WALRUS

HEAVY LIFT AIR VEHICLE DESIGN PROGRAM

PHASE I

DRAFT PROGRAM SOLICITATION 04-XX

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WALRUS – PHASE I

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1 Introduction

The Defense Advanced Research Projects Agency (DARPA) is pleased to offer you the opportunity to respond to the WALRUS design program solicitation. This solicitation provides a unique opportunity to work in partnership with DARPA to design, build, and demonstrate the technical feasibility of a strategic air lift capability providing "Fort-to-Fight" (FF) operations, reducing the logistics burden on military force deployment, and paving the way for other significant military and commercial applications of airships.

The Walrus program is an Advance Technology Demonstration (ATD) program to prove the operational concept of a large lifting air vehicle capable of transporting a Unit of Action (UA) from "Fort-to-Fight" as a complete integrated package of personnel, equipment and supplies. The Walrus program will develop, explore, and demonstrate the military utility by developing a vehicle of "significant scale" with technology and operational systems that are scalable to a full size vehicle. The ATD vehicle will prove the concept for the objective air vehicle (OAV) and will also have residual value for exploring military CONOPS and training. The OAV is envisioned to be capable of transporting in excess of 500 tons of useful payload distances up to or over 6000 nautical miles without refueling. For the Walrus ATD, "significant-scale" is a vehicle with comparable lift capability to a C-130 aircraft (notionally around 30 tons).

DARPA believes contractor teams wishing to participate in the Phase I study should be in a position to design the entire system and address its scalability risk reduction requirements. Contractors having a capability in only specific technology or subsystem areas should seek partners to complement their efforts. The program described in this solicitation begins with an initial study phase (Phase I) followed by a multi-part second phase including the development of a scaled risk reducing ATD vehicle and discrete risk reducing technology demonstrations to mitigate risk in the full scale WALRUS OAV design.

1.1 Motivation

The Army has a need to deliver "ready to fight" ground combat forces into an objective area over strategic distances. In-theater operations including short distance re-deployment and force re-supply for sustaining the inserted forces is a complementary need. The Walrus program seeks to provide the United States with a strategic and transformational force projection capability.

Currently, the United States military is limited in the way that it can deploy a UA. Limitations include phased and incremental force arrival, shortcomings in a ready to fight condition and equipment support issues. Current deployment utilizes significant numbers of varying cargo carrying assets including commercial cargo ships, lifting helicopters, and military and commercial aircraft to deploy a fighting unit to a remote region. This prohibits the efficient and timely deployment of a fighting force to the locations they are needed. Walrus will provide a "fort to fight" movement capability in a single vehicle which was previously achieved by multiple assets. It will deliver manpower and equipment expeditiously and in a condition to engage with little delay.

Walrus will be able to deliver material to sites which lack transportation routes, support infrastructure, or prepared reception facilities. It will operate from unimproved landing sites and in the maritime environment. These capabilities will transform the approach to field support of Army operations. Additionally, the Walrus vehicle can service a wide range of other multi-agency needs with relatively minor configuration changes.

Although Walrus is to be developed with military utility as a first priority, affordability and operating costs will demand high priority. Metrics (or Figures of Merit) will be developed in Phase I to accurately compare WALRUS system concepts (an example being cost per ton mile of cargo delivered). While not compromising military capability, the program will remain sensible to the possibilities for expansion into other applications including commercial operating needs.

DARPA believes that advances in materials (fabrics and structures), propulsion systems, analytic modeling capabilities, buoyancy control and other technologies can enable the engineering design of an air vehicle that can deliver a Vertical Take off and Landing (VTOL) capability and a long range heavy lift capability to satisfy the growing logistics need of the United States military services. This system would allow the projection of ground force from CONUS and allow for rapid deployment of military fighting units. It will carry the manpower and machine-power and required consumables (food, fuel, ammunition, support, etc) that the unit requires to be operational once deployed for 72 hours.

1.2 Vision

DARPA's vision for the WALRUS Program is to demonstrate the feasibility of a heavy lift air vehicle concept to meet a strategic transport need. The program will not re-package 1930s technology or upscale the more limited commercial dirigibles of today, but rather will employ an LTA vehicle concept with new and emerging technologies. By leveraging these technologies to develop an air vehicle, DARPA hopes to truly introduce a paradigm change in capability for providing responsive and flexible deployment and force projection options to military commanders.

WALRUS will require little or no infrastructure to build or maintain, and will not be limited by the need to use runways or other infrastructure (masts, etc) at the landing location. The system will not require a hangar for storage while not in use, and will be able to withstand adverse weather conditions throughout operational life without significant tie down or other manpower intensive operations.

It is anticipated that Walrus will operate in areas where there is local air superiority and ground defenses are suppressed. Survivability will still be an issue that demands importance and will be shaped by the definitive needs resulting from the development of CONOPs.

1.3 Program Philosophy

In this solicitation you are being asked to "think outside the box" and propose your own unique collaborative design methodologies, modeling and simulation tools, processes, capabilities, concepts, and innovative teaming arrangements to reduce the cost of product development, manufacturing, and operations and support. We will not provide traditional specifications and a statement of work. Instead, we will describe our objectives in this solicitation and provide guidance on preparing your response. The goal of the program is to demonstrate that an LTA derivative air vehicle is an effective candidate to fulfill the needs for strategic lift through scaled vehicle and other technology demonstrations. This will involve producing a technology development plan to demonstrate full size technology prototypes. The design must have the potential to be rapidly refined and transitioned to military applications after Phase II. Funding, schedule, technology risk, and scalability will scope the level of fidelity in the demonstration.

The WALRUS program is built upon the following premises:

1. The WALRUS system will be capable of transporting in excess of 500 tons useful payload over distances of up to 6,000 nautical miles unrefueled at a speed higher than existing commercial LTAs
2. DARPA will fund the study, analysis, design, fabrication and test of a scalable ATD vehicle that will adequately prove the WALRUS concept and validate the projected operational system CONOPS
3. DARPA will fund the development and fabrication of enabling technologies that allow the added military and commercial utility that make the WALRUS vehicle and CONOPS feasible.

Our real interest in the Phase I system studies is to identify WALRUS concepts through system trade studies that will offer the broadest range of military capability in terms of the number of tasks WALRUS can perform. Tasks of particular interest are identified in this solicitation. The offeror shall treat range of capability as a priority and make

intelligent choices so that the ultimate WALRUS design reflects a balance between cost, manufacturability and technical risk without compromising the operational goals of the WALRUS system.

2 Program Description

2.1 Program Goal

The goal of the Walrus ATD is to demonstrate the feasibility and viability of a strategic lift, concept through the development of an objective air vehicle design supported by risk reduction demonstrations, most notably, a scaled ATD air vehicle. The ATD air vehicle will be transitioned to the services in a follow-on phase including military utility experimentation and assessment. The ATD air vehicle is unlikely to encompass every technology that will be associated with the objective air vehicle design. Other enabling technologies will be demonstrated in separate risk reduction efforts paralleling the ATD vehicle. The successful demonstration by the ATD vehicle of the CONOPS, risk reducing technologies, and operational capabilities for the objective air vehicle concept is anticipated to lead to an acquisition program for full scale development. The objective air vehicle concept will be expected to show levels of performance and utility well in advance of past generations of LTA. This will include, for example, independence from external ballast, active manipulation of lift generation, increased maneuverability, an appropriate approach to survivability, independence from ground handling equipment, ability to operate in adverse weather conditions both in the air and on the ground etc. To demonstrate assurance that concept design goals can be met, critical technologies will be identified early in the program and will be entered in a risk reduction plan. It is anticipated that these demonstrations will be substantial in both phases of the program to provide the necessary confidence in developing concept proposals.

2.2 WALRUS Objectives, Mission Description

Walrus will bring new capabilities to the warfighter. Some are anticipated and some will become evident through military utility experimentation. The principal operational tasks of Walrus at the outset are anticipated to be as follows in order of importance:

- Origin to Destination Lift (strategic capability)
- In-theater Lift
- Seabasing Operations and Lift
- Persistence Missions

The WALRUS system will be developed to provide the maximum military utility possible to the war fighter subject to the constraints of funding, technology risk and schedule. The first focus of the objective air vehicle is strategic lift ("Origin to Destination") but the development will remain sensitive to the potential value of the other missions and roles in order not to miss emerging military utility or other value to the warfighter. This potential military utility will be explored during the initial concept definition phase and will be used to define the program phase II description. Additionally, supportability, maintainability and manufacturability, and in particular the ability or need for Walrus to spend its lifetime in open/exposed conditions will become important design drivers.

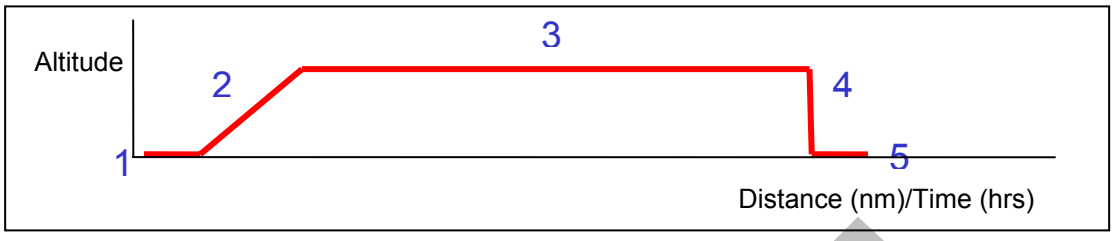

Figure 2-1 Notional WALRUS System Baseline Concept of Operations

The baseline mission for Walrus is to transport personnel and equipment from "Origin to Destination". This mission anticipates loading at a CONUS home base and flying strategic distances non-stop to deploy military units in a theater of operations in a fit-to-fight condition. Anticipating local air superiority in the area of landing operations with ground defenses suppressed, WALRUS will land vertically or short rolling at an unimproved site. It will have sufficient fuel and control to take off empty (no external ballast to offset offloaded payload will be required) and to depart the area of hostilities before refueling for return to base (RTB).

Early warfighter analysis has identified a range of Walrus attributes that will support the achievement of the listed operational tasks. These attributes have dependencies and are anticipated to form the basis of trade studies that will lead to optimized performance of the above operational tasks. Further guidance will be provided on the prioritization of these attributes early in the program. Table 2.1 identifies Walrus attributes and anticipated trade space:

Operational Tasks	Design Area	Attribute	Attribute Dependency - Tradespace
1. Origin to Destination Lift (strategic capability) 2. In-theater Lift 3. Seabasing Lift 4. Persistence Missions	Performance	Speed	Payload Volume And Density; Ability To Operate In Weather; Survivability; Range
		Operating Altitude	Payload Volume And Density; Ability To Operate In Adverse Weather; Survivability; Organic Direct Lift Control; Range; VTOL
		Range	Speed; Survivability; Payload Volume Density; Operating Altitude
		Hover Capability	Vtol; Organic Direct Lift Control; Low Speed Control Maneuver; Ability To Operate In Adverse Weather; Landing Site Flexibility; Payload Volume Density; Operating Altitude
		VTOL	Hover Capability; Organic Direct Lift Control; Low Speed Control; Maneuver; Ability To Operate In Adverse Weather; Landing Site Flexibility; Operating Altitude; Payload Volume Density
	Controlability	Low Speed Controlled Maneuver	Ability To Maintain Position During Loading And Unloading (Ground/Sea Handling); Organic Direct Lift Control; Hover Capability; VTOL; Survivability; Ability To Operate In Adverse Weather; Landing Site Flexibility; Load And Unload Time; Payload Volume Density
		Ability to Maintain Position During Loading and Unloading (Ground and Sea Handling)	Organic Direct Lift Control; Hover Capability; Mission Tailorable Payload Area; Payload Volume Density; Load And Unload Time; Landing Site Flexibility; Ability To Operate In Adverse Weather; Survivability; Low Speed Control Maneuver
		Organic Direct Lift Control (Buoyancy)	Hover Capability; Operating Altitude; Payload Volume Density; Load And Unload Time; Landing Site Flexibility; VTOL; Ability To Operate In Adverse Weather; Survivability; Low Speed Control Maneuver; Ability To Maintain Position During Loading And Unloading (Ground/Sea Handling)
	Logistic Utility	Payload Volume and Density	Load And Unload Time; Low Speed Control Maneuver; Ability To Maintain Position During Loading And Unloading (Ground/Sea Handling); Organic Direct Lift Control; Range; Hover Capability; VTOL; Speed; Operating Altitude; Mission Tailorable Payload Area
		Load and Unload Time	Landing Site Flexibility (Size And Condition); Ability To Operate In Adverse Weather Survivability; Low Speed Control Maneuver; Ability To Maintain Position During Loading And Unloading (Ground/Sea Handling); Organic Direct Lift Control; Hover Capability; Payload Volume And Density
		Mission Tailorable Payload Area	Ability To Maintain Position During Loading And Unloading (Ground/Sea Handling); Landing Site Flexibility; Load And Unload Time; Payload Volume And Density
	Basing	Landing Site Flexibility (Size and Condition)	Ability to Operate in Adverse Weather; Survivability; Low Speed Control Maneuver; Ability to Maintain Position During Loading and Unloading (Ground/Sea Handling); Organic Direct Lift Control; Hover Capability; VTOL; Load and Unload time
	Operational Utility	Ability to Operate in Adverse Weather	Survivability; Low Speed Control Maneuver; Ability to Maintain Position During Loading and Unloading (Ground/Sea Handling); Organic Direct Lift Control; Hover Capability; VTOL; Landing Site Flexibility; Load and Unload time; Speed; Operating Altitude
		Survivability	Low Speed Control Maneuver; Ability to maintain position during loading and unloading (Ground/Sea Handling); Organic Direct Lift Control; Range; Ability to Operate in Adverse Weather; Landing Site Flexibility; Load and Unload time; Speed; Operating Altitude

Table 1: Walrus Operational Tasks and Associated Attributes

2.2.1 ATD Demonstration Objectives

The ATD air vehicle is an element of a total risk reduction hardware demonstration. It is likely to be the largest if not the most demanding of the technology demonstrations. Additionally, the ATD air vehicle is expected to possess discrete and self-standing value that may be a residual of the phase II and follow-on experimentation. WALRUS ATD system demonstration objectives in descending order of priority:

- Support the development and demonstration of the CONOPS and military utility of a WALRUS system
- As part of a total hardware systems demonstration plan, develop and demonstrate the feasibility of the technologies that are enabling to the full scale objective air vehicle. Note: Of particular importance will be buoyancy control (heaviness manipulation), stability and controllability independent of off-board ballast
- Demonstrate the manufacturing processes that will be used to build a vehicle of this magnitude

2.3 Program Plan

The WALRUS acquisition strategy is shown in Figure 2-2 WALRUS Acquisition Strategy. The goal of this strategy is to provide the information necessary at the completion of each phase to enable government decision-makers to determine whether it is technically feasible and fiscally prudent to further develop a WALRUS system. The program has been divided into 2 phases as defined below:

- Phase I – Concept Definition
- Phase II – Design, Develop, and Demonstration
    - Phase IIa – Preliminary Design and Risk Reduction
    - Phase IIb – Critical Design and Risk Reduction
    - Phase IIc – Build and Demonstration

2.3.1 Phase I, Concept Definition

During Phase I, DARPA may award multiple, 12 month, Other Transaction for Prototype agreements for a MINIMUM of: System Level Design of a WALRUS system, System Level Design of a risk reducing scalable Advanced Technology Demonstrator (ATD) system, and a refined Technology Development and Assessment Plan (TDAP). Funding availability and value of proposals will drive the number of awards in Phase I.

2.3.2 Phase IIa, Preliminary Design

At the conclusion of Phase I, DARPA will determine whether to down select to Phase II from the Phase I participants, or terminate the program. The decision will be based on a thorough assessment of the results of Phase I as well as the extent to which the contractors' proposed Phase II program will provide significant value. If the government decides to proceed, a maximum of two Phase I contractors will be selected to continue WALRUS design through preliminary design, conduct risk reduction testing and/or technology development, and update the TDAP.

2.3.3 Phase IIb, Critical Design

At the conclusion of Phase IIa, once again, DARPA will determine whether to down select to Phase IIb or terminate the program. Similarly, this decision will be based on a thorough assessment of the results of Phase IIa as well as the extent to which the contractors' proposed Phase IIb critical design program will provide significant value. If the government decides to proceed, a single Phase IIa contractor will be selected to complete the critical design of the WALRUS system and fabricate the WALRUS ATD vehicle, integrate the critical technologies, continue risk reduction activities, and conduct flight tests.

2.3.4 Phase IIc, Build and Demonstration

At the conclusion of Phase IIb, DARPA will determine whether to approve continuation to Phase IIc or terminate the program. This decision will be based on a thorough assessment of the results of Phase IIb. If the government decides to proceed, the IIb contractor will enter the build and demonstration phase to complete the objective air vehicle concept development and to take the ATD air vehicle through initial flight testing prior to military utility assessment.

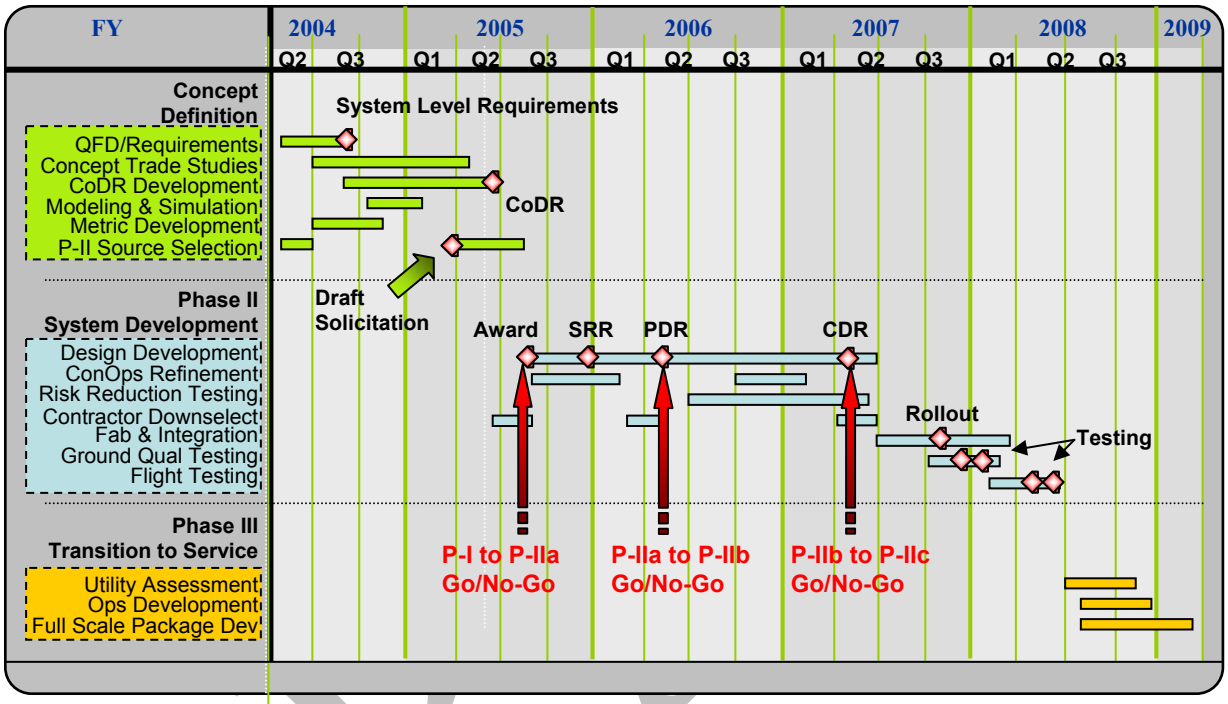

Figure 2-2 WALRUS Acquisition Strategy

Towards the end of Phases I and IIa, a solicitation update will be provided with proposals due one month prior to Phase completion. This will allow the program to transition between phases without any delay or disruption. Phase II will culminate with an operational ATD vehicle demonstrating scalable technologies proving the concept of the heavy lifting WALRUS system. The ATD vehicle will be transitioned to the military for utility experimentation and assessment. Program transition to the Services will occur on completion of phase II by the middle of FY08.

The program plan calls for the development of a refined TDAP during Phase I and a WALRUS Production Transition Plan (WPTP) during Phase II. Together these plans will provide an integrated roadmap for all activities necessary to meet the WALRUS program goals. The updated TDAP will detail all the Phase II risk reduction efforts, subsystem and component verification tests, vehicle checkout and flight safety activities, critical technology evaluations and assessments, and flight demonstration of the ATD vehicle. The WPTP will address any operational evaluations, technology and manufacturing process development, maturation, transition, and/or risk reduction activities which are necessary to continue development of a WALRUS system up to the point of a decision to enter into acquisition. The management team will coordinate both plans with industry and the DoD to ensure maximum advantage is taken of any leverage opportunities, and scarce research and development dollars are focused on supporting the acquisition strategy. Both plans will be continually updated during the entire program to reflect emerging results. Desired transition scenarios are to use residual demonstration vehicles and provide a commercially or military operated logistics service or to continue with additional operational testing.

2.4 Rolling Down Select for Phase II

During the performance of the System Definition effort, the contractor will present two briefings (interim and final) to the Government. The information presented will be evaluated using the criteria detailed in section 5. The four main areas of review are Development Schedule, Mission Capability, Contractor Performance, and Affordability. The results of these evaluations will be used by the Source Selection Evaluation Team (SSET) in conjunction with the contractor's submission of next-phase costing (evaluated for reasonableness) to select the contractor(s) for the follow-on effort.

The interim briefing will be conducted prior to the completion of the sixth month of the System Definition effort. The purpose of the review is to assess the contractor's progress against the Statement of Objectives using the Integrated Master Plan and Schedule (IMP/IMS). The Government will evaluate the contractor on the four areas listed above. Of those, only contractor performance and contractor management responsiveness will be included in the final evaluation for the follow-on efforts. The Government will provide a "feedback" briefing to the contractor detailing strengths and weaknesses of the contractor's approach and schedule.

The final briefing will be conducted in the eleventh month of the Systems Definition effort. The purpose of the review is to assess the contractor's performance against the Statement of Objectives using the IMP and IMS. The Government will review and evaluate the Development Schedule, Mission Capability, Contractor Performance, and Affordability and will provide a feedback briefing to the contractor. This briefing and a separately submitted cost proposal will constitute the contractors proposal for Phase II efforts.

2.5 Management Approach

DARPA is responsible for overall management of the WALRUS program, including technical direction, acquisition, and security. The PM is responsible for implementing a streamlined approach to program management and transition. Major tenets of that approach include: close cooperation between government and contractor teams, small staffs, abbreviated oversight, face-to-face communication, real-time decision making, and short, direct lines of authority.

As required, the PM will bring on expert technical advisors from outside organizations. DARPA will charter the WALRUS Technical Support Team (TST) to meet that responsibility. The TST has a mandate to draw upon the full spectrum of technical expertise within USAF, Navy, and Army organizations. The TST includes a team lead and individual focal points for: Program Management, System Engineering Integration and Test Segment, Airframe Segment, Mission Control/Planning Segment, Logistics Segment, Software and Avionics Segment, Supportability Segment, and Propulsion Segment.

2.6 Data Rights

Phase I of this program requires sufficient government rights to the technical data developed to enable the Government to: 1) flexibly brief stake holders regarding technical progress and accomplishments and 2) allow validation of technical claims and accomplishment by independent technical (potentially non-government) experts. In order to assure that full credit is given to technical approaches, contractors may wish to minimize restrictions on data transfer wherever possible. Future Phases will require Government Purpose Rights to data, at a minimum, for items such as:

- The System Design – adequate to enable third party vendors to develop technologies for insertion into the system architecture
- Technology Development – adequate to enable independent verification of the performance predictions and technology claims. Examples of the types of data include test results and interface definitions
- Maintenance and Life Cycle Support Data – sufficient data and rights thereto to enable development of life cycle support models and cost predictions based on a credible life cycle support program

It is anticipated that GPR may be necessary for other data not mentioned above as the program continues. Additional data requirements may later be defined and become a part of the down-selection criteria.

All delivered data and handouts shall be marked appropriately, by page.

2.7 ITAR Compliance

All bidders must comply with export control laws and ITAR regulations, and be able to protect sensitive and controlled data including critical technologies. DARPA suggests that appropriate teaming relationships be developed for industry to industry contracts which are significantly simpler than Government-Industry relationships particularly where foreign companies are concerned.

3 Phase I Statement of Objectives

This section outlines the Government's objectives for Phase I, Studies, Analyses and System Design for the WALRUS program. The primary objectives of Phase I are to identify mission needs, establish system operating attributes and to conduct trade studies leading to a concept system design. These are necessary to demonstrate that the development and flight-testing of a WALRUS ATD vehicle and the demonstration of other critical system technologies provides sufficient value and scalability to the government to justify investing in Phase II. The results from a successful Phase I program will convince the Government that: (1) The WALRUS system will be an effective option for large scale force mobility and deployment, (2) the Phase II proposal can accomplish the risk reduction and the detailed critical design objectives within the funding constraints, and (3) a TDAP can be developed to better understand scope and scalability of the ATD vehicle and transitioning the full scale design to military acquisition.

3.1 Overview

The contractor will implement a complete systems engineering process to achieve the Phase I objectives. The contractor shall perform system requirements analyses, design trades, CONOPS analyses, and refine a TDAP. The major Phase I activities represent a progressive refinement of the contractor's WALRUS Proposal Concept, the identification of critical technologies, and the development of the WALRUS System Level Design. The contractor will update the TDAP which identifies Phase IIa risk reduction efforts, critical technology evaluations and assessments, Phase IIb subsystem and component verification tests, vehicle checkout and flight safety activities, and Phase IIc flight test details of the WALRUS ATD vehicle.

System requirements and CONOPS analyses, trade studies, and the WALRUS engineering design shall be conducted in accordance with DARPA's WALRUS Objectives and Mission Description (Section 2.2) and the Phase I objectives described in this section. All studies and analyses performed during this phase shall be documented and accomplished in accordance with the proposed TDAP. The contractor will be responsible for considering all subsystems associated with a WALRUS system, including the envelope, propulsions systems, internal structures, flight control systems, loading and unloading systems, ground operations and handling, logistics trail and maintenance to a level of detail necessary to justify their envisioned WALRUS operational plans, program plan, and TDAP. All Phase I analyses, trade studies, and risk reduction activities will be documented.

It is anticipated that a Walrus system will be defined in sufficient detail to provide the Government team with adequate information in selecting the integrated set of critical technologies that will undergo initial risk reduction during Phase IIa and further development and demonstration during Phase IIb as part of the updated TDAP. The Walrus system design must also be sufficiently detailed to allow identification of technology maturation or risk reduction activities identified in the contractor's TDAP.

Phase I results will serve as the foundation and provide a roadmap for achieving the WALRUS vision and objectives during Phase IIa and IIb. The WALRUS designs, refined TDAP, and other results of the Phase I efforts will serve, in part, as evaluation factors for award of Phase II efforts.

<Picture Here – timeline>

Figure 3-1 Phase I Milestones

3.2 Milestones

The government envisions three Phase I milestones. At a minimum, at each milestone the contractor must provide the following information and meet the exit criteria:

- Milestone 1 – Concept Design Kick Off - within 3 Months of Award (MAA)
    - Information presented:
        - A preferred preliminary concept design
        - Results of system requirements analyses, initial design trades, and refinement of CONOPS
    - Minimum Exit Criteria:
        - Next level of system design detail and CONOPS trade space described in Section 3.3 explored at the conceptual level
        - Identification of Key trades / analysis

- Milestone 2 – WALRUS System Design Review - 11 MAA
    - Information presented:
        - WALRUS System Design Review (SDR)
            - Final results of system requirements definition
            - Results of design trades and CONOPS studies
        - TDAP and go forward plan
            - Preliminary listing of critical and enabling technologies
        - Review of Phase I results
    - Minimum Exit Criteria: Information presented demonstrates:
        - CONOPS trades described in Section 3.3 fully explored
        - WALRUS System Level design:
            - addresses the critical and enabling technologies and
            - with all functional interface requirements established, and
            - sufficient level of effectiveness and affordability as measured against the figures of merit
        - Updated TDAP which clearly articulates key features of all the Phase IIa risk reduction efforts, critical technology evaluations and assessments, and Phase IIb subsystem and component verification, vehicle check-out and flight safety, and flight demonstrations of the ATD,
        - Satisfactory completion and information presented clearly articulates all the results of Task Description Document (TDD) activities
        - WALRUS SDR demonstrated sufficient merit to warrant proceeding to the next phase

- Milestone 3 – Final Report submittal – No Later Than 12 MAA
    - Information submitted:
        - Final report
            - Conceptual design report
        - Any updates of the SDR presentation with annotated notes on CD Rom

3.3 System Analyses, Design Trades and CONOPS Analysis

There is a wide spectrum of airship vehicle approaches. After the WALRUS objectives and goals are applied, the spectrum of reasonable solutions narrows, but the number of possible approaches is still significant. DARPA seeks the discovery and development of revolutionary (not evolutionary) concepts and technology. The interpretation of DARPA's mission for the WALRUS program is that DARPA is investing in an approach that is innovative and promises a transformational improvement in strategic air lift performance. DARPA expects radical and innovative outside-the-box thinking and approaches to adequately solve the national mobility issue for which WALRUS is a solution.

The contractor will concurrently conduct a series of system needs and CONOPS analyses and system design trades that progressively refine their initial concept into a final design. The specifics of the Program Goals (Section 2.2) should serve as bounds for the system and are tradable except for the following in no particular priority:

1) Independence from off-board ballast
2) Operating from unimproved sites - independence from ground handling equipment for landing and ground parking
3) Ability to be independent of hangars throughout the operational life
4) Ability to carry useful payload in excess of 500 tons over strategic distances

These features are intended to infuse new technology and new system approaches into the considered solution space for WALRUS.

Within this design space, the contractor shall conduct comprehensive trades and analyses to identify the system performance required to accomplish the missions described in the mission description and identify the corresponding suite of critical technologies for achieving that performance. All trades shall consider the supportability segment including concepts to reduce maintenance, logistics, and integration timelines. During these studies the contractor should exploit the freedom to incorporate design philosophies from the munitions and aircraft industries and the commercial sector.

3.3.1 CONOPS

The contractor shall perform the trades, analyses, and modeling and simulation to define the WALRUS system CONOPS. These activities shall consider all segments of the provided mission timeline: mission planning, vehicle preparation, loading, transport, unloading, RTB and sortie rate. At a minimum, the trades should be conducted in terms of mission effectiveness and affordability on:

- Mission planning
- Vehicle preparation time
- Loading and Unloading time, equipment, and CONOPS
- Mission range and loiter time
- Sortie generation rate
- Total system communications requirements
- Operations and support concepts
- Integration with other aircraft operations
- Logistics integration (both retail and wholesale) into the military

3.3.2 Supportability

The contractor shall evaluate logistics issues such as reduced maintenance, reduced personnel, and deployment in all trade studies in the development of the WALRUS design and CONOPS. The objective is to design a system whose operations and support costs are comparable to current tactical aircraft squadron or better. At a minimum, trades and analyses should be conducted in terms of mission effectiveness and affordability on:

- Reduced maintenance technologies
- Prognostic and health management
- Redundancy and condition based maintenance
- Commercial turnaround practices
- Sortie rates and turnaround time vs. maintenance concept
- Maintenance diagnostic tools

- Logistics support concept vs. employment responsiveness
- Integration with existing aircraft maintenance
- Battle damage repair (BDR)

3.4 Figures of Merit

In order to facilitate all the previously defined trade studies and analyses, and provide a basis of evaluation, the mission effectiveness and affordability of the WALRUS system should be measured against an identical set of defined criteria, or figures of merit which will be determined and provided at the early part of Phase I. In designing the WALRUS, DARPA will also provide a detailed baseline mission scenario in Phase I.

3.5 Meeting Details

All milestone reviews will be conducted at the contractor's location. The purpose of the milestone reviews is to demonstrate accomplishment of milestone exit criteria as a basis for payment. The objective is to convey information and discuss issues, not to generate formal documentation. Instead of written milestone reports, a complete copy of the annotated milestone review briefings shall be provided to the meeting attendees. The contractor will forward an electronic copy of the draft briefing 3 days prior to the meeting and meeting minutes and an electronic briefing to the DARPA PM within a week after the review. The government anticipates sending 10-20 people to each milestone review.

The Phase 1 milestones call for two levels of review. To assist the offeror in determining the anticipated level of effort for each design review, we offer the following definitions, in addition to the milestones as described in Section 3.2.

- Conceptual Design Kick-off Review – A review of the proposed system with the next level of configuration refinement that will result toward meeting the objectives due to the completion of requirements analysis, CONOPS development and early engineering trades.

- System Design Review - Results of empirical and parametric methods used to produce a system design where the top level performance and relationships between all major system components are defined. Internal arrangement of major subsystems has been accomplished. Supportability concepts are defined.

The government anticipates a minimum of one informal face to face technical interchange meeting (TIM) prior to Phase I completion. The objective of a TIM is to allow coordination of government objectives and contractor activities. TIMs are small working level meetings without formal documentation. Attendance at each TIM will be tailored based on the agenda, but the maximum government attendance should be ten people. The TIMs provide an opportunity for the government to view the trades in progress and provide additional insight or information as required. The value of the meetings will be in the breadth of material and level of detail and interaction with the team. Additional TIMs may be conducted via telephone or video teleconference if the appropriate facilities can be made available and the information can be communicated adequately.

4 Proposal Guidance

This section provides the Offeror guidance for developing and presenting the WALRUS Phase I proposals. The Offeror should carefully read and ensure that their proposal responds to the entire solicitation.

4.1 Work Outline

This section describes the work outline as viewed by the Government. The government work outline is provided only for reference and represents the minimal set of program elements. The offeror is free to propose a completely different Work Outline. However, to allow for an equitable comparison of competing concepts the offeror shall ensure their Work Outline addresses all the program elements shown below:

The work outline provides a common numbering system that ties all program elements together. This numbering system integrates the NSC, TDD, and IMS and must be used throughout all program documentation. The NSC, TDD and IMS shall be consistent down through level 3 of the work outline.

Outline Level

Code	**1**	**2**	**3**	**4**
000	WALRUS System			
100		WALRUS Objective System		
			Airframe	
			Propulsion	
			Buoyancy Management System	
			Vehicle Management System	
			Mission Management System	
			Communications, Command and Control	
			Safety	
			Payload	
			Software	
			Integrated Systems	
			Build, Integration and test	
200		ATD Vehicle		
			Airframe	
			Propulsion	
			Buoyancy Management System	
			Vehicle Management System	
			Mission Management System	
			Communications, Command and Control	
			Safety	
			Payload	
			Software	

		Integrated Systems
		Build, Integration and test
300	Mission Control	
		Mission Planning & Control
		Communications, Command and Control
		Safety
		Infrastructure
		Software
		Integration and test
400	Vehicle Supportability	
		Reliability & Maintainability
		Maintenance Planning
		Deployability
		Support Equipment
		Long Term Storage
		Manpower, Personnel & Training
		Supply Support
		Safety & Health Hazards
500	Systems Engineering/Program Management	
		Systems Engineering Management
		System Integration
		System Software Development Process
		System Life Cycle Cost
		Manufacturing and Production Planning
		Human Factors
		Specialty Engineering
		Program Management
		Configuration Management
		Financial Management
600	System Test	
		Risk Reduction
		Systems Integration Laboratory
		Check-out & Flight Safety
		Logistics Functionality
		Command & Control
		Communications

4.2 Organization

The offeror shall use the following outline in response to this solicitation.

Included in the Proposal:

Executive Summary

Technical Volume

Notional System Concept (NSC)
Technical Approach and Substantiation
Trade Study and Analysis Plan
Task Description Document (TDD)

Technology Development and Assessment Plan (TDAP)
Integrated Master Schedule (IMS)

Management Volume

Management Plan
Innovative Business Practices
Key Personnel, Program Team
Facilities
Past Performance
Proposed Agreement with Attachments
Task Description Document (TDD)
Technology Development and Assessment Plan (TDAP)
Demonstration Master Schedule (IMS)

Cost Volume

Cost Response

4.2.1 Executive Summary

This section is meant to be an executive level description of key elements and unique features of each offeror's proposed WALRUS Phase I program. The Executive Summary should at least address the offeror's:

1) Program Objectives and Approach
2) Acquisition Approach, including schedule, technical performance risk areas, risk mitigation or reduction activities, and leveraging from Independent Research and Development (IR&D) or other government research activities
3) Top Level Program Schedule
4) Proposed Cost

4.2.2 Technical Approach and Substantiation

This section of the proposal provides the offeror with the opportunity to explain and substantiate the significant features of their NSC, trade study and analysis plan, TDAP, IMS, and overall technical approach and management plan. The offeror should provide significant details to address all the relevant evaluation criteria outlined in Section 5.

4.2.2.1 Notional System Concept (NSC)

The offeror shall describe their top-level vision of a WALRUS system architecture and notional system concept. This is meant to be an initial look that demonstrates the offeror's understanding of the program objectives, performance goals and operational issues. The offeror will not only describe their top-level vision, but will parameterize their concept and major technologies.

The offeror's NSC will serve as a point of departure for Phase I trade studies. The government does not expect the NSC to be defined to high fidelity but rather will use this information to gauge the offeror's initial thoughts on how

to best meet program objectives. To provide a common framework, the offeror's NSC description shall conform to the single, common program numbering system outlined in their TDD.

4.2.2.2 Trade Study and Analysis Plan (TDAP)

The trade study and analysis plan shall describe the offeror's approach to progressively refining their NSC into a final demonstration design. Those refinements will be based on a series of concurrent system requirements, design and affordability trades as discussed in section 3.3.

4.2.3 Management Plan

The offeror shall describe their program management process, based on the concepts of Integrated Product and Process Development. A series of tracking tools shall be used and updated monthly. They shall include:

- Integrated Master Schedule (IMS): The offeror will establish and maintain a master scheduling system that provides continuous status of program accomplishments against time. This tiered system will provide visibility to Level 3 and Level 4 items as appropriate.
- Financial Management System, Earned Value Management System (EVMS): The offeror will provide a financial management system that allows the Government visibility into the program budget and spend plan and is tied to their work outline. The offeror will provide regular cost reports to the Government, at least monthly, in offeror-preferred format. Required tracking numbers include, but are not limited to, Estimate at Completion (EAC), Schedule Performance Index (SPI), Cost Performance Index (CPI), and explanations of significant variance from budget to actual cost.

These tools shall be the same tools used internally to manage the program. No additional unique information for the Government is desired or required.

4.2.4 Key Personnel and Program Team

Short one page resumes shall be provided for the top four members of the development team. The entire team will be represented by these key personnel. The Government does not desire or require resumes of the key personnel from each partner company, subcontractor or organization within the team. These key personnel should be the leaders of the team and represent the capability and strength of the team. They can be from a single company or distributed across various team members. The Government wishes to understand the strength of the team through its acknowledged leaders and their qualifications.

The offeror will describe the proposed program team and demonstrate the team's capability and experience to perform **ALL PHASES** of the WALRUS program.

4.2.5 Facilities

The offeror will identify facilities needed and available to support all phases of this program.

4.2.6 Past Performance

The offeror shall provide program name, agency, phone # and POC of relevant large scale systems integration experience, large scale software integration experience, flight test experience, and simulation based acquisition experience.

The list of programs the offeror provide should be associated with the comparable development of any following discipline: aircraft, LTA aircraft, flight line operations, life cycle cost analysis, software, fabric development, FEA, envelope manufacturing, and large scale shit or airship manufacturing.

4.2.7 Proposed Agreement with Attachments

The offeror's agreement shall follow the outline described in Section 6 (Model Agreement). This section provides specific guidance for preparing Article III and attachments 1, 2 and 3 of that agreement.

4.2.7.1 Task Description Document (TDD)

The TDD describes the work effort necessary to meet the milestones and Statement of Objectives for Phase I of the WALRUS program. The TDD will include the offeror's plans for trade studies and analyses, WALRUS system concept development, cost analysis tool development and technology assessment. The TDD should define structure tasks consistent with the Work Outline provided in Section 4.1. The offeror may choose to define work at lower levels to better explain their approach. A Notional TDD toward meeting overall program goals and system objectives should be provided for Phase II. The TDD will be incorporated into any resultant agreement.

4.2.7.2 Proposed Technology Development and Assessment Plan (TDAP)

The TDAP shall identify the top level metrics, processes, and system level performance and affordability trades the offeror intends to use to identify the critical and enabling Technologies, Processes and System Attributes that must be validated and/or demonstrated to achieve low risk entry into an acquisition program. A major objective of Phase I is to examine a range of competing technologies and CONOPS that could enable the WALRUS system. The plan shall describe the offeror's process for identifying and evaluating competing technologies available from other government and industry R&D programs. The TDAP should notionally deal with Phase II to provide details on meeting overall program goals and system objectives.

The contractor shall refine the proposed TDAP to demonstrate and verify the integrated set of critical technologies required to validate the WALRUS system. The TDAP will be refined based on the Phase I activities and proposed TDAP and should include details on planned risk mitigation efforts. Besides Phase II risk reduction efforts, this TDAP shall include (but is not limited to) subsystem and component verification, vehicle check-out and flight safety assessments, critical technology evaluation and assessments, and flight demonstration of the ATD vehicle. The TDAP will address the role of any modeling and simulation in both the planning and conduct of the risk reduction, verification, and testing. Innovative methods for any of the test and evaluation activities should be identified. This overall demonstration effort should explicitly address all demonstration program technical objectives including; mission effectiveness, logistics functionality, command, control, and communications, and affordability.

The proposed test locations, methods and major test parameters are to be identified and shall include any proposed requirements for government test facilities or resources. In subsequent phases, the PM shall endorse those needs and permit the contractor to make arrangement for their use/availability. The cost for the use of those facilities/resources should not be included in the contractor's Phase II proposal but needs to be identified so the Government can compare total demonstration cost during evaluation.

4.2.7.3 Integrated Master Schedule (IMS)

The IMS should outline the detailed tasks and the amount of time expressed in calendar schedules necessary to achieve the milestones and significant functional accomplishments in Phase I. It is a tiered scheduling system corresponding to the work outline. The first iteration of the IMS should be to level 3 of the offeror's TDD or lower as determined by the offeror. Definitions and characteristics of the key elements of the IMS are given below.

Detailed Tasks: Detailed work effort to be completed in support of a specific significant milestone or functional accomplishment.

Calendar Schedule: Detailed schedule (dates) of the period of performance for each work effort.

An initial IMS shall be delivered with the Phase I proposal.

4.3 Cost Response

The cost response should be in the offeror's format. Certified cost or pricing data is not required. However, in order for the Government to determine the reasonableness, realism and completeness of your cost proposal, the following data must be provided for each team member and in a cumulative summary:

Labor: Total labor includes direct labor and all indirect expenses associated with labor, to be used in the WALRUS Phase I period of performance. Provide a breakdown of labor and rates for each category of personnel to be used on this project.

Direct Materials: Total direct material that will be acquired and/or consumed in the WALRUS Phase I period of performance. Limit this information to only major items of material and how the estimated expense was derived. For this agreement a major item exceeds $250,000.

Subcontracts: Describe major efforts to be subcontracted, the source, estimated cost and the basis for this estimate. For this agreement a major effort exceeds $250,000.

Travel: Total proposed travel expenditures relating to the WALRUS Phase I period of performance. Limit this information to the number of trips, and purpose of each cost.

Other Costs: Any direct costs not included above. List the item, the estimated cost, and basis for the estimate.

Remember the cost proposal should tell the story of how and why you are planning to complete your proposed Phase I TDD. Activities such as demonstrations required to reduce the various technical risks should be identified in the TDD and reflected in the cost proposal.

The offeror should provide a total estimated price for any IR&D activities associated with the program. The offeror should state whether each program is a dedicated IR&D or if it is being pursued to benefit other programs as well.

4.4 Administrative Instructions

4.4.1 Page and Print Information

The Solicitation Response shall be submitted in standard three-ring, loose leaf binders with individual pages unbound and printed single sided to facilitate page changes. The response shall not exceed 50 pages including attachments. Indexes, cross reference tables, and tabs will not be included in the page count. The proposed agreement with attachments will not be included in the page count. Page count will be based on the offerors' hardcopy submission. Six copies shall be provided. The suggested page limits for each section are as follows:

1. Executive Summary — 2 pages
2. Technical Volume — 13 pages
    a. Notional System Concept (NSC)
    b. Technical Approach and Substantiation

c. Trade Study and Analysis Plan

3. Management Volume — 10 pages
   a. Management Plan
      i. Innovative Business Practices
   b. Key Personnel, Program Team
   c. Facilities
   d. Past Performance
   e. Proposed Agreement with Attachments — Not included in page count
      i. Task Description Document (TDD)
      ii. Technology Development and Assessment Plan (TDAP)
      iii. Integrated Master Schedule (IMS)
4. Cost Volume — 25 pages

Authorized representatives of the offeror must sign proposal volumes.

Each page should be printed on an 8-1/2" x 11" sheet using Times New Roman 12-point font. Graphics should not include text in smaller than 8-point font. Fold out pages will be counted as multiple pages. Pages should be marked **SOURCE SELECTION SENSITIVE.**

Teams are required to submit their proposal in Microsoft Office 2000 compatible electronic format on CD-ROM. Two CD-ROMs shall be submitted which contain all proposal volumes. Filenames should be clearly defined and marked. The proposal shall not require conversion by the Government. Offerors shall ensure information is checked and determined to be "virus-free" prior to submission. Documents containing imported graphics (drawings, charts, photos, etc.) should be accompanied by the originally imported graphics files. All responses must be received on or before Friday, June 18th, 2004 at 5:00 PM Eastern Standard Time. Late responses will not be accepted.

4.4.2 Labeling of 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 Offeror's responsibility to clearly define to the Government what is considered proprietary data.

4.4.3 Proposal Handling

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 that the formal request is received within 5 days after unsuccessful notification.

4.4.4 Unclassified Information

The unclassified portion of the offeror's proposal shall be mailed or hand carried to:

Defense Advanced Research Projects Agency (DARPA)
WALRUS Program
3701 North Fairfax Drive
Arlington, VA 22203-1714
Attn: Contracts Management Office
Solicitation Number: Program Solicitation 04-XX

Responses and response modifications (which will only be accepted prior to the deadline for receipt of response) shall be submitted in sealed envelopes or packages to the address shown above and marked with the following information on the outer wrapping:

Offeror's name and return address
The response receipt address above
Solicitation Number: Program Solicitation 04-XX
Hour and due date:

4.4.5 Changes to the Model Agreement

The offeror can propose any changes, additions, or deletions to the Model Agreement that should be considered during Agreement negotiations. Fully explain the rationale for the changes made in an addendum to the Agreement. Rationale located in other areas of the solicitation response may be cross-referenced. It is the governments' intent to begin negotiating the Phase I agreements as soon as the proposals are received.

4.4.6 Regulations Governing Objections to Solicitation and Award

Any objections to the terms of this solicitation or to the conduct of receipt, evaluation or award of agreements must be presented in writing within ten calendar days of (1) the release of this solicitation, or (2) the date the objector knows or should have known the basis for its objection. Objections should be provided in letter format, clearly stating that it is an objection to this solicitation or to the conduct of evaluation or award of an agreement, and providing a clearly detailed factual statement of the basis for objection. Failure to comply with these directions is a basis for summary dismissal of the objection. Mail objections to the address listed in the proposal delivery information.

5 Evaluation Criteria

5.1 Introduction

DARPA may award multiple Agreements for Phase I of the WALRUS program. An updated solicitation will be issued for Phase II and the selected contractors' agreements will be modified to extend them appropriately. The Phase I selection will be accomplished based on a subjective evaluation of proposals as described in this section of the solicitation. There are three specific areas of evaluation that will be used, listed in descending order of importance: Product Capability and Technical Approach, Management and Cost. Each offeror's proposal will receive an integrated evaluation by a single multi-functional team. The government reserves the right to award without discussions.

Evaluation Criteria not provided in Draft Solicitation

6 Model Agreement

Model Agreement not provided in Draft Solicitation

ATTACHMENTS

ATTACHMENT 1	Task Description Document (TDD)
ATTACHMENT 2	Technology Development and Assessment Plan (TDAP)
ATTACHMENT 3	Integrated Master Schedule (IMS)

7 DARPA Other Transactions and Agreements Authority

7.1 Other Transactions Authority

The WALRUS program will utilize DARPA's Other Agreements Authority (Other Transactions for Prototypes Section 845/804), which allows the offeror to be creative in designing the system and in the selection of the management framework which best suits the proposed technical and management approach. The government will share information and data throughout the program. However, the data will always be advisory, not directive in nature, and offered as a way to foster better communications on the program. Our intent is to provide the best possible insight into what the government thinks while minimizing oversight. To this end, the government will focus on accurately defining what they want and letting the offeror determine how best to provide it. Government oversight will be provided through the same management framework proposed by the offeror.

The government will allow the offeror to use either commercial or DoD streamlined processes, reporting and management practices. The use of Other Agreement Authority requires compliance with applicable laws but allows the latitude to depart from acquisition specific laws, FARs, and DoD practices where it makes sense. The offeror should take full advantage of this latitude to propose innovative/revolutionary approaches to team building. The resulting offeror proposal must clearly demonstrate a robust method to assure and control costs, quality, reliability, system engineering, program schedule, system design, and test planning and execution.

Commercial, industrial, and corporate specifications and standards should be used in lieu of military specifications and standards where appropriate. Military specifications and standards, if needed, should be used as guides, with any modifications, tailoring or partial application described. A rigorous formal process should be employed to design, verify and implement software.

All proposals will be evaluated by a formal Government source selection evaluation board (SSEB) established to review all responses to the solicitations. The government reserves the right to conduct a rolling down select from the end of Phase I to Phase II, Phase IIa to Phase IIb based on contractors' performance. Rules and criteria for the rolling down select process will be included in the Phase IIa and IIb Solicitation updates provided prior to the end of each phase.

In order to broaden the technology and industrial base available for meeting Department of Defense needs, conditions have been put forth on the use of Section 845 Other Transaction for Prototype authority by the recent enactment of the National Defense Authorization Act for fiscal year 2001. Section 803 of the National Defense Authorization Act for FY2001 (Public Law 106-398) became law on 30 October 2000 and modifies DARPA's authority to use Other Transactions for Prototypes. For proposals submitted under this solicitation there must be either at least one nontraditional defense contractor participating to a significant extent in the prototype project; or, if there is no nontraditional defense contractor participating to a significant extent, at least one of the following circumstances must exist: at least one third of the total cost of the prototype project is to be paid with funds provided by parties to the transaction other than the Federal Government; or, the senior procurement executive determines that exceptional circumstances justify the use of a transaction that provides for innovative business arrangements or structures that would not be feasible or appropriate under a contract. There is no definition for "significant extent" as in a "Nontraditional defense contractor participating to a significant extent in the prototype project." The Government has discretion in determining the level of "significant extent." Some factors may include:

a) criticality of the technology being contributed
b) role of the non-traditional defense contractor(s) in the design process
c) value of the effort being proposed in comparison to the potential cost share value requirement

Because the evaluation is subjective, it carries with it some risk to the proposing team that the Government will not recognize the value; therefore, offerors are requested to identify in their agreement addendum the applicable Section 803 condition with explanation, which qualifies them to receive an 845 award. The entire amendment to the Authorization Act is available for your convenience at <http://www.darpa.mil/cmo> under "Breaking News" and includes the definition of a nontraditional defense contractor.

Teams composed of members with complementary areas of expertise are strongly encouraged. To this end, DARPA invites all interested offerors to provide capability statements to assist with teaming arrangements. In light of the new Section 803 language for other transactions for prototypes conditions, offerors are requested to specify on their capability statements whether or not they qualify as a nontraditional defense contractor. Capability statements will be posted on the web with the solicitation. Specific information content, communications, networking, and team formation are the sole responsibilities of the participants. DARPA does not endorse the information and organizations posted.

7.2 Agreements Authority and Section 845 Authorization Act

DARPA "Agreements authority" was enacted as section 251, Public Law 101-189, the FY 1990 National Defense Authorization Act (codified at 10 U.S.C. ß 2371) and is currently found in part of 10 U.S.C. ß 2371. Section 845 of the 1994 National Defense Authorizations Act allows DARPA, on a pilot basis to use non-procurement Agreements for purely military Research and Development and, prototype projects and technology demonstrations of hardware directly relevant to weapon systems.

The primary benefit of this authority is that DARPA can tailor the contracting process to each project rather than conforming to predetermined contracting rules. This authority should increase the efficiency of DARPA's limited resources. DARPA also hopes use of this authority will shorten development time for these projects and enhance affordability.

This Section 845 Authority allows DARPA to:

1) Use Agreements even if a procurement contract would be appropriate or feasible.
2) Execute projects with or without cost sharing.
3) Implement streamlined acquisition procedures (e.g., using Generally Accepted Accounting Practices in lieu of Government Cost Accounting Standards).
4) Focus on goals and objectives rather than acquisition regulations.

Commercial Agreement Participants benefit from:

1) Increased government flexibility in structuring these Agreements (e.g., flexibility on patent and intellectual property issues).
2) Being able to use commercial rather than government procedures for doing business.
3) Government funding with minimum government bureaucracy.

Both Groups Benefit in that:

1) Armed Services Procurement Act, CICA, FAR, DFARS, and all procurement system regulations are inapplicable.
2) Existing regulations, MILSPECS, directives may but need not be applied.

Section 803 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001.

In order to broaden the technology and industrial base available for meeting Department of Defense needs, conditions have been put forth on the use of Section 845 Other Transaction for Prototype authority by the recent enactment of the National Defense Authorization Act for Fiscal year 2001. Section 803 of the National Defense Authorization Act for FY2001 (Public Law 106-398) became law on 30 October 2000. Section 803 modifies our authority to use the Other Transactions for Prototypes. In summary, for proposals submitted under this solicitation there must be either at least one nontraditional defense contractor participating to a significant extent in the prototype project; or, if there is no nontraditional defense contractor participating to a significant extent, at least one of the following circumstances exists; at least one third of the total cost of the prototype project is to be paid with funds provided by parties to the transaction other than the Federal Government; or, the senior procurement executive determines that exceptional circumstances justify the use of a transaction that provides for innovative business arrangements or structures that would not be feasible or appropriate under a contract. The definition for a nontraditional defense contractor is contained in the attached language. There is no definition for "significant extent" as in a "nontraditional defense contractor participating to a significant extent in the prototype project." The Government has discretion in determining the level of "significant extent." Some factors may include:

a) criticality of the technology being contributed
b) role of the non-traditional defense contractor(s) in the design process
c) value of the effort being proposed in comparison to the potential cost share value requirement

Because the evaluation is subjective, it carries with it some risk to the proposing team that the Government will not recognize the value; therefore, offerors are requested to identify in their agreement addendum the applicable Section 803 condition with explanation, which qualified them to receive an 845 award.

The entire amendment to the Authorization Act is available for your convenience at <http://www.darpa.mil/cmo> under "Breaking News" and includes the definition of a nontraditional defense contractor.

8 ACRONYMS

ATP	Authorization to Proceed
CDR	Critical Design Review
CONOPS	Concept of Operations
CONUS	Continental United States
DARPA	Defense Advanced Research Projects Agency
DoD	Department of Defense
DPM	Deputy Program Manager
EVMS	Earned Value Management System
FAR	Federal Acquisition Regulations
ICD	Interface Control Document
GPR	Government Purpose Rights
GFE	Government Furnished Equipment
IPT	Integrated Product Team
IMS	Integrated Management Schedule
IR&D	Independent Research and Development
OCONUS	Outside the Continental United States
OTA	Other Transaction Authority
PDR	Preliminary Design Review
PM	Program Manager
RTB	Return to Base
SDR	System Design Review
ROM	Rough Order of Magnitude
SOO	Statement of Objectives
TDD	Task Description Document
TMP	Technology Maturation Plan
TRL	Technology Readiness Level
WBS	Work Breakdown Structure

9 APPENDIX

QFD Results Appendix Not Provided in Draft Solicitation