



# **Transformer (TX)**

## **Vertical Takeoff and Landing Roadable Air Vehicle**

**Broad Agency Announcement (BAA) Solicitation 10-52**

**DATE: April 12, 2010**

**Defense Advanced Research Projects Agency  
DARPA/TTO  
3701 N. Fairfax Drive  
Arlington, VA 22203-1714**

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## Part One: Overview Information

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Tactical Technology Office
- **Funding Opportunity Title** – Transformer (TX)
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – Broad Agency Announcement (DARPA-BAA-10-52)
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – (N/A)
- **Dates:**
  - Posting Date: 12 April 2010
  - Proposal Due: 27 May 2010
- **Description of the funding opportunity:** The objective of the Transformer (TX) program is to demonstrate a four (4) person flyable/roadable vehicle that provides the warfighter terrain-independent mobility. This presents unprecedented capability to avoid traditional and asymmetrical threats while avoiding road obstructions. TX will enable enhanced company operations of future missions with applicable use in strike and raid, intervention, interdiction, insurgency/counterinsurgency, reconnaissance, medical evacuation and logistical supply. The TX vehicle will have Vertical Takeoff and Landing (VTOL) capability with a minimum combat range of 250nm on a single tank of fuel.

The primary focus of the TX program will be the development and demonstration of an integrated suite of critical technologies that enable dual-mode transportation, VTOL capability, efficient flight performance, and a combat range comparable to today's rotorcraft. It is envisioned that this program will, at a minimum, demonstrate the ability to build a ground vehicle that is capable of configuring into a VTOL air vehicle that provides sufficient flight performance and range, while carrying a payload that is representative of four (4) troops with gear. Key performance parameters have been specified to show specific operational utility. The program will be divided into two separate tasks. Task A will develop and integrate a full vehicle and Task B will develop individual critical technologies components for the full vehicle.

- **Total amount of money to be awarded:** The total planned budget for award is \$9M in Phase I, \$10M in Phase II, and \$35M in Phase III.
- **Anticipated individual awards:**

**For Task A:** Multiple awards are anticipated, with no more than two (2) full vehicle performers in Phase I at \$3M each. For the full vehicle performers at the end of Phase I, the Government will determine whether to exercise each performer's option for Phase II if in the best interest of the Government. Performers should be cautioned that the inclusion of an option in the contract does not guarantee that the Government will exercise the option. The exercise of the option is subject to availability of funds. The Government anticipates exercising the Phase II options for no more than two (2) performers. At the end of Phase II,

the Government anticipates exercising the options for no more than one (1) performer.

**For Task B:** Multiple awards are anticipated, with no more than three (3) critical technology component performers (each award limited to \$1M or less).

- **Types of instruments that may be awarded:** Procurement contract or Other Transaction.
- **No cost sharing is required for this BAA** – See Section III-B
- **Agency technical contact:**

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## **Part Two: Full Text of Announcement**

### **I. Funding Opportunity Description**

The Defense Advanced Research Projects Agency often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first on the FedBizOpps website, <http://www.fedbizopps.gov>, then the agency website of <http://www.darpa.mil/tto/solicitations.htm>. The following information is for those wishing to respond to the BAA.

#### **A. Program Overview**

The Defense Advanced Research Projects Agency (DARPA) is seeking innovative solutions that would aid in the demonstration of a roadable/flyable vehicle that is equipped to carry up to four (4) persons and with the ability to perform Vertical Takeoff and Landing (VTOL). This vehicle must also demonstrate operational mobility with the ability to perform a series of mission cycles that encompass a range of flying/driving combinations within a 250nm combat range. It is envisioned that the Transformer (TX) program will, at a minimum, develop and demonstrate the technologies necessary to build a prototype TX vehicle. The use of a BAA solicitation allows for a wide range of innovative ideas and concepts. The proposer(s) will have the flexibility to develop a tailored program plan that best advances the TX program goals.

#### **B. Program Goals**

The ability to provide the warfighter a platform that enables terrain-independent mobility would significantly improve how Enhanced Company Operations (ECO) are performed today. Current transport systems present operational limitations where the warfighter is either anchored to the ground with Highly Mobile Multipurpose Wheeled Vehicles (HMMWV) and thus vulnerable to ambush, or reliant on helicopters, which are limited in availability. TX provides unprecedented options to avoid traditional and asymmetrical threats while avoiding road obstructions. Transportation is no longer restricted to trafficable terrain that tends to make movement predictable. The TX vehicle can avoid Improvised Explosive Devices (IEDs) and ambushes, while also allowing the warfighter to approach targets from directions that give our warfighters the advantage in mobile ground operations.

The Government's envisioned concept consists of a robust ground vehicle that is capable of configuring into a VTOL air vehicle with a maximum payload capability of approximately 1,000 lbs. Technologies of interest may include: hybrid electric drive, advanced batteries, adaptive wing structures, ducted fan propulsion systems, advanced lightweight heavy fuel engines, lightweight materials, advanced sensors, and flight controls for stable transition from vertical to horizontal flight. Other advanced technologies may also be developed and demonstrated as required by the TX concept specified by proposers. The Government seeks proposals in two task areas:

- **Task A:** Prime TX Vehicle Design and Integration
- **Task B:** Critical Enabling Technology Development

The intention of DARPA is to provide Task A performers the opportunity to integrate critical technology components designed by Task B performers into their final design prior to the Task A Preliminary Design Review (notional schedule provided in Section I-D-1). However, a Task A performer is not required to incorporate any Task B developments. It will be incumbent on Task B performers to collaborate with Task A performers to encourage incorporation of their critical technology component in the Task A vehicle design. The Government will hold periodic collaboration meetings to facilitate this effort.

## **C. Program Plan for Task A**

### **1. Task A: Measures of Performance**

The objectives of Task A are to:

- Develop a robust field vehicle design that maximizes military utility at a reasonable production cost.
- Identify, develop, and mature critical enabling technologies.
- Build a full-scale prototype vehicle derived from the field vehicle design.
- Validate through simulation, ground test, and flight demonstrations that a TX vehicle meets the desired goals.
- Ensure successful follow-on transition with production plan to the Services.

The technical approach of the TX program for this Task will first focus on the fully functional Field Vehicle design, which will be used to derive a Prototype Vehicle design that will demonstrate the critical enabling technologies. The Field Vehicle (FV) is defined as the envisioned, fully-operational vehicle that will have the performance, usability, reliability, and practicality required by the warfighter. The Prototype Vehicle (PV) is defined as a full-scale demonstration vehicle that will prove the concept feasibility and demonstrate the critical enabling core technologies. The intent of the PV is to enable an affordable ground and flight test demonstration of the key technologies that will validate the potential operational capability of the FV without all of the features it will require. With this in mind, DARPA has established the following performance objectives for Task A, which are broken into two groupings. The first grouping is the Measures of Performance, which are the core performance metrics that should be demonstrated by the PV in this DARPA program. The second grouping is the Desirable Field Vehicle Design Considerations, which should be considered to ensure successful transition of the vehicle to the Services. These desirable vehicle characteristics should be considered during initial planning, but are not required to be demonstrated by the PV in this DARPA program.

**Task A: Measures of Performance** – These are the core technical metrics that should be demonstrated by the Prototype Vehicle in this program.



- **Payload capability of approximately 1,000 lbs**
- **Passenger accommodation**
  - Can carry up to four (4) troops in the air and on ground
- **Maximum roadable configuration dimensions - 8.5' wide, 9' high, < 30' long**
- **Road performance similar to an SUV on a variety of surfaces**
  - It should have at least four wheels required for stability; capable of handling light off-road travel with adequate suspension
- **Demonstrate the ability to provide a range of 250nm on a single tank of fuel**
  - Range goal is considered for a combination of drive and fly, all drive, or all fly
- **Capable of meeting representative mission cycle profiles**
  - Four example mission cycles are illustrated in Figure 1
- **Capable of Vertical Take Off and Landing (VTOL)**
  - VTOL is defined as safely lifting off or landing without forward motion
  - Climb gradient at Sea Level greater than 1:6 (1 unit vertical to 6 units horizontal) and 1:10 for any other conditions
  - Disk loading minimized to maximize VTOL operational capability
  - Transition time from VTOL to forward flight minimized
- **Flight performance characteristics**
  - Minimum cruise speed representative of a light single-engine aircraft
  - Capable of flight up to approximately 10,000' MSL
- **Operational safety considerations**
  - Capable of rapid takeoff and landing while permitting safe approach, mount and dismount. Contained propulsion (no exposed rotors) is highly recommended.
  - Must consider ground crash safety for occupants, handling, braking, and passenger comfort
- **Reconfiguration metrics**
  - Quick conversion between ground and flight configuration
  - Quick response from takeoff command to vertical lift off

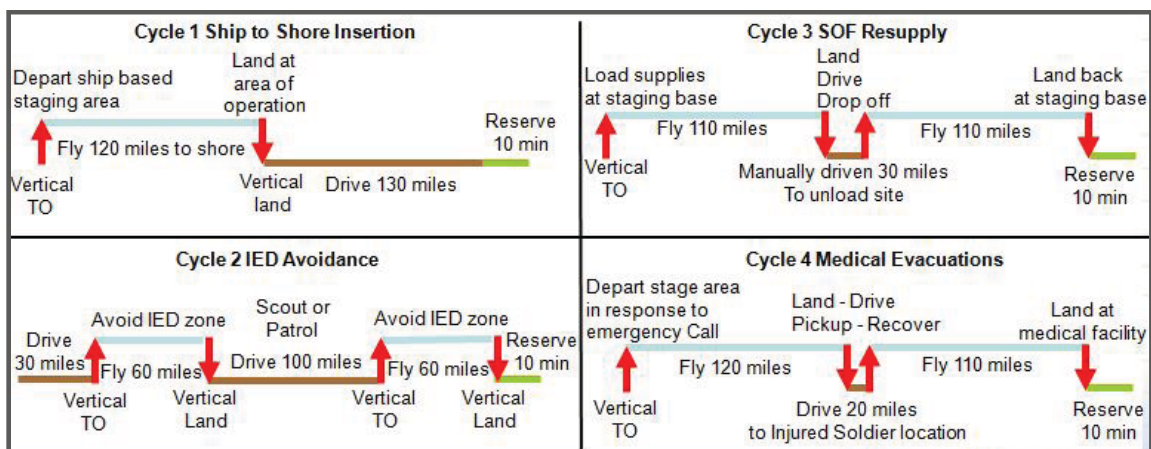


Figure 1. Example mission cycle profiles



**Desirable Field Vehicle Design Considerations** – These considerations are projected for operational use and may be considered in the design which could aid in transition to the Services. However, these items are not required to be demonstrated by the PV. These items are not listed in order of any specific priority.

- Vehicle does not need a certified pilot to operate, i.e., automated takeoff and landing
- Human control interfaces with vehicle during flight mode
- Range of operation from fully autonomous to being able to have the operator make flight steering commands in real time
- STOL capability in addition to VTOL
- Capable of handling a single lift post failure for operational safety
- Quick operator access to get in and out of the vehicle in a warfighter environment with entry points sufficient for all four (4) passengers
- Sufficient forward and side visibility while inside vehicle
- Capable of handling dirt road conditions
- Internally reconfigurable for one stretcher and one passenger for medical evacuation purposes
- Low top profile and high ground clearance
- Accomplish full flight certification with human occupants
- Provide four wheel drive capability
- Capable of handling small arms fire
- Uses standard military fuel - primarily JP-8
- Considers basic human detectability acoustic noise levels during ground operations, takeoff and landing, and cruise such that it is at least as quiet as a conventional automobile and a single engine helicopter in flight mode
- Federal Motors Vehicle Safety Standards safety compliance for driving safety and crash protection with minimum military exemptions. For regulations not met, must establish a plan for occupant survivability and injury protection, including crash testing. Multi-purpose passenger vehicle class category applies.
- Evaluate and consider transoceanic deployment to fit on transportation craft which range from US Navy ships, and US Air Force aircraft to merchant ships and commercial cargo aircraft

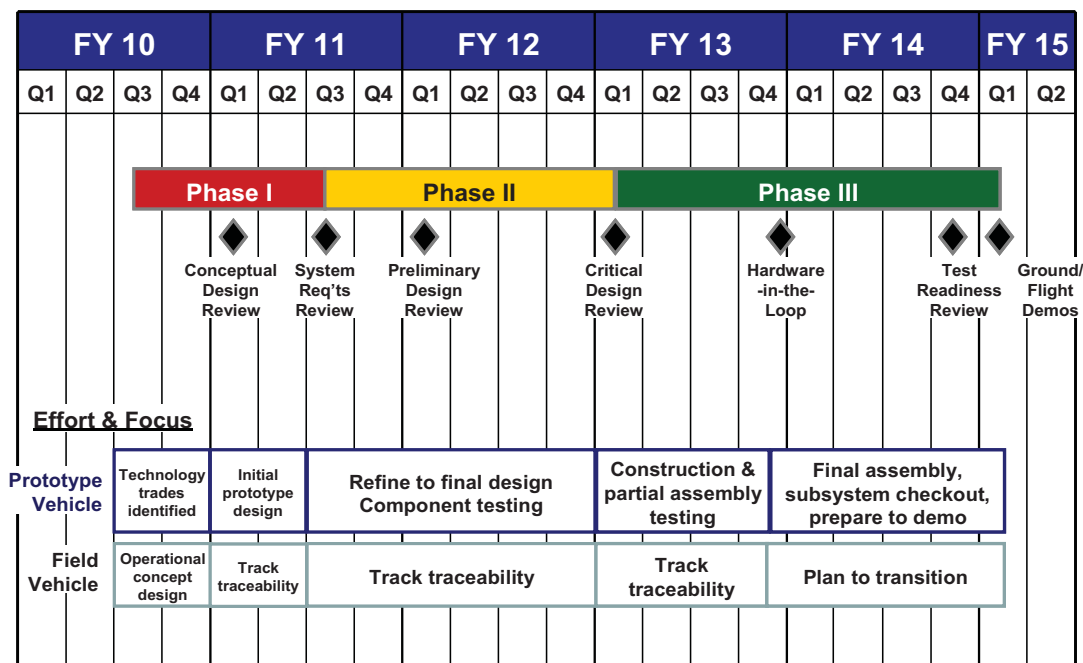
Proposers will be asked to explore the design space for the Measures of Performance and desirable attributes to develop an optimal FV design considering military utility, operational mobility, reliability, and affordability. Based on this vehicle design, proposers will derive the demonstration PV design, and technology maturation plan that outlines an overall risk reduction strategy for the PV, culminating in ground and flight test demonstrations.

The TX program for Task A will be conducted in three phases:

- Phase I: System Conceptual Design, Risk Reduction and Demonstration Planning
- Phase II: Risk Reduction and Demonstration System Design

- **Phase III: System Fabrication and Demonstration**

Each phase will progressively mature the design and the technologies required to validate the ability to achieve the TX performance goals described above. Figure 2 illustrates the technical approach for Task A and the program timeline with anticipated major milestones highlighted. The following sections describe the specific technical objectives of each phase.



**Figure 2. TX Program Plan for Task A.**

## 2. Task A: Phase I Objectives

The top-level Phase I objectives for Task A are as follows:

- Conduct detailed technology trade studies to develop a vehicle design in areas including propulsion, adaptable wing structures, lightweight materials, advanced flight control system, air/ground configuration designs and energy storage and distribution
- Develop a conceptual design of a TX production Field Vehicle (FV) with a Conceptual Design Review (CoDR) of the FV held at mid-phase
- Derive and develop a Prototype Vehicle (PV) conceptual design (based on the FV design) culminating in a System Requirements Review (SRR) of the PV towards the end of Phase I
- Develop a detailed Technology Maturation Plan (TMP) that provides an integrated risk reduction strategy and achieves the ground and flight test goals of the PV in Phase III

Field Vehicle design considerations were provided in Section I-C-1. In Phase I, the performer will perform design trade studies on core technology components, with the

objective to assess alternative technical approaches from the standpoint of feasibility, performance, and technological maturity. Proposers should define any additional trade studies that may be necessary to help develop an optimal FV and define performance for the ground, VTOL, and flight configurations. At a minimum, the Government suggests the performer to perform trades in the following areas:

- Structural integrity to handle defined load factors
- Functionality of deployable wing design in transition and operational envelopes
- Aerodynamic configuration for efficient forward flight
- Payload accommodation
- Propulsion options to meet VTOL, forward flight, and ground travel
- Control mechanisms for automatic flight and to handle failures
- Sensing capability sufficient for VTOL
- Navigation capability sufficient for representative flight profiles
- Manual ground driving control interfaces for an operator
- Material selection to meet structural requirement
- Affordability through material selection/assembly planning
- Disc loading and single engine failure considerations
- Safety for passengers for takeoff, in-flight, landing and emergencies
- Vehicle flight failure modes and alternate safe recovery
- Electrical storage, distribution, power level selections
- Thermal management

Based on the FV conceptual design, the performer will derive the PV design. The goal of the PV is to enable an affordable ground and flight test demonstration of the key technologies that will validate the operational capability of the FV without all of the desired features. It is expected that the proposer will implement a rigorous system engineering process and system engineering tools in Phase I for defining and allocating the system objectives from the FV to the PV.

The PV design will be used as the basis for developing a detailed TMP that:

- 1) Identifies and includes a risk assessment of critical technologies, processes and system attributes that constitute the major technical and system integration risks on the program
- 2) Identifies major risk reduction tests and demonstrations, including subscale component tests, required to validate the ability to achieve overall program goals with PV ground and flight test in Phase III
- 3) Defines credible intermediate performance objectives (milestone criteria) associated with critical tests and demonstrations
- 4) Defines an integrated program for systematically reducing risk that meets the Phase II and III objectives

The performer should identify high risk technologies where subsystem design or independent tests/demonstrations could be conducted with a reasonable budget during

Phase I to help advance the technical maturity and ensure feasibility should that technology be selected for the proposer's vehicle design. The proposal should discuss how the team will demonstrate to the Government a solid understanding of the program by proposing which reviews and deliverables will be necessary.

### **3. Task A: Phase II Objectives**

In Phase II, the Task A performer will execute their Phase II TMP. It is envisioned that the proposer will perform a significant amount of vehicle component feasibility testing during Phase II, and will demonstrate all identified critical technologies at the component level in a representative manner. Examples of potential Phase II risk reduction activities include propulsion performance testing, aerodynamic wind tunnel testing, reconfigurable deployable structures, energy storage, and energy distribution. Based on the results of their Phase II risk reduction activities, the performer should update their TMP for Phase III. In parallel, the performer will also continue to mature their PV design, incorporating any impacts from risk reduction results. A Preliminary Design Review (PDR) of the PV will be held at notionally 6 months after the start of Phase II, with a Critical Design Review (CDR) of the PV held at the end of Phase II.

### **4. Task A: Phase III Objectives**

The objective of Phase III will be to complete the fabrication of the PV and conduct ground and flight test demonstrations.

To mitigate the costs associated with flight certification within this program, the PV will not be required to be flown with human occupants. Instead, automated flight within a military controlled airspace where executable scripts and/or remote control is permitted will be the recommended approach to demonstrate flight performance. It is expected that VTOL, transition between vertical and forward flight, cruise flight, ground travel, and vehicle reconfiguration will be demonstrated by the PV by the end of Phase III. Full mission cycle demonstration is not expected, but representative critical transition elements of operation (e.g., VTOL, cruise, ground travel) will be expected with an extrapolation of fuel/energy consumption to show the ability to meet the four representative mission cycles presented in Section I-C-1.

### **5. Task A: Phase I Schedule and Deliverables**

The Government plans to hold periodic program reviews throughout Phase I, anticipated to be once every three months. As required, the Government team will also support interim technical interchange meetings and/or teleconferences. The following sections recommend a potential schedule and deliverables for Task A.

#### **REVIEW 1**

- Initial Results of Technology Trades
- TX FV Conceptual Design
- Initial Technology Maturation Plan Review

#### **REVIEW 2**

- Final TX Field Vehicle (FV) Conceptual Design
- Final Results of Technology Trades

- Initial Conceptual Design of TX Prototype Vehicle
- TMP Review

#### REVIEW 3

- Final Conceptual Design of the TX PV
- TMP Review

#### REVIEW 4

- System Requirements Review (SRR) of the TX PV
- Final TMP Review

#### REVIEW 5

- Phase I Final Report
- Phase II Updated Technical Approach Presentation and Submittal

In addition to the program reviews, DARPA will conduct Technical Interchange Meetings (TIMs) on a semi-annual basis to include other performers for the purpose of collaboration.

### **6. Task A: Program Phase Milestones**

In order for the Government to evaluate the effectiveness of proposed solutions in achieving the stated Measures of Performance for Task A, it is recommended to define program milestones. These milestones will serve as the basis for determining whether satisfactory progress is being made to warrant continued funding of the program. The Government has identified these events with the intention of bounding the scope of the effort, while affording the maximum flexibility, creativity, and innovation in developing proposed solutions. The Government suggests the following milestones for Phases I, II and III for Task A.

#### **Phase I:**

Phase I is heavily focused on defining the Field Vehicle (FV) concept design and the derived Prototype Vehicle (PV) design elements. A significant number of trades must be made to meet the Measures of Performance, while also considering the desirable attributes that would ensure future transition to the Services. Critical milestone events are annotated to show the timing of significant items.

There are three (3) critical events in Phase I to show specific progress:

- **Conceptual Design Review (CoDR)**
- **System Requirement Review (SRR)**
- **Phase I Final Report**

**Conceptual Design Review** is used to decide on the feasibility of the performer's Field Vehicle. It is used to focus and tailor requirements to the achievable. It includes looking at as many approaches to the solution as possible and by the conclusion, to narrow down to one or two options (at the top level). The type of propulsion system and general vehicle parameters for both flight and ground operation, such as weight and size limits, will be defined. Key subsystems should be defined to the extent of determining

availability of technology and impact on weight and power requirements. There will also be discussion of the initial PV design derived from the FV, the initial Technology Maturation Plan (TMP) and risk reduction considerations.

**System Requirements Review** is to be conducted to evaluate the design optimization, traceability, correlation, completeness, and the risk of the allocated requirements including corresponding test requirements in fulfilling the system/subsystem requirements of the Transformer Prototype Vehicle (PV). The review encompasses the total system requirements. The proposer will confirm convergence on and achievability of the demonstration PV system, with complete TMP defined.

**Phase I Final Report** will be an annotated briefing that details all of the Phase I activities, capturing the top-level results of all technology trade studies, design performance analyses, and the design evolution of the FV and PV concepts.

### **Phase II:**

Phase II is focused on refining the technology options from the initial PV design derived in Phase I to a Critical Design Review (CDR) at the end of the Phase, with a midterm Preliminary Design Review (PDR). Key propulsion, structure, materials, adaptive wing, flight control, and energy storage elements must now come together into a buildable design with sufficient evidence that they will integrate together. The key enabling technologies will be developed and tested to quantitatively show that they will work in a full-up prototype vehicle. As such, time and effort must be spent to not only have a completed PDR and CDR, but to reduce risk with component testing to show feasibility and function of key technology components. If there are advanced technology elements proposed in Phase I, they must be proven to be feasible in Phase II. This does not necessarily mean full scale, full function, or precise operation, but there must be sufficient quantitative evidence to warrant further funding to build the Phase III prototype.

There are three suggested critical events in Phase II to show specific progress:

- **Preliminary Design Review (PDR)**
- **Critical Design Review (CDR)**
- **Phase II Final Report**

**Preliminary Design Review** takes the probable PV solution to a more detailed level. The intent is to enable a detailed program plan and costing for the remaining phases and provide guidance for the detailed design effort with few significant changes. The PDR will look at two types of products: technical and programmatic.

**Critical Design Review (CDR)** is a multi-disciplined technical review to ensure that the PV design can proceed into fabrication, demonstration and test; and can meet the stated performance requirements within cost, schedule, risk and system constraints. Since TX is



a complex system, it is up to the proposer to recommend CDRs for subsystems which would lead to an overall system CDR.

**Phase II Final Report** will be an annotated briefing that details all of the Phase II activities, capturing the top-level results of all technology trade studies, design performance analyses, and the design evolution of the FV and PV concepts and component technologies.

### **Phase III:**

Phase III is devoted to building, assembling, testing and finally demonstrating a full scale vehicle in both ground operations and flight. This phase is focused on schedule adherence and risk management of completing all the subcomponents, verification of their function, testing of their performance and assembly into a working vehicle.

There are two (2) critical events in Phase III to show specific progress:

- **“Iron-Bird” Hardware-in-the Loop**
- **PV Ground and Flight Demonstrations**

**“Iron Bird” Hardware-in-the-Loop** is a working mockup of the vehicle that integrates all the vehicle subsystems. The “iron-bird” mockup function test is a recommended milestone that should occur early enough in the Phase that issues arising from component assembly can be rectified in time for PV ground and flight demonstrations.

**PV Ground and Flight Test Demonstrations** are the necessary ground and flight test demonstrations to conclude the TX program.

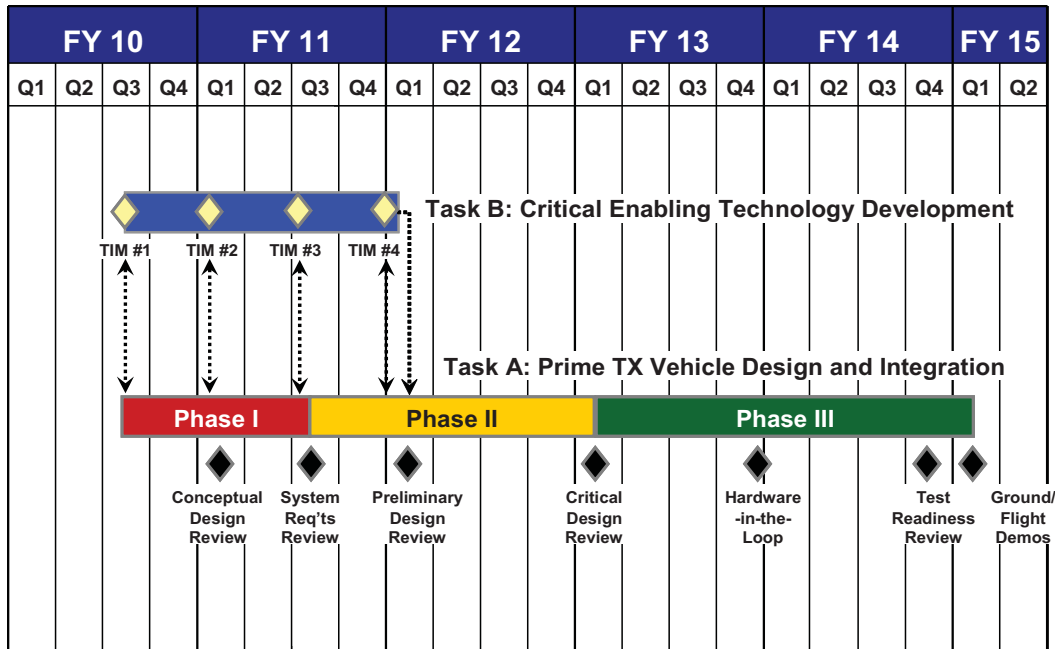
## **D. Program Plan for Task B**

### **1. Task B: Measures of Performance**

The objective of Task B is to develop and mature critical enabling technology components that enable a TX vehicle to meet the Measures of Performance identified for Task A (Section I-C-1). Such enabling technologies could include, but not limited to: lightweight propulsion systems, reconfigurable wing structures, ducted fans, flight control technology, and robust, lightweight ground vehicle design. The Measure(s) of Performance for Task B will be the responsibility of the proposer to define. The Task B effort will identify the technical risks and mature the technology through risk reduction activities to a level comparable to a PDR, in which there is sufficient evidence that the technology could be developed, integrated, and demonstrated in a Task A Prototype Vehicle at the end of Phase III.

Task B for the TX program will be a single phase effort. It is desired that the effort be completed within 17 months of award to provide adequate time for collaboration efforts prior to the Task A PDR. Figure 3 illustrates the notional timeline for Task B in relation to Task A.





**Figure 3. TX Program Plan for Task B.**

## 2. Task B: Objectives

The top-level objectives for Task B are as follows:

- Develop and conduct a detailed Technology Maturation Plan (TMP) that provides a risk reduction strategy to achieve the performance goals, as defined by the performer, for the enabling technology component. This TMP should:
  - 1) Identify and include a risk assessment of the critical component
  - 2) Identify major risk reduction tests and demonstrations, including subscale component tests, required to validate the ability to achieve the desired performance goals
  - 3) Define credible intermediate performance objectives (milestone criteria) associated with critical tests and demonstrations
- Mature the critical component design to a PDR level

## 3. Task B: Schedule and Deliverables

The Government plans to hold periodic program reviews throughout the course of this Task. As required, the Government team will also support interim technical interchange meetings and/or teleconferences. The proposer should define the program review schedule, specific deliverables for each review, as well as quantifiable metrics for assessing the progress of the risk reduction activities. In addition to the program reviews, DARPA will conduct Technical Interchange Meetings (TIMs) on a semi-annual basis to include other performers for the purpose of collaboration. All risk reduction activities shall be completed with results available to the Government at the end of the effort, along with a final report.

## **II. Award Information**

Multiple awards are anticipated for both Task A and Task B. For planning purposes, the total program funding for any one proposer for Task A will be approximately \$43M with the following breakdown. Phase I - \$3M, Phase II - \$5M, Phase III - \$35M. It is anticipated that there will be multiple awards in Phase I and will depend upon the quality of the proposals received and the availability of funds. The contract will be executed by Phases. Phase II and Phase III will be managed as priced options. For Task B, the total program funding for any one proposer will be approximately \$1M.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation, and to make awards without discussions with proposers. The Government also reserves the right to conduct discussions if it is later determined to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. Additionally, DARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that DARPA desires to award only portions of a proposal, negotiations will be opened with that proposer. The Government reserves the right to fund proposals in phases with options for continued work at the end of one or more of the phases.

The Government intends to use this BAA award to cover the entirety of the Transformer program and does not plan to conduct a new competition for Phases II or III of Task A.

Awards under this BAA will be made to proposers on the basis of the evaluation criteria listed below (see section labeled “Application Review Information”, Section V), and program balance to provide overall best value to the Government. Proposals identified for negotiation may result in a Procurement contract or Other Transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. Proposers should note that the required degree of interaction between parties, regardless of award instrument, will be high and continuous. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Such additional information may include but is not limited to Representations and Certifications. The Government reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time or the proposer fails to timely provide requested additional information.

As of the date of publication of this BAA, DARPA expects that program goals for this BAA cannot be met by proposers intending to perform 'fundamental research,' i.e., basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization the results of which ordinarily are restricted for proprietary or national security reasons. Notwithstanding this statement of expectation, DARPA is not prohibited from considering and selecting research proposals that, regardless of the category of research proposed, still meet the BAA criteria for submissions. In all cases, the contracting officer

shall have sole discretion to select award instrument type and to negotiate all instrument provisions with selectees.

### **III. Eligibility Information**

#### **A. Eligible Applicants**

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

Federally Funded Research and Development Centers (FFRDCs) and Government entities (Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations and cannot propose to this BAA in any capacity unless they meet the following conditions. FFRDCs must clearly demonstrate that the work is not otherwise available from the private sector AND they also provide a letter on letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to government solicitations and compete with industry, and compliance with the associated FFRDC sponsor agreement and terms and conditions. This information is required for FFRDCs proposing to be prime or subcontractors. Government entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority (as well as, where relevant, contractual authority) establishing their ability to propose to Government solicitations. At the present time, DARPA does not consider 15 U.S.C. 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the Proposer.

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances.

Applicants considering classified submissions (or requiring access to classified information during the life-cycle of the program) shall ensure all industrial, personnel, and information system processing security requirements are in place and at the appropriate level (e.g., Facility Clearance (FCL), Personnel Security Clearance (PCL), certification and accreditation (C&A)) and any Foreign Ownership Control and Influence (FOCI) issues are mitigated prior to such submission or access. Additional information on these subjects can be found at: <http://www.dss.mil>.

## **1. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest**

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 U.S.C. 203, 205, and 208.). The DARPA Program Manager for this BAA is Mr. Stephen Waller. Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest and will promptly notify the proposer if any appear to exist. (Please note the Government assessment does NOT affect, offset, or mitigate the proposer's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.)

All Proposers and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the Proposer supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the Proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval or a waiver from the DARPA Director, a Contractor cannot simultaneously be a SETA and Performer. Proposals that fail to fully disclose potential conflicts of interests and/or do not have plans to mitigate this conflict will be rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Proposer should promptly raise the issue with DARPA by sending Proposer's contact information and a summary of the potential conflict by email to the mailbox address for this BAA at [DARPA-BAA-10-52@darpa.mil](mailto:DARPA-BAA-10-52@darpa.mil), before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

### **B. Cost Sharing/Matching**

Cost sharing is not required for this particular program; however, cost sharing will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument (e.g., for any Other Transactions under the authority of 10 U.S.C. 2371). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

### **C. Proposing an Other Transaction (OT)**

The Government contemplates the award of a Cost-type Procurement contract in accordance with the FAR; however, this BAA affords Proposers the option of submitting proposals for an Other Transaction (OT) for Prototype Agreement, as well. **Proposers**

**must submit a proposal for a Procurement Contract before any considerations will be given to proposals for an OT.** In addition, all proposals for OTs must be in accordance with applicable authority for such an award. The Government reserves the right to negotiate the type of award instrument determined appropriate under the circumstances.

For additional information on OT for Prototype Agreements, including eligibility requirements, please consult the “Other Transactions” (OT) Guide for Prototype Projects available at [http://www.acq.osd.mil/dpap/policy/other\\_transactions.htm](http://www.acq.osd.mil/dpap/policy/other_transactions.htm).

If a proposer elects to submit an OT proposal, they should submit a third proposal volume entitled, “Volume III, OT Based Delta Proposal”. Volume III should discuss how an OT would offer a better value to the Government in the TX program. This volume must outline the extent to which the other transaction will contribute to a broadening of the technology and industrial base available for meeting Department of Defense needs and the extent to which the other transaction will foster new relationships and practices within the technology and industrial base that support the national security of the United States. Volume III should clearly identify changes to the Volume I and II no-cost-share technical and cost proposals that result from use of an OT. If there are no differences, the proposer should state this in Volume III of their proposal. After award selection, OT proposals from the successful proposer(s), if any, will be opened and evaluated. Any cost-share a proposer proposes in Volume III shall be constructed to include distinct, significant, value-added activities covering the entire TX program and should leverage the flexibilities offered by OT provisions instead of providing only a general increase in level of effort.

At a minimum, the following outline shall be used for Volume III:

**OT Technical Response:** The proposer shall clearly delineate all additional work that can be performed within the OT agreement. The proposer shall provide a top level summary as well as a “red-lined” Statement of Work (SOW) and Integrated Master Schedule (IMS) that highlight any additional tasks being performed as compared to the Volume I proposal. The proposer shall ensure that any additional activities build upon the baseline Phase I program to provide compelling additional value to the program (e.g., additional risk reduction tasks and demonstrations, earlier achievement of key milestones, etc.). Proposers must also include a top-level discussion of differences in Phase II and Phase III demonstration plans if executed under an OT.

**OT Cost Response:** The proposer shall provide cost information in the format described in Appendix A. Proposers must also include a cost estimate of the potential cost of Phase II and Phase III efforts under an OT agreement, consistent with the Phase II and Phase III plans.

**Company Investments:** The proposer shall provide a total estimated price for the major cost-share activities associated with the program. The proposer shall clearly state whether

these investments are to be included within the agreement and will breakout each item (i.e., Cash, IR&D, capital, G&A, cost of money, etc).

#### **IV. Application and Submission Information**

##### **A. Address to Request Application Package**

This solicitation contains all information required to submit a proposal. No additional forms, kits, or other materials are needed. This notice constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for the same will be disregarded.

##### **B. Content and Form of Application Submission**

###### **1. Task A: Proposal Information**

###### **a) Security and Proprietary Issues**

**NOTE: If proposals are classified, the proposals must indicate the classification level of not only the proposal itself, but also the anticipated award document classification level.**

The Government anticipates proposals submitted under this BAA will be unclassified. However, if a proposal is submitted as “Classified National Security Information” as defined by Executive Order 13526 as amended, then the information must be marked and protected as though classified at the appropriate classification level and then submitted to DARPA for a final classification determination.

Proposers choosing to submit a classified proposal from other classified sources must first receive permission from the respective Original Classification Authority in order to use their information in replying to this BAA. Applicable classification guide(s) should also be submitted to ensure the proposal is protected at the appropriate classification level.

Classified submissions shall be appropriately and conspicuously marked with the proposed classification level and declassification date. Submissions requiring DARPA to make a final classification determination shall be marked as follows:

CLASSIFICATION DETERMINATION PENDING. Protect as though classified (insert the recommended classification level: e.g., Top Secret, Secret or Confidential).

Classified submissions shall be in accordance with the following guidance:

**Confidential and Secret Collateral Information:** Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program



Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another Original Classification Authority. Classified information at the Confidential and Secret level may be mailed via appropriate U.S. Postal Service methods (e.g., (USPS) Registered Mail or USPS Express Mail). All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be addressed to:

Defense Advanced Research Projects Agency  
ATTN: Tactical Technology Office  
Reference: DARPA-BAA-10-52  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency  
Security & Intelligence Directorate, Attn: CDR  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

**All Top Secret materials:** Top Secret information should be hand carried by an appropriately cleared and authorized courier to the DARPA CDR. Prior to traveling, the courier shall contact the DARPA CDR at 571-218-4842 to coordinate arrival and delivery.

**Special Access Program (SAP) Information:** SAP information must be transmitted via approved methods. Prior to transmitting SAP information, contact the DARPA SAPCO at 703-526-4052 for instructions.

**Sensitive Compartmented Information (SCI):** SCI must be transmitted via approved methods. Prior to transmitting SCI, contact the DARPA Special Security Office (SSO) at 703-248-7213 for instructions.

**Proprietary Data:** All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the Proposer's responsibility to clearly define to the Government what is considered proprietary data.

Security classification guidance via a DD Form 254 will not be provided at this time since DARPA is soliciting ideas only. After reviewing the incoming proposals, if a determination is made that the award instrument may result in access to classified information a DD Form 254 will be issued and attached as part of the award.



Proposers must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose. It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided the formal request is received at this office within 5 days after unsuccessful notification.

#### **b) Proposal Format**

All proposals must be in the following format. Nonconforming proposals may be rejected without further review. Proposals must be on single-sided pages, written in English, with 1-inch margins (left, right, top, and bottom) in each page. A page is defined as being no larger than 8.5" by 11.0". (Accordion-style foldouts will be counted as multiple pages equivalent to the expanded size.) The body text of the Technical Proposal shall contain no smaller than 12 point font type. Information presented in tables/graphs and accordion-style fold-outs may use a type font smaller than 12 point as necessary to display such information; however respondents are cautioned that excessive use of smaller fonts may adversely affect the Government's ability to evaluate such information in a timely fashion. Graphic material shall be embedded in the Word document using GIF or JPEG format. The Cost Proposal shall contain no smaller than 8-point font type. Larger font type for the Cost Proposal, up to 12 point font type, is desired, where possible. Paper copies of proposals should be stapled or submitted in loose-leaf binder, not bound. Electronic copies should be submitted on a PC-formatted CD-ROM in a format readable with Microsoft Office 2003 or earlier version.

A complete proposal should consist of two volumes - a Technical and Management Proposal (Volume I) and a Cost Proposal (Volume II). Proposers should submit a total of nine (9) copies of Volume I and Volume II, in hardcopy, as well as two (2) copies of each proposal Volume in electronic format (CD-ROM) to DARPA. The electronic copies of both Volumes must match the hard copies page-by-page, and should be fully integrated files to permit easy distribution to reviewers. All graphics and tables, as well as the Proposer's IMS (in MS Project format) should be included in separate electronic files and clearly named on the CDs. Respondents need only submit one (1) original signed proposal along with the copies and each submittal should reference DARPA-BAA-10-52. The submission of any additional supporting materials outside of the documentation requested herein will not be considered for review. Sections I-IV of the Technical Proposal (Volume I) shall not exceed seventy-five (75) pages total, excluding the Proposer's Statement of Work (SOW) and Integrated Master Schedule (IMS). This page count is to ensure enough page volume is provided for the technical substantiations desired for the point-of-departure conceptual design of the TX Field Vehicle. The 75 page limitation includes all figures, tables, and charts, unless otherwise noted. All pages that exceed the maximum page limit specified will be removed and will not be reviewed or considered in the evaluation. The Cost Proposal (Volume II) does not have a page limit. Guidance regarding cost table formatting is provided in Appendix A.

### c) Work Breakdown Structure (WBS) – Example

The following is an example WBS to provide a common numbering system that ties all program elements together.

EXAMPLE: The WBS excerpt below is an example of a ‘Level 3 WBS’ as viewed by the Government. It is provided as guidance for the expected magnitude of WBS levels, but the specific approach to numbering scheme and titles and content are left to the Proposer.

Outline Code	Level		
	1	2	3
	x	x.x	x.x.x
0.0	Transformer Program Overview		
1.0	Field Vehicle		
2.0	Prototype Vehicle (PV)		
2.1	Airframe structure		
2.1.1	Performance and Flight Characteristics		
2.1.2	Landing		
2.1.3	Operating Environment		
2.1.4	Air Worthiness		
2.1.5	Structures, Materials and Process		
2.1.6	Control Effectors (if applicable)		
3.0	Nacelles, Inlets, Exhaust Ducts (if applicable)		

### d) Volume I, Technical Proposal

The Volume I Technical Proposal shall be organized into five parts as described below.

#### Part I. Administrative {not included in the page count}

##### A. Cover sheet to include:

- (1) BAA number (DARPA-BAA-10-52)
- (2) “Task A” and proposal title
- (3) Lead Organization submitting proposal
- (4) Type of business, selected among the following categories: “LARGE BUSINESS”, “SMALL DISADVANTAGED BUSINESS”, “OTHER SMALL BUSINESS”, “HBCU”, “MI”, “OTHER EDUCATIONAL”, OR “OTHER NONPROFIT”
- (5) Contractor’s reference number (if any)
- (6) Other team members (if applicable) and type of business for each
- (7) BAA Technical Thrust Area Addressed: (i.e. 1.a Precision Strike)
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available)
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available)

- available), total funds requested from DARPA, and the amount of cost share (if any) AND  
(10) Date proposal was submitted.

B. Official transmittal letter.

C. {Not included in page count} Table of Contents. The Table of Contents should be keyed to the page numbers of the proposal sections.

D. {Not included in page count} Additional front matter such as List of Figures, List of Acronyms, etc. if desired.

## Part II. Executive Summary

This section should provide a short overview of the proposer's proposed TX program, including a summary of the Point-of-Departure (POD) design for the TX FV (See Part III-A for definition of POD); demonstration goals; technical approach; relevant experience; and a top-level description of tasks, schedule, and cost for each phase.

*Note: The Executive Summary should not have any unique information not contained in the Detailed Proposal Information.*

- A. **Innovation.** Succinctly describe the uniqueness and benefits of the POD FV design relative to the current state-of-art or alternate approaches. Provide a basic description of the scientific or technical basis for the innovative claims.
- B. **Demonstration.** Provide a short description of the envisioned PV that will be delivered to the Government at the end of the program. The proposer shall also include a list of specific capabilities that are envisioned to be demonstrated by the PV in the final phase of the program.
- C. **Technical Approach.** Provide a short description of the technical approach and constructive plan for accomplishment of the program technical goals in support of innovative claims and deliverable production. Provide a top-level description of tasks to be conducted in each phase.
- D. **Experience.** Provide a short general discussion of other research by corporate team members in the proposed technology area.
- E. **Cost.** Cost, schedule and measurable milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the prime and major subcontractors, total cost and company cost share, if applicable. (Note: Measurable milestones should capture key development points in tasks and should be clearly articulated and defined in time relative to start of effort.)

## Part III. Detailed Proposal Information

This section provides the detailed discussion of the specific technical aspects of the proposal. Part III shall be organized into the following sections:

- TX Point-of-Departure Field Vehicle Design
- Technology Maturation
- Phase I Statement of Work (SOW) and Integrated Master Schedule (IMS)
- Phase II and Phase III Program Plans
- Potential Contribution and Relevance to DARPA Mission
- Program Management

#### A. TX Point-of-Departure Field Vehicle Design

1. **Point-of-Departure Design.** The proposer shall provide a general description of their notional TX Field Vehicle concept that will serve as the starting point for their conceptual design in Phase I. The intent of providing a notional concept, referred to as the point-of-departure (POD), is to demonstrate that the proposer understands the program objectives, vehicle performance goals, and the associated technical challenges.
2. **Technical Rationale.** The POD design should be substantiated with first-order analysis consistent with this level of design maturity, illustrating the feasibility of meeting the program Measures of Performance. The Government does not expect the POD design to be defined to high fidelity but rather will use this information to gauge the proposer's initial thoughts on how to best meet the program vision and Measures of Performance.
3. **Technical Approach.** The proposer should provide an overview of the technical approach to progressively refine their POD design into a TX Field Vehicle conceptual design and then deriving a TX Prototype Vehicle design for Phase III demonstrations.

#### B. Technology Maturation

1. **Critical Technology Risk Identification and Tracking.** The proposer should provide an initial list of critical technology risk areas. This will form the basis of their Technology Maturation Plan (TMP).
2. **Risk Reduction.** The proposer shall also provide the risk reduction approach for the identified risk areas.
3. **Applicable Technologies.** The proposer should also describe the process for identifying and evaluating the applicable technologies available from other Government and industry R&D programs.

#### C. Phase I Statement of Work (SOW) and Integrated Master Schedule (IMS)

1. **Phase I SOW.** The Phase I SOW will describe all of the tasks the proposer will perform in order to achieve the Phase I milestones. This section will define the tasks to be performed to WBS level 3 (or more detailed if desired)  
Do not include any proprietary information in the SOW. The SOW is not a part of the page count.
2. **Phase I IMS.** The Phase I IMS should provide a detailed, integrated schedule of all Phase I activities.

#### D. Phase II and III Program Plans

1. **Schedule.** The proposer shall include top-level schedules for Phase II and Phase III based on the initial proposed risk reduction strategy.
2. **Cost Estimate.** The Phase II and III program plans shall include cost estimates for each phase to assist the Government in assessing resource requirements for future phases.

#### E. Potential Contribution and Relevance to DARPA Mission

The potential contributions of the proposed effort with relevance to the National technology base will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our National security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use.

1. **Mission Utility.** The conceptual design should be closely coupled to the Government-presented Concept of Employment (CONEMP) that provides military utility. Information from Industry Day is available at <https://www.fbo.gov/index?s=opportunity&mode=form&id=be792877dbda574d29f703d3f6ca06d0&tab=core&cview=0> There are distinct battlefields seen today and projected for tomorrow where difficult terrain, lack of sufficient roads, enemy threats using Improvised Explosive Devices at critical chokepoints, and patrol missions required in high threat urban areas require the development and application of this technology.

During the course of the development, the Proposer may discover alternative uses and applications of the TX technology. There may also be some tradeoffs discovered where one element of the operation may pose a vulnerability or a strength that was previously unknown. It is incumbent on the Proposer to track and notify the Government team of what discoveries or limitations they have come across. Any other factors that may need to be discussed with respect to military utility should also be addressed in this section.

2. **Affordability.** System acquisition and operational affordability will be assessed by covering two pursuits during development. There are two costs to consider. One is the cost of producing the vehicle and the other the cost of operating it.

#### F. Program Management

1. **Management Process.** The proposer shall describe the management process that will be utilized during the program, including a description of how the team will function and share technical and financial information among the team members and with the Government. This section should include explanation of the critical milestones such as SRR, CoDR, PDR and CDR.

2. **Experience.** Describe the unique capabilities of the corporate team members. Describe the proposer's previous accomplishments and work in closely related research areas.
3. **Facilities.** The proposer should address facilities available across the team, including a description of any unique facilities necessary for execution of the proposed effort.
4. **Organization.** The proposer shall submit a clearly defined organization chart and description for the program team with defined responsibilities of team members. In addition, the proposer should demonstrate the team's capability to perform all phases of the TX program. Short resumes shall be provided for the Program Manager, Chief Engineer, Risk Management Lead and lead personnel in key disciplines. In addition, the number of hours committed for each of these key personnel in Phase I should be provided.
5. **Intellectual Property Rights.** The proposer shall describe the proposed approach to intellectual property rights, together with supporting rationale of a solution eliminating or mitigating the technical and cost risk of transitioning the technology to the military departments. This pertains to technical data, computer software, or computer software documentation associated with this research effort in which the Government will acquire less than unlimited rights.

Part IV. Additional Information {No page limit}

Proposals should be self contained, and include all relevant information required to review the proposed research effort. A brief bibliography of relevant technical papers and research notes which document the technical ideas upon which the proposal can be submitted. Copies of not more than three (3) relevant papers may be included in the submission as supporting information.

**e) Volume II, Phase I Cost Proposal**

Part I. Administrative

Cover sheet to include:

1. BAA number;
2. Lead Organization submitting proposal;
3. Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT";
4. Contractor's reference number (if any);
5. Other team members (if applicable) and type of business for each;
6. Proposal title and "Task A";
7. Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, country, telephone, and electronic mail;
8. Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, country, telephone, and electronic mail;



9. Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (specify), grant, cooperative agreement, or other transaction;
10. Place(s) and period(s) of performance;
11. Total proposed cost separated by basic award and option(s) (if any);
12. Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office (if known);
13. Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (if known);
14. Date proposal was prepared;
15. DUNS number;
16. TIN number; and
17. Cage Code;
18. Subcontractor Information; and
19. Proposal validity period

## Part II. Detailed Cost Proposal

### **A. Cost Proposal Format and Guidance**

1. Tables included in the cost proposal should also be provided in Microsoft Excel format with calculations formulae intact to allow traceability of the cost proposal numbers across the prime and subcontractors. If the PDF submission differs from the Excel submission, the PDF will take precedence. Each copy must be clearly labeled with the DARPA BAA number, Proposer organization, and proposal title (short title recommended).
2. The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO).
3. Subcontractor proposals should include Interdivisional Work Transfer Agreements (IWTAs) or similar arrangements.
4. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options
5. For IT and equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding.
6. Each cost copy must be clearly labeled with the DARPA BAA number, proposer organization, and proposal title (short title recommended).

### **B. Costs.** Detailed cost breakdown to include:

1. Provide the total program cost and costs broken down by the initial phase (Phase I), with Phases II and III listed as priced options.
2. Detailed Phase I cost breakdowns. Appendix A has been provided as guidance for submitting detailed cost breakdowns for Phase I. Use of this format is recommended to facilitate timely Government evaluation of the proposal. The tables will show detailed cost breakdown to include:
  - a. Total program cost summary broken down by major cost items (direct labor – including labor categories, subcontracts, materials,



- other direct costs, overhead charges, etc.) and further broken down by task and phase;
- b. Major program tasks and a summary of projected funding requirements by month for fiscal quarters/year;
- c. Labor summary and labor rate summary;
- d. Itemization of major subcontracts and equipment purchases;
- e. Termination Liability Schedule, Other Direct Charges (ODCs), and any GFE/GFI summaries needed.

Other items needed but not in the Appendix are: an itemization of any information technology (IT) purchases<sup>1</sup>; the source, nature, and amount of any industry cost-sharing, and identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Experts, etc.). NOTE: for IT and equipment purchases, include a letter stating why the Proposer cannot provide the requested resources from its own funding.

3. Provide as detailed as possible cost estimates for Phases II and III, with cost breakdowns to include as a minimum:
  - a. Cost by major task/activities for each year of the effort
  - b. Direct labor including labor categories and man-hours
  - c. Government Furnished Property/Facilities/Information

**C. Supporting Cost Data.** Supporting cost and pricing information:

1. Provide sufficient detail to substantiate the summary cost estimates above.
2. Include a description of the method used to estimate costs and supporting documentation.
3. All proprietary subcontractor proposal documentation shall be prepared at the same level of detail as that required of the prime and shall be provided to the Government by Email: [DARPA-BAA-10-52@darpa.mil](mailto:DARPA-BAA-10-52@darpa.mil). The subject line of the email shall contain the lead organization's proposal title, lead organization name, lead organization proposal submission date, and subcontractor name.
4. Cost Notes:
  - a. "Cost or pricing data" as defined in FAR Subpart 15.4 shall be required if the proposer is seeking a procurement contract award of \$650,000 or greater unless the proposer requests an exception from the requirement to submit cost or pricing data. "Cost or pricing

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<sup>1</sup> IT is defined as "any equipment, or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, or such equipment in the performance of a service or the furnishing of a product. (b) The term "information technology" includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term "information technology" does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology."

data” are not required if the proposer proposes an award instrument other than a procurement contract (e.g., a grant, cooperative agreement, or other transaction.)

- b. All proposers requesting an 845 Other Transaction Authority for Prototypes (OTA) agreement must include a detailed list of payment milestones. Each such payment milestone must include the following: milestone description, due date, milestone payment amount (to include, if cost share is proposed, contractor and Government share amounts). It is noted that, at a minimum, such payable milestones should relate directly to accomplishment of program technical metrics criteria as defined in the BAA and/or the proposer’s proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer; however, it is noted that the Government prefers use of fixed price payable milestones to the maximum extent possible. Do not include proprietary data. If the proposer requests award of an 845 OTA agreement as a nontraditional defense contractor, as so defined in the OSD guide entitled “Other Transactions (OT) Guide For Prototype Projects” dated January 2001 (as amended) (<http://www.acq.osd.mil/dpap/Docs/otguide.doc>), information must be included in the cost proposal to support the claim. Additionally, if the proposer plans requests award of an 845 OTA agreement, without the required one-third (1/3) cost share, information must be included in the cost proposal supporting that there is at least one non-traditional defense contractor participating to a significant extent in the proposed prototype project.

NOTE: PROPOSERS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.

## **2. Task B: Proposal Information**

### **a) Security and Proprietary Issues**

**NOTE: If proposals are classified, the proposals must indicate the classification level of not only the proposal itself, but also the anticipated award document classification level.**

The Government anticipates proposals submitted under this BAA will be unclassified. However, if a proposal is submitted as “Classified National Security Information” as defined by Executive Order 12958 as amended, then the information must be marked and protected as though classified at the appropriate classification level and then submitted to DARPA for a final classification determination.

Proposers choosing to submit a classified proposal from other classified sources must first receive permission from the respective Original Classification Authority in order to use their information in replying to this BAA. Applicable classification guide(s) should

also be submitted to ensure the proposal is protected at the appropriate classification level.

Classified submissions shall be appropriately and conspicuously marked with the proposed classification level and declassification date. Submissions requiring DARPA to make a final classification determination shall be marked as follows:

CLASSIFICATION DETERMINATION PENDING. Protect as though classified (insert the recommended classification level: e.g., Top Secret, Secret or Confidential).

Classified submissions shall be in accordance with the following guidance:

**Confidential and Secret Collateral Information:** Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another Original Classification Authority. Classified information at the Confidential and Secret level may be mailed via appropriate U.S. Postal Service methods (e.g., (USPS) Registered Mail or USPS Express Mail). All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be addressed to:

Defense Advanced Research Projects Agency  
ATTN: Tactical Technology Office  
Reference: DARPA-BAA-10-52  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency  
Security & Intelligence Directorate, Attn: CDR  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

**All Top Secret materials:** Top Secret information should be hand carried by an appropriately cleared and authorized courier to the DARPA CDR. Prior to traveling, the courier shall contact the DARPA CDR at 571-218-4842 to coordinate arrival and delivery.

**Special Access Program (SAP) Information:** SAP information must be transmitted via approved methods. Prior to transmitting SAP information, contact the DARPA SAPCO at 703-526-4052 for instructions.

**Sensitive Compartmented Information (SCI):** SCI must be transmitted via approved methods. Prior to transmitting SCI, contact the DARPA Special Security Office (SSO) at 703-248-7213 for instructions.

**Proprietary Data:** All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the Proposer's responsibility to clearly define to the Government what is considered proprietary data.

Security classification guidance via a DD Form 254 will not be provided at this time since DARPA is soliciting ideas only. After reviewing the incoming proposals, if a determination is made that the award instrument may result in access to classified information a DD Form 254 will be issued and attached as part of the award.

Proposers must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose. It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided the formal request is received at this office within 5 days after unsuccessful notification.

#### **b) Proposal Format**

All proposals must be in the following format. Nonconforming proposals may be rejected without further review. Proposals must be on single-sided pages, written in English, with 1-inch margins (left, right, top, and bottom) in each page. A page is defined as being no larger than 8.5" by 11.0". (Accordion-style foldouts will be counted as multiple pages equivalent to the expanded size.) The body text of the Technical Proposal shall contain no smaller than 12 point font type. Information presented in tables/graphs and accordion-style fold-outs may use a type font smaller than 12 point as necessary to display such information; however respondents are cautioned that excessive use of smaller fonts may adversely affect the Government's ability to evaluate such information in a timely fashion. Graphic material shall be embedded in the Word document using GIF or JPEG format. The Cost Proposal shall contain no smaller than 8-point font type. Larger font type for the Cost Proposal, up to 12 point font type, is desired, where possible. Paper copies of proposals should be stapled or submitted in loose-leaf binder, not bound. Electronic copies should be submitted on a PC-formatted CD-ROM in a format readable with Microsoft Office 2003 or earlier version.

A complete proposal should consist of two volumes - a Technical and Management Proposal (Volume I) and a Cost Proposal (Volume II). Proposers should submit a total of nine (9) copies of Volume I and Volume II, in hardcopy, as well as two (2) copies of each proposal Volume in electronic format (CD-ROM) to DARPA. The electronic copies of both Volumes must match the hard copies page-by-page, and should be fully integrated

files to permit easy distribution to reviewers. All graphics and tables, as well as the Proposer's IMS (in MS Project format) should be included in separate electronic files and clearly named on the CDs. Respondents need only submit one (1) original signed proposal along with the copies and each submittal should reference DARPA-BAA-10-52. The submission of any additional supporting materials outside of the documentation requested herein will not be considered for review. Sections I-IV of the Technical Proposal (Volume I) shall not exceed twenty-five (25) pages total, excluding the Proposer's Statement of Work (SOW) and Integrated Master Schedule (IMS). The 25 page limitation includes all figures, tables, and charts, unless otherwise noted. All pages that exceed the maximum page limit specified will be removed and will not be reviewed or considered in the evaluation. The Cost Proposal (Volume II) does not have a page limit. Guidance regarding cost table formatting is provided in Appendix A.

### **c) Volume I, Technical Proposal**

The Volume I Technical Proposal shall be organized into five parts as described below.

#### Part I. Administrative {not included in the page count}

##### A. Cover sheet to include:

- (1) BAA number (DARPA-BAA-10-52)
- (2) "Task B" and proposal title
- (3) Lead Organization submitting proposal
- (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"
- (5) Contractor's reference number (if any)
- (6) Other team members (if applicable) and type of business for each
- (7) BAA Technical Thrust Area Addressed: (i.e. 1.a Precision Strike)
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available)
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available), total funds requested from DARPA, and the amount of cost share (if any) AND
- (10) Date proposal was submitted.

##### B. Official transmittal letter.

C. {Not included in page count} Table of Contents. The Table of Contents should be keyed to the page numbers of the proposal sections.

D. {Not included in page count} Additional front matter such as List of Figures, List of Acronyms, etc. if desired.

## Part II. Executive Summary

This section should provide a short overview of the proposer's proposed critical enabling technology for the TX program and a summary of the associated risk reduction effort, including performance goals, technical approach, relevant experience, and a top-level description of tasks, schedule, and cost.

*Note: The Executive Summary should not have any unique information not contained in the Detailed Proposal Information.*

## Part III. Detailed Proposal Information

This section provides the detailed discussion of the specific technical aspects of the proposal. Part III shall be organized into the following sections:

- Innovation
  - Technical Approach
  - Intellectual Property
  - Statement of Work (SOW) and Integrated Master Schedule (IMS)
  - Program Management
- A. **Innovation.** Succinctly describe the uniqueness and benefits of the proposed enabling technology for the TX vehicle relative to the current state-of-art or alternate approaches. Provide a basic description of the scientific or technical basis for the innovative claims.
- B. **Technical Approach.** Provide a detailed description of the technical approach. This section should serve as the primary expression of the proposer's scientific and technical ideas. It should also include the proposer's understanding of the state-of-the-art approaches and the limitations that relate to the technology. The estimated performance impact of the enabling technology should be substantiated with first-order analysis, illustrating the feasibility of the component technology to enable TX performance that meets the Task A Measures of Performance (Section I-C-1). The proposer should also provide an initial list of critical risk areas of the technology and a risk reduction approach.
- C. **Intellectual Property.** The proposer shall describe the proposed approach to intellectual property rights, together with supporting rationale of a solution eliminating or mitigating the technical and cost risk of transitioning the technology to the military departments. This pertains to technical data, computer software, or computer software documentation associated with this research effort in which the Government will acquire less than unlimited rights.
- D. **Statement of Work (SOW) and Integrated Master Schedule (IMS)**



1. **SOW.** The SOW will describe all of the tasks the proposer will perform in order to achieve a PDR-level design. This section will define the tasks to be performed to WBS level 3 (or more detailed if desired). Do not include any proprietary information in the SOW.
2. **IMS.** The IMS should provide a detailed, integrated schedule of all activities to the same WBS level as the SOW.  
The SOW and IMS are not a part of the page count.

#### **E. Program Management**

1. **Management Process.** The proposer shall describe the management process that will be utilized during the program, including a description of how the team will function and share technical and financial information among the team members and with the Government.
2. **Experience.** Describe the unique capabilities of the corporate team members. Describe the proposer's previous accomplishments and work in closely related research areas.
3. **Facilities.** The proposer should address facilities available across the team, including a description of any unique facilities necessary for execution of the proposed effort.
4. **Organization.** The proposer shall submit a clearly defined organization chart and description for the program team with defined responsibilities of team members. In addition, the number of hours committed for all key personnel should be provided.

#### Part IV. Additional Information {No page limit}

Proposals should be self contained, and include all relevant information required to review the proposed research effort. A brief bibliography of relevant technical papers and research notes which document the technical ideas upon which the proposal can be submitted. Copies of not more than three (3) relevant papers may be included in the submission as supporting information.

#### **d) Volume II, Cost Proposal**

##### Part I. Administrative

Cover sheet to include:

1. BAA number;
2. Lead Organization submitting proposal;
3. Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT";
4. Contractor's reference number (if any);
5. Other team members (if applicable) and type of business for each;
6. Proposal title and "Task B";



7. Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, country, telephone, and electronic mail;
8. Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, country, telephone, and electronic mail;
9. Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (specify), grant, cooperative agreement, or other transaction;
10. Place(s) and period(s) of performance;
11. Total proposed cost separated by basic award and option(s) (if any);
12. Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office (if known);
13. Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (if known);
14. Date proposal was prepared;
15. DUNS number;
16. TIN number; and
17. Cage Code;
18. Subcontractor Information; and
19. Proposal validity period

## Part II. Detailed Cost Proposal

### **A. Cost Proposal Format and Guidance**

1. Tables included in the cost proposal should also be provided in Microsoft Excel format with calculations formulae intact to allow traceability of the cost proposal numbers across the prime and subcontractors. If the PDF submission differs from the Excel submission, the PDF will take precedence. Each copy must be clearly labeled with the DARPA BAA number, Proposer organization, and proposal title (short title recommended).
2. The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO).
3. Subcontractor proposals should include Interdivisional Work Transfer Agreements (IWTA) or similar arrangements.
4. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options
5. For IT and equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding.
6. Each cost copy must be clearly labeled with the DARPA BAA number, proposer organization, and proposal title (short title recommended).

### **B. Costs.** Detailed cost breakdown to include:

Appendix A has been provided as guidance for submitting a detailed cost breakdown. Use of this format is recommended to facilitate timely Government evaluation of the proposal. The tables will show detailed cost breakdown to include:

1. Total program cost summary broken down by major cost items (direct labor – including labor categories, subcontracts, materials, other direct costs, overhead charges, etc.) and further broken down by task;
2. Major program tasks and a summary of projected funding requirements by month for fiscal quarters/year;
3. Labor summary and labor rate summary;
4. Itemization of major subcontracts and equipment purchases;
5. Termination Liability Schedule, Other Direct Charges (ODCs), and any GFE/GFI summaries needed.

Other items needed but not in the Appendix are: an itemization of any information technology (IT) purchases<sup>2</sup>; the source, nature, and amount of any industry cost-sharing, and identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Experts, etc.). NOTE: for IT and equipment purchases, include a letter stating why the Proposer cannot provide the requested resources from its own funding.

**C. Supporting Cost Data.** Supporting cost and pricing information:

1. Provide sufficient detail to substantiate the summary cost estimates above.
2. Include a description of the method used to estimate costs and supporting documentation.
3. All proprietary subcontractor proposal documentation shall be prepared at the same level of detail as that required of the prime and shall be provided to the Government by Email: [DARPA-BAA-10-52@darpa.mil](mailto:DARPA-BAA-10-52@darpa.mil). The subject line of the email shall contain the lead organization’s proposal title, lead organization name, lead organization proposal submission date, and subcontractor name.
4. Cost Notes:
  - a. “Cost or pricing data” as defined in FAR Subpart 15.4 shall be required if the proposer is seeking a procurement contract award of \$650,000 or greater unless the proposer requests an exception from the requirement to submit cost or pricing data. “Cost or pricing data” are not required if the proposer proposes an award instrument other than a procurement contract (e.g., a grant, cooperative agreement, or other transaction.)

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<sup>2</sup> IT is defined as “any equipment, or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, or such equipment in the performance of a service or the furnishing of a product. (b) The term “information technology” includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term “information technology” does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology.”

- b. All proposers requesting an 845 Other Transaction Authority for Prototypes (OTA) agreement must include a detailed list of payment milestones. Each such payment milestone must include the following: milestone description, due date, milestone payment amount (to include, if cost share is proposed, contractor and Government share amounts). It is noted that, at a minimum, such payable milestones should relate directly to accomplishment of program technical metrics criteria as defined in the BAA and/or the proposer's proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer; however, it is noted that the Government prefers use of fixed price payable milestones to the maximum extent possible. Do not include proprietary data. If the proposer requests award of an 845 OTA agreement as a nontraditional defense contractor, as so defined in the OSD guide entitled "Other Transactions (OT) Guide For Prototype Projects" dated January 2001 (as amended) (<http://www.acq.osd.mil/dpap/Docs/otguide.doc>), information must be included in the cost proposal to support the claim. Additionally, if the proposer plans requests award of an 845 OTA agreement, without the required one-third (1/3) cost share, information must be included in the cost proposal supporting that there is at least one non-traditional defense contractor participating to a significant extent in the proposed prototype project.

NOTE: PROPOSERS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.

### **C. Submission Dates and Times**

#### **1. Proposal Date**

In order to be considered, a full proposal must be submitted to DARPA/TTO no later than 3:00 PM EDT on 27 May 2010. Proposals must be submitted to the DARPA/TTO mailing address identified in this BAA. Proposals must be submitted in hard copy, with one signed original and eight copies, plus two electronic copies on CD-ROMs. Each copy must be clearly labeled with BAA 10-52, proposer organization, proposal title (short title recommended), and Copy x of N. Facsimile or electronic submissions will not be accepted.

Unclassified proposals submitted under this BAA may either be mailed or hand-delivered. Mailing address:

DARPA/TTO  
ATTN: BAA 10-52  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

Attn: Mr. Stephen Waller

For hand deliveries, the courier shall deliver the package to the DARPA Visitor Control Center at the address specified above. The outer package, as well as the cover page of the proposal, must be marked "Program BAA-10-52". The full proposal (original and designated number of hard and electronic copies) must be submitted in time to reach DARPA by 3:00PM EDT on 27 May 2010, in order to be considered during the initial evaluation phase; however, BAA 10-52 will remain open for a total of 180 days; however, proposers are warned that the likelihood of funding is greatly reduced for proposals submitted after the initial closing date deadline.

Proposals may be withdrawn by written notice received at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

Classified responses shall be submitted in accordance with directions in Section IV-B-1.

Proprietary Data: All responses containing proprietary data should be appropriately marked. It is the respondent's responsibility to clearly define to the Government what they consider to be proprietary data. Responses to this BAA will not be returned.

**D. Intergovernmental Review (if applicable): N/A**

**E. Funding Restrictions N/A**

**F. Other Submission Requirements (if any): None**

## **V. Application Review Information**

### **A. Evaluation Criteria: Task A**

The proposals submitted in response to this BAA will be evaluated against the following criteria, in descending order of importance: 1) Point-of-Departure (POD) Field Vehicle Concept and Substantiation, 2) Overall Scientific Approach, 3) Management and Program Team, 4) Potential Contribution and Relevance to DARPA's Mission, and 5) Cost Realism. Each proposal will be evaluated on the merit and relevance of the specific proposal as it relates to the program rather than against other proposals for research in the same general area as no common statement of work exists.

The bulleted lists under individual factors and subfactors are specific areas of evaluation to be assessed in conjunction with these criteria. The bulleted lists are equal in importance.

### **1. Point-of-Departure Field Vehicle Concept and Substantiation**

- Extent to which the proposer's POD concept reflects an understanding of the TX program goals, Measures of Performance, and performance goals
- Extent to which the proposer's POD vehicle concept and its capabilities has military utility

- Extent to which the POD vehicle concept is innovative, feasible, and achievable within the proposer's proposed program schedule and the Governments available budget
- Extent to which POD concept performance attributes are substantiated via analysis or previous experimental work

## **2. Overall Scientific Approach**

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks.

### **a) Technical Approach**

- Extent to which the proposer's proposal addresses all of the desired trade studies identified in Section I-C-2
- Extent to which the proposed design trade studies will fully explore the available design trade space
- Extent to which the proposed technology trade studies assess the full range of technical solutions
- Extent to which the proposed design tools and trade study process will yield a robust system design
- Extent to which the proposer has identified a robust process for deriving an affordable Prototype Vehicle (PV) design from the Field Vehicle (FV) design
- Extent to which the proposer has a robust system engineering process for achieving SRR of the PV in Phase I

### **b) Technology Maturation Approach**

- Extent to which the proposal identifies the major technical risks in the development of the TX vehicle and the planned mitigation efforts
- Extent to which the proposer's proposed process for identifying and evaluating critical enabling technologies, processes and vehicle attributes, assessing competing technologies and developing a formal Technology Maturation Plan will result in a comprehensive, detailed plan at the end of Phase I that provides confidence in their ability to mature the subcomponent technologies and the PV design and provides sufficient data for a Government decision regarding Phase II

### **c) Phase I Statement of Work (SOW) and Integrated Master Schedule (IMS)**

- Extent to which the task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined
- Extent to which the SOW conforms to the Government defined WBS, details activities to WBS Level 3, and is traceable to the IMS tasks and the Cost Proposal detailed estimates
- Extent to which SOW shows a credible technical approach to achieving the Phase I milestones
- Extent to which the proposed schedule is complete and achievable

- Extent to which Phase I IMS conforms to the Government defined WBS and is detailed to Level 3
- Extent to which the IMS captures all the SOW tasks, shows the dependencies among the tasks, and correctly displays the critical path

**d) Phase II and III Program Plans**

- Extent to which the proposed Phase II and III program plans meet the Phase II and III top level objectives with reasonable scope, schedule, technical risk and the Governments available budget

**3. Management and Program Team**

- Professional relevant experience of key personnel, including Program Manager, Chief Engineer, Risk Management Lead and other proposed technology area leads
- Extent to which hours proposed for key personnel are consistent with described program roles
- Extent to which proposed team has previous experience on flight demonstration programs with a similar level of complexity to TX
- Extent to which the proposed team has the ability to accomplish all phases of the TX program
- Extent to which proposed management construct provides adequate opportunities for addressing technical, schedule and cost issues with the Government team
- Extent to which proposed management organization and lines of authority provide adequate communication across the program team and with the Government team
- Extent to which proposer's proposed intellectual property and data rights are consistent with the Government's need to be able to communicate program information across Government organizations and to support transition of the program to the users

**4. Potential Contribution and Relevance to DARPA's Mission**

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming U.S. national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their application. The proposed concept and effort should contribute to the national technology base for advanced transportation and mobility capability.

**5. Cost Realism**

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. The proposal will be reviewed to determine if the costs proposed are based on realistic assumptions, reflect a sufficient understanding of the technical goals and objectives of the BAA, and are consistent with the proposer's technical approach (to include the proposed Statement of Work). At a minimum, this will involve review, at the prime and subcontract level, of the type and number of labor hours



proposed per task as well as the types and kinds of materials, equipment and fabrication costs proposed.

After selection and before award the contracting officer will negotiate and validate cost/price reasonableness. The Government may make awards without discussions. Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort. Award(s) may be made to any proposer(s) whose proposal(s) is determined selectable, regardless of its overall rating.

## **B. Evaluation Criteria: Task B**

Evaluation of Task B proposals will be accomplished through a scientific review of each proposal using the following criteria in descending order of importance: 1) Overall Scientific and Technical Merit, 2) Potential Contribution and Relevance to the DARPA Mission, 3) Management and Program Team, 4) Intellectual Property, and 5) Cost Realism.

### **1. Overall Scientific and Technical Merit**

The proposal will be evaluated on the applicability of the proposed technology to the TX Task A Measures of Performance. This includes whether there is sufficient technical payoff to warrant any risk and the proposer's ability to meet the overall program metrics. In addition, the proposed technical approach will be evaluated for innovativeness, feasibility, achievability, and completeness. This include the extent to which the task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined.

### **2. Potential Contribution and Relevance to the DARPA Mission**

The potential contributions of the proposed effort with relevance to the TX operational concept will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their application.

### **3. Management and Program Team**

The proposal will be evaluated on how well the proposed technical team has the expertise and experience to accomplish the proposed tasks. The expertise and experience of the proposer's technical team will be evaluated based upon the qualifications of the key personnel proposed for the effort and their previous accomplishments on similar efforts.

### **4. Intellectual Property**

The extent to which intellectual property (IP) rights limitations placed on the proposer's technology and deliverables comport with DARPA's objectives or create a barrier to technology transition.

## **5. Cost Realism**

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. The proposal will be reviewed to determine if the costs proposed are based on realistic assumptions, reflect a sufficient understanding of the technical goals and objectives of the BAA, and are consistent with the proposer's technical approach (to include the proposed Statement of Work). At a minimum, this will involve review, at the prime and subcontract level, of the type and number of labor hours proposed per task as well as the types and kinds of materials, equipment and fabrication costs proposed.

### **C. Review and Recommendation Process**

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and funds availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Proposals will not be evaluated against each other since they are not submitted in accordance with a common statement of work. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in Section IV. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements.

Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. Upon completion of the source selection process, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

## **VI. Award Administration Information**

### **A. Award Notices**

As soon as the evaluation of a proposal is complete, the proposer will be notified that 1) the proposal has been selected for funding pending contract negotiations, or 2) the proposal has not been selected. These official notifications will be sent via electronic mail to the Technical POC identified on the proposal coversheet.

### **B. Administrative and National Policy Requirements**

#### **1. Meeting and Travel Requirements**

There will be a program kickoff meeting and all key participants are required to attend. Performers should also anticipate regular program-wide PI Meetings and periodic site visits at the Program Manager's discretion.

#### **2. Human Use**

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, *Protection of Human Subjects* (<http://www.dtic.mil/biosys/downloads/32cfr219.pdf>), and DoD Directive 3216.02, *Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research* (<http://www.dtic.mil/whs/directives/corres/html2/d32162x.htm>).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subjects research must provide documentation of completing appropriate training for the protection of human subjects.

For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of, or a plan for, review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. The IRB conducting the review must be the IRB identified on the institution's Assurance. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. Consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance along with evidence of appropriate training all investigators should all accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process.

Note that confirmation of a current Assurance and appropriate human subjects protection training is required before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. The IRB approval process can last between one to three months, followed by a DoD review that could last between three to six months. No DoD/DARPA funding can be used towards human subjects research until ALL approvals are granted.

### **3. Animal Use**

Any Recipient performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966, as amended, (7 U.S.C. 2131-2159); (ii) the guidelines described in National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals"; (iii) DoD Directive 3216.01, "Use of Laboratory Animals in DoD Program."

For submissions containing animal use, proposals should briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. Animal studies in the program will be expected to comply with the PHS Policy on Humane Care and Use of Laboratory Animals, available at <http://grants.nih.gov/grants/olaw/olaw.htm>.

All Recipients must receive approval by a DoD certified veterinarian, in addition to an IACUC approval. No animal studies may be conducted using DoD/DARPA funding until the USAMRMC Animal Care and Use Review Office (ACURO) or other appropriate DoD veterinary office(s) grant approval. As a part of this secondary review process, the Recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at <https://mrmc.amedd.army.mil/AnimalAppendix.asp>.

### **4. Publication Approval**

It is the policy of the Department of Defense that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. The definition of Contracted Fundamental Research is:

"Contracted Fundamental Research includes [research performed under] grants and contracts that are (a) funded by budget category 6.1 (Basic Research), whether performed by universities or industry or (b) funded by budget category 6.2 (Applied Research) and performed on-campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant." Such research is referred to by DARPA as "Restricted Research."

Pursuant to DoD policy, research performed under grants and contracts that are (a) funded by budget category 6.2 (Applied Research) and NOT performed on-campus at a university or (b) funded by budget category 6.3 (Advanced Research) does not meet the definition of fundamental research. Publication restrictions will be placed on all such research.

It is anticipated that the performance of research resulting from this BAA (i.e., program Phases I, II, and III) may be fundamental or non-fundamental (6.2). For certain research projects, it may be possible that although the research being performed by the Prime Contractor is Restricted Research, a subcontractor may be conducting Contracted Fundamental Research. In those cases, it is the Prime Contractor's responsibility to explain in their proposal why its subcontractor's effort is Contracted Fundamental Research.

The following same or similar provision will be incorporated into any resultant Restricted Research or Non-Fundamental Research procurement contract or other transaction:

There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the DARPA Technical Information Officer (DARPA/TIO). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial proposals for Contracted Fundamental Research, papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

When submitting material for written approval for open publication, the Contractor/Awardee must submit a request for public release to the DARPA TIO and include the following information: 1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx. 30 words), number of pages (or minutes of video) and document type (briefing, report, abstract, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor/Awardee's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to [tio@darpa.mil](mailto:tio@darpa.mil) or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571) 218-4235. Refer to <http://www.darpa.mil/tio> for information about DARPA's public release process.

## **5. Export Control**

Should this project develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community) with military or dual-use applications the following apply:

(1) The Contractor shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technologies, including technical data or software.

(3) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

## **6. Subcontracting**

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. 637(d)), it is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and to assure that prime contractors and subcontractors carry out this policy. Each proposer who submits a contract proposal and includes subcontractors is required to submit a subcontracting plan in accordance with FAR 19.702(a) (1) and (2) should do so with their proposal. The plan format is outlined in FAR 19.704.

## **7. Electronic and Information Technology**

In compliance with Section 508 of the Rehabilitation Act (29 U.S.C. 794d) and FAR Subpart 39.2, if it is anticipated that this BAA will be used to procure electronic or information technology (EIT), and the exceptions listed in FAR Subpart 39.204 do not apply, the following language must be included in the BAA:

All electronic and information technology acquired through this solicitation must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. 794d) and FAR Subpart 39.2. Each proposer who submits a proposal involving the creation or inclusion of electronic and information technology must ensure that Federal employees with disabilities will have access to and use of information that is comparable to the



access and use by Federal employees who are not individuals with disabilities, and members of the public with disabilities seeking information or services from DARPA will have access to and use of information and data that is comparable to the access and use of information and data by members of the public who are not individuals with disabilities.

## **8. Employment Eligibility Verification**

As per FAR 22.1802, recipients of FAR-based procurement contracts must enroll as Federal Contractors in E-Verify and use E-Verify to verify employment eligibility of all employees assigned to the award. All resultant contracts from this solicitation will include FAR 52.222-54, "Employment Eligibility Verification." This clause will not be included in grants, cooperative agreements, or Other Transactions.

### **C. Reporting**

The number and types of reports will be specified in the award document, but will include as a minimum monthly technical and financial status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. At least one copy of each report will be delivered to DARPA and not merely placed on a web/SharePoint site. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

### **D. Electronic Systems**

#### **1. Central Contractor Registration (CCR)**

Selected proposers not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to any award under this BAA. Information on CCR registration is available at <http://www.ccr.gov>.

#### **2. Representations and Certifications**

In accordance with FAR 4.1201, prospective proposers shall complete electronic annual representations and certifications at <http://orca.bpn.gov>.

#### **3. Wide Area Work Flow (WAWF)**

Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at <http://wawf.eb.mil>. Registration to WAWF will be required prior to any award under this BAA.

#### **4. i-Edison**

The award document for each proposal selected and funding will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (<http://s-edison.info.nih.gov/iEdison>).

### **E. Agency Contacts**

Administrative, technical or contractual questions should be sent via e-mail to [DARPA-BAA-10-52@darpa.mil](mailto:DARPA-BAA-10-52@darpa.mil). If e-mail is not available, fax questions to 703-696-8401, Attention: BAA 10-52. All requests must include the name, email address, and phone number of a point of contact.

Mr. Stephen Waller  
DARPA/TTO  
ATTN: BAA 10-52  
3701 North Fairfax Drive  
Arlington, VA 22203-1714  
Fax: (703) 696-8401 or 2204  
Electronic mail: [DARPA-BAA-10-52@darpa.mil](mailto:DARPA-BAA-10-52@darpa.mil)

## **VII. Other Information**

### **A. Intellectual Property**

#### **1. Procurement Contract Proposers**

##### **a) Noncommercial Items (Technical Data and Computer Software)**

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all noncommercial technical data and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Proposers shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that proposers do not submit the list, the Government will assume that it automatically has “unlimited rights” to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, then proposers should identify the data and software in question, as subject to Government Purpose Rights (GPR). In accordance with DFARS 252.227-7013 Rights in Technical Data – Noncommercial Items, and DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation, the Government will automatically assume that any such GPR restriction is limited to a period of five (5) years in accordance with the applicable DFARS clauses, at which time the Government will acquire “unlimited rights” unless the parties agree otherwise. Proposers are admonished that the Government will use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may

be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE."

A sample list for complying with this request is as follows:

NONCOMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

**b) Commercial Items (Technical Data and Computer Software)**

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all commercial technical data and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or commercial computer software. In the event that proposers do not submit the list, the Government will assume that there are no restrictions on the Government's use of such commercial items. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE."

A sample list for complying with this request is as follows:

COMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

**B. Non-Procurement Contract Proposers – Noncommercial and Commercial Items (Technical Data and Computer Software)**

Proposers responding to this BAA requesting a Grant, Cooperative Agreement, Technology Investment Agreement, or Other Transaction for Prototype shall follow the applicable rules and regulations governing these various award instruments, but in all cases should appropriately identify any potential restrictions on the Government's use of any Intellectual Property contemplated under those award instruments in question. This includes both Noncommercial Items and Commercial Items. Although not required, proposers may use a format similar to that described in Paragraphs 1.a and 1.b above. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may

be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE."

### **C. All Proposers - Patents**

Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under your proposal for the DARPA program. If a patent application has been filed for an invention that your proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that you own the invention, or 2) proof of possession of appropriate licensing rights in the invention.

#### **1. All Proposers – Intellectual Property Representations**

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the DARPA program. Additionally, proposers shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research. The Government may be willing to purchase appropriate use rights to satisfy the Government requirements. To address this possibility, the proposer should include the appropriate cost for this use in its cost proposal.



# **Broad Agency Announcement (BAA) Transformer (TX) Appendices**

**BAA-10-52**

**Appendix A: Cost Table Templates**

**DATE: April 12, 2010**

**Defense Advanced Research Projects Agency  
DARPA/TTO  
3701 N. Fairfax Drive  
Arlington, VA 22203-1714**

## Appendix A

### Cost Table Templates

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#### A. Cost Table Format

To streamline the Cost Proposal Evaluation process, the Government has developed a simple format for providing cost proposal data. The Proposer shall provide this data in hard copies and also electronic copies using MS EXCEL. The lead page of the Cost Proposal (Volume II) shall have a Cost Summary Sheet, including all the information shown in Table 1, as applicable. It shall be a summary of program cost in tabular format. Costs for the Prime Proposer/team lead, team members, funding to federal laboratories and agencies, and cost of major facility utilization (such as wind tunnels) shall all be addressed as applicable. The Cost Summary Sheet shall only contain summary data; the lower-level detail can be addressed as part of the other breakouts discussed in these instructions.

**Table 1. Cost Summary Sheet**

PoP: Start xx/xx/xx to End xx/xx/xx	
<b>Prime Contractor Labor</b>	
Labor Hours	
Total Labor \$	
<b>Prime Contractor Direct Materials</b>	
Direct Material \$	
<b>Major Subcontractors/Team Members</b>	
Team Member A	
Labor Hours	
Total Labor \$	
Direct Material \$	
Other Direct Costs (ODC)	
Total Team Member A \$	
{Repeat above for Other Team Members}	
<b>Other Direct Costs (ODC)</b>	
Travel \$	
Purchased Services / Consultants	
Other \$	
<b>US Government Furnished Equipment / Information (GFE/GFI)</b>	
Item 1:.... Description	



Item 2: ....Description	
{Repeat for additional GFE/GFI Items}	
<b>Total Proposed Costs</b>	
Overhead, G&A and Fee (x%, xx%, xxx%...)	
Fully Loaded (All Direct, Indirect and Fees included)	
**Repeat for Major Subcontractors/Team Members as needed	

## B. General Instructions

All information provided in the Cost Proposal should employ the same work breakdown structure (WBS) as used in the Proposer's Statement of Work and Integrated Master Schedule in the Technical Proposal. The cost proposal shall include a complete summary of all costs by WBS by month as highlighted in Table 2. If a teaming arrangement is proposed, the desired cost information shall be provided for all team members.

In order for the government to assess program risk and determine the reasonableness, realism, and completeness of the cost proposal, the data regarding labor, direct materials, major subcontracts/team members, Other Direct Costs (ODC), and US Government Furnished Equipment or Information (GFE/GFI) must be provided for each team member and in a cumulative summary. Each item and category must be broken out. The costs shown in the various breakouts and discussed in the following sections should equal those summarized in Table 1.

**Table 2. Monthly/Quarterly Summary\***

	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>.....</b>	<b>Quarter N</b>	<b>Total \$</b>
WBS x.					
WBS x.x**					
Total \$					
Cumulative \$					
*Repeat for Major Subcontractors/Team Members as needed.					
** Repeat as necessary for other WBS.					

## C. Labor

Total labor includes direct labor and all indirect expenses associated with labor for the program phase. Labor hours and costs shall be allocated to each WBS element contained in the SOW and segmented by team member. Table 3 provides an example of this breakout.

Table 4 shows a breakdown of labor hours and rates for each category of personnel to be used on this project.

**Table 3. Labor Summary**

	<b>Prime Contractor</b>	<b>Team Member A</b>	<b>Team Member B</b>	<b>.....</b>	<b>Total</b>
WBS x.					
WBS x.x.**					
<b>Total</b>					
*Repeat as necessary.					

**Table 4. Labor Rate Summary\*\***

	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>
	<b>Hrs/Rate</b>	<b>Hrs/Rate</b>	<b>Hrs/Rate</b>	<b>Hrs/Rate</b>	<b>Hrs/Rate</b>
Prime Contractor or Subcontractor xx					
Labor Category 1					
Labor Category 2					
Labor Category 3*					
O/H					
G&A					
Fee					
* Repeat for other Labor Categories as needed					
** Repeat for other Subcontractors/Team Members as needed (may be submitted directly to contracting officer by subcontractor)					

**D. Subcontracts**

List efforts to be subcontracted, the source, estimated cost and the basis for this estimate. For major subcontracts with a value of 10% or greater than the Prime Contractor's total price, including options, break out the subcontract costs by labor (amount and hours), material, and other direct charges by WBS. Table 5 provides an example of a cost breakout.

**Table 5. Major Subcontractor Summary\***

	<b>Labor Hours</b>	<b>Labor \$</b>	<b>Material \$</b>	<b>ODC \$</b>	<b>Indirect</b>	<b>Total \$</b>
Subcontractor X						
WBS x.						
WBS x.x						
<b>Total</b>						
*Provide a Separate Table for each Major Subcontractor/Team Member if submitting directly to contracting officer by subcontractor.						

### E. Other Direct Costs (ODCs)

This section contains any direct costs not included above. As shown in Table 6, ODCs shall be broken out by categories, such as travel, facility costs, purchases services, and consultants. If applicable, major facility requirements, such as wind tunnel testing or flight research vehicles, government or commercial shall all be included, as should estimates of total facility occupancy and test time. Proposers are expected to include the costs of using any government testing facilities in their cost proposals, but they can use government rates instead of industry rates. At its discretion, DARPA may choose to directly procure services from government test facilities.

**Table 6. ODC Summary\***

	<b>Travel</b>	<b>Facility</b>	<b>Consultants</b>	<b>.....</b>	<b>Total \$</b>
WBS x					
WBS x.x**					
WBS y					
WBS y.y**					
....					
....					
....					
<b>Total</b>					
*Repeat for each separate major subcontractor. ** Repeat as necessary.					

### F. Government Furnished Equipment or Information

As Table 7 highlights, the Proposer should list all proposed GFE and GFI and the proposed required delivery schedule for both. This information should be in sufficient detail for the government to assess the realism and costs of providing such information or equipment.

**Table 7. GFE/GFI Summary**

	<b>GFE/GFI Description</b>	<b>Source</b>	<b>Date Needed</b>	<b>Total \$</b>
WBS x*				
WBS x.x*				
WBS y*				
WBS y.y*				
....				
....				
<b>Total</b>				
*Repeat as necessary.				

### **G. Term Liability Information**

As Table 8 highlights, the Proposer should list quarterly term liability information at each contractor level for the duration of the Phase.

**Table 8. Term Liability Summary**

	<b>Quarter 1</b>	<b>Quarter 2</b>	<b>.....</b>	<b>Quarter N</b>	<b>Total \$</b>
Prime					
Subcontractor A					
Subcontractor B*					
Total \$					
*Repeat as necessary for other subs.					