FALCON

Force Application and Launch

from

CONUS

Task 1 Small Launch Vehicle (SLV) - PHASE II

Program Solicitation Number 04-05

Defense Advanced Research Projects Agency
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Table of Contents

1.0 INTRODUCTION

In August 2003, the Government conducted a full and open competition for Phase I of the Force Application and Launch from CONUS (FALCON) program. This six-month effort included two tasks. Task 1 was to conduct system design and demonstration planning, and develop associated Concepts of Operations (CONOPS) for an affordable Small Launch Vehicle. Task 2 was to conduct system design, risk reduction and demonstration planning for a Hypersonic Weapons System (HWS), including Common Aero Vehicle (CAV), Enhanced Common Aero Vehicle (ECAV) and Hypersonic Cruise Vehicle (HCV) components.

This program solicitation solely addresses Phase II, Task 1, Small Launch Vehicle (SLV). This solicitation is for a full and open competition seeking to develop and demonstrate in flight an innovative, low-cost SLV. Potential Offerors for the current solicitation are encouraged to review the FALCON Phase I Broad Agency Announcement and associated Proposers Information Pamphlet (PIP), July 29, 2003, available for inspection on the DARPA website (www.darpa.mil/baa/#tto) to obtain a better understanding of the Phase I scope and products. The Government's vision for the Task 1 part of the FALCON program, its program philosophy and the products expected in Phases II and III are discussed in the following sections.

1.1 VISION

DARPA and the Air Force share a vision of a new transformational capability that would launch small satellites, experimental packages and other payloads into low-earth orbit in a responsive, low cost manner and provide a means of delivering an ECAV from the continental United States (CONUS) to anywhere on the Earth in less than two hours. ECAV, which is a major product stemming from the Task 2 portion of the FALCON program, will be capable of delivering a 1,000 pound penetrator, a variety of other munitions or other payloads to targets at global range on demand. The small satellite and ECAV missions, taken together, provide a significant spiral in the development of an Operationally Responsive Spacelift (ORS) capability for the Air Force.

1.2 PROGRAM PHILOSOPHY

The Government seeks to open the design space and provide a catalyst for exploring innovative system design and operation philosophies. Creative integration of the latest advances across a broad suite of component technologies, and an innovative concept of operations (CONOPS) will enable a transformational, operationally responsive and affordable spacelift and global strike capability to be achieved. Whether placing small satellites into low Earth orbit (LEO), or launching ECAVs in the early phases of a remote conflict, the launch vehicle and CONOPs must be low in cost as well as responsive. The Offeror is encouraged to "think out of the box" and propose unique design methodologies, analysis tools, processes, capabilities, concepts, innovative teaming arrangements and business practices to reduce the risk and cost of both product development and the operational system. This leveraging of capabilities can be accomplished, in part, through teaming with partners that possess expertise in critical technology and operations areas. The Government desires, where practical, the use of incremental demonstrations of vehicle stages and/or major system elements as a means of reducing over-all program risk while demonstrating incremental progress toward achieving the major program objectives.

2.0 PROGRAM DESCRIPTION

The Government believes the operational objectives for placing a small satellite into LEO are sufficiently similar to those for placing an ECAV at its requisite insertion point conditions that the launch vehicles satisfying both missions could have a high degree of commonality. As a consequence, the FALCON program will pursue development of the capability to satisfy both mission types within Task 1. The Government also recognizes it is unlikely that launch vehicles satisfying both missions will be identical in design and capability and that significant differences in CONOPS for each mission type will exist. Therefore, it is left as a challenge to the Offeror to utilize its innovative abilities to arrive at an effective and pragmatic approach toward achieving the FALCON SLV objectives via a single, evolutionary system development.

2.1 OPERATIONAL CAPABILITIES

In order to distinguish the operational capabilities and objectives for placing a small satellite into LEO from those for launching an ECAV, a distinct SLV has been defined for each mission – the Small Satellite Launch Vehicle (SSLV) and the Enhanced CAV Launch Vehicle (ECLV). The operational system addressing each mission consists of its unique vehicle design along with the associated CONOPS for that mission. The following two sections establish the desired operational capabilities for each SLV mission.

2.1.1 SSLV OPERATIONAL SYSTEM (SSLV-OS) CAPABILITIES

The Government desires the capability to place small satellites into a variety of LEO orbits, including sun synchronous, using a dedicated, low-cost, responsive SLV, hereafter referred to as SSLV. For this application, the SSLV Operational System (SSLV-OS) should be at least an order of magnitude more responsive than existing satellite launch systems. The Government envisions that new or novel technologies and operational approaches incorporated into an innovative SSLV-OS design are key to achieving a sustained, low-cost, responsive, small satellite launch capability for the foreseeable future. The FALCON program will pursue development and demonstration of an innovative launch vehicle concept possessing these attributes. The program will also seek to develop unique CONOPS that will support and enable both the responsiveness and low-cost objectives for small satellite launch.

The SSLV-OS design should meet or exceed the following capabilities:

- Place a small satellite or other payload weighing approximately 1,000 pounds into a reference orbit defined as circular, 100 nautical mile altitude, due east, launched from 28.5 degrees north latitude (minimum 470 lbs into 100 nm circular altitude sun-synchronous orbit from VAFB)
- Require a total launch cost of less than five million dollars ($CY2003)
    - Encompasses all costs including fee that would be charged to a customer to perform this mission
    - Includes any costs associated with launching from a test range or using range assets
    - Excludes payload and payload integration costs
- Assumes notional launch rate of 20 launches per year for 10 years

- Provide satellite orbital insertion accuracy of +/- 13.5 nm (25km), +/- 0.1 degree
- Accommodate a 40 inch diameter X 60 inch height spacecraft
- Achieve alert status within 24 hours from call up
- Launch satellite within 24 hours from alert status

Maximum operational utility in terms of accommodating a range of payload sizes (weight and volume) and low Earth orbits is also a desirable operational system capability to the extent that low-cost attributes are retained.

2.1.2 ECLV OPERATIONAL SYSTEM (ECLV-OS) CAPABILITIES

The Government envisions that an operational ECAV integrated with a low-cost, responsive launch vehicle, hereafter referred to as ECLV, would provide the affordable weapon system needed to satisfy near-term, responsive, global reach objectives. As previously discussed, the Government believes that the launch vehicle design for this mission would possess a high degree of commonality with the SSLV-OS design for launch of small satellites as addressed in Section 2.1.1. The ECLV Operational System (ECLV-OS design) should meet or exceed the following capabilities:

- Strike throughout the depth of an adversary's territory
  - Global range from CONUS
  - 2000-pound ECAV (including munitions or other payload)
- Responsive
  - Obtain alert status in less than 24 hours
  - Launch in less than 2 hours from alert status once execution order received
  - Support one hour from launch to target mission objective
  - Accommodate a surge rate of 16 launches in 24 hours

Information and data specific to the generic ECAV, as well as information on applicable emerging technologies is available to qualified Offerors to this Phase II solicitation. This information is subject to U.S. Export Controls (International Traffic in Arms Regulations (ITAR)) and National Security regulations. All those requesting data must meet the requirements for participation set by those regulations. Further information may be found at www.pmdtc.org , the Office of Defense Trade Controls.

Send requests to:
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2.2 PROGRAM PLAN

A Government program schedule for the FALCON program is illustrated in Figure 2.1. This is only notional and Offerors are encouraged to propose a plan that is optimized for their proposed concepts and development schedules as well as overall best value to the Government. This

schedule will be updated following Phase II award to reflect actual milestone events and dates specific to the winning proposals. The program is divided into three phases as defined below, with the Phase I effort scheduled for completion in May 2004:

Phase I – System Definition
Phase II –Design, Development, and Initial Flight Demonstration
Phase III –Weapon System Demonstrations

Phase I – System Definition (6 months):
The objective of this effort was to generate and evolve launch system conceptual design(s) that satisfy mission objectives for inserting a small satellite into a specified low Earth orbit and launching a global range ECAV. Cost and responsiveness objectives as well as performance objectives were addressed in this phase. (No specific cost objectives are identified for the ECAV mission, but the Government desires low-cost attributes in the ECLV.) Phase I products included conceptual booster designs, performance predictions, system CONOPS, rough order-of-magnitude (ROM) costs for development and operation (non-recurring and recurring), and an SLV Development and Demonstration Plan.

Phase II – Design and Development (36 months)

Phase II, Task 1 objectives are to develop through critical (detailed) design SSLV and ECLV Demonstration System (SSLV-DS and ECLV-DS) concepts with the expectation that a high degree of commonality will exist between the two designs. Performers will conduct analysis, test and other risk reduction activities that will ensure that the designs are matured to flight readiness. An SSLV-DS will be fabricated, integrated with a small satellite or other payload provided by the Government and demonstrated in an orbital flight test. Products include, but are not limited to: refinement of the operational vehicle conceptual design and relevant CONOPS for each mission family (orbital and ECAV launch); critical (detailed) designs for both the SSLV and ECLV flight demonstration vehicles; and an orbital flight demonstration of the SSLV desired in or before 2007.

Milestone 4 Downselect Criteria

The Government intends to make multiple awards for Phase II of the Task 1, SLV effort, but reserves the right to make a single award. In the event that multiple awards are made, a down-select could occur as early as Milestone 4, notionally the Preliminary Design Review (PDR), for the SSLV-DS. The Government anticipates that Milestone 4 will be conducted approximately 10 months after the Performer receives Authorization to Proceed (ATP) with Phase II.

Phase III –Weapons System Demonstrations (30 months)

In Phase III, a major objective is to conduct a flight test of an integrated ECAV/ECLV. The major Phase III products are: final refinement of the ECLV-OS conceptual design (vehicle and CONOPS) and the integrated ECAV/ECLV flight demonstration. The Phase III award selection process and scope will be defined based on emerging results from Phase II activities and funding.

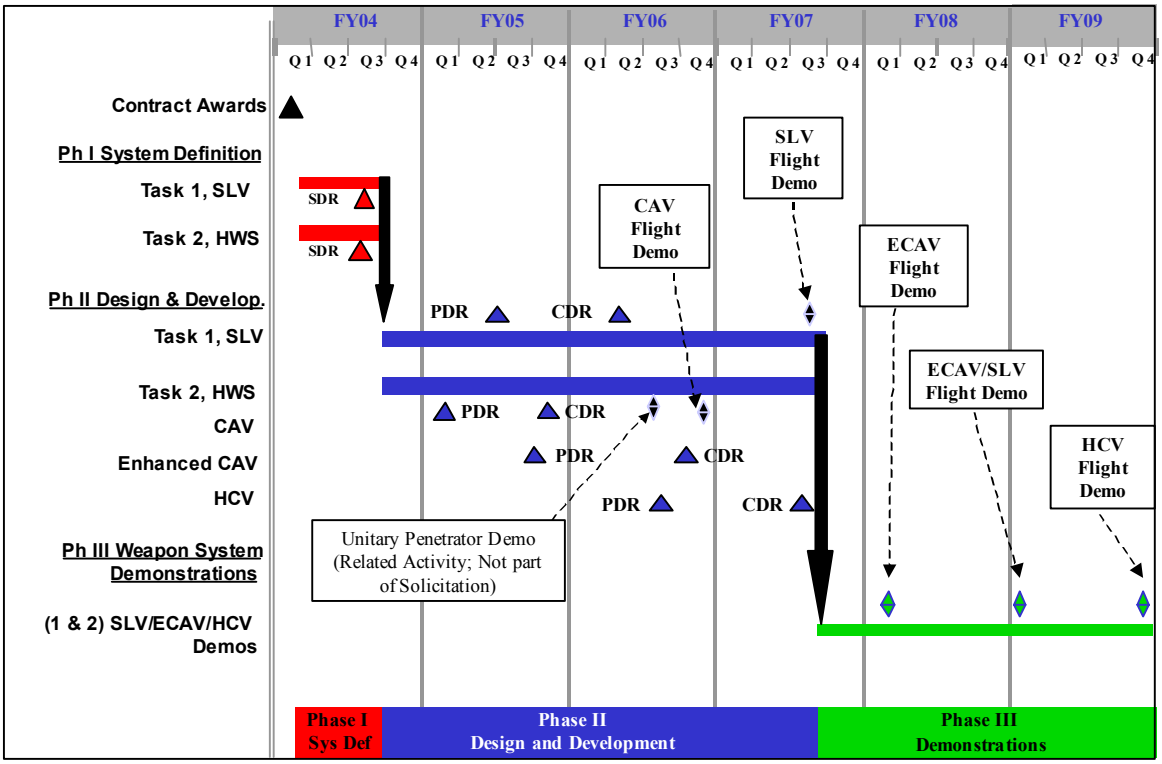

Figure 2.1

2.3 INTERFACE MANAGEMENT

All interfaces should be kept as simple as possible in order to reduce integration costs and efforts. Offerors are encouraged to propose innovative spacecraft/booster interfaces. These interfaces should provide the ability to quickly integrate or exchange payloads without extensive checkout.

2.3.1 SSLV/SPACECRAFT INTERFACE

Phase II, Task 1, SLV Performers will be responsible for integrating and maintaining the interface between the SSLV and small satellite/payload. SLV Performers will also provide a standard interface based on system design and CONOPS. The Government will identify the payload for the Phase II orbital flight demonstration and ensure that requisite physical and functional interface requirements are provided to the SLV Performers early in Phase II.

2.3.2 SSLV/RANGE INTERFACE

The fast-paced schedule associated with the FALCON program will require that demonstration launches are compliant with range requirements at the time of launch. To enable the FALCON program to "change the paradigm" with respect to responsive launch, Offerors are encouraged to propose innovative range interface and launch CONOPS that will significantly reduce both cost and time associated with performing launch operations. Phase II, Task 1 Performers will also be responsible for recommending the preferred launch range, identifying specific launch range

interface requirements and being fully compliant with the range requirements for SSLV flight demonstration.

2.3.3 ECAV/ECLV INTERFACE

In Phase II, the ECLV design must be integrated and developed in parallel with the ECAV being designed under the Task 2 activity. Task 1 and Task 2 (ECAV) Performers will be contractually required to openly share an adequate level of technical interface data. The selected Task 2 Performer(s) will be responsible for developing and coordinating ECAV/ECLV interface processes and management plans in Phase II to ensure that adequate interface controls are openly established and maintained. The Government will facilitate a cooperative information exchange of physical and functional interface requirements between Task 1 and Task 2 Performers throughout Phase II in preparation for an integrated ECAV/ECLV flight test in Phase III. However, the Performers will ultimately be responsible for successful ECAV/ECLV integration.

2.4 MANAGEMENT APPROACH

DARPA is responsible for overall program management of the FALCON program, including technical direction, acquisition, and security. DARPA will provide the Program Manager (PM) and the Air Force will provide the Deputy Program Manager (DPM). DARPA and the Air Force will use a diverse government team to evaluate proposals and conduct milestone reviews.

Program performer participants are expected to implement a streamlined approach to program management that includes team member cooperation, small staffs, abbreviated oversight, face-to-face communications, real-time decision making and problem solving, and short, direct lines of authority. Program Performers shall be prepared for the formal exchange of technical information with Phase II, Task 2 participants, subject to signed non-disclosure agreements.

2.5 DATA RIGHTS

Phase II of this program requires sufficient Government rights to the technical data developed to enable the Government the ability to: 1) flexibly brief stakeholders regarding technical progress/accomplishments and 2) allow validation of technical claims/accomplishment by independent technical (potentially non-government) experts. The Government requires, as a minimum, having Government Purpose Rights (GPR) to technical data 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. 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.

The Offeror's Phase II proposed agreement must reflect willingness to share design detail with the winning Task 2 Performer(s) to ensure system design closure and sufficiently detailed and accurate interface design and management. The government anticipates having Unlimited Rights to all interface data.

3.0 PHASE II STATEMENT OF OBJECTIVES

This section describes the objectives to be addressed in Phase II of the FALCON Small Launch Vehicle Task (Task 1). The primary objectives of this phase are to: 1) conduct a flight-test demonstration validating key attributes and major design features of a low cost, operationally responsive space launch system that enables the capabilities defined in Section 2.1.1, and 2) develop through critical design a demonstration system enabling an operationally responsive global reach capability, that when integrated with an ECAV meets the objectives defined in Section 2.1.2.

3.1 SSLV-OS AND ECLV-OS DESIGN REFINEMENT

As required, each Performer should continue to mature its SSLV-OS and ECLV-OS designs. A three degree-of-freedom (3DOF) model suitable for use with POST, OTIS or other similar trajectory codes should be provided to the Government at the beginning of Phase II and updated as appropriate. On a periodic basis and at least yearly, each Performer should review the results emerging from the SSLV-DS and ECLV-DS design and risk reduction activities to identify impacts on its SSLV-OS and ECLV-OS designs and maintain legacy between the demonstration and operational systems. Additionally, the ROM production costs of SSLV-OS should be updated. This should be a low level of effort activity.

3.2 SSLV DEMONSTRATION SYSTEM (SSLV-DS) DESIGN

The Performer should develop the design of its SSLV-DS that it intends to flight-test in Phase II. To enable early flight test demonstration, the Performer must rapidly complete preliminary and critical design reviews of the SSLV-DS system. The Offeror should propose what launch capability and other attributes of its SSLV-OS it intends to demonstrate in the SSLV-DS flight-test in Phase II. These objectives should be further refined during Phase II. The SSLV-DS design requirements development and specifications should be mapped to these demonstration objectives. The following sections describe the level of design detail desired at each of these reviews.

3.2.1 PRELIMINARY DESIGN

The Performer should address the following elements in achieving its preliminary design if it has not already done so:

Functional Analysis & Segment Requirement Allocation

The Performer should conduct initial SSLV-DS functional analysis and segment requirements allocation. A functional decomposition should be iteratively analyzed to identify system

capabilities based on demonstration requirements. System requirements should be fully defined and allocated to the segments using a validated systems engineering process to flow down requirements to meet functions required to conduct the flight test demonstrations.

System Design Review

A System Design Review (SDR) should be conducted to evaluate the optimization, traceability, correlation, completeness, and the risk of the allocated SSLV-DS requirements, including the corresponding test requirements in fulfilling the system, segment, and software requirements. The review encompasses the total system requirements and system engineering management activities. The SDR is primarily concerned with the overall review of the demonstration requirements, completed system and segment requirement allocation and specification, allocated performance requirements, software and hardware development plans, and accomplishment of system engineering activities.

Initial Interface Control Documents

As a precursor to the Preliminary Design Review (PDR), the Performer should provide initial segment Interface Control Documents (ICD) that specify interface requirements to be met by the participating SSLV-DS internal systems and with the selected payload.

Preliminary Design Review

A PDR should be conducted to evaluate the progress, technical adequacy, and risk of the SSLV-DS design, determine its compatibility with demonstration objectives and functionality, evaluate the degree of definition and assess the technical risk associated with the specific design and processes, and establish the existence and compatibility of the physical and functional interfaces. For software items, the PDR should evaluate the progress, consistency and technical adequacy of the design and test approach, and compatibility between software requirements, test requirements and the preliminary design. Following PDR, the Performer should put the preliminary design under formal configuration control.

3.2.2 CRITICAL DESIGN REVIEW

A Critical Design Review (CDR) should be conducted prior to fabrication/production or coding to insure that the detailed design solution satisfies the configuration control requirements to conduct the demonstration. This review should establish a "build-to" design, validate compatibility among the configuration items, assess configuration items risk areas, demonstrate the capability to fabricate, code and integrate hardware and software and review the hardware drawing and work packages. For long lead items, this review may be conducted on an incremental basis but must be put in context of a critical path analysis and design interfaces and impacts assessed versus system requirements. The final ICD should be complete at CDR.

3.2.3 ECLV DEMONSTRATION SYSTEM (ECLV-DS) DESIGN

The Performer should develop the design of its ECLV-DS that it intends to use for the integrated ECAV/ECLV flight-test in Phase III. In Phase II, the Performer should complete ECLV-DS preliminary and critical designs. The Offeror should propose what launch capability and other

attributes of an ECLV-OS it intends to demonstrate in the integrated ECAV/ECLV-DS flight-test in Phase III. These objectives will be further refined during Phase II in cooperation with Task 2 Performers. The ECLV-DS design requirements development and specifications should be mapped to these demonstration objectives.

3.2.4 ECLV-DS PRELIMINARY DESIGN

Preliminary design activities and interim steps are the same as those defined in section 3.2.1 SSLV-DS Preliminary Design. Particular emphasis should be placed on integration of the ECLV-DS with the ECAV-DS design(s) to ensure maximum reasonable commonality.

3.2.5 ECLV-DS CRITICAL DESIGN

The Government expects the Performer to complete ECLV-DS CDR prior to the end of Phase II. Definition of CDR is the same as provided in section, 3.2.2 SSLV-DS Critical Design. Demonstration that the Performer is in compliance with the ECAV/ECLV ICD is a major element of this CDR.

3.3 SSLV - ECLV RISK REDUCTION

In Phase II, the Performer should develop an integrated Risk Reduction Roadmap for its SSLV-DS and ECLV-DS, add significant detail to its SSLV-DS and ECLV-DS flight demonstration plans, and begin implementing the Risk Reduction Roadmap. Taken together, these elements will provide significant risk reduction leading to successful flight demonstration of the SSLV-DS in Phase II and ECAV-DS/ECLV-DS in Phase III. These elements are described in the following sections.

3.3.1 SSLV-ECLV RISK REDUCTION ROADMAP (R3)

Early in Phase II, each Performer should develop a detailed Risk Reduction Roadmap (R3) that delineates risk reduction activities necessary to implement its SSLV-DS and ECLV-DS flight demonstration plans. The R3 should define the Performer's detailed approach to mitigating risk and maturing its SSLV-DS and ECLV-DS designs. The R3 should describe all risk reduction, technology and process development and maturation that must be conducted to support an SSLV-DS flight demonstration in Phase II and an integrated ECAV/ECLV-DS flight-test in Phase III. The plan should address all activities proposed for Phases II and III. The R3 should include risk waterfall charts for each risk area. Each risk waterfall should detail the series of demonstrations, off-program activities, and any other applicable initiatives that illustrate the progressive risk reduction across the program phases. Each waterfall should define the specific risk reduction activity, when it will occur, how much risk reduction will be achieved, ownership of the activity (i.e. the Performer, subcontractor or other entity), and what contingency or alternate approaches are planned to ensure program success. The activities comprising these waterfalls should be integrated across individual waterfalls in a block diagram (i.e. PERT schedule) to illustrate dependencies and the progressive build-up of capability across the SSLV-DS and ECLV-DS.

Within the R3, each demonstration activity should be defined in detail to provide a complete picture of risk reduction that will be accomplished throughout the program. At a minimum,

specific demonstration objectives, the method/approach of conducting the demonstration, assets required (hardware and software) to accomplish each demonstration and cost to execute each demonstration will be defined. Completion criteria should be developed for each demonstration that defines when a demonstration is contractually complete. Preliminary risk reduction criteria should be established for each demonstration that define the expected level of risk reduction. [Note: Completion criteria and risk reduction criteria are different and distinct criteria. Completion criteria measure whether the Performer conducted the demonstration. Risk reduction criteria measure whether the demonstration was successful.

The R3 should be a living document that will be used throughout Phases II & III to track and integrate the SSLV-DS and ECLV-DS risk reduction activities. The R3 should be completed no later than three months after Phase II award to enable commencement of early risk reduction activities.

3.3.2 EXECUTE RISK REDUCTION ROADMAP

Once the R3 is put in place, the Performer should begin executing its Risk Reduction Roadmap toward validating technologies and addressing other risk areas required to meet flight demonstration objectives and technology maturation objectives. Proposed Phase II milestones should include major demonstration activities.

3.4 SSLV-DS FLIGHT DEMONSTRATION

The ultimate Phase II, Task 1 objective is to demonstrate the capabilities of the Performer's SSLV design by placing a Government-supplied small satellite or other payload into LEO.

3.4.1 FLIGHT DEMONSTRATION PLAN

The SSLV-DS Flight Demonstration Plan should describe how the Performer will complete the detailed design, development, fabrication and verification testing of its SSLV-DS during Phase II. The plan should describe the approach, processes, procedures and tools that the Performer will use to execute these tasks and the planned schedule for completion. The plan should supplement the Integrated Master Schedule (IMS) by providing additional details on the overall plan for achieving each phase of the SSLV-DS development.

The plan should include a critical path analysis that addresses all major events associated with the development and verification of each element of the SSLV-DS system. Details should be provided for critical activities such as software development, SSLV/payload interface, testing, installation and verification, and development of advanced command and control and mission management algorithms. This analysis should assess the key processes, developments or activities that will pace the development schedule. The critical path analysis should be developed in a program management tool to a level of detail sufficient to implement critical path analysis throughout Phase II.

The plan should describe the approach for achieving all of the SSLV-DS demonstration objectives. It should include a description of all major demonstrations such as component testing, subsystem verification and integration and segment and system build-ups. Planned vehicle development tests such as static motor/engine tests, wind tunnel testing, environmental testing,

flight control and simulation activities will also be indicated. The Government encourages an incremental approach to flight-testing to assess/validate vehicle stages and/or major system elements. Manufacturing approaches, assembly, hardware-in-the-loop and system/segment verification testing should be described. The SSLV-DS Flight Demonstration Plan, along with the Task Description Document and IMS, should completely document what, when and how the Phase II SSLV-DS design, development, fabrication, verification and system demonstrations will be conducted.

3.4.2 CONDUCT FLIGHT DEMONSTRATION

The Performer should complete design, fabrication and test of its SSLV-DS in accordance with its Flight Demonstration Plan. A systematic approach should be followed with sufficient intermediate reviews to periodically assess progress toward flight demonstration. Multiple flight tests are encouraged, with at least one to include placing a small satellite or other payload provided by the Government into LEO. The Performer will be responsible for interacting with the payload supplier and insuring proper integration with the launch vehicle. The Performer will also be responsible for identifying range facilities and availability as well as working with the range to ensure that all flight certification, safety and other requirements are met. In addition, the Performer should document the flight test and provide a written report to the Government within 60 days following completion of the test.

3.5 ECLV-DS FLIGHT DEMONSTRATION PLAN

The Performer should develop an ECLV-DS Flight Demonstration Plan describing all activities associated with detailed design, fabrication and flight test of the integrated ECAV/ECLV-DS in Phase III. This plan should be at the same level of detail as the SSLV-DS Flight Demonstration Plan described in Section 3.4.1 above. This plan should identify any long lead materials that must be procured during Phase II to meet the Phase III demonstration schedule. A long lead schedule and refined cost breakdown must be provided not later than 10 months after award.

3.6 OPTIONAL CAV LAUNCH VEHICLE TASK

The Government desires to demonstrate near-term conventional global strike capability via development and flight-test of a rocket-based munitions delivery system that delivers its payload to the target by executing unpowered glide maneuvers at hypersonic speed. The default approach is to take a CAV developed under Task 2 of FALCON and integrate it with existing Government launch assets. However, if a Task 1 SLV Performer is able to provide a suitable launch vehicle to support CAV Flight Demonstration requirements in the FY06-FY07 timeframe, the Government may consider use of a Task 1 SLV instead. This approach would integrate a CAV with an SLV design that is capable of boosting a munitions-loaded CAV weighing approximately 2,000 pounds (909 kilograms) to its requisite pierce point conditions (e.g. geo-location, altitude, velocity and attitude). The Offeror may elect to propose an optional task that would consist of providing the required launch vehicle and launch support for the planned CAV flight demonstration and support the planned CAV flight demonstration. Directions for responding to this optional task are provided in Section 4.

3.7 PHASE II MILESTONES AND ACCOMPLISHMENT CRITERIA

The Government intends to conduct formal Milestone Reviews throughout Phase II. The primary purpose for these Milestone Reviews is to review substantive technical and programmatic progress and assess the status of the overall program plan. Although the majority of program reviews will be conducted at Performer facilities, the Government reserves the right to schedule program reviews in the Washington, DC area in cases where this represents the most efficient use of Government team resources.

The Government has defined the content of several key milestones as an example of the scope and level of detail it expects the Offeror to propose in its milestone payment schedule. However the Offeror should supplement the milestones provided below and propose the remainder of its milestone schedule based on its unique SSLV-ECLV risk reduction activities, significant events, deliverables, and Flight Demonstration Plans.

Milestone 1 – 2 weeks after award
Information Provided:

- Phase II Program Plan
- Phase II Point of Departure Design
    - Updates subsequent to delivery of the Offeror's Phase II proposal
    - 3DOF models of both the SSLV-OS and ECLV-OS
- Phase II proposal action item closure plan
- Administrative actions
    - Performer's public release briefing, including an illustration of its SSLV and ECLV operational system concepts
    - CD of unclassified milestone review charts (3 copies) at review
    - Baseline IMS and CPA

Minimum Accomplishment Criteria:

- Phase II program plan consistent with FALCON program vision and schedule
- All Phase II action items reviewed
- All administrative actions complete

Milestone 2 – not later than 3 months after award (3 MAA)
Minimum Information Provided:

- SSLV-DS Design Update
- ECLV-DS Design Update
- Final SSLV-ECLV Risk Reduction Roadmap
- Phase II proposal actions
- Administrative Actions
    - Monthly cost reports submitted on time and current
    - Public release video that provides FALCON vision and illustrates key aspects of the Performer's SLV concept(s)
    - Update to public release briefing
    - CD of unclassified milestone review charts (3 copies) at review
    - Electronic copy of classified milestone review charts (1 copy) delivered within 5 days of review
    - Updated IMS and CPA status

Minimum Accomplishment Criteria:

- Verification that the evolving SSLV-DS and ECLV-DS designs are consistent with demonstration objectives and have legacy to SSLV-OS and ECLV-OS designs, respectively
- Risk Reduction Roadmaps complete
    - Risk waterfalls for each critical technology and other risk area
    - Demonstrations fully defined and scheduled
- All proposal action items resolved
- All administrative actions complete
- Sufficient progress to merit proceeding to next milestone

Milestone 3 – not later than 6 MAA

Minimum Information Provided:

- SSLV-DS Update
- ECLV-DS Update
- Final SSLV and ECLV Flight Demonstration Plans
- Risk Reduction Roadmap Status
- Administrative Actions
    - Monthly cost reports submitted on time and current
    - CD of unclassified milestone review charts (3 copies) at review
    - Electronic copy of classified milestone review charts (1 copy) delivered within 5 days of review
    - Updated IMS and CPA status

Minimum Accomplishment Criteria:

- Sufficient progress on SSLV-DS and ECLV-DS designs
- SSLV and ECLV Flight Demonstration Plans complete
    - Include all detailed design, component demonstration/testing, fabrication, and flight test activities required to meet demonstration objectives
    - All activities scheduled and CPA analysis complete
- Risk reduction activities on track
- All administrative actions complete

Milestone 4 – not later than 10 MAA

Minimum Information Provided:

- SSLV-DS Preliminary Design Review
- ECLV-DS update
- Refined long lead item list and ROM cost breakdown
- Risk reduction results and overall status
- Administrative actions
    - Monthly cost reports submitted on time and current
    - CD of unclassified milestone review charts (3 copies) at review
    - Electronic copy of classified milestone review charts (1 copy) delivered within 5 days of review
    - Updated IMS and CPA status

Minimum Accomplishment Criteria:

- SSLV-DS Preliminary Design review conducted to:
  - Verify functional, performance and interface design requirements for subsystem and configuration items to enable execution of the SSLV-DS Flight Demonstration Plan
  - Verify the SSLV-DS preliminary design is sufficient and ready to be put under configuration control
  - Review and evaluation of maturity of software requirements
  - Define item performance specifications including software-related items
  - Define draft item detail, process, and material specifications
  - Evaluate design data defining major subsystems, equipment, software, and other elements
  - Assess supportability concept and analysis, and supporting data
  - Review of predicted SSLV-DS performance against objectives
  - Review any risk reduction activities
  - Verify that the risks associated with the system design are consistent with the Flight Demonstration Plan
- Sufficient progress on ECLV-DS designs
- Top level status of risk reduction achieved during first 10 months
- Results of each risk reduction activity to date fully reported
  - Contribution of activity to concept risk reduction
  - Impact of results on remainder of execution of risk reduction roadmap
  - Fall-back plan to be implemented (if needed)
  - Impact of results (if any) on SSLV-OS and/or ECLV-OS designs/performance
- All administrative actions complete

All remaining milestones and associated events should be proposed by the Offeror based on its unique Phase II program. Milestones 2, 3, and the SSLV-DS PDR may be conducted earlier if that better suits the Offeror's schedule. Additional events should be added to the above milestones to include any early risk reduction activities conducted in this period.

The Offeror is encouraged to supplement this list based on its unique Phase II program. However, proposed milestone payments shall be demonstrably consistent with proposed spending. Additional milestones should be scheduled at least three but no more than five months apart and events and accomplishment criteria should be commensurate with the dollar value of the milestone. Information provided at each milestone should include all significant program events and demonstrations since the last milestone and the contractor must define measurable accomplishment criteria. The level of detail expected in the accomplishment criteria is consistent with those defined for Milestones 1 through 3 above. Each milestone should also include administrative actions that include CDs of milestone material as well as IMS and CPA update for SSLV and ECLV activities. The Offeror's milestone schedule must include the following events:

- SSLV-DS CDR
- SSLV-DS Flight Readiness Review
- SSLV-DS Flight Demonstration
- SSLV-OS and ECLV-OS Design and Performance Update (final milestone)

- SSLV-OS Production Cost Estimate Update
- ECLV-DS PDR
- ECLV-DS CDR
- ECLV-DS Long Lead Item cost and schedule update

3.8 PHASE II DOWN-SELECT CRITERIA

The Government's decision to down-select Task 1 Performers in Phase II will be the result of best over-all benefit to the Government considering, but not limited to, the following factors:

- Technical progress
- Affordability
- Performance
- Perceived merit of concept versus technical and programmatic risk

4.0 PROPOSAL PREPARATION INSTRUCTIONS

This section provides the Offeror guidance for developing the FALCON Phase II written proposal. The Offeror should carefully read and ensure that its proposal responds to the entire solicitation.

As a reminder, this document solicits FALCON Phase II, Task 1 proposals under full and open competition. There were nine Phase I awards for the efforts described in Section 1.0, Introduction, of this solicitation. All offerors will be evaluated on their written proposals, as requested below. Accordingly, written proposals as submitted shall completely and fully describe and support the offerors best approach to meeting the vision/objectives and other parts of this solicitation.

Offerors shall submit three (3) separate volumes in response to this solicitation, and may submit an optional fourth volume. Volume 1 will be a FAR-based technical proposal, Volume 2 will be the FAR-based cost proposal, Volume 3 will be an OT-based "Delta Proposal", and Volume 4 will be the optional CAV Launch Vehicle Task. The "Delta Proposal" shall clearly identify changes to the proposed FAR-based technical and cost proposals (Volumes 1 and 2 respectively) that results from use of an OTA. Two cost proposals, one OTA compliant proposal and one FAR CAS compliant proposal are required. This will ensure the government conducts an impartial technical evaluation without allowing an offeror to win the competition based on their ability to contribute resources to the program. Only the FAR-based proposal will be evaluated for purposes of award selection, all factors considered.

The offeror's written submission should be packaged as follows:

- Volume 1 - FAR Based Technical Proposal
    - Phase I or Equivalent Activity Summary
    - Executive Summary
    - System Descriptions
    - Technical Approach
    - Management, Key Personnel, and Corporate Capabilities

  - FAR Based WBS Budget Summary
- Volume 2 - FAR Based Cost Proposal
  - Total Cost Summary
  - Task Description Document (TDD)
  - Integrated Master Schedule (IMS)
- Volume 3 - OT Based Delta Proposal
  - Completed OT Agreement
  - Delta TDD
  - Delta IMS
  - Delta Total Cost Summary and WBS Budget Allocation
  - Section 803 Provisions
  - Data Rights
- OPTIONAL Volume 4 – CAV Launch Vehicle Task

The Government will evaluate the offeror's ability to best perform Phase II via an evaluation of the FAR based technical proposal and the FAR based cost proposal. After award selection successful offeror(s) OT proposals will be opened and negotiations will be conducted. The Government intends to award OT agreements for Phase II. However, the Government reserves the right to award other than an OT Agreement.

A TDD and IMS will be incorporated into any resulting award and form the basis for executing Phase II.

Offerors are reminded that this program has a down-select feature at Milestone 4. Proposals shall be segregated to distinctly propose cost from award through Milestone 4 separately from cost from Milestone 4 through the remainder of the contract period of performance. This segregation of cost shall be distinct and severable and shall be reflected throughout the program plans, milestone criteria and cost proposals. This applies to both the FAR based cost proposal and the OT based delta proposal.

4.1 WORK OUTLINE

The Offeror should use a program work outline or Work Breakdown Structure (WBS) and common numbering system to integrate the proposal documents, including the TDD and IMS. The TDD, IMS and cost proposal numbering should be completed to at least level 3 and in detail sufficient to highlight the significant points discussed throughout the proposal and within the WBS budget allocation.

4.2 WRITTEN PROPOSAL INSTRUCTIONS

The required format and content of each volume is discussed in the following paragraphs. The Offeror should clearly and fully address each of the specified topic areas within the identified sections of each volume.

4.2.1 VOLUME I – FAR BASED TECHNICAL PROPOSAL

The technical proposal shall use the following outline:

1. Phase I or Equivalent Activity Summary
2. Executive Summary
3. System Descriptions
    a. SSLV-OS
    b. ECLV-OS
    c. SSLV-DS
    d. ECLV-DS
4. Technical Approach
    a. SSLV Development and Demonstration Plan
    b. ECLV Development and Demonstration Plan
5. Management, Key Personnel and Corporate Capabilities
    a. Process and Schedule
    b. Organization
    c. Corporate Capabilities
6. FAR Based WBS Budget Summary

4.2.1.1 PHASE I OR EQUIVALENT ACTIVITY SUMMARY

This section will be read prior to the evaluation for the purposes of better understanding the background of the written proposal. It is the offeror's opportunity to discuss how their system concept, with specific emphasis on how their systems design and operational concept, meets the Phase I program Statement of Objectives. This Section will be limited to 5 pages maximum and will not count against the total page count for Volume 1. Offerors should identify specific technical and operational capabilities of their system design that will show technical maturity of their specific system design. Technical and programmatic risk reduction efforts and approaches to substantiate system maturity should also be identified as appropriate.

4.2.1.2 EXECUTIVE SUMMARY

The Executive Summary should provide the introduction to the proposal. It is meant to be a top-level discussion of the Offeror's program vision and objectives. The Executive Summary should consider both Phase II and Phase III of the program and describe how the Offerors vision would be implemented. As a minimum, the Executive Summary should include a brief description of the following:

- Proposed Program Vision and Objectives
- Proposed SLV Operational System description and capabilities
- Technical Approach Summary
- Proposed Team
- Top-Level Program Schedule
- Corporate commitment and its fit into the corporate structure/vision
- Description of planned or implemented streamlined/innovative business practices, if any.

4.2.1.3 SYSTEM DESCRIPTIONS

Operational Systems

This section will fully describe the Offeror's operational system design and capabilities with the operational vehicle design and its CONOPS comprising the operational system. This section should identify how the operational system meets all of the vision and operational objectives stated herein. In order to meet both the small satellite and ECAV mission requirements, the Government anticipates that some dissimilarity will exist between the Operational Systems for each mission.

SSLV-OS

This section shall describe the Offeror's launch vehicle operational system design and capabilities for placing small satellites and other payloads into LEO as described in section 2.1.1. Key dimensions, weights and description of major subsystems and components should be provided. The Offeror should include analysis it has conducted to substantiate vehicle performance assertions. The CONOPS that would be followed to launch small satellites in an operational environment should be described in the context of achieving launch cost and responsiveness objectives. Capability of this design to address a range of small satellite missions should be discussed.

Finally, the Offeror should delineate its estimated cost to conduct orbital launch missions in an operational environment consistent with the launch costing assumptions provided in Section 2.1.1. The offeror shall complete and provide the Operational System Cost spreadsheets in the Microsoft Excel file "FALCON Op Cost" labeled as Program Solicitation Attachment (#9). This will be available on the DARPA TTO website for solicitations: www.darpa.mil. Sheet 1 in the file is a dictionary of terms used, and the two spreadsheets to be filled out are "FALCON Ops – Low Flight Rate" and "FALCON Ops – High Flight Rate". This cost estimate will not count in the proposal page limit.

ECLV-OS

This section shall describe the Offeror's launch vehicle operational system design and capabilities for placing an ECAV at its required insertion point conditions as defined in Section 2.1.2. The Offeror shall describe its approach for an ECLV-OS design that demonstrates a high degree of commonality with its SSLV-OS design to minimize development cost and risk and promote low-cost operational systems for both mission types. The Offeror's description should identify those aspects in which its ECLV-OS is dissimilar from its SSLV-OS and discuss what steps would be required to bring this design to fruition. The Offeror should include analysis it has conducted to substantiate vehicle performance assertions. The CONOPS that would be followed to launch ECAVs in an operational environment should be delineated. Responsiveness, including surge rate objectives should be addressed. Operational capability and mission flexibility should be discussed as well.

Demonstration Systems

This section shall fully describe the Offeror's demonstration system designs and capabilities. The Offeror should discuss those aspects of its operational vehicle design that have been incorporated into its demonstration vehicle designs and thus will be validated in flight-testing. It should also address those aspects of its operational vehicle designs that will not be validated through flight-testing in FALCON. Predicted performance of the operational vehicle designs compared with that of the demonstration vehicle designs should be specifically discussed. In order to meet both the small satellite and ECAV mission requirements, the Government anticipates that some dissimilarity will exist between the Demonstration Systems for each mission.

SSLV-DS

The Offeror shall describe the SSLV-DS system design it intends to develop and demonstrate in flight in Phase II. This description should identify the degree of commonality and differences between the demonstration design and the operational system design upon which it is based. The Offeror should discuss the demonstration objectives, physical and functional attributes of the operational launch vehicle that will be demonstrated and also those aspects that will require further development and validation outside the current FALCON program.

ECLV-DS

The Offeror shall describe the ECLV-DS system design it intends to develop in Phase II in support of an integrated ECAV-DS/ECLV-DS flight demonstration in Phase III. This description should identify the degree of commonality between the demonstration design and the operational system design upon which it is based. In addition, the Offeror should describe aspects of the ECLV-DS design that are shared by its SSLV-DS and those features of its SSLV-DS design that will require modification and/or enhancement to realize the ECLV-DS. The ECLV-DS design should be a straight-forward evolution from the SSLV-DS and within the program's budgetary and schedule constraints. The Offeror should also address unique aspects of the ECAV-DS/ECLV-DS flight demonstration that will have significant impact on the ECLV-DS system design. The Offeror should discuss the physical and functional attributes of the Operational System that this demonstration will exhibit and also those aspects that will require further development and validation outside the current FALCON program.

4.2.1.4 TECHNICAL APPROACH

The Offeror shall describe the technical approach it will take to achieve the Phase II objectives delineated in Section 3. This shall include how it will evolve both its SSLV-DS and ECLV-DS vehicle designs through critical design and what analyses it will perform to assess and optimize these designs. This discussion should address how the Offeror intends to mature these designs in an integrated fashion to the critical design (ready to build) level.

SSLV Development and Demonstration Plan

The Offeror should identify what it considers to be the major technical risks or challenges to bringing both demonstration vehicle designs to the critical design level and accomplishing Phase

II flight demonstration objectives. The Offeror should provide an assessment of major risk areas in terms of NASA's Technical Readiness Level (TRL) and/or a risk/consequence assessment. The Offeror should discuss how it will reduce these risks to an acceptable level in coordination with evolution of its SSLV-DS design. Analytical and experimental tasks including ground and flight-testing that will be conducted as part of the Offeror's risk mitigation process should be discussed. The Offeror should explain what contingency plans it would execute and/or alternative approaches it would take if efforts to mitigate risk if one or more specific areas are not fully successful.

The Offeror shall describe its manufacturing plan including those areas in which it will use outside manufacturers or suppliers. Long lead items and other events associated with fabrication and assembly of the launch vehicle should be addressed in context with their accommodation in the Offeror's fabrication schedule.

The Offeror shall describe its Phase II SSLV-DS flight demonstration plan to place a small satellite into LEO. This should include selection of the launch range and coordination with the range especially in areas of flight safety. The Offeror should identify the Government ranges, facilities, equipment and services that it will request the Government to provide as part of the flight demonstration program. The Offeror shall describe how it intends to conduct the Phase II flight demonstration including timelines and objectives it intends to achieve, and data it will acquire. The Offeror should propose evaluation criteria for the flight demonstration against which the success of the flight would be measured.

ECLV Development and Demonstration Plan

The Offeror shall identify risks/challenges to realizing its ECLV-DS design that are in addition to those for its SSLV-DS. The Offeror should discuss how it plans to reduce these risks as part of an integrated R3. The Government's intent is that the ECLV design will share a high degree of commonality with the SSLV design such that ECLV specific risk reduction efforts will be minimized. The Offeror should describe what additional analytical and experimental effort it will perform to bring its ECLV-DS design to the critical design level of maturity. This effort should be discussed in context to supporting an early ECAV/ECLV flight demonstration in Phase III.

The Offeror shall give an overview of its Phase III ECLV-DS flight demonstration plan. This discussion should include how the Offeror envisions interacting with the ECAV-DS developer in support of the integrated flight test program and any specific issues or challenges it foresees.

The Offeror shall provide a preliminary list of long lead items it will need to begin procuring in Phase II to support the Phase III flight demonstration. The Offeror shall provide a ROM cost breakdown for these items and an approximate schedule indicating when procurement of these items would need to be initiated. These ROM costs will be used by the Government to support its Phase II and Phase III budgetary out-year planning. These costs are not part of the Offeror's Phase II cost and should not be included in its cost proposal documents. Instead, Phase II Performers will be required to provide refined cost-not-to-exceed information for these long lead items as part of the down-select process that the Government anticipates it will conduct during Phase II.

4.2.1.5 MANAGEMENT, KEY PERSONNEL, AND CORPORATE CAPABILITIES

Process and Schedule

This section shall discuss the process and schedule the Offeror intends to use to manage both the programmatic and technical elements of its proposed Phase II effort. The section should include the Offeror's WBS, TDD and IMS.

Organization

The Offeror shall describe the organizational structure of the proposed program team and define the responsibilities and authority for key positions. Key subcontractors and other team members and geographic location of each should be identified and their roles and responsibilities discussed. The Offeror shall summarize how the experience and interactions of the team will result in achieving the program objectives and should provide the status of the key subcontractor agreements. The Offeror shall provide specific evidence that formal agreements have been reached with its subcontractors and other team members demonstrating their commitment to support the Offeror's proposed Phase II program.

Key management and technical personnel including the Program Manager, Chief Engineer (or equivalent) and other technical leads should be identified and short resumes provided for each. The Offeror should describe how the experience of the proposed key personnel will enable them to perform the functions necessary for this program and percent of time spent on this effort.

Corporate Capabilities

Each Offeror shall provide information in this section that describes its team's relevant past performance. Past performance information can include Government contracts or agreements, commercial/non-government contracted work or internally funded efforts. This Offeror-provided information will be evaluated, as well as data from other Government sources, in determining the Offeror's design, development, and test experience of relevant SLV technology.

The Offeror should identify and describe the team's experimental facilities it intends to utilize in conducting this program in terms of capability, data acquisition and past use. The Offeror should discuss the availability of these facilities to support the proposed program in a manner that meets all program objectives. The Offeror should also discuss any Government facilities or other Government furnished equipment (GFE) it intends to use to execute its proposed program.

4.2.1.6 FAR BASED WBS BUDGET SUMMARY

The offeror shall complete and present the WBS Budget summary generally provided in the table below (Figure 4.2a). The structure of this table will have to be modified by the offeror to the extent that it reflects total Phase II program cost to the Government. The table shall identify program costs through Milestone 4 and separate and distinct program costs from Milestone 4 through Phase II completion. The Offeror should also separately identify all costs associated with government, range, GFE and other required faculties required for Phase II per task or demonstration activity. In addition, the Offeror is required to provide costs and labor hours to level three of its WBS. This budget summary is included in the proposal page count.

WBS Level 1000	Labor Hours	Labor Dollars	Direct Material Dollars	Subcontract /Consultant Dollars	Travel Dollars	Other Dollars	Total Dollars
1100							
1110							
1120							
1130							

Figure 4.2 a

4.2.2 VOLUME 2 – FAR BASED COST PROPOSAL

The FAR based cost proposal must contain a completed Total Cost Summary, the Task Description Document (TDD) and the Integrated Master Schedule (IMS). This Total Cost Summary should be modified as necessary to support the level of detail requested. As a reminder, cost to Milestone 4 and from Milestone 4 to contract completion shall be separate and severable. Also the total cost identified in this schedule shall represent to the total cost to the Government based on award of a FAR based contract. The total costs shall also be the same amount as identified in the WBS Budget Summary that was presented in the technical proposal.

Labor ($)	
Overhead/fringe ($)	
Direct materials ($)	
Subcontracts ($)	
Consultants ($)	
Travel ($)	
Equipment ($)	
Other costs ($)	
G&A ($)	
COM ($)	
Fee ($)	
Fee (%)	
Total Labor Hours	
Prime Labor Hours	
Subcontractor/Consultant labor hours (add rows to break down by organization)	
Total Ave Cost/Labor hour	
% of effort subcontracted	
Range costs	
Government Test Facility costs	
Use of Government Assets	
Identification of GFE and Value	

Figure 4.2b

In order for the Government to determine the reasonableness, realism and completeness of your FAR based cost proposal, the below requested cost support data must be provided for each significant team member and in a cumulative summary. The below requested supporting

information must address the Total Cost Summary and therefore may need to be modified appropriately.

Labor: Total labor includes direct labor and all indirect expenses associated with labor, to be used for the Phase II period of performance. Provide a breakdown of labor hours and rates for each category of personnel to be used on this project.
Direct Materials: A by item/unit cost breakdown of the total direct material that will be acquired and/or consumed in the Phase II period of performance. Limit this information to only major items of material (>$1,000) and how the estimated expense was derived.
Subcontracts: Describe major efforts to be subcontracted, the source, estimated cost and the basis for this estimate. A summary cost breakdown should be provided for each subcontract proposed.
Consultants: Any proposed use of an individual not directly employed by the Offeror resulting in a cumulative Phase II cost of $10,000 or more should be detailed. The individual should be identified by name and affiliation, as well as his/her hourly rate, total number on labor hours, and any other direct costs such as materials or travel that are not accounted for elsewhere in the cost proposal.
Travel: Total proposed travel expenditures relating to the Phase II period of performance. Limit this information to the number of trips, and purpose of each cost.
Equipment: Any equipment to be acquired for the effort. Breakdown the equipment into those items required for Phase II.

Information supporting the above total cost summary may be provided in the Offeror's format; however, it should be clear how the numbers were aggregated to obtain the values in the table. Failure to "break out" costs in this way may result in the Offeror not receiving a contract award.

The Task Description Document (TDD) defines and describes the specific tasks the performer will execute to accomplish the Statement of Objectives.

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 of its work outline as appropriate.

4.2.3 VOLUME 3 – OTA BASED DELTA PROPOSAL

The following outline shall be used for Volume 3. A description of each Volume 3 proposal section follows.

1. Completed OT Agreement
2. Delta TDD
3. Delta IMS
4. Delta Total Cost Summary & WBS Budget Allocation
5. Section 803 Provisions
6. Data Rights

4.2.3.1 COMPLETED OT AGREEMENT

The offeror shall provide its proposed Phase II Agreement, along with rationale for any changes to the Government model agreement provided within the solicitation. In addition to a hard clean copy of the entire agreement, the offeror shall provide a MS Word electronic copy with the "track changes" feature employed so that changes can be readily identified. The offeror shall complete all attachments of the model agreement as appropriate.

4.2.3.2 DELTA TDD AND DELTA IMS

The offeror should provide a top level summary as well as a "red-lined" TDD that highlights changes in the tasks being performed as compared to the FAR based program. The IMS shall highlight these changes as well and be delivered in Microsoft Project format.

4.2.3.3 DELTA TOTAL COST SUMMARY AND WBS BUDGET ALLOCATION

The offeror shall clearly identify and summarize the cost changes that result from using an OT agreement vice a FAR based contract. The offeror is required to identify changes to the Total Cost Summary table and WBS Budget Allocation table that was proposed as part of the FAR Based cost proposal submittal. A summary description of the change and the rationale supporting the change shall also be provided.

Certified cost or pricing data is not required. However, explain any differences in the below cost details that result from use of an OTA.

Labor: Total labor includes direct labor and all indirect expenses associated with labor, to be used for the Phase II period of performance. Provide a breakdown of labor hours and rates for each category of personnel to be used on this project.
Direct Materials: A by item/unit cost breakdown of the total direct material that will be acquired and/or consumed in the Phase II period of performance. Limit this information to only major items of material (>$1,000) and how the estimated expense was derived.
Subcontracts: Describe major efforts to be subcontracted, the source, estimated cost and the basis for this estimate. A summary cost breakdown should be provided for each subcontract proposed.
Consultants: Any proposed use of an individual not directly employed by the offeror resulting in a cumulative Phase II cost of $10,000 or more should be detailed. The individual should be identified by name and affiliation, as well as his/her hourly rate, total number on labor hours, and any other direct costs such as materials or travel that are not accounted for elsewhere in the cost proposal.
Travel: Total proposed travel expenditures relating to the Phase II period of performance. Limit this information to the number of trips, and purpose of each cost.
Equipment: Any equipment to be acquired for the effort. Breakdown the equipment into those items required for Phase II.
Other Costs: Any direct costs not included above. List the item, the estimated cost, and basis for the estimate.

As applicable, the offeror should provide a total estimated price for the major IR&D and cost sharing activities associated with the program. The offeror should state whether each IR&D

program is dedicated or if it is being pursued to benefit other programs as well. The cost sharing estimate should include the type of cost share, i.e. cash or in-kind. If in-kind is proposed, the offeror should provide a discussion of how the cost share was valued.

If a teaming arrangement is proposed the above cost information should be provided for all team members.

4.2.3.4 SECTION 803

The offeror shall describe how it intends to meet Section 803 provisions of the National Defense Authorization Act for FY2001 (Public Law 106-398). To meet these provisions there must be at least one non-traditional 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 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

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

As detailed below, Volume 3 must clearly separate the technical and cost-share portion of the proposal from the non-cost share portion of the proposal. Cost contributions for items such as IR&D reimbursement, G&A, cost of money and fee identified separately will meet the solicitation requirement.

4.2.3.5 DATA RIGHTS

The offeror should discuss its proposed approach to Data Rights and how it aligns to the Government's desires and requirements as discussed in Section 2.5.

4.3 OPTIONAL VOLUME 4 - CAV LAUNCH VEHICLE TASK

If the offeror wishes to respond to the Optional CAV Launch Vehicle Task, it must submit a separate proposal volume identified as Volume 4. This volume should provide technical information that substantiates and provides confidence in the offeror's ability to provide a suitable launch vehicle within the desired FY06-FY07 time frame. Specifically, the Government desires that the offeror provide the following information:

- Performance analyses to justify that the offeror's launch vehicle can place the CAV at the requisite insertion conditions, which are the same as the ECAV insertion conditions. See section 2.1.2 on how to request this information.
- Basis for assumed performance capability
- Traceability from CAV-DS launch vehicle to SSLV Flight Demo launch vehicle and to the ECAV/ECLV flight demo launch vehicle including risks involved and possible performance payoffs
- Specific timeline to provide launch vehicle for CAV flight demonstration including a critical path analysis

Within this same volume, the offeror should provide its cost proposal for this optional task, which shall be in accordance with instructions for preparing an OTA cost proposal as delineated in Section 4.2.3. Proposals for this optional task will not be evaluated as part of the main source selection process for the Phase II, Task 1 solicitation. These proposals will be evaluated separately following Phase II awards at the Government's discretion.

4.4 ADMINISTRATIVE INSTRUCTIONS

4.4.1 ORGANIZATION

The offeror's proposal shall be submitted as three or four volumes in separate standard three-ring, loose leaf binders (one for each volume) with individual pages unbound and printed single sided.

Volume 1
The offeror's Volume 1 - FAR Based Technical Proposal material shall be submitted in separate standard three-ring, loose leaf binders with individual pages unbound and printed single sided. Pages shall be marked **SOURCE SELECTION SENSITIVE.** Volume 1, excluding title pages, table of contents, section dividers, the "Phase 1 or Equivalent Activities Summary", the TDD, the IMS, and the Operational System Cost (Attachment 9) shall not exceed 80 pages. The offeror shall submit eight hard copies of Volume 1.

Volumes 2, and 3
The offeror's Volume 2 - FAR Based Cost Proposal, and Volume 3 – OT Based Delta Proposal material shall be submitted in separate standard three-ring, loose leaf binders with individual pages unbound and printed single sided. Pages shall be marked **SOURCE SELECTION SENSITIVE.** There is no page limit for Volumes 2, and 3. Two hard copies of each volume shall be submitted.

Volume 4
If the offeror should choose to submit a Volume 4 proposal, the offeror's Volume 4 – CAV Launch Vehicle Task proposal material shall be submitted in separate standard three-ring, loose leaf binders with individual pages unbound and printed single sided. Pages shall be marked **SOURCE SELECTION SENSITIVE.** There is no page limit for Volume 4. Two hard copies shall be submitted.

4.4.2 PAGE INFORMATION

Each page should be on an 8-1/2" x 11" sheet with a Times New Roman font size of not less than 12 points; however, figures, charts, labels, headers and footers may be submitted with a font size of not less than 8 points. Margins should be at least 1 inch on all sides. Fold out pages, with text and/or graphics on a single side will be counted as 2 pages. Any restrictions must be placed with a legend within the proposal on each affected sheet/page.

4.4.3 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.

4.4.4 ELECTRONIC SUBMISSION

Offerors are required to submit two copies of all proposal material in IBM PC Microsoft Office 2000 compatible electronic format with embedded graphics on CD-ROM. If the proposal contains imported graphics (drawings, charts, photos, etc.) the offeror should also include an electronic copy of the originally imported graphics files. An electronic copy of the IMS should be provided in MS Project 2000 format. An electronic copy of the proposed agreement modifications using "track changes" feature in MS Word should be provided.

4.4.5 PROPOSAL DELIVERY

All responses must be received on or before 7 June 2004 at 4:00 PM Eastern Standard Time. Late responses may not be accepted.

The offeror's proposal shall be mailed or hand carried to:

Defense Advanced Research Projects Agency (DARPA)
FALCON Program
3701 North Fairfax Drive
Arlington, VA 22203-1714
Attn: Contracts Management Office/James Troutman
Program Solicitation Number: 04-05

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
Program Solicitation Number: 04-05
Hour and date:

4.5 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.

4.6 RULES OF COMMUNICATION

All actions by the DARPA/Air Force FALCON Government Team and industry teams' employees involved in the Phase II source selection process shall be such that no person's actions provide an unfair competitive advantage either actual or reasonably perceived by any other party or parties. Upon release of the Phase II solicitation and until Phase II award, all discussions with the FALCON Government Team can only be in the form of questions through the Agreements Officer and the Program Manager. This includes discussions regarding Phase I, Phase II, this solicitation, proposals, and any other issue relating to source selection. Program Office Team members will report any violations of these rules to the Program Manager and Agreements Officer.

4.7 DESTRUCTION OF UNSUCCESSFUL PROPOSALS

One copy of each unsuccessful proposal will be retained on file. All other copies will be destroyed one month after award. No destruction certification will be furnished.

5.0 EVALUATION CRITERIA FOR AWARD

The Government intends to make multiple awards for Phase II of the Task 1, SLV effort, but reserves the right to make a single award depending on funding availability and best overall value.

Proposal responses shall consider the entire solicitation. Selection will be based on the credible FAR based technical and cost proposal(s) which represent best overall value to the government, including a balanced approach to program execution, program approach and risk. Evaluation factors are listed below and described in the following sections.

There are five factors that will be rated during the evaluation. The first three factors are technical in nature and are given equal weighting. They are the Operational System, Demonstration System, and Technical Approach. Management, Key Personnel, and Corporate Abilities are combined into a single factor with less relative weight than each of the technical factors. Cost of the offeror's phase 2 proposed effort is the final factor and of less relative weight still.

Each Technical factor is split into sub-factors for the SSLV and the ECLV systems, with the SSLV having more relative weight than the ECLV. An unsatisfactory rating in any one of the

Technical sub-factors would be considered a significant deficiency and reduce the overall Technical factor rating accordingly. The "areas of consideration" identified under each of the factors/sub-factors will be used for evaluation assistance and are not all inclusive nor considered evaluation sub-factors.

After consideration of all evaluation factors, award preference will be the set of proposals which are individually determined to represent best value to the Government, where each proposal offers divergent technical approaches. In the event that a set of proposals do not clearly fit the preference criteria, award selection will be based on the best overall programmatic value, all factors considered.

FACTORS:

Operational System
Demonstration System
Technical Approach
Management, Key Personnel, and Corporate Capabilities
Cost

5.1 OPERATIONAL SYSTEM

5.1.1 SSLV-OS

The offeror's proposed SSLV-OS system design should address the following areas of consideration:

- meets or exceeds SSLV-OS system performance objectives outlined in Section 2.1.1 of this solicitation
- meets the Government's launch cost objective as defined in Section 2.1.1 and is supported by a credible basis for estimate
- is credible in that it is sufficiently detailed including critical dimensions, weights, propulsion system performance, etc. supported by experimental data, analysis, and/or analogy with similar elements
- offers substantial technical innovation and provides a path to development of similar systems sharing the same low-cost attributes
- demonstrates understanding and implementation of Government's operational vision including mission responsiveness

5.1.2 ECLV-OS

The offeror's proposed ECLV-OS system design should address the following areas of consideration:

- shares a high degree of commonality with the offeror's SSLV-OS system
- is credible in that it is sufficiently detailed including critical dimensions, weights, propulsion system performance, etc. supported by experimental data, analysis, and/or analogy with similar elements

- meets or exceeds ECLV-OS system performance objectives outlined in Section 2.1.2 of this solicitation
- demonstrates understanding and implementation of Government's operational vision including mission responsiveness and surge rate capacity
- compatible with ECAV-OS physical and functional interface requirements commensurate with current definition

5.2 DEMONSTRATION SYSTEM

5.2.1 SSLV-DS

The offeror's proposed SSLV-DS system design should address the following areas of consideration:

- has a reasonable expectation of flight demonstration within Phase 2, with an early launch date desired
- has a direct legacy to the SSLV-OS system design
- validates in flight-testing of most/all key enabling technologies and elements required by the SSLV-OS
- supports demonstration of SSLV-OS system performance attributes including capability of placing a small satellite or other payload into LEO
- incorporates elements and attributes that substantiate that responsiveness objectives for the SSLV-OS system are attainable
- incorporates low cost fabrication and launch attributes that substantiate launch cost projections for the SSLV-OS
- can be realized within program budgetary and schedule constraints

5.2.2 ECLV-DS

The offeror's proposed ECLV-DS design should address the following areas of consideration:

- has a direct legacy to the ECLV-OS design
- is a logical and straight-forward extension of the SSLV-DS design
- validates in flight-testing of most/all key enabling technologies and elements required by the ECLV-OS
- supports demonstration of important ECLV-OS performance attributes including capability of placing an ECAV-DS at its requisite insertion point conditions as part of a flight demonstration in Phase III
- incorporates elements and attributes that substantiate that responsiveness objectives for the ECLV-OS are attainable
- compatible with ECAV-DS physical and functional interface requirements commensurate with current definition
- can be realized within program budgetary and schedule constraints

5.3 TECHNICAL APPROACH

5.3.1 SSLV DESIGN DEVELOPMENT AND DEMONSTRATION PLAN

The offeror's proposed SSLV design development and demonstration plan should address the following areas of consideration:

- utilizes a rational and executable systems engineering approach
- identifies and assesses key technical challenges and risks
- delineates a comprehensive risk reduction plan that is consistent with technical realities and budgetary and schedule constraints
- identifies steps to conducting a flight demonstration that meets or exceeds program objectives
- is credible with regard to achieving a successful flight demonstration that includes placing a payload into LEO within program budget and schedule constraints
- addresses process for payload integration
- identifies a launch range and addresses range safety coordination

5.3.2 ECLV DESIGN DEVELOPMENT AND DEMONSTRATION PLAN

The offeror's proposed ECLV design development and demonstration plan should address the following areas of consideration:

- identifies and assesses technical challenges and risks that are distinct from or in addition to those of the SSLV demonstration system
- delineates a comprehensive risk reduction plan that is consistent with technical realities and budgetary and schedule constraints and is synergistic with that for the SSLV demonstration
- identifies steps to conducting an integrated ECAV-DS/ECLV-DS flight demonstration that meets or exceeds program objectives
- is credible with regard to conducting an integrated ECAV-DS/ECLV-DS flight demonstration early in Phase III
- identifies those long lead items for which procurement must be initiated in Phase II to support the Phase III flight demonstration and provides a ROM cost breakdown and procurement schedule for these items

5.4 MANAGEMENT, KEY PERSONNEL, AND CORPORATE CAPABILITIES

The following areas will be evaluated:

Process and Schedule
Extent to which offeror has:

- proposed use of appropriate management tools (e.g. WBS, IMS, TDD, EVMS) process for subcontractor and vendor management
- identified appropriate milestone products and defined accomplishment criteria
- extent to which the proposed budget allocations support the proposed technical effort (Figure 4.2a)

Organization

Extent to which:

- organizational structure is logical, identifies relevant functional areas, and defines roles and responsibilities
- key management and technical leads possess appropriate experience and technical expertise in development of advanced launch vehicles and payload integration
- staff and facility resource requirements identified and sufficiently dedicated to the program
- relevant experience and past performance of individuals on team are adequate and provide confidence that the proposed effort will be executed within cost and schedule
- team members have accepted the proposed execution plan

Corporate Capabilities

Extent to which:

- companies and other entities comprising the offeror's team possess relevant experience and facilities to support design, development and flight test of advanced launch vehicles and payload integration demonstrated in past programs the ability to execute technically challenging programs on time and within budget

5.5 COST

- Extent to which the offered program is affordable
  - Date of Award to SSLV PDR
  - Total Program Costs
- Extent to which the WBS budget allocations substantiate the scope of work identified and costs for range, test facilities, and GFE are identified and considered in total program costs
- Extent to which proposed cost is realistic, credible and substantiated (Figure 4.2b)

6.0 PHASE II MODEL AGREEMENT

OTHER TRANSACTION FOR PROTOTYPE MODEL AGREEMENT

BETWEEN

(INSERT TEAM NAME AND ADDRESS)
AND
THE DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
3701 NORTH FAIRFAX DRIVE
ARLINGTON, VA 22203-1714

CONCERNING:

FALCON
PHASE II – DESIGN AND DEVELOPMENT

Agreement No.: HR0011-04-9-XXXX
DARPA Order No.:
Total Estimated Government Funding of the Phase II Agreement: $
Team's Cost Share/Contribution: $
Funds Obligated: $
Authority: 10 U.S.C. 2371 and Section 845 of the 1994 National Defense Authorization Act for Fiscal Year 1994, as amended.

Line of Appropriation: AA

This Agreement is entered into between the United States of America, hereinafter called the Government, represented by The Defense Advanced Research Projects Agency (DARPA), and the (INSERT NAME of TEAM) pursuant to and under U.S. Federal law.

FOR (INSERT TEAM NAME)	FOR THE UNITED STATES OF AMERICA THE DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
_____	_____
(Signature)	(Signature)
(Name, Title) (Date)	(Name, Title) (Date)

TABLE OF CONTENTS

ARTICLE I: SCOPE OF THE AGREEMENT

This article should describe your vision for the Design and Development phase (Phase II of the Falcon Program), the overarching FALCON Operational Systems of the future, and how the proposed program will provide an evolutionary step to enabling this future system. The Offeror should address Phase III objectives of the FALCON program, how its proposed Phase II program will smoothly transition into Phase III, and how the envisioned products of Phase III would further enhance development of the FALCON Operational Systems. You should include a detailed description of how your proposed program satisfies the proposed statement of objectives. If there are dual or commercial uses of the developed technologies, be sure to include them but discuss the military uses first. Effective and efficient sharing of required data with the Hypersonic Weapon System contractors is essential for the success of the FALCON Program. This article should clearly address your corporate commitment to ensuring that proper sharing of data is accomplished and commitment through the entire program is maintained.

In addition, this article should discuss the way you will interact with the DARPA/Air Force program team. Suggested wording (i.e., paragraphs used in other DARPA Agreements) for your consideration follows:

"DARPA and the Air Force will have continuous involvement with the Contractor. DARPA and the Air Force will obtain access to program results and certain rights to patents and data pursuant to Articles VIII and IX. DARPA and the Contractor are bound to each other by a duty of good faith and best effort in achieving the program objectives."

"This Agreement is an 'other transaction' pursuant to 10 U.S.C. 2371 and section 845 of the 1994 National Defense Authorization Act, as amended. The Parties agree that the purpose of this Agreement is to acquire the Team's best efforts in development of detailed designs and risk mitigation activities supporting that design. The delivery of this design is a prototype within the meaning of the above-mentioned statute. The Federal Acquisition Regulation (FAR) and Department of Defense FAR Supplement (DFARS) apply only as specifically referenced herein. This Agreement is not intended to be, nor shall it be construed as, by implication or otherwise, a partnership, a corporation, or other business organization."

Terms such as "Team," "Team Members" and "program," etc. should also be defined in this article.

ARTICLE II: TERM

A. The Term of this Agreement

This Agreement commences upon the date of the last signature hereon and continues for the duration of the System Design and Development, Phase II. For planning purposes, the estimated period of performance for Phase II is date of award through 36 months. A down-select decision may occur at approximately 10 months into Phase II following SSLV PDR. Completion criteria for Phase II milestones are defined in Article IV, Payable Event Schedule and Deliverables.

B. Termination Provisions

Subject to a reasonable determination that this agreement will not produce beneficial results commensurate with the expenditure of resources, the Government may terminate this Agreement by written notice to the Team, provided that such written notice is preceded by consultation between the Parties. In the event of a termination of the Agreement, it is agreed that disposition of data developed under this Agreement, shall be in accordance with the provisions set forth in Articles IX, Data Rights. The Government and Team will negotiate in good faith a reasonable and timely adjustment of all outstanding issues between the Parties as a result of termination. Failure of the Parties to agree to a reasonable adjustment will be resolved pursuant to Article VII, Disputes.

C. Phase II Down-select

If multiple Phase II awards are granted, the Government may elect to down-select to a single contractor during Phase II. It is anticipated that this down-select decision would be made following SSLV PDR, which is expected to be accomplished by approximately 10 months into Phase II. Accordingly, the Schedule of Payments and Payable Milestones should support a planned down-select decision such that the milestone schedule provides a clean path to either conclude the Phase II program at CAV PDR or continue with the planned Phase II program.

D. Extending the Term

The Parties may extend by mutual written agreement the term of this Agreement if funding availability and research opportunities reasonably warrant. Phase III, Weapon Systems Demonstration, is anticipated to follow Phase II pending program status and funding availability. Any program extension shall be formalized through modification of the Agreement by the Agreements Officer and the Team Administrator.

ARTICLE III: STATEMENT OF OBJECTIVES

This article should also summarize the scope of the work and the business arrangement to which you are committing (as described in detail in this article, Statement of Objectives) by entering into this Agreement.

The Team will include here or reference here their proposed Task Description Document (TDD) and Integrated Master Schedule (IMS) in accordance with the guidance provided in the solicitation. The TDD describes the tasks that the Team must accomplish to be successful in this Design and Development phase (Phase II). The IMS provides a timeline for each significant task, indicating a planned start date and completion date, and includes specific events, milestones and accomplishments. The IMS should portray in a clear fashion the time relationship of Phase II tasks and identify the critical path of events. Consider the Government Phase II Statement of Objectives, the overall FALCON program goals and other guidance provided in the solicitation.

ARTICLE IV: PAYABLE EVENT SCHEDULE AND DELIVERABLES

A. Payment Schedule

The Team shall perform the work as generally identified throughout this document to include its attachments. The Team shall be paid for each Payable Milestone accomplished and delivered in

accordance with the Schedule of Payments and Payable Milestones and accomplishment criteria for the milestone events. Both the Schedule of Payments and the Funding Schedule may be revised or modified in accordance with subparagraph C of this article.

B. Schedule of Payments and Payable Milestones

The Team shall propose milestone accomplishment criteria and deliverables to be incorporated into this agreement. Reference Government provided accomplishments and criteria guidelines provided in solicitation as a starting point for your proposal.

C. Modifications

1. At any time during the term of the Agreement, progress or results may indicate that a change in the Statement of Objective/SOO and/or the Payable Milestones would be beneficial to the FALCON program objectives. Recommendations for modifications, including justifications to support any changes to the Statement of Objectives/SOO and/or the Payable Milestones, will be documented in a letter and submitted by the Team to the DARPA Program Manager with a copy to the DARPA Agreement Officer. This letter will detail the technical, chronological, and financial impact of the proposed modification to the research program. Any resultant modification is subject to mutual agreement of the parties. The Government is not obligated to pay for additional or revised Payable Milestones until the Payable Milestones Schedule is formally revised by the DARPA Agreements Officer and made part of this Agreement.

2. The DARPA Program Manager shall be responsible for the review and verification of milestone accomplishment criteria and any recommendations to revise or otherwise modify the Agreement Statement of Objectives/SOO, Schedule of Payments and Payable Milestones, or other proposed changes to the terms and conditions of this Agreement.

3. For minor or administrative Agreement modifications (e.g., changes in the paying office or appropriation data, changes to Government or Team personnel identified in the Agreement, etc.), DARPA shall make these types of changes unilaterally.

4. The Government will be responsible for effecting all modifications to this agreement.

ARTICLE V: AGREEMENT ADMINISTRATION

Administrative and contractual matters under this Agreement shall be referred to the following representatives of the parties:

DARPA: Mr. James B. Troutman, Agreements Officer, Tel: (703) 696-2408

Team: (INSERT NAME) (INSERT TITLE) (INSERT TELEPHONE NUMBER)

Technical matters under this Agreement shall be referred to the following representatives:

DARPA: Dr. Steve Walker, Program Manager, Tel: (703) 696-2377

Team: (INSERT NAME) (INSERT TITLE) (INSERT TELEPHONE NUMBER)

Either party may change its representatives named in this Article by written notification to the other party. The Government will effect the change as stated in subparagraph C.4 of Article IV above.

ARTICLE VI: OBLIGATION AND PAYMENT

A. Obligation

The Government's liability to make payments to the Team is limited to only those funds obligated under this Agreement or by amendment to the Agreement. DARPA may obligate funds to the Agreement incrementally.

B. Payments

1. The following information shall be included on each invoice:

Agreement Number
Invoice Number
A description of services performed
Quantity of service received or performed
The time of period covered by the invoice
Terms of Payment
Payment Office
Amount claimed

2. The Team shall document each Payable Milestone by submitting deliverables in accordance with the Payable Milestone Schedule and Accomplishment Criteria. The Team shall submit an original and one (1) copy of all invoices to the Agreements Officer for payment approval. After written verification of the accomplishment of the Payable Milestone by the DARPA Program Manager, and approval by the Agreements Officer, the invoices will be forwarded to the payment office within fifteen (15) calendar days of receipt of the invoices at DARPA. Payment approval for the final Payable Milestone will be made after reconciliation. Payments will be made by Defense Accounting Office, DFAS, Attention: Vendor Pay, 8899 East 56th Street, Indianapolis, IN 46249-1325 within fifteen (15) calendar days of DARPA's transmittal. Subject to change only through written Agreement modification, payment shall be made via electronic funds transfer to the Contractor's address set forth below:

3. Bank Account of Payee:

Bank:
Address:
Routing Transit Number:
Depositor Account Title:
Depositor Number:

4. Financial Records and Reports: The Team's relevant financial records associated with this Agreement are not subject to examination or audit by the Government, except as noted below,

since the confirmed accomplishment of the appropriate milestone completes the obligation of both parties.

5. Comptroller General Access to Records: To the extent that the total government payments under this Agreement exceed $5,000,000, the Comptroller General, at its discretion, shall have access to and the right to examine records of any party to the agreement or any entity that participates in the performance of this agreement that directly pertain to and involve transactions relating to, the agreement for a period of three (3) years after final payment is made. This requirement shall not apply with respect to any party to this agreement or any entity that participates in the performance of the agreement, or any subordinate element of such party or entity, that has not entered into any other agreement (contract, grant, cooperative agreement, or "other transaction") that provides for audit access by a government entity in the year prior to the date of this agreement. This paragraph only applies to any record that is created or maintained in the ordinary course of business or pursuant to a provision of law. The terms of this paragraph shall be included in all sub-agreements to the Agreement.

6. The contractor shall not incur any costs for any milestones beyond Milestone 4 and the Government shall not be liable for any costs incurred beyond Milestone 4. The contractor may not proceed with the performance of any milestone beyond Milestone 4 without the specific authorization of the Agreements Officer.

ARTICLE VII: DISPUTES

A. General

The Parties shall communicate with one another in good faith and in a timely and cooperative manner when raising issues under this Article.

B. Dispute Resolution Procedures

1. Any disagreement, claim or dispute between the Government and the Team concerning questions of fact or law arising from or in connection with this Agreement, and, whether or not involving an alleged breach of this Agreement, may only be raised under this Article.

2. Whenever disputes, disagreements, or misunderstandings arise, the Parties shall attempt to resolve the issue(s) involved by discussion and mutual agreement as soon as practicable. In no event shall a dispute, disagreement or misunderstanding which arose more than three (3) months prior to the notification made under subparagraph B.3 of this Article constitute the basis for relief under this article unless the Director of DARPA in the interests of justice waives this requirement.

3. Failing resolution by mutual Agreement, the aggrieved Party shall document the dispute, disagreement, or misunderstanding by notifying the other Party (through the DARPA Agreements Officer) in writing of the relevant facts, identify unresolved issues, and specify the clarification or remedy sought. Within five (5) working days after providing notice to the other Party, the aggrieved Party may, in writing, request a joint decision by the DARPA Director, Contract Management Office, and Representative of the Team (“Team Representative”). The other Party shall submit a written position on the matter(s) in dispute within thirty (30) calendar

days after being notified that a decision has been requested. The Director, Contract Management Office and the Team Representative shall conduct a review of the matter(s) in dispute and render a decision in writing within thirty (30) calendar days of receipt of such written position. Any such joint decision is final and binding.

4. In the absence of a joint decision, upon written request to the Director of DARPA, made within thirty (30) calendar days or upon unavailability of a joint decision under subparagraph B.3 above, the dispute shall be further reviewed. The Director of DARPA may elect to conduct this review personally or through a designee or jointly with a representative of the other Party who is a senior official of the Party. Following the review, the Director of DARPA or designee will resolve the issue(s) and notify the Parties in writing. Such resolution is not subject to further administrative review and, to the extent permitted by law, shall be final and binding.

ARTICLE VIII: PATENT RIGHTS

A. Definitions

1. "Invention" means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code.

2. "Made" when used in relation to any invention means the conception or first actual reduction to practice of such invention.

3. "Practical application" means to manufacture, in the case of a composition of product; to practice, in the case of a process or method, or to operate, in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is capable of being utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

4. "Subject invention" means any invention of a Team Member conceived or first actually reduced to practice in the performance of work under this Agreement.

B. Allocation of Principal Rights

The Team shall retain the entire right, title, and interest throughout the world to each subject invention consistent with this Article and 35 U.S.C. § 202. With respect to any subject invention in which the Team retains title, DARPA shall have a non-exclusive, nontransferable, irrevocable, paid-up license to practice or have practiced on behalf of the United States the subject invention throughout the world. Notwithstanding the above, the Team may elect to provide full or partial rights that it has retained to Team Members or other parties.

C. Action to Protect the Government's Interest

1. The Team agrees to execute or to have executed and promptly deliver to DARPA all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the Consortium elects to retain title and to enable the Government to obtain patent protection throughout the world in that subject invention.

2. The Team shall include, within the specification of any United States patent application and any patent issuing thereon covering a subject invention, the following statement: "This invention was made with Government support under Agreement No. HR0011-04-9-XXXX awarded by DARPA. The Government has certain rights in the invention."

D. Lower Tier Agreements

The Team shall include this Article, suitably modified, to identify the Parties, in all subcontracts or lower tier agreements, regardless of tier, for experimental, development, or research work.

E. Reporting on Utilization of Subject Inventions

The Team agrees to submit a final report on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Team or its licensees or assignees. The report shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Team subcontractor(s), and such other data and information as the agency may reasonably specify. The Team also agrees to provide additional reports as may be requested by DARPA in connection with any march-in proceedings undertaken by DARPA in accordance with paragraph G of this Article. Consistent with 35 U.S.C. § 202(c)(5), DARPA agrees it shall not disclose such information to persons outside the Government without permission of the Team.

F. Preference for American Industry

Notwithstanding any other provision of this Article, the Team agrees that it shall not grant to any person the exclusive right to use or sell any subject invention in the United States or Canada unless such person agrees that any product embodying the subject invention or produced through the use of the subject invention shall be manufactured substantially in the United States or Canada. However, in individual cases, the requirements for such an agreement may be waived by DARPA upon a showing by the Team that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that, under the circumstances, domestic manufacture is not commercially feasible.

G. March-in Rights

The Team agrees that, with respect to any subject invention in which it has retained title, DARPA has the right to require the Team, an assignee, or exclusive licensee of a subject invention to grant a non-exclusive license to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the Team, assignee, or exclusive licensee refuses such a request, DARPA has the right to grant such a license itself if DARPA determines that:

1. Such action is necessary because the Team or assignee has not taken effective steps, consistent with the intent of this Agreement, to achieve practical application of the subject invention;

2. Such action is necessary to alleviate health or safety needs that are not reasonably satisfied by the Team, assignee, or their licensees;

3. Such action is necessary to meet requirements for public use and such requirements are not reasonably satisfied by the Team, assignee, or licensees; or

4. Such action is necessary because the agreement required by paragraph (I) of this Article has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such Agreement.

ARTICLE IX: DATA RIGHTS

Government Purpose Rights in all data delivered under this System Design and Development Phase (Phase II) agreement is required. The following standard Government Data Rights Article is offered as a point of departure in this case.

A. Definitions

1. "Government Purpose Rights", as used in this article, means rights to use, duplicate, or disclose Data, in whole or in part and in any manner, for Government purposes only, and to have or permit others to do so for Government purposes only.

2. "Unlimited Rights", as used in this article, means rights to use, duplicate, release, or disclose, Data in whole or in part, in any manner and for any purposes whatsoever, and to have or permit others to do so.

3. "Data", as used in this article, means recorded information, regardless of form or method of recording, which includes but is not limited to, technical data, software, trade secrets, and mask works. The term does not include financial, administrative, cost, pricing or management information and does not include subject inventions included under Article VIII.

4. "Limited rights" as used in this article means the rights to use, modify, reproduce, release, perform, display, or disclose technical data, in whole or in part, within the Government. The Government may not, without the written permission of the party asserting limited rights, release or disclose the data outside the Government, use the technical data for manufacture, or authorize the technical data to be used by another party.

B. Allocation of Principal Rights

1. The Parties agree that in consideration for Government funding, the Team intends to reduce to practical application items, components and processes developed under this Agreement. It is the intent of this Agreement to pursue research and technology where risk and payoff are both very high and where success may provide dramatic advances for traditional military roles and missions. In regards to Data Rights, the objective is to agree to the mutually beneficial FALCON Program Intellectual Property Rights which both optimizes industries commitment of resources to the program and fulfils the Government requirement for a competitive environment which maintains competitive pricing, and maintainability options. In as much, the contractor is requested to consider the following when proposing the IP terms.

(a) The selected HWS performer(s) will be responsible for developing and coordinating ECAV/SLV interface processes and management plans in Phase II to ensure that adequate interface controls are openly established and maintained. The SLV and HWS performers shall arrange for the exchange of physical and functional interface requirements throughout Phase II in preparation for an integrated SLV/ECAV flight test in Phase III. Phase II, Task 1 performers shall be prepared for the formal exchange of technical information with HWS Phase II performers, and shall be willing to negotiate and implement non-disclosure agreements. The performers will ultimately be responsible for successful ECAV/SLV integration. The Government's objective of conducting an integrated ECAV/SLV flight demonstration in Phase III will require that the ECAV/SLV interface data be available to the Government with unlimited rights.

(b) For Phases II and beyond the Government requires, at a minimum, having Government Purposes Rights (GPR) to Technical Data for items such as:

- 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. Examples of the types of data include test results and interface definitions
- Interface Definitions – adequate to enable efficient and accurate ECAV/SLV systems integration and architecture
- 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.

A major product of Phase II will be a detailed ECAV/SLV demonstration system design. The offeror's Phase II proposed agreement must reflect willingness to share design detail with the winning HWS contractor(s) to ensure system design closure and sufficiently detailed and accurate interface design and management.

2. The Team agrees to retain and maintain in good condition until (INSERT NUMBER OF YEARS) (___) years after completion or termination of this Agreement, all Data necessary to achieve practical application. In the event of exercise of the Government's March-in Rights as set forth under Article VIII or subparagraph B.3 of this article, the Team, acting through its Team Lead, agrees, upon written request from the Government, to deliver at no additional cost to the Government, all Data necessary to achieve practical application within sixty (60) calendar days from the date of the written request. The Government shall retain Unlimited Rights, as defined in paragraph A above, to this delivered Data.

3. The Team agrees that, with respect to data necessary to achieve practical application, DARPA has the right to require the Team to deliver all such data to DARPA in accordance with its reasonable directions if DARPA determines that:

(a) Such action is necessary because the Team or assignee has not taken effective steps, consistent with the intent of this Agreement, to achieve practical application of the technology developed during the performance of this Agreement;

(b) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the Team, assignee, or their licensees; or

(c) Such action is necessary to meet requirements for public use and such requirements are not reasonably satisfied by the Team, assignee, or licensees.

4. With respect to data delivered pursuant to Attachment 3, Reports (and listed below), the Government shall receive Government Purpose Rights, as defined in paragraph A above. With respect to all Data delivered, in the event of the Government's exercise of its right under subparagraph B.2 of this article, the Government shall receive Unlimited Rights.

C. Marking of Data

Pursuant to paragraph B above, any data delivered under this Agreement shall be marked specifically with the appropriate disclosure legend:

D. Lower Tier Agreements

The Team shall include this Article, suitably modified to identify the Parties, in all subcontracts or lower tier agreements, regardless of tier, for experimental, developmental, or research work.

ARTICLE X: FOREIGN ACCESS TO TECHNOLOGY

(NOTE: It is DARPA's intention to restrict this technology from flowing overseas without approval to ensure the economic and security issues have been resolved prior to any release. If the offerors desire proposed changes to this article they should explain the rationale completely.)

This Article shall remain in effect during the term of the Agreement and for five years thereafter.

A. Definitions

"Foreign Firm or Institution" means a firm or institution organized or existing under the laws of a country other than the United States, its territories, or possessions. The term includes, for purposes of this Agreement, any agency or instrumentality of a foreign government; and firms, institutions or business organizations that are owned or substantially controlled by foreign governments, firms, institutions, or individuals.

"Know-How" means all information including, but not limited to discoveries, formulas, materials, inventions, processes, ideas, approaches, concepts, techniques, methods, software,

programs, documentation, procedures, firmware, hardware, technical data, specifications, devices, apparatus and machines.

"Technology" means discoveries, innovations, Know-How and inventions, whether patentable or not, including computer software, recognized under U.S. law as intellectual creations to which rights of ownership accrue including, but not limited to, patents, trade secrets, maskworks, and copyrights developed under this Agreement.

B. General

The Parties agree that research findings and technology developments in (INSERT TYPE OF TECHNOLOGY) technology may constitute a significant enhancement to the national defense, and to the economic vitality of the United States. Accordingly, access to important technology developments under this Agreement by Foreign Firms or Institutions must be carefully controlled. The controls contemplated in this Article are in addition to, and are not intended to change or supersede, the provisions of the International Traffic in Arms Regulation (22 CFR pt. 121 et seq.), the DoD Industrial Security Regulation (DoD 5220.22-R) and the Department of Commerce Export Regulation (15 CFR pt. 770 et seq.)

C. Restrictions on Sale or Transfer of Technology to Foreign Firms or Institutions

1. In order to promote the national security interests of the United States and to effectuate the policies that underlie the regulations cited above, the procedures stated in subparagraphs C.2, C.3, and C.4 below shall apply to any transfer of Technology. For purposes of this paragraph, a transfer includes a sale of the company, and sales or licensing of Technology. Transfers do not include:

(a) sales of products or components, or
(b) licenses of software or documentation related to sales of products or components, or
(c) transfer to foreign subsidiaries of the Contractor for purposes related to this Agreement, or
(d) transfer which provides access to Technology to a Foreign Firm or Institution which is an approved source of supply or source for the conduct of research under this Agreement provided that such transfer shall be limited to that necessary to allow the firm or Institution to perform its approved role under this Agreement.

2. The Team shall provide timely notice to the Government of any proposed transfers from the Team of technology developed with Government funding under this Agreement to Foreign Firms or Institutions. If the Government determines that the transfer may have adverse consequences to the national security interests of the United States, the Team, its vendors, and the Government shall jointly endeavor to find alternatives to the proposed transfer which obviate or mitigate potential adverse consequences of the transfer but which provide equivalent benefits to the Team.

3. In any event, the Team shall provide written notice to the DARPA Program Manager and Agreements Officer of any proposed transfer to a foreign firm or institution at least sixty (60) calendar days prior to the proposed date of transfer. Such notice shall cite this Article and shall state specifically what is to be transferred and the general terms of the transfer. Within thirty (30) calendar days of receipt of the Team's written notification, the DARPA Agreements

Administrator shall advise the Team whether it consents to the proposed transfer. In cases where the Government does not concur or sixty (60) calendar days after receipt and the Government provides no decision, the Team may utilize the procedures under Article VII, Disputes. No transfer shall take place until a decision is rendered.

4. Except as provided in subparagraph C.1 above and in the event the transfer of Technology to Foreign Firms or Institutions is approved by the Government, the Team shall (a) refund to the Government funds paid for the development of the Technology and (b) negotiate a license with the Government to the Technology under terms that are reasonable under the circumstances.

D. Lower Tier Agreements

The Team shall include this Article, suitably modified, in all subcontracts or lower tier Agreements, for experimental, developmental, or research work.

ARTICLE XI: CIVIL RIGHTS ACT

This Agreement is subject to the requirements of Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. 2000-d) relating to nondiscrimination in employment.

ARTICLE XII: GOVERNMENT FURNISHED EQUIPMENT PROPERTY, INFORMATION FACILITIES AND SERVICES

The government does not anticipate the need for any Government Furnished Equipment/Property/Information in the performance of this agreement.

The following Government Equipment property, information facilities, and services shall be provided upon the written approval of the cognizant contracting officers:

(Offeror will list all desired GFE, GFP, GFI, GFF, and GFS.)

ARTICLE XIII: TITLE AND DISPOSITION OF PROPERTY

A. Definitions

In this article "property" means any tangible personal property other than property actually consumed during the execution of work under this agreement.

B. Title to Property

Contractor may acquire property under this Agreement, with Government funds, which is necessary to further the research and development goals of the program. Title to property shall vest in the Contractor upon acquisition with no further obligation of the Parties unless otherwise determined by the DARPA Agreements Administration in paragraph C below. Any item of property with a cumulative acquisition value greater than $15,000 shall require prior written approval by the DARPA Agreement Administrator with the exception of the items identified below.

Items of Property With a Cumulative Acquisition Value Greater Than $15K

Item Description	Qty	Total Value

C. Disposition of Property

At the completion of the term of this Agreement, the Contractor shall provide the Government a list of any item of property with an acquisition value greater than $5,000. Upon written direction from the Government, the items of property set forth therein shall be disposed of in the following manner:

1. Purchased by the contractor at an agreed-upon price, the price to represent fair market value, with the proceeds of the sale being returned to DARPA; or
2. Transferred to a Government research facility with title and ownership being transferred to the Government; or
3. Donated to a mutually agreed University or technical learning center for research purposes; or
4. Any other DARPA-approved disposition procedure.

D. Lease vs. Buy Considerations

The Government fully expects prime/subcontractors/teammates to make maximum use of their capital equipment as it applies to accomplishing FALCON activities. The Contractor shall consider leasing versus buying any acquisition item having a cumulative total above $2500.

E. Delivered Hardware

Although the Government does not intend to take title to any FALCON components, or other prototypes, below is a list identifying all prototypes being developed under this agreement.

(Contractor shall complete)

ARTICLE XIV: SECURITY

This program shall be provided protection as required by the appropriate security requirement required by the DD Form 254 (to be completed by the contractor and submitted with the proposed Agreement). The highest level of classification involved in the performance of the agreement is Top Secret. It is the government's position that the highest security classification of any item deliverable as a result of this agreement is Secret. This document is unclassified.

ARTICLE XV: REPRESENTATIONS AND FEDERAL ACQUISITION REGULATIONS

The Contractor, as an experienced government contractor, has internal systems in place which are designed to comply with the legal and regulatory requirements applicable to government contracts including such certification as are required by ethics and procurement integrity, small business, women owned and small disadvantaged business, affirmative action, and

environmental law. None of the participant in this contractual effort are currently debarred or suspended from doing business with the Government.

ARTICLE XVI: SUBCONTRACTORS

The Contractor shall make every effort to satisfy the intent of competitive biding of subcontracts to the extent practical.

ARTICLE XVII: EXECUTION

This Agreement constitutes the entire agreement of the Parties and supersedes all prior and contemporaneous agreements, understandings, negotiations and discussions among the Parties, whether oral or written, with respect to the subject matter hereof. This Agreement may be revised only by written consent of the Contractor and the DARPA Agreements Officer. This Agreement, or modifications thereto, may be executed in counterparts each of which shall be deemed as original, but all of which taken together shall constitute one and the same instrument.

ARTICLE XVIII: WORK BREAKDOWN STRUCTURE BUDGET SUMMARY UPDATES

The Work Breakdown Structure (WBS) budget summary as proposed by the contractor is included as ATTACHMENT 8 to this Agreement. Throughout performance it is envisioned that this WBS budget summary will evolve as progress is made by the contractor in performance hereunder. As the program evolves this summary shall be updated no less frequently than every six (6) months or sooner if circumstances warrant such a change. It is intended that the WBS budget summary will serve as a living document reflecting the most current status of the relevant technologies and planned activities under the program.

ARTICLE XIX: PAYABLE MILESTONE SCHEDULE

Payment Schedule

The Contractor shall perform the work as described by this agreement. The Contractor shall be paid for its efforts based on accomplishing the Payable Milestones. The Schedule of Payments and Payable Milestones set forth below.

The Contractor shall propose the content, timing, for all payable milestones. The milestones and meeting will be scheduled to optimize cost and schedule. Both the Schedule of Payments and the Funding Schedule set forth below may be revised in accordance with Article III. Below, the Contractor shall cross-reference the payable milestone activities (task) identified in the TDD and IMS to the maximum extent possible, leading up to the milestone accomplishment criteria, identify the milestone accomplishment criteria, the payment amount and schedule. The proposed payable milestones shall reflect segregated program costs to Milestone 4 and from Milestone 4 to program completion.

Schedule of Payments and Payable Milestones

1. System Design and Development Phase II

Task	Payable Milestone	Payment Amount	Payment Schedule

(Contractor Shall Complete)

The DARPA Program Manager shall be responsible for the review and verification of milestone accomplishment criteria and any recommendation to revise or otherwise modify the Agreement.

ARTICLE XX: COMPLETION CRITERIA

The following completion criteria define the successful completion of the System Design and Development Phase II effort.

(Contractor Complete)

ARTICLE XXI: TECHNICAL DATA EXCHANGE

The Contractor shall interact with and assist the Task 2 HWS Contractor(s) in developing and coordinating ECAV/SLV interface processes and management plans in Phase II. To establish adequate interface management, the Contractor must share a sufficient level of design detail and interface data with all Task 2 HWS Contractor(s). The Contractor shall interact with the HWS contractor(s) to assist in developing an Interface Control Document to openly establish and maintain appropriate interfaces between HWS and SLV Contractors. To implement exchange of technical interface data, the Contractor must be willing to negotiate and implement non-disclosure agreements with Task 2 HWS Contractor(s). Technical interface data exchanged with Task 2 HWS Contractor(s) shall include sufficient design detail to ensure proper system integration and design closure. The Contractors shall mutually arrange for the formal exchange of interfaces to include physical and functional interface requirements throughout Phase II in preparation for an integrated SLV/ECAV flight test in Phase III. The FALCON Government team shall be present at formal technical interface data exchanges. The Contractor shall provide Unlimited Rights to all ECAV/SLV interface data.

ATTACHMENT 1

INTEGRATED MASTER SCHEDULE

(To be provided by the Contractor)

INTEGRATED MASTER PLAN

(To be provided by the Contractor)

REPORT REQUIREMENTS

A. MONTHLY REPORT

On or before ninety (30) calendar days after the effective date of the Agreement and monthly thereafter throughout the term of the Agreement, ABC shall submit or otherwise provide a monthly report. Two (2) copies shall be submitted or otherwise provided to the DARPA Program Manager, one (1) copy shall be submitted or otherwise provided to the DARPA Agreements Officer, and one (1) copy shall be submitted or otherwise provided to DARPA/(INSERT PROGRAM OFFICE), Attn: Assistant Director for Program Management. The report will have two (2) major sections.

1. Technical Status Report. The technical status report will detail technical progress to date and report on all problems, technical issues, major developments, and the status of external collaborations during the reporting period.

2. Business Status Report. The business status report shall provide summarized details of the resource status of this Agreement, including the status of ABC contributions. This report will include a monthly accounting of current expenditures as outlined in the Annual Program Plan. Any major deviations, over plus or minus 10%, shall be explained along with discussions of the adjustment actions proposed. The report will also include an accounting of any interest earned on Government funds. ABC is reminded that interest in amounts greater than $250 per year is not expected to accrue under this Agreement. In the event that this interest does accrue on Government funds, ABC is required to provide an explanation for the accrual in the business report. Depending on the circumstances, the Payable Milestones may require adjustment.

B. ANNUAL PROGRAM PLAN DOCUMENT

ABC shall submit or otherwise provide to the DARPA Agreements Officer's Representative and DARPA Agreements Officer one (1) copy each of a report which describes the Annual Program Plan as described in Article III, Section B. This document shall be submitted not later than thirty (30) calendar days following the Annual Site Review as described in Article III, Section B.

C. SPECIAL TECHNICAL REPORTS

As agreed to by ABC and the DARPA Agreements Officer's Representative, ABC shall submit or otherwise provide to the DARPA Agreements Officer's Representative and DARPA Agreements Officer one (1) copy each of special reports on significant events such as significant target accomplishments by ABC, significant tests, experiments, or symposia.

D. PAYABLE MILESTONES REPORTS

ABC shall submit or otherwise provide to the DARPA Agreements Officer's Representative and DARPA Agreements Officer documentation describing the extent of accomplishment of Payable Milestones. This information shall be as required by Article V, paragraph B and shall be

sufficient for the DARPA Agreements Officer's Representative to reasonably verify the accomplishment of the milestone of the event in accordance with the Statement of Work.

E. FINAL REPORT (NOTE: The Final Report is included in the last Payable Milestone for the completed Agreement)

1. ABC shall submit or otherwise provide a Final Report making full disclosure of all major developments by ABC upon completion of the Agreement or within sixty (60) calendar days of termination of this Agreement. With the approval of the DARPA Agreements Officer's Representative, reprints of published articles may be attached to the Final Report. Two (2) copies shall be submitted or otherwise provided to the DARPA Agreements Officer's Representative, one (1) copy shall be submitted or otherwise provided to the DARPA Agreements Officer, and one (1) copy shall be submitted or otherwise provided to DARPA/(INSERT PROGRAM OFFICE), Attn: Assistant Director for Program Management. One (1) copy shall be submitted to the Defense Technical Information Center, Attn: DTIC-BCS, 8725 John J. Kingman Road, Suite 0944, Fort Belvoir, VA 22060-0944.

2. The Final Report shall be marked with a distribution statement to denote the extent of its availability for distribution, release, and disclosure without additional approvals or authorizations. The Final Report shall be marked on the front page in a conspicuous place with the following marking:

> "DISTRIBUTION STATEMENT B. Distribution authorized to U.S. Government agencies only to protect information not owned by the U.S. Government and protected by a contractor's "limited rights" statement, or received with the understanding that it not be routinely transmitted outside the U.S. Government. Other requests for this document shall be referred to DARPA/Technical Information Officer."

F. REPORT ON LONG LEAD ITEMS FOR PHASE III

ABC shall submit a list of long lead items for Phase III activities and demonstrations that may require procurement during Phase II. The report shall include an estimated procurement date and estimated cost of each item. One (1) copy shall be updated and submitted to the DARPA Program Manager every six months throughout the term of the Agreement.

ATTACHMENT 4

SCHEDULE OF PAYMENTS AND PAYABLE MILESTONES

TASK	MONTH	PAYABLE MILESTONES	PAYMENT
1			

ATTACHMENT 5

LIST OF GOVERNMENT AND ABC REPRESENTATIVES

GOVERNMENT:

Dr. Steve Walker
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3701 N. Fairfax Drive
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ABC:

(NAME)
(ABC)
(ADDRESS)
phone:
FAX:
Email:

(NAME)
(ABC)
(ADDRESS)
phone:
FAX:
Email:

ATTACHMENT 6

DD FORM 254

TASK 1, May 07, 2004

ATTACHMENT 7

DARPA AGREEMENT AUTHORITY &
SECTION 845 OF 1994 NATIONAL DEFENSE AUTHORIZATION ACT

(THIS WILL NOT BECOME PART OF THE AGREEMENT)

TASK 1, May 07, 2004
ATTACHMENT 8

Work Breakdown Structure Budget Summary

To be completed by the contractor (reference Table 4.2a in solicitation)

7.0 INSTRUCTIONS FOR SUBMITTING CLASSIFIED INFORMATION

Security classification guidance in the form of a DD Form 254 (DoD Contract Security Classification Specification) will not be provided at this time since DARPA is soliciting ideas only. After reviewing incoming proposals, if a determination is made that an agreement/contract award may result in access to classified information, a DD Form 254 will be issued upon agreement/contract award.

If the Offeror chooses to submit a classified proposal, the Offeror must first receive the permission of the Original Classification Authority to use their information in replying to this BAA. In addition, Offerors 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 it proposes.

7.1 CLASSIFIED INFORMATION SUBMISSION GUIDANCE

Classified submissions shall be in accordance with the following sections.

7.1.1 Collateral Classified 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 only be mailed via U.S. Postal Service (USPS) Registered Mail or U.S. Postal Service 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 address to:

Defense Advanced Research Projects Agency
ATTN: Tactical Technology Office
Reference: FALCON BAA 03-35
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 should be hand carried via an authorized, two-person courier team to the DARPA CDR.

7.1.2 SPECIAL ACCESS PROGRAM (SAP) INFORMATION

Contact the DARPA Program Security Support Center (PSSC) at 703-812-1962/1970 for further guidance and instructions prior to transmitting SAP information to DARPA. All Top Secret SAP, must be transmitted via approved methods for such material. Consult the DoD Overprint to the National Industrial Security Program Operating Manual for further guidance. It is strongly recommended that you coordinate the transmission of SAP material and information with the DARPA PSSC *prior to transmission*.

7.1.3 SENSITIVE COMPARTMENTED INFORMATION (SCI) DATA

Contact the DARPA Special Security Contact Office (SSCO) at 703-812-1993/1994 for the correct SCI courier address and instructions. All SCI should be transmitted through your servicing Special Security Officer (SSO) / Special Security Contact Officer (SSCO). All SCI data must be transmitted through SCI channels only (i.e., approved SCI Facility to SCI facility via secure fax).

8.0 ACROYNMS

ATP	Authorization to Proceed
CAV	Common Aero Vehicle
CAV-DS	Common Aero Vehicle Demonstration System
CAV-OS	Common Aero Vehicle Operational System
CDR	Critical Design Review
CONOPS	Concept of Operations
CONUS	Continental United States (48 contiguous states)
DARPA	Defense Advanced Projects Agency
DITL	Day-In-The-Life
DoD	Department of Defense
DPM	Deputy Program Manager
ECLV-DS	Enhanced CAV Launch Vehicle Demonstration System
ECLV-OS	Enhanced CAV Launch Vehicle Operational System
FALCON	Force Application and Launch from CONUS
FAR	Federal Acquisition Regulations
FTS	Flight Termination System
HCV-DS	Hypersonic Cruise Vehicle Demonstration System
HCV-OS	Hypersonic Cruise Vehicle Operational System
HDBT	Hardened and Deeply Buried Targets
HWS	Hypersonic Weapons System
IAD	Integrated Air Defenses
ICD	Interface Control Document
IMS	Integrate Master Schedule
IR&D	Independent Research and Development
LEO	Low Earth Orbit
NASA	National Aeronautics and Space Administration
OCONUS	Outside Continental United States
ORS	Operationally Responsive Spacelift
OTA	Other Transaction Authority

PDR	Preliminary Design Review
PM	Program Manager
ROM	Rough Order of Magnitude
SDD	Systems Development and Demonstration
SDR	System Design Review
SLV	Small Launch Vehicle
SLV-DS	Small Launch Vehicle Demonstration System
SLV-OS	Small Launch Vehicle Operational System
SOW	Statement of Work
SPS	Systems Performance Specification
SSLV-DS	Small Satellite Launch Vehicle – Demonstration System
SSLV-OS	Small Satellite Launch Vehicle – Operational System
TDD	Task Description Document
TRL	Technology Readiness Level
TSTO	Two-Stage-to-Orbit
VAFB	Vandenburg Air Force Base
WAASM	Wide Area Autonomous Search Munition
WBS	Work Breakdown Structure

APPENDIX I

Future CAV/ORS System Operational Objectives derived from related Joint Requirements Oversight Council (JROC) validated Mission Need Statements

CAV Operational Objectives	ORS Operational Objectives
Hold targets at risk on timelines consistent with commander's intent ▪ High payoff targets - Hard and deeply buried targets - Time sensitive targets - Mobile/relocatable targets - Chemical, biological, radiological, and nuclear production, storage, and launch facilities - Command and control nodes - Integrated air defenses ▪ Strike throughout the depth of an adversary's territory ▪ All azimuth attack ▪ Response times measured in minutes/hours <u>Flexible employment</u> ▪ Operations across the spectrum of conflict ▪ Preplanned and emergent targets ▪ Standoff strike <u>Reliable, accurate, conventional strike</u> ▪ Improved reliability and accuracy to deliver appropriate strike options to meet planned mission effectiveness criteria ▪ Minimize collateral damage ▪ Positive control <u>Linkage to accurate, complete, timely ISR</u> ▪ Rapid targeting/retargeting ▪ In-flight navigational updates ▪ In-flight retargeting ▪ Defense avoidance <u>Survivable</u> ▪ Operate effectively in the defense environment - Defeat anti-access threats - Overcome anti-access threats ▪ Operate in man-made environments (i.e., nuclear, chemical, biological, electromagnetic) ▪ Operate in hostile information operations	<u>Responsive transport</u> ▪ Launch within hours of call-up ▪ Conduct military operations within hours of reaching orbit ▪ Responsive to dynamic threat environment ▪ Responsive to changing mission requirements ▪ Responsive to increased operational tempos/utilization rates <u>Maneuverable</u> ▪ Support the achievement of any earth-centered orbit in 24 hours or less (near-term) ▪ Maneuver from one orbit to any other orbit in less than 48 hours from call-up (far-term) <u>Operable</u> ▪ Minimize operational restrictions due to weather, ranges, and space environment ▪ Reliable, supportable, maintainable, and robust enough to generate required mission rates ▪ Capability to meet required turn-around times (reusable vehicles) <u>Economical</u> <u>Survivable</u> ▪ Overcome threats posed by adversaries ▪ Survive repeated and/or long-term exposure to the space environment <u>Interoperable</u> ▪ Components interoperable with joint and allied operations concepts, command and control concepts, equipment and facilities ▪ Interoperable with NASA and commercial space facilities and equipment ▪ Meet C4ISR Joint Technical Architecture standards <u>Flexible</u>

environment (e.g., electronic warfare, C2 warfare, information warfare) ▪ Operate effectively in various meteorological, oceanographic, and space weather conditions <u>Affordable</u> ▪ Low life cycle costs ▪ Minimal additional operations, maintenance, support, and security manpower ▪ Maximize existing DoD infrastructure <u>Robust global strike capability</u> ▪ Multi-theater ▪ Global range from CONUS ▪ Minimal over flight ▪ Rapid reload ▪ Sustainable, reliable, and maintainable	▪ Possess capability to orbit a variety of payloads ▪ Support multiple theaters with possibly conflicting and simultaneous requirements