition to the Government required data deliverables, Offerors will provide a brief summary of any Offeror proposed deliverables, including models, data, and reports consistent with the objectives of the work, along with suggested due dates (calendar days after the effective date of award). Data rights offered for all data deliverables, both Government and Offeror proposed, shall be clearly identified. The negotiated deliverables will become an attachment to the award.

Management Plan: Provide a summary of the management plan, including an explicit description of what role each participant or team member will play in the project, and their past experience in technical areas related to this proposal.

Teaming arrangements shall be clearly described to include lines of authority, division of work, decision-making processes, financial arrangements and adjudication of disputes.

Include the proposed programmatic approach to cost, schedule, and risk management. Although formal Earned-Value Management (EVM) is not required for the program, the proposer is expected to meet the intent and describe how they will provide ongoing assessment of technical and programmatic progress against the program plan, critical path, schedule and cost. Define the content of technical and financial progress reports to enable efficient program monitoring, tracking, and reporting. The Offeror should address transition to a Program of Record with formal EVM requirements.

Facilities: List the location(s) where the work will be performed, and the facilities to be used. Describe any specialized or unique facilities which directly affect the FARA CP effort.

Government-Furnished Resources: Provide a brief summary of required information, hardware, facilities, or data which shall be, or are desired to be provided by the Government to support the proposed work, if any.

Resumes for Key Personnel: In Appendix A, provide resumes for each of the key personnel and an organizational chart. These resumes do not count toward the page limit.

Security Requirements: Research efforts selected and funded under this Program Solicitation are expected to generate technical data that is subject to export control laws and regulations. Offerors who propose performance requiring access to and/or generation of technical data the export of which is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec. 2751 et. seq.) or Executive Order 12470 must be registered and certified with the Defense Logistics Services Center (DLSC). Contact the DLSC online at <http://www.dlis.dla.mil/jcp/> for further information on the certification process. Offerors must have and provide to the Government a verifiable Joint Certification number or submit a copy of the Offeror's approved DD Form 2345, Militarily Critical Technical Data Agreement, with its proposal.

Technical data resulting from this topic may result in the generation of classified data (SECRET). Pre-award access to classified information or submission of a classified proposal is authorized. Offerors shall provide evidence of (or a plan to obtain) both an appropriate facility clearance and the requisite personnel security clearances at the appropriate level to meet the requirements the FARA CP program in the proposal. Offerors that have an existing facility security clearance (FCL) shall submit a copy of its DoD Security Agreement, DD Form 441, as part of the proposal. For those Offerors without a FCL, the Offeror shall address its ability to qualify for a FCL based upon Defense Security Service (DSS), Facility Clearance Branch (FCB), guidelines. Upon agreement award, the Agreements Officer will sponsor the successful Offeror for a FCL. For more information on FCLs, please review the DSS FCB internet site at DSS / Industrial Security Field Operations / Facility Clearance Branch (FCB). Additionally, the Offeror shall provide evidence that a sufficient number of employees have personnel security clearance at the appropriate level to meet the requirements of the FARA CP. It is possible that at some point during the program there may be a need to generate and/or store TOP SECRET information.

Cyber security: By submission of this offer, the Offeror represents that it will implement the security measures consistent with the National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171 “Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations” (see <http://dx.doi.org/10.6028/NIST.SP.800-171>) that are in effect at the time the Program Solicitation is issued.

If the Offeror proposed to vary from any of the security requirements specifies by NIST SP 800-171 that are in effect, the Offeror shall include in the proposal, a written explanation of—

- a. Why a particular security requirement is not applicable; or
- b. How an alternative but equally effective, security measure is used to compensate for the inability to satisfy a particular requirement and achieve equivalent protection.

Offeror requests to vary from NIST SP 800-171 may require adjudication by an authorized representative of the DoD CIO in writing prior to award. Any accepted variance from NIST SP 800-171 shall be incorporated into the resulting award.

Technical Data & Software Assertions with Impact Analysis: All Technical Data and Software developed under this Agreement are to be delivered to the Government with Government Purpose Rights. Offerors may include a summary of any assertions of Offeror restrictions on Government use of any technical data or computer software with proper justification. The Offeror will describe these assertions as follows:

Technical Data or Computer Software	Basis for Assertion**	Asserted Rights Category***	Name of Person Asserting
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to be Furnished with Restrictions*			Restrictions****
(LIST)*****	(LIST)	(LIST)	(LIST)

*For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such item, component, or process. For computer software or computer software documentation identify the software or documentation.

**Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.

***Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).

****Corporation, individual, or other person, as appropriate.

*****Enter "none" when all data or software will be submitted without restrictions.

This will include any assertions to pre-existing results, prototypes, or systems supporting and/or necessary for the use of the research, results, and/or prototype. Any rights asserted in other parts of the proposal that would impact the rights in this section shall be cross-referenced. If less than Government Purpose Rights in any data or software to be delivered under the resultant award are asserted, the Offeror shall explain how these rights in the data will affect its ability to deliver research data, subsystems, and toolkits for integration as set forth below. Additionally, the Offeror shall explain how the program goals are achievable in light of the proprietary and/or restrictive limitations. If there are no claims of proprietary rights in pre-existing data, this section shall consist of a statement to that effect.

For technical data (other than computer software or computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such item, component, or process as specifically as possible (e.g., by referencing specific sections of the proposal or specific technology or components). For computer software or computer software documentation, identify the software or documentation by specific name or module or item number.

The Offeror shall include copies of negotiated, commercial, and other non-standard licenses that affect any software that will be further developed and/or delivered to the Government. Offeror shall attach to its offer for each listed item copies of all proposed negotiated license(s), Offeror's standard commercial license(s), and any other asserted restrictions other than Government Purpose Rights; e.g. Limited Rights; Restricted Rights; rights under prior Government funding instruments, including Small Business Innovation Research (SBIR) data rights for which the protection period has not expired; or Government's minimum rights.

The proposal shall address Government licensing in technical data and computer software required to support Government and third party contractors' sustainment of the aircraft and Government modifications of the aircraft. Sustainment includes all Operations, Maintenance, Installation and Training (OMIT) data supporting military or civilian activities for all levels. Modifications include aircraft modifications and new mission equipment. This licensing includes not only data and software commonly required for technical data packages (TDP), but also to support analytical tools required for vehicle behavior modeling, architecture data to support systems acquisition and integration, the required manufacturing processes, material sources, and engineering software, e.g. finite element and stress models, needed for successful manufacture and repair of the aircraft.

Volume 2: Cost/Price Proposal

The Price/Cost Proposal shall consist of a cover page and two parts. Part 1 will provide a detailed cost breakdown of all costs by cost category/element and Part 2 will provide a Cost breakdown by task/sub-task using the same task numbers in the Statement of Work. If options are applicable, they shall be separately priced. The proposal shall consist of electronic files; one in portable document format (PDF) and one in Excel Spreadsheet (with formulas). Technical information included within the Cost Volume will not be evaluated or considered in the rating of technical merit. Failure to comply with the requirements set forth in this Program Solicitation may result in an adverse assessment of an Offeror's proposal and reduce or eliminate its chance of being selected for award. Offerors shall ensure that the information presented in this volume is consistent and correlates with the information contained in the other proposal volumes.

The Price/Cost Proposal for Phases 1 and 2 should be submitted; however, the plan for the initial period of effort through the ID&RR, should have the most detail. The plan shall accurately describe the cost, work performance and schedule and to demonstrate reasonableness and realism. Offerors will have a chance to provide additional details and plan (including cost) updates for the post-ID&RR, Phase 2 effort with submission prior to ID&RR.

Price General Instructions: The Offeror is responsible for providing adequate evidence to prove credibility of proposed costs/prices. The Offeror's proposal shall be submitted with any and all information reasonably required to explain the estimating

process, including the judgmental factors applied and the mathematical or other methods used in the formulation of the proposed price, including those used in projecting from known data; and the nature and amount of any contingencies included in the proposed price. Additionally, the Offeror shall provide any other general or specific information that may be beneficial in the evaluation of the Offeror's proposed prices.

The Offeror's cost estimating practices shall be in accordance with the Offeror's established accounting practices for accumulating, allocating and recording costs to final cost objectives. The Offeror shall also identify any deviations from the Offeror's standard procedures in preparing this proposal. If the Offeror proposes to absorb a portion of costs, explain the reason and impact on cost elements that will be given to those absorbed costs.

The Offeror shall include a cost element summary of the total proposed /price and a cost element summary by Government fiscal year, including profit dollars and percentages. The proposed price summaries should distinguish between the prime and each sub-awardees.

The Volume 2, Cost/Price Proposal, shall include the following sections:

Cover Page: The use of the SF 1411 is optional. The words "Cost/Price Proposal" shall appear on the cover page in addition to the following information:

Part 1: Part 1 shall include and substantiate a funding profile that identifies total project price and cost element breakdown (i.e. labor hours, labor categories/mix, sub-awards, travel, materials, and any other direct and indirect costs) by month and Government fiscal year. This information shall be provided for Phases 1 and 2 of the FARA CP program. . All pricing rates used, and equipment and materials required shall be included. The individual tasks proposed shall be priced separately. The Offeror shall provide a total estimated price for major demonstrations and other activities associated with the program, including cost sharing, if any. The Offeror shall state whether any Independent Research and Development (IR&D) program is or will be dedicated to this effort, or if IR&D is being pursued to benefit related programs as well. Sub-awardee cost proposals, if applicable, including pricing rate details, shall be provided concurrent with the prime Performer's submission.

Offerors shall describe compliance with 10 U.S.C. 2371b. to include which of the conditions in the 2371b(d)(1) statutory authority will be met as follows:

- **For condition (A)** "There is at least one [nontraditional defense contractor](#) or nonprofit research institution participating to a significant extent in the prototype project", significant extent includes but will not be limited to:
 - participation that causes a material reduction in the cost or schedule
 - participation that causes an increase in the performance of prototype

- The performer that is responsible for a new key component, technology, or process on the critical path
- The performer that will accomplish a significant amount of the effort

- **For Condition (B)**, “All significant participants in the transaction other than the Federal Government are small businesses or nontraditional defense contractors”, significant participation is the prime offeror being a small business concern as described under section 9 of the Small Business Act (15 U.S.C. 638)) or a nontraditional defense contractors as defined in 10 U.S. Code § 2302 (9).

- **For condition (C)** “At least one third of the total cost of the prototype project is to be paid out of funds provided by sources other than the Federal Government” cost share or in-kind contributions, if proposed, shall be clearly identified. Any cost sharing proposed shall include cash or in-kind. The cost share shall be from non-Federal sources and the value is based on the extent to which the cost share contributes to reducing Government program risk and/or successfully meeting desired outcomes and metrics. Cost share or in-kind contributions, if proposed, shall be clearly identified. If in-kind contribution is proposed, the Offeror shall provide a discussion of how that cost share was valued.

- **For condition (D)** The senior procurement executive for the agency determines in writing that exceptional circumstances justify the use of a transaction that provides for innovative business arrangements or structures that would not be feasible or appropriate under a contract, or would provide an opportunity to expand the defense supply base in a manner that would not be practical or feasible under a contract, it is not the intention of the Government to pursue senior procurement executive determination of exceptional circumstances.

Proposal validity period of 270 days from the proposal due date of the Program Solicitation is requested.

Disclose any known or anticipated conditions that may have significant cost impact. This type of information includes, but is not limited to, major teaming opportunities, company reorganizations or mergers, new acquisitions, labor union negotiations, and plant modernization programs.

If the proposed direct labor rates and indirect rates and factors are based on a current Forward Pricing Rate Agreement (FPRA), the Offeror shall provide a copy of the FPRA and state whether or not FPRA rates include or have been adjusted for the impact of this proposal. Note further that the application of FPRA rates and factors in an Offeror’s proposal does not preclude the Offeror from submitting the underlying support for subject rates if requested. If the proposed direct labor rates are based on something other than a FPRA or survey, the Offeror shall provide the supporting documentation to show the proposed labor rates are realistic.

Direct Labor – Individual labor category or person, with associated labor hours and

unburdened direct labor rates;

The Cost/Price Proposal shall also include labor rates and specify if they are DCMA approved. The proposed price shall be based upon prime and sub-awardee labor hours and labor rates that are reasonable, realistic and achievable. Offerors shall identify the labor hours proposed for the requirement and provide the basis. The Offeror shall provide sufficient details for the Government to evaluate the proposed skill mix.

Direct labor hours and rates shall be substantiated and delineated by labor category by Offeror fiscal year for the prime and each sub-awardee. The appropriate level of substantiation for the labor hours and cost should be provided for all contributors. Substantiating rationale for labor hours and cost can include details on historical experience, engineering estimates, learning curves, etc. The labor hour delineation shall be directly traceable to the same information proposed in the Technical Volume. If a composite rate is used, the Offeror shall provide an explanation on how the rate was derived.

Direct labor rates shall identify the baseline (takeoff point) plus projected escalation for each year. The Offeror shall disclose the correlation between the Offeror's fiscal year and the proposed direct labor and indirect rates by contract year.

Indirect Costs –The Offeror shall provide the rationale for proposed indirect rates to include a description of the Offeror's indirect allocation bases utilized in the Price Proposal. The proposal shall include the most current year-end rates, FPRAs, or Forward Pricing Rate Recommendations. The Offeror shall disclose the correlation between the contractor's fiscal year and the proposed direct labor and indirect rates by Government fiscal year. If proposing Facilities COM, the Offeror shall include the DD Form 1861.

Travel – Number of trips, destinations, durations, etc. (Travel estimate shall include costs for an initial kick-off meeting at the Performer site and a final program presentation as part of the reporting on the results of the research effort);

Sub-awardees – All sub-awarded work shall be appropriately identified in Volume 2. Offerors are responsible for ensuring that the requirements of the Proposal Instruction in the Program Solicitation are flowed down to all proposed sub-awardees. A cost proposal in **as much detail as the Offeror's cost proposal** will be required to be submitted by the sub-awardee for efforts valued over \$2,000,000. Sub-awardees' cost proposals shall be similarly structured. All subcontracted work shall be appropriately identified as such. An Offeror's proposal shall identify principal items/services to be sub-awarded, prospective sub-awardees, and the basis upon which they were selected (if non-competitive provide justification). Include the type of contractual arrangement contemplated and the rationale for determining the price reasonable. If a sub-awardee elects to submit an abbreviated proposal to the Offeror, it is the Offeror's responsibility to ensure that the sub-awardee submits a detailed proposal concurrently with the Offeror's submission. The sub-awardee's cost proposal can be submitted directly to the

Government electronically. Sub-awardee proposals shall be received not later than the date and time stated for receipt of proposals. Non-submission of proper sub-awardee proposals will negatively affect the evaluation. In cases where specific sub-awardees have not yet been defined, identification of sub-awardee needs and anticipated value (with substantiation) of effort should be included.

Materials - Materials shall be specifically itemized with costs or estimated costs. Where possible, indicate purchasing method, (Competition, engineering estimate, market survey, etc.). Justification for TBD material costs should be provided along with estimates and basis for estimating projected costs.

Other Directs Costs (ODC) - Itemize ODCs, particularly any proposed items of equipment or facilities. Equipment and facilities generally shall be furnished by the Offeror. Justifications shall be provided when Government funding for such items is sought. If applicable, provide consultant agreement(s) or other document(s) which verifies the proposed loaded daily/hourly rate

Part 2: Part 2 shall include a cost breakdown by task/sub-task by month using the same task numbers in the Statement of Work. The Cost/Price Proposal shall be consistent with the Offeror's proposed SOW. Activities such as demonstrations required to reduce the various technical risks shall be identified in the SOW and reflected in the Volume 2, Cost/Price Proposal.

6. EVALUATION INFORMATION

This Program Solicitation will use the evaluation criteria below for proposal selection for funding. The Government anticipates receiving proposals with varying technical approaches. The Government will evaluate in accordance with evaluation criteria specified below. The Government will not evaluate proposals against each other since Offerors will not submit these in accordance with a common work statement.

6.1. Technical Evaluation Criteria

The Government will evaluate proposals through a technical review using the following criteria.

Technical Evaluation Criterion I: Will evaluate the extent to which the proposed FARA design and constituent configuration items meet FARA System Performance Specification (SPS) requirements and other design guidance; the likelihood of achieving appropriate maturity for entering a full system integration and qualification phase in 2024; are well substantiated, and presented in a thorough, complete and clear manner. The evaluation of the FARA design will include the following areas of specific interest:

a. Meeting Aircraft Design Guidance:

1. Extent to which the proposed FARA design meets or improves upon the

mandatory attributes defined in the FARA SPS.

2. Degree to which performance parameters and values assigned to non-mandatory attributes along with those assigned to attributes identified as CFI or TBD result in an advantageous aircraft synthesis.

3. The degree to which the digital backbone design provides desired functionality and is likely to accommodate third-party mission system development and integration. The degree to which space, weight, power, and cooling (SWAP-C) are allocated for future integration of a complete mission equipment package suitable for the FARA Increment 1 capability.

b. Affordability: Development, fly-away and flight hour costs. Impacts of implementing new sustainment technologies, techniques and processes to enhance sustainment capabilities and reduce lifecycle costs. Impacts of proposed new or advanced technical and/or development innovations on any aspects of cost.

c. Maturity:

1. Description of critical technology items and technical processes is provided. Risk (cost, schedule and performance) with respect to maturity and airworthiness qualification of the design concept, critical constituent configuration/technologies items, materials, analytical methods, design tools, manufacturing technology or any proposed technical innovations for the CP effort and also for a future full system integration, qualification and production effort, and subsequent production phases.

2. Degree to which appropriate physical phenomena associated with the functioning of the aircraft are analytically represented and substantiated.

3. The likelihood that changes to the air vehicle will be required and how substantial those changes might be for the follow-on full system integration and qualification phase due to lack of technical maturity.

d. Operational Effectiveness and Suitability: Degree to which proposed aircraft system characteristics, flying qualities and performance are appropriate, sufficient and beneficial for accomplishing the FARA mission and mission flexibility. The degree to which the system can be satisfactorily placed in field use.

Technical Evaluation Criterion II: The merit of the proposed technical approach (including SOW and schedule) to accomplish performance and schedule objectives while managing risks and issues within the allocated budget. The evaluation of technical approach will include the following items of particular interest.

a. Data Development Methodology: The sufficiency of data development methodology to include analysis, ground testing, flight envelope expansion and vehicle characterization testing to develop data necessary to meet flight testing and other FARA

CP goals including airworthiness and acquisition planning and acceleration for the follow-on FARA program. Extent to which the Offeror's analysis and test approach develops data representative of a FARA Increment 1 aircraft.

b. Design and Analysis: Extent to which the standards, methods, strategy and processes (including tools) provides sufficient detail, accuracy, and resolution necessary to design, build and test the proposed FARA CP aircraft and other demonstration hardware and software in the given available time. Extent to which the tools and processes are suitable to transition to a full system integration, qualification and production phase and subsequently to production.

c. Cyber Security: The sufficiency of the approach to monitor, maintain and assure data security and product integrity against cyber threats; and detect, report and recover against cyber attack.

d. Safety: The sufficiency of the approach to identify hazards, determine the necessary level of rigor or design assurance level (DAL) and mitigate safety risks in order to achieve ground and flight safety.

e. Airworthiness: The degree to which the Offeror's proposed, streamlined approach to airworthiness/safety-of-flight is assessed to have a suitable level of transparency, engineering rigor, processes and controls, and history of being successfully applied in order to use as a basis for Army airworthiness oversight. The extent to which the approach is suitable for the short term CP effort and also develops data for full system integration and qualification after Phase 2.

f. Integration and Fabrication: Extent to which the integration and fabrication approach is likely to produce a flightworthy aircraft on the proposed schedule and specific risks as well as potential long-lead item decision points and criteria are identified. Known risks with associated risk mitigation plans and potential long-lead item decision points and criteria are identified and presented. Extent to which the integration and fabrication approach is suitable to transition to a full system integration, qualification and production phase and subsequently to production.

g. MOSA: Sufficiency of the approach to address the Government's purpose and objective for a MOSA as realized in the architecture, design, and implementation mechanisms of the Air Vehicle System (AVS), and Digital Backbone (DB). The degree to which the approach supports both the initial FARA CP Mission System (MS) configuration, and a potential, subsequent efficient integration of a MS by a third party developer and integrator. The degree to which the approach supports efficient AVS and AV DB B-Kit modification with or without AV OEM involvement.

h. Software: Extent to which the proposed system software and software configuration items design, development methodology, re-use methodology and level of rigor or design assurance level (DAL) is appropriate for safe, effective, manned flight testing during the CP and then transition to the follow-on full system integration and

qualification phase.

i. System Engineering Approach: Processes, tailored to time available and prototype development, are sufficient to conduct requirements definition, analysis and management; system modeling (SysML); risk management; configuration management; architecture design and interface management; technical data management; technical assessment; system hazard management and decision analysis.

j. Contractor Logistic Support (CLS): The suitability of the plan for providing CLS support during Government flight testing.

Technical Evaluation Criterion III: The capability of the Offeror to accomplish the proposed effort, and follow-on full system integration, qualification and production efforts. The evaluation will include the following items of particular interest:

a. Project Performance and Progress: Suitability of methods to provide ongoing assessment of technical and programmatic progress against the program plan, critical path, schedule and cost. Define the content of technical and financial progress reports to enable efficient program monitoring, tracking, and reporting. Description of how the program, if selected for award for full system integration, qualification and production, will transition to a formal EVM process.

b. Business Entity, Personnel and Facilities: The organizational structure is presented, identifying roles, responsibilities, key accountable positions and key personnel (includes experience, citizenship); a plan that ensures personnel and facilities are available when required; substantiation that the Offeror team has adequate qualifications (relevant expertise, knowledge and experience) to conduct proposed work and meet program objective; a description of facilities that are adequate for aircraft design, fabrication and testing of manned rotorcraft prototypes and future production aircraft. Teaming arrangements shall be clearly described to include division of work, decision-making process and adjudication of disputes. Evidence should be provided for plans for workforce or facility growth, and discussions of not yet implemented teaming arrangements that provide significant additional capability. Capacity of Offeror's team to produce full system integration, qualification and production prototypes and future production aircraft.

c. Workflow Management and Agility: Description of approach to obtain service of and manage delivery schedule and quality of suppliers for this prototype effort on a compressed timeline. Processes to rapidly, execute purchase orders and sub-awards. Agility to react to technical and schedule issues, enforce corrective actions, make other work changes (such as maintaining in-house capacity) to maintain cost, schedule and quality.

d. Data Sharing and Collaboration: Description and adequacy of tools and methods for collaboration and data sharing with partners, team members, sub-awardees, vendors, and Government team. Extent to which all team members have timely access to working data and information, and appropriate influence at all relevant

decision points. Extent to which proposed deliverables meet the intent to fill data and reporting needs for the project management team to track cost, performance and schedule; to calibrate design tools and predictions; validate tools, trends and make technology assessments; to conduct flight risk assessments and provide airworthiness releases; and to manage risk and make decisions about allocation of resources. Proposed approach for collaboration with the Government is sufficient to maintain technical and programmatic oversight and to develop cost models, physics-based engineering models and systems engineering models. Combined test team approach to developmental ground and flight testing and support of independent Government testing.

e. IP / Data Rights to the Government: The degree to which the proposed rights to technical data, computer software and computer software documentation to be provided to the Government, as described in the instructions for Volume 1 of the proposal (Section 5.1) support Government competitive sustainment of a production aircraft with the objective of reducing the Government's life cycle sustainment costs and enable more rapid capability enhancements. This includes an assessment of the extent to which proposed primary offeror, sub-awardees or vendor limitations to technical data, computer software and computer software documentation rights inhibit Government oversight of the FARA CP effort or transition to a full system integration, qualification and production program; extent to which exclusivity arrangements with sub-awardees or vendors may inhibit use of specific, enabling technologies or integration of new technologies by prime Performers other than the offeror in a Program of Record for a next generation aircraft.

f. Risk Identification and Mitigation: Degree to which the offeror demonstrates an understanding of technical and programmatic challenges and uncertainties; likely effectiveness and suitability of described routine and periodic approach to identify, assess, quantify and mitigate technical performance shortfalls and reduce technical and programmatic risk.

g. Transition from CP to post-CP: The efficiency of the plan to transition knowledge, personnel, processes, and facilities from the CP effort to a full system integration, qualification and production program. Extent to which the Offeror's data, knowledge and supporting items developed during this effort will be available to benefit a future acquisition Program of Record.

The Government will assign each proposal an overall risk rating based upon an integrated assessment (discussed in the Technical Evaluation Criteria) of the risk of successful performance.

6.2. Cost/Price Criteria

Each Offeror's cost/price proposal will be evaluated for fairness, reasonableness and realism, and analyzed to determine whether the proposed cost is consistent with the Offeror's proposed technical approach, and is affordable (See Section 3.2). The

cost/price proposal submitted by the Participant will be evaluated for compliance based upon the submission requirements in Section 5, Part: **Volume 2: Cost/Price Proposal**

The reasonableness of the Offeror's proposed cost to the Government, which includes the realism of the cost elements (labor hours, labor categories/mix, sub-awards, travel, materials, and any other direct costs), and any proposed cost share will be accessed to determine that the proposed use of Federal funds and any proposed cost share are to be used only for costs that a reasonable and prudent person would incur in carrying out the prototype project.

Price realism analysis will be performed to determine whether specific estimated proposed cost elements are realistic for the work to be performed; reflect a clear understanding of contract requirements; and are consistent with the unique methods of performance described in the Offeror's technical proposal. The realism analysis will also be used to evaluate the Offeror's understanding of the technical requirements and the risk associated with the Offeror's Technical proposal. The results of the realism evaluation will result in a performance risk assessment, as it relates to the proposed technical approach.

The Government will fully evaluate the cost/price proposals. Cost/price proposals will be evaluated as follows:

a. Labor: Evaluation of labor cost/price will be an assessment of the realism of the proposed direct labor rates and based on the degree to which the cost proposal includes a funding profile by Government fiscal year with labor hours and cost broken down to WBS Level that is consistent with what is provided in the technical proposal, and aligns with program schedule.

b. Indirect Costs – Evaluation of indirect costs will be based on the veracity of rationale provided for indirect rates

c. Travel: Evaluation of travel cost/price will be based on the degree to which the estimate of travel costs correlates to FARA CP program. Additionally, the cost/price per trip will be evaluated based on reasonableness of airfare, lodging, per diem and other expenses.

d. Materials and ODCs: Evaluation of material and ODC cost/price will be based on the degree to which these costs (and projected need) are consistent with known current market prices and the appropriateness to the proposed effort. Justification for costs that are currently not determined is realistic.

e. Cost share: Evaluation of cost share will be based on contribution to successful outcome as defined in this Program Solicitation, the type of cost share and compliance with 10 U.S.C. 2371(b). Any cost share will be calculated as follows: non-Federal cash plus in-kind contribution divided by project value. Any resulting agreement value will exclude Performers' "sunk" costs of prior research as cost match. Only additional

resources that will be provided by the Performer to carry out the current project and contribute directly to the work and deliverables described in this Program Solicitation will be counted.

6.3. Evaluation Order of Importance

Technical Evaluation Criterion I is more important than Technical Evaluation Criteria II and III, which are of equal importance. Each of the technical evaluation factors are significantly more important than the cost/price factor.

NOTE: The Government reserves the right to select for award and fund all, some, or none of the Proposals received.

6.4. Evaluation Standards & Terms

To assist Offerors in understanding the Government evaluation results, the Government will use the following definitions in its assessment of proposals.

6.4.1 Technical Evaluation Ratings: Each Technical Criterion will receive an adjectival rating with the results informing the overall technical rating.

Exceptional.

The evaluated offering meets or exceeds all mandatory attributes in a beneficial way and exceeds some and meets most other specified performance or capability criteria in a beneficial way to the DoD. The approach has a high probability of successful completion of the FARA CP and consequences of particular risk items are negligible; offers highest degree of capability or a meritorious approach.

Good.

The evaluated offering meets all mandatory attributes; may meet or exceed a few other specified performance or capability criteria and has an elevated probability of successful completion of FARA CP and consequences of particular risk items are minor; offers high degree of capability or sound approach.

Acceptable.

The evaluated offering meets all mandatory attributes, may exceed a few other specified performance or capability criteria and has acceptable probability of successful completion of FARA CP. Consequences of particular risk items can be mitigated with moderate expense of resources and approach offers minimum level of capability and/or reasonable approach.

Marginal.

The evaluated offering meets all mandatory attributes may meet most of the other specified performance or capability criteria but with elevated risk and with low probability of successful completion of FARA CP, and takes an approach with a low likelihood of success in the timeframe expected. The consequences of particular risk items are high.

Unacceptable.

The evaluated offering fails to meet all mandatory attributes specified, may not meet most of the other specified performance or capability or introduces high risk and thus is deemed incapable of successful completion of FARA CP. Additionally, the offering contains one or more major deficiencies that would require a major revision to the proposal to make it correct.

The cumulative effect of numerous weaknesses may result in the proposal being assigned one or more minor deficiencies. The cumulative effect of numerous minor deficiencies may result in the proposal being assigned a major deficiency. In other words, while the individual deficiencies may be correctable, the deficiencies are so numerous and extensive as to require the Offeror to essentially re-propose.

6.4.2. Risk Ratings:

High – Likely to cause serious disruption of effort or increase in cost/price of performance even with special contractor emphasis and close Government monitoring.

Moderate – Has some potential to cause minor disruption of effort or increase in cost/price of performance. Normal Government monitoring will probably be able to overcome most difficulties.

Low – Has little potential to cause disruption of effort or increase in cost/price of performance. Normal Government monitoring will probably be able to overcome difficulties.

6.4.3. Additional Evaluation Definitions:

“Strength” is a feature, item; technique or methodology which stands out as a significant benefit to enhance the effective execution of the program.

“Weakness” is a feature, item, technique or methodology that detracts from the proposal merit. Ambiguities or omissions found within the proposal are weaknesses when the uncertainty or lack of information presents doubt concerning the likelihood of meeting the performance objectives. A weakness has no substantial impact on cost, schedule, or technical approach.

“Deficiency” is any part of the Offeror’s proposal that does not meet an objective and/or

criterion stated in the Program Solicitation. A “minor deficiency” can be corrected through negotiation, and will likely result in changes to cost, effort, schedule or approach. A “major deficiency” is a major item and/or gross omission that will preclude meeting objectives and/or will result in substantial impact on areas of cost, effort, and schedule.

“Negotiation Items” addresses any part of the Offeror’s proposal that could be improved or corrected through discussions to either ensure mutual understanding or to affect the best possible program performance and optimum OTAP terms.

6.4.4. Cost/Price Evaluation: Adjectival ratings shall not be used for offerors’ Price proposals. The cost/price evaluation will a narrative discussing reasonableness, realism, affordability and compliance with 10 U.S.C. 2371(b).

6.5 Proposal Results/Selection Categories: Upon completion of the proposal technical and cost/price evaluation, the Government will determine by consensus based on the merit if the proposal is:

Selected for Funding: Well-conceived, sound proposals pertinent to program goals and objectives with applicability to DoD mission needs, and offered by a responsible offeror with the highly qualified staff and supporting resources needed to ensure satisfactory program results. Proposals (or portions thereof) in this category are recommended for acceptance and funding is available.

Not Selected for Funding: Proposals which are not recommended for acceptance and will not be considered for funding

6.5. Notification to Offerors of Evaluation Results

Once the Program Solicitation proposal evaluation is complete, Offerors will be notified in writing of selection or non-selection. Offerors not selected for an award may request feedback regarding the evaluation findings of submitted proposals. A written request to the Agreements Officer must be received within three calendar days after receipt of notification of non-selection.

7. OTHER INFORMATION

7.1. Information for Proposal Respondents

This Program Solicitation is for planning purposes only. It will not be construed as an obligation on the part of the Government to acquire any products or services.

No entitlement to payment of direct or indirect costs or charges by the Government will arise as a result of submission of responses to the Program Solicitation and the Government’s use of such information. Respondents to the Program Solicitation may be requested to provide additional information based on their submittals. Unnecessarily

elaborate responses containing extensive marketing materials are not desired.

Technical and cost/price proposals, or any other material, submitted in response to the FARA CP Program Solicitation will not be returned. However, depending on the markings on the proposal, the Government will adhere to 41 U.S.C. §§ 2101 – 2107 on handling source selection information and proprietary proposals. It is the policy of DoD to treat all proposals as sensitive competitive information, and to disclose their contents only for the purpose of evaluation.

7.2. Export Control Considerations

International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR) may apply to this Program Solicitation. Potential Offerors retain responsibility for compliance with these export regulations.

7.3. Security Classification

The Government anticipates that the proposals may include a classified portion addressing aircraft survivability and vulnerability. The draft Other Transaction Agreement for Prototype (OTAP) contains a DD Form 254 applicable to this Program Solicitation. The following delivery instruction applies to any classified portion of the proposal in response to this Program Solicitation:

- The classified portion of the proposal only will be transmitted in accordance with the Department of Defense Manual Number 5200.01, Volume 3. The unclassified portion of the proposal will be submitted in accordance with the instructions in Section 6 of this Program Solicitation.

- The mailing address for the classified portion of the proposal is:

Aviation Development Directorate – Eustis
Attention: Security Manager
Building 401 Lee Boulevard
Fort Eustis, VA 23604-5577

7.4. Government Furnished Information, Equipment, Property, or Facilities

It is the Offeror's responsibility to identify, coordinate, and furnish supporting documentation in the proposal for the use of any Government furnished information, equipment, property, or facilities. Initial GFI is offered as the SIP.

If available at the time of need, ITE are anticipated to be Government Furnished Property. An ITE interface control document (ICD) will be provided. If the ITE is not available at the time of need, T700-GE-701D engines will be provided as GFP along with appropriate ICDs.

9. INSTRUCTIONS TO OFFERORS

8.1 Proposals: Proposals should be valid for a period of 270 days from the proposal due date of the Program Solicitation. Technical and cost proposals shall be provided in electronic format described in Section 5 above. The unclassified portions of the proposals shall be submitted via AMRDEC Safe Access File Exchange (SAFE): <https://safe.amrdec.army.mil/safe/> to Hope McClain hope.a.mcclain.civ@mail.mil and Robert Waible Robert.c.waible.civ@mail.mil. Proposals shall be received not later than 18 December 2018. As part of the Program Solicitation, an OTAP template has been provided. Offerors shall provide a revised/update OTAP with ALL changes tracked (with MS Word Track Changes feature) along with their proposal.

8.2 Questions: Questions may be submitted in writing via email to Hope McClain, hope.a.mcclain.civ@mail.mil. All questions must be submitted no later than 14 days prior to the Program Solicitation closing date to ensure a timely Government response. All substantive questions and responses received which can be answered without revealing sensitive information will be posted to FedBizOpps as an amendment to the Program Solicitation. Proposals received after the specified closing date and time will not be evaluated.

8.3 Order of Precedence: Upon award of an Agreement, any inconsistency between the terms of that Agreement, the language set forth in the Attachments, and the Performer's proposal, the inconsistency shall be resolved by giving precedence in the following order: (1) The Agreement, (2) all Attachments to the Agreement, and (3) Performer's proposal.

8.4 Requesting the SIP: Offerors desiring copies of the Program Solicitation SIP will need to request it in writing. Requests shall be made via e-mail to Hope McClain, hope.a.mcclain.civ@mail.mil or Rob Waible, robert.c.waible.civ@mail.mil.

Any potential Offeror requesting the SIP is required to be certified in the Joint Certification Program (JCP) (Militarily Critical Technical Data Agreement, DD Form 2345) and be a cleared defense contractor with the ability to receive/store Controlled Unclassified Information (CUI) (compliance with NIST SP 800-171 Rev1) and classified information. To obtain certification in the JCP, potential Offerors shall follow the instructions provided on the JCP website at <http://www.dlis.dla.mil/jcp/>.

The potential Offeror shall provide a written statement sufficient to demonstrate that the company:

- Has the requisite capability to perform the proposed prototyping effort and is registered into a NAICS code, e.g. 336411, Aircraft Manufacturing, 336416, Other Aircraft Part and Auxiliary Equipment Manufacturing, 334511, Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing, 541715, Aircraft, Aircraft Engine and Engine Parts, or

- Is a nontraditional contractor that can participate to a significant extent as defined in the DoD Other Transactions Guide for Prototype Projects dated January 2017.

All requests for the SIP shall contain:

- a. Statement of Capability;
- b. A current and verifiable JCP certification number
- c. Statement of compliance with NIST SP 800-171 Rev1
- d. Signed Non-Disclosure Agreement (NDA)

Appendix 1: AIRCRAFT CONCEPTUAL DESIGN DATA

Characteristic	FARA CP
Hover efficiency	Power loading (lb/hp) (@HOGE, 4K/95F, 90%MURP) Figure of Merit (rotor and aircraft), power losses (accessories, anti-torque), download
Cruise efficiency	L/De (100% MCP, 4K/95 and SL, DGW) Range / 1% GW fuel, (rotor, aircraft), drag (clean, fully configured), weight, speed
Weights and c.g. envelope	Empty, MTOGW, Core Air Vehicle, Payload, Fuel, DGW, SDGW, structural weight fraction, lateral and longitudinal c.g. range
Performance	4K/95 90% MRP HOGE GW; 100% MCP speed, 4K/95 DGW; 100% IRP speed, 4K/95 DGW; Mission radius; Endurance at mission radius
Maneuverability	CT/sigma vs mu, V-N, handling qualities, constant airspeed/altitude turn characteristics, high speed terrain avoidance characteristics (at relevant weights and atmospheric conditions as defined in SPS)
Physical description	Dimensions, configuration layout
Rotor / Configuration	Rotor speed vs airspeed, lift-offset vs airspeed, thrust sharing vs airspeed
Rotor / Tail Rotor	Type, # of blades, dimensions, tip speed, disk loading, max blade loading
Engines and drives	Number of engines, drive system layout and weights, transmission ratings, drive RPM, losses
Configuration definition	Characteristics of lift-offset, torque balance, aux thrust / lift, other innovative features
Conversion power	Hover, conversion corridor and forward flight power distribution
Survivability	SWaP-C requirements, configuration layout, Crashworthiness Index
Operating and sustainment attributes	Design Service Life, MFOP, design elements, technologies, characteristics and methodology employed to maximize sustainability and achieve operational availability Ao
Cost	Fly-away price, O&S cost (see ground rules below)

Table: Aircraft Design Data

Cost estimating ground rules

Provide the estimated total development cost and the recurring average unit flyaway cost in a format consistent with MIL-STD-881C (Ref. 1) work breakdown structure (WBS) according to the following ground rules:

- All estimated acquisition costs are reported in FY18 USD.
- Development takes place on a timeline leading to first flight of a demonstrator aircraft by 2024 and IOC provided by production aircraft by 2028. Include a

description of the major test events and the number of flight test and ground test article prototypes which drive development cost.

- The Average Unit Flyaway Cost (AUFC) denotes the recurring hardware cost (inclusive of GFE) of the aircraft production plus assembly costs, recurring engineering & management, and profit & fee.
- The production quantity ranges up to 500 aircraft, with the AUFC reported for units 1 through 50, 51-100, 101-250, and 251-500. Include a description of the estimated learning curve effect and its sensitivity to overall production quantity and annual production rate.
- The estimated AUFC corresponds to a mission-capable aircraft, with sufficient avionics included in empty weight to accomplish normal flight throughout its full performance envelope as well as all of the desired military mission capabilities.

Provide the annual direct operating and support cost per aircraft in a format consistent with OSD CAPE 2014 (Ref. 2) guidelines. Provide the estimated maintenance cost drivers of the aircraft in terms of maintenance man-hours per flight hour, mean time between removal/replacement/overhaul, and dollars per flight hour in a format consistent with DoD reliability aircraft reliability metrics (Ref. 3) and organized according to the same WBS used for flyaway cost. The direct operating cost components desired are: Personnel costs (number of crew, number of maintainers, number of other support personnel, and total annual costs); Unit Operations (total fuel, oil, and lubricant annual cost); and Maintenance (maintenance consumable parts and materials cost, depot-level repairable parts cost, and contractor maintenance cost – if applicable). The O&S costs should be estimated according to the following ground rules:

- All estimated O&S costs are reported in FY18 US dollars.
- Assume the price of fuel is \$2.50 per gallon, and the price of lubricants is \$10.00 per gallon.
- Compute the average hourly fuel consumption using the fuel burn and block time for the provided design mission.
- Describe the components of maintenance consumables and materials cost per flight hour in terms of the same WBS used for the flyaway cost.
- Labor cost, including crew, maintainers, and other support personnel, is representative of existing Army force structure and labor rates. Describe and substantiate any technology credit which may result from alternate sustainment approaches and business practices.
- The aircraft maintenance concept is representative of the existing Army infrastructure blend of unit-level maintenance, depot-level maintenance, and contractor support. Maintenance cost drivers should be grouped according to the same WBS used in the flyaway cost estimate.
- Assume the baseline OPTEMPO for one aircraft is 250 flight hours per year with maintenance costs representative of peacetime usage spectrum. Compute the direct operating cost components for the baseline case as well as high OPTEMPO case of up to 500 flight hours per year in a deployed and austere environment. Comment on the sensitivity of personnel and maintenance costs to OPTEMPO and operating environment.

References

1. Department of Defense. (2011). *Work Breakdown Structure for Defense Materiel Items* (MIL-STD 881C). Retrieved from <https://www.ncca.navy.mil>
2. Department of Defense, OSD-CAPE. (2014) O&S Cost Estimating Guide. Retrieved from <https://www.osd.cape.mil>
3. Department of Defense. (2009). *Reliability, Availability, Maintainability, and Cost Rationale Manual* (DoD RAM-C). Retrieved from <https://www.acq.osd.mil>

Appendix 2: ENTRANCE AND EXIT CRITERIA FOR ID&RR, FD&RR AND IPDR

Initial Design and Risk Review (ID&RR)

ID&RR marks a schedule-driven decision point. The purpose is to consolidate data that will be the basis of the down-select assessment and confirm readiness to begin detail design. The scope of information desired by the Government is reflected in the following:

- Does the status of the technical effort indicate sufficient progress and readiness to begin detail design? Is the vehicle concept mature and does it engender the likelihood of flight test success and transition to system integration, qualification and subsequent production?
 - Have deficiencies and concerns previously identified by the Government been corrected?
 - Does the design satisfy the key performance metrics and mandatory attributes?
 - Has the system allocated baseline been established and sufficiently documented to proceed to detail design with proper configuration management?
 - Are program risks identified?
 - Are adequate quality control, configuration management, and risk mitigation plans, processes, and metrics in place to enable the program to succeed?
 - Is the program schedule executable?
 - Is effort properly staffed?
 - Are post ID&RR work plans, schedules and costs realistic, reasonable and aligned with FARA CP and FARA Increment One goals?
 - Have the majority of manufacturing processes been defined for both the FARA-CP and FARA Increment 1 aircraft? Have the manufacturing process differences been characterized in terms of their impact on performance, efficiency, cost, airworthiness, supportability, analysis methods/results, test results, etc.?
 - Have applicable standards (e.g. modular open systems approach, software development, crashworthiness, FAA/ICAO, etc.) been identified, and incorporated?
 - Are engine provisions well defined with interface considerations for controls, fire detection/extinguishing, stability, vibrations, temperatures, hydraulics, air induction, etc.?
 - Are appropriate cyber-security controls in place?
 - Have long-lead and key supply chain elements been identified? Have schedules been provided to assess schedule criticality of effort?
 - Have key design decisions and/or vehicle trades impacted the proposed logistics/life cycle sustainment approach, test and evaluation approach, facilities implementation plan, etc.? Have recommendations regarding teaming and Government collaboration approach been provided?
 - Have provisions for mission system components and interfaces been defined and are accounted for?
 - Is there an adequate system safety methodology description (hazard tracking, controls and mitigation measures)

- Has the FARA maintenance concept been described, and an initial product support strategy been proposed?
- The ID&R Review will be based on the extent to which a Recipient has:
 - Demonstrated efficient Government access to in-progress design and analysis data
 - Integrated Government personnel into recipient knowledge management routines and processes
 - Updates to work plans and cost estimates have been provided.

ID&RR Exit Criteria

The Government down-select assessment will be based on the body of knowledge provided by the recipient (described here and in the ID&RR Deliverable description) and will be assessed in accordance with the evaluation criteria (described here and in the Program Solicitation Section 6). Successfully exiting the ID&RR phase will be accomplished by providing:

- An ID&RR deliverable that fully addresses the agreed to data requirements.
- Information and data that is properly marked.
- Closure of all critical action items.

Final Design and Risk Review (FD&RR)

FD&RR marks a readiness-driven decision point. The purpose is to consolidate data that will be the basis of decisions on how to proceed and confirm readiness to enter into the final vehicle fabrication, assembly and test stages of the program. The Government requires confidence that the program is likely to meet flight test and data development goals, and transition to the qualification and production phase with acceptable risk.

FD&RR Entrance Criteria:

- Detailed design is complete, critical system performance characteristics are consistent with requirements, program costs are within constraints, and trade-offs within the design space are documented
 - Updates to System Performance Specification, subsystem CDR results, and hardware and software component specifications completed
 - Procurement/manufacturing plan is complete
 - There is a resourced, executable plan to procure or fabricate components and assemble the aircraft. A Supply chain management plan is in place.
 - There is a resourced, executable plan to test components and systems for functionality, flight safety/airworthiness and compliance
 - Software development is on-track
 - Mission systems to be integrated are understood, SWAP-C allocations have been made and integration is consistent with MOSA guidance.
 - Adequate measures are in place for quality control, configuration management, critical path tracking, etc.

- Efforts are consistent with program cost, schedule, and risk constraints
- Risks have been identified and mitigation plans developed
- Program schedule has been updated and the critical path to first flight identified.
- Models and analyses are complete at the appropriate level.
- System (hardware and software) is ready to be put under configuration

management

- Engine provisions and interfaces are well defined
- Prior technical review issues have been resolved
- The AQS has been updated.
- Updates to the logistics/life cycle sustainment approach, test and evaluation approach, facilities implementation plan, etc. have been provided
- Long lead items have been identified and actions taken to mitigate schedule risk
- Updates to the cyber security approach, lifecycle management approach, test and evaluation approach, facilities implementation plan, etc. have been provided
- Update to system safety methodology description (hazard tracking, controls and mitigation measures)

FD&RR Exit Criteria

The Government will assess whether to continue to fabrication and testing, continue with some modification to the Recipient plans, or to discontinue the effort based on the body of knowledge available at FD&RR. Successfully exiting the FD&RR phase will be accomplished by delivering:

- A fully compliant FD&RR deliverable
- Information and data properly marked
- Resolution or an agreed to resolution of all action items

Increment 1, Initial Preliminary Design Review (IPDR)

The IPDR is a collection point of data necessary to substantiate a holistic Increment 1 preliminary design, establish the Allocated Baseline, and substantiate program maturity to proceed into a subsequent phase like Engineering Manufacturing and Development (EMD). Items to be addressed include, but are not limited to the below. NOTE: When updates are requested below and no changes have occurred to warrant an update then no updates will be required, just present the current data.

IPDR Entrance Criteria

1. Competitive Prototype (CP) Initial Design and Risk Review (ID&RR) and CP Final Design and Risk Review (FD&RR) are complete, the associated reports are received and approved, and all critical actions are complete.
2. Increment 1 Subsystem and/or Configuration Item (CI) PDRs are complete, the associated subsystem and/or CI specifications are approved and all critical actions are complete. Subsystem and/or CI PDRs shall address the requirements of 4.j., but should include any other requirement in 4 below, if it is applicable to the subsystem and/or CI

under review.

3. Receipt and/or access to Increment 1 System PDR deliverables and IPDR Presentation 30 days prior to PDR.

4. The IPDR Presentation(s) shall present a holistic preliminary design, document the proposed allocated baseline, and address each requirement below, at a minimum. Any item below that is not listed in the FARA CP Deliverable Description Document is a PDR presentation requirement only:

- a. Updated risk assessments that identifies/quantifies known risks and associated risk mitigation plans.
- b. Updated Baseline Data.
- c. Updated technical data assertions, Government data rights and/or limitations.
- d. Life predictions. A discussion of the method(s) used to predict life shall be presented.
- e. Identify and describe: aircraft design changes post FDR, if any
- f. Identify Preliminary list of Critical Safety Items (CSI
- g. System Work Breakdown Structure (WBS).
- h. Technical Data Package (TDP) for:
 - FARA Air Vehicle System (AVS) System Architecture (SysArch)
 - FARA AVS
 - AVS Digital Backbone (DB)
- i. Descriptions, preliminary design, capabilities, and limitations shall be presented for:
 - Aircraft system and subsystems, if not addressed in above TDPs
 - Mechanical and Electrical Systems
 - Monitoring and Diagnostic Systems
 - Any other system / subsystem pertinent to the design.
- j. Proposed allocated baseline (hardware and software) to the CI level:
 - Requirements allocation, traceability and verification to the CI level
 - Specifications tree (hardware and software) to the CI level
 - Specifications (hardware and software) to the CI level
 - Interface Requirements tree (hardware and software) to the CI level (include Interface Control Documents (ICDs), Interface Description Documents (IDDs), and Interface Requirements Documents (IRDs))
 - ICDs, IDDs, and IRDs (hardware and software) to CI level

- Any other relevant interface documents, schematics, drawings, and/or models.
 - Updated Airworthiness Qualification Specification (AQS)
- k. Technical approaches and/or plans shall be presented for:
- Human Systems Integration (HSI) (include automated decision aids)
 - Software development, design, and compliance to AMCOM 385-17
 - Updated Long Lead Item Procurement Plan for Engineering, Manufacturing and Development (EMD)
 - Cybersecurity, Survivability and Vulnerability design considerations
 - Cybersecurity Requirements and Technical Guidance (CSRTG)
 - Open Systems Management Plan
 - Open Systems Verification Plan and Results
 - Model Management Plan
 - Updates to Airworthiness Substantiation Data, if required.
 - Manufacturing Plan
 - System Safety Plan
 - Updated test and evaluation approach
 - Any other relevant technical approach.
- l. Logistics and Management approaches and/or plans shall be presented for:
- Draft Product Support Strategy (PSS) and DOTmLPF-P challenge, barrier and opportunity analysis results. Explore innovative methods to reduce historical Government controlled logistics approaches (i.e. manpower, tools, and sparing solutions). Emphasis should be placed on to the unique aspects of the configuration as they relate to sustainment, as well as sensitivities to the sustainment capabilities and technical objectives.
 - Maintenance Concept that meets the Reliability, Availability, and Maintainability (RAM) goals of future operational requirements and warfighting strategies. Emphasis should be placed on the uncertainties associated with a complex weapon system and sustainment paradigm shift. All technology enhancements, process improvement assumptions, and associated data to be included in the RAM goals.
 - Training Analysis / Plan
 - Technical Data Rights Analysis and Risk Report that details the technical approach, required amount of GPR and cost to support the transition to an organic sustainment base and any alternative product support solutions designed to achieve best value lifecycle sustainment costs.
 - Logistics Product Data, Summaries, and IPS Element Analysis
 - Level of Repair Analysis Report
 - Engineering Data for Provisioning (EDFP)
 - Interface Control Document that addresses sustainment needs for both manned and autonomous operations.
 - Program Management Plan
 - Cost Management Plan

IPDR Exit Criteria

1. Record or Meeting / Minutes (RMM).

2. Government approval of PDR deliverables.
3. Government concurrence that all critical action items and/or issues have been resolved or have an agreed resolution path.
4. Government approval that all IPDR Entrance and Exit Criteria are satisfied.

Appendix 3: ARMY FLIGHT TEST SCOPE

The FARA CP Government flight test will culminate a joint development, demonstration, and performance evaluation of the FARA CP aircraft. Testing will be conducted in and around the local flying area of Redstone Arsenal, AL, but other test locations may be used as deemed necessary throughout the program. All demonstrations will be conducted under day/night visual meteorological conditions except where needed to demonstrate instrument meteorological conditions for instrument flight rules.

Government testing will require nominally 40 hours of flight, up to 3 months, and consist of air vehicle performance, handling qualities, and mission maneuver testing designed to demonstrate system attributes, and verify compliance with the applicable portions of the Performance Specification. All tests will be conducted in accordance with progress demonstrated during Contractor flight testing, and will necessarily be limited to progress achieved during envelope expansion and applicable airworthiness constraints. The U.S. Army Redstone Test Center (RTC) will provide engineering and pilot support for all development, demonstration, and performance assessments IAW an established combined test team (CTT) memorandum of understanding.

Appendix 4: AIRWORTHINESS

Airworthiness for the FARA CP shall be executed by the Army with the issuance of an Army Airworthiness Release for each aircraft. This process will focus on the safe and efficient execution of the FARA flight tests while ensuring coverage for the government risk and the government's technical oversight of the test objectives. As part of the Offeror's response to the Program Solicitation, the Offeror will be expected to propose an Airworthiness Qualification Specification which validates airworthiness qualification efforts to meet the requirements of this AQP and the aircraft system specification. The AQS will be approved by the Government and Offerors are encouraged to propose innovative and efficient methods of compliance to expedite program schedule. The Offeror may propose their internal airworthiness review program which may be incorporated in the Army airworthiness process in order to further streamline the process and support the timely execution of the competitive prototype flight test. First Flight Requirement/Safety of flight qualification, not full qualification, of all systems, subsystems, and components is required to support flight test efforts as this testing is expected to be conducted by Performer and Government experimental test pilots within a restricted environment.

Minimum airworthiness requirements for the FARA CP efforts will be developed through proposed approach by the Offeror and iterative negotiations with the airworthiness authority. Minimum requirements will include identification of flight hazards, establishing component and system limit values through analysis and testing, development artifacts and documentation of pertinent airworthiness factors.

Appendix 5: DELIVERABLES

Introduction: Data deliverables are not yet fully defined because all potential data cannot be anticipated due to the variability in possible approaches. The Government provides the following deliverables as minimal acceptable data needs. The intent will be to fill data and reporting needs:

- for the project management team to track cost, performance and schedule.
- to document progress and significant findings.
- for the technical team to calibrate tools and predictions, make technology assessments, and ensure compliance with requirements.
- for the airworthiness community to conduct flight risk assessments.
- to begin assembling qualification data to be applied to the follow-on program of record.
- for the Government team as a whole to manage risk, make decisions about allocation of resources and plan for entry into a subsequent full integration, qualification and production program.

Descriptions of deliverables (listed below) are provided in the draft OTAP as guidance for the desired data, time and frequency of submission. Final deliverables will be based on Offeror's proposals and subsequent negotiations.

1. Baseline Data (design, life cycle cost, program management metrics)
 2. Program Management Plan
 3. Bi-monthly Technical Status Reports
 4. Monthly Financial Status Updates / Bi-Monthly Financial Status Reports
 5. Long Lead Item Procurement Plan
 6. Cyber Security Requirements and Technical Guidance (CSRTG)
 7. Open Systems Management Plan
 8. Open System Verification Plan and Results
 9. FARA Air Vehicle System Architecture Technical Data Package
 10. FARA Air Vehicle System and Digital Backbone Design Technical Data Package
 11. Model Management Plan
 12. Airworthiness Substantiation Data
 13. Test, Data Collection and Analysis Plan(s) to meet AQS
 14. Initial Design and Risk Report and Program Cost & Plan Update
 15. Final Design and Risk Report
 16. Cost and Software Data Report
 17. Initial PDR Data Package
 18. Technical Reports
 19. Meeting Presentations and Briefing Material
- Final Report.

Appendix 6: SUPPLEMENTAL INFORMATION PACKAGE (SIP) DESCRIPTION

Additional appendices containing restricted distribution information will be provided as a SIP for qualified Offerors. Instructions for obtaining the SIP are at Section 8.4.

The FARA CP Program Solicitation provides the context from which the FARA CP effort will be executed and defines the Government's desired outcomes for the Program Solicitation. The SIP contains many of the appendices referenced in the Program Solicitation and given for additional detail and guidance in scoping the effort and developing the FARA aircraft.

The FARA CP will be a vanguard effort in nearly every aspect and will result in a new generation aircraft system. To assist in understanding what is desired by the government, the SIP annex is organized in the following manner:

IMPORTANT: The FARA SPS is the guiding document for design. The SPS defines mandatory attributes that shall be met. In some cases, the SPS also provides performance targets for other system characteristics that define the overall trade-space which allows opportunity for innovation and optimization for each proposed configuration. In cases where the SPS does not identify specific performance targets, the FARA ICRD should be used as guidance to inform the trade space for desired capabilities. For other than mandatory attributes, Offerors should justify any variance from the SPS target values. The requirements are listed in prioritized order in the Future Vertical Lift (FVL) Family of Systems (FoS) Future Attack Reconnaissance Aircraft (FARA), Increment 1 ICRD, providing relative value.

An **Incremental Integration Plan** is provided to guide the development approach from the FARA CP to FARA Increment 2.

Design Guidance will be provided that consists of:

- **FARA SPS**, derived from the ICRD. The SPS will define mandatory attributes and performance targets.
 - A **Sustainment** section describes the government's desire to adopt emerging sustainment capabilities that include ultra-reliable / operationally durable designs, active health state awareness, and ability to tolerate or adapt to damage, as well as an agile field sustainment capability and sustainment reform.
 - There will be a **Holistic Survivability (HS)** portion of the unclassified SPS and also a classified appendix to the SPS.
 - The **FVL ICRD** is provided for the FARA Increment 1 that describes the military need. As stated above, the requirements are listed in prioritized order.
 - An **Improved Turbine Engine Performance Table** is provided for modeling purposes.

Although integration of a full mission systems package is not expected in the CP, allocating SWAP-C for all envisioned mission equipment, and partial integration is an

important part of the FARA CP effort. The following guidance is provided:

- A description of minimum integration expectations for FARA CP
- A working description of **MOSA**
- Separation of Air Vehicle and Mission Systems
- Definition of the **Digital Backbone**.
- **Capabilities Guidelines for Provisioning** are provided for anticipated systems. The Government team will continue to evolve description for both required components that will be provided as GFE and other functions that provide opportunity for innovation. The information provided includes SWAP-C estimates, mostly based on current equipment, for use for design allocations.

Finally, an initial **Airworthiness Qualification Plan (AQP)** is provided in initial form as a starting place for negotiation. It should be noted that the full AQP is not the equivalent to the minimum level of assurance of safe flight operation needed for the competitive prototyping effort.

A **FARA CP security classification guide (SCG)** will be provided when approved to guide how to protect sensitive information.