



EXACTO

EXtreme ACcuracy Tasked Ordnance Program

Broad Agency Announcement (BAA) Solicitation 08-19

DATE: 21 March 2008

**Defense Advanced Research Projects Agency
DARPA/INFORMATION PROCESSING TECHNIQUES OFFICE (IPTO)
3701 N. Fairfax Drive
Arlington, VA 22203-1714**

Table of Contents

Part One: Overview Information	3
Part Two: Full Text of Announcement	
Sec. I - Funding Opportunity Description.....	4
Program Goals	4
Phase I Objectives.....	6
Phase II Objectives	8
Phase III Objectives	8
Phase I Schedule and Deliverables	8
Program Metrics.....	11
Sec. II - Award Information.....	12
Sec. III - Eligibility Information	12
Eligible Applicants.....	12
Cost Sharing and Matching.....	14
Sec. IV - Application and Submission Information.....	14
Address to Request Application Package	14
Content and Form of Application Submission.....	15
Proposal Information	15
Unclassified Submissions	15
Classified Submissions	16
Additional Submission Information.....	17
Proposal Format.....	18
Submission Dates and Times	25
Sec. V - Application Review Information	25
Evaluation Criteria	25
Review and Selection Process	29
Sec. VI - Award Administration Information	30
Award Notices.....	30
Administrative and National Policy Requirements.....	30
Intellectual Property.....	30
Human Use.....	32
Animal Use	33
Publication Approval	33
Export Control	34
Subcontracting	35
Central Contract Registration (CCR).....	35
On-Line Representations and Certifications (ORCA).....	35
Wide-Area Workflow (WAWF)	35
I-Edison.....	35
Reporting.....	35
Sec. VII - Agency Contacts	36
Sec. VIII - Other Information.....	36

Part One: Overview Information

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Information Processing Techniques Office (IPTO)
- **Funding Opportunity Title** – EXACTO
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – Broad Agency Announcement (BAA) 08-19
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** (N/A)
- **Dates** –
 - **Proposal Due Date: 05 May 2008**
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Types of instruments that may be awarded** – Procurement contract or Other Transaction Agreement. Grants and cooperative agreements will not be awarded under this solicitation.
- **Agency technical contact:**
 - Mr. Lyndall Beamer
 - DARPA/IPTO
 - ATTN: BAA 08-19
 - 3701 North Fairfax Drive
 - Arlington, VA 22203-1714
 - Fax: (703) 812-5059
 - Electronic mail: BAA08-19@darpa.mil

Part Two: Full Text of Announcement

I. FUNDING OPPORTUNITY DESCRIPTION

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

The Defense Advanced Research Projects Agency (DARPA) is seeking innovative solutions that will expand the knowledge base and design capabilities for the EXtreme ACcuracy Tasked Ordnance (EXACTO) program. The use of a BAA solicitation allows a wide range of innovative ideas and concepts. The offeror(s) will have the flexibility to develop a tailored program plan that best advances the EXACTO program goals.

The EXACTO Program is an advanced technology development and demonstration program to create a guided, actively controlled 50-caliber sniper rifle system with significantly improved range and accuracy over the current systems. **Specific system performance objectives (e.g. range, accuracy, and target speed) are classified.** The EXACTO program will be conducted in three phases. During the first phase, one or more offerors will be selected to develop their EXACTO system preliminary design, conduct component risk reduction, and perform a Monte Carlo hardware-in-the-loop simulation showing that their design can meet the program's performance objectives. In the second phase, one or more contractors will conduct detailed design, additional risk reduction, prototype system fabrication, and live fire prototype testing. The third phase will involve further prototype system operational testing. DARPA is only interested in full system solutions in response to this BAA. Technology developers with expertise in specific component areas are encouraged to team with an overall system developer. DARPA is soliciting proposals covering all three phases. The cost estimates and plans for Phases II and III will be updated by the end of Phase I. Funding decisions for subsequent phases will be based on a proposal update at the end of Phase I and the satisfaction of programmatic and technical go/no-go criteria, among other considerations.

DARPA seeks innovative proposals for end-to-end system solutions for EXACTO. Technologies of interest may include: fin-stabilized projectiles, spin-stabilized projectiles, internal and/or external aero-actuation control methods, projectile guidance technologies, tamper proofing, small stable power supplies, and advanced sighting and optical resolution technologies. Other advanced technologies may also be developed and demonstrated as required by the architectures proposed by offerors.

A. Program Goals

The ability to more accurately prosecute targets at significantly longer range would provide a dramatic new capability to the US military. The use of an actively controlled bullet will make it possible to counter environmental effects such as crosswinds and air

density, and prosecute both stationary and moving targets while enhancing shooter covertedness. This capability would have the further benefit of providing increased accuracy and range while reducing training requirements.

The Government's point of departure system architecture consists of: (i) a sighting system that aids the shooter in identifying the target; (ii) a guidance system that provides information to direct the projectile to the target regardless of environmental or target perturbations; (iii) an actively controlled 50 caliber projectile that uses this information for real time directional flight control; and (iv) a 50 caliber rifle. Technologies of interest may include: fin-stabilized projectiles, spin-stabilized projectiles, internal and/or external aero-actuation control methods, projectile guidance technologies, tamper proofing, small stable power supplies, and advanced sighting, optical resolution and clarity technologies. Other advanced technologies may also be developed and demonstrated as required by the architectures proposed by offerors. The Government is interested in an end-to-end system solution for EXACTO.

The EXACTO program seeks to 1) develop a robust system design that meets the established performance objectives and has significant military utility; 2) identify and mature critical enabling technologies; and 3) validate through simulation, ground test and live fire demonstration that an EXACTO system solution is achievable. A number of the EXACTO performance objectives are classified. These values are provided in a classified addendum to this BAA. See Section IV-A above for instructions on receiving the classified addendum.

DARPA has established the following non-tradeable requirements for the EXACTO system:

- Daytime range: (See classified addendum)
- Nighttime range: (See classified addendum)
- Maximum crosswinds: (See classified addendum)
- Maximum target speed: (See classified addendum)
- Accuracy (1 σ radius): (See classified addendum)
- Ability to adequately identify target at maximum range
- Does not expose the shooter more than the current M107 system (minimal firing signature, covertedness)
- Energy and momentum of projectile equal to current 50-cal sniper round (Ball, M33) at all ranges beyond 300 meters

DARPA has also identified the following attributes that are highly desirable for the system but are not requirements. These are listed in descending order of importance.

- No heavier than 46 lbs and with similar volume to current two-man sniper system (Based on M107 rifle with Leupold scope, magazine loaded with 8 rounds, M551 Gold Ring observation telescope with tripod, AN/PAS 13C heavy thermal weapon sight, AN/PVS 14 monocular night vision device, sniper's data book [including slide rules and data cards])
- Secure and tamper-proof design to prevent misuse and exploitation of any portion of the system if obtained by an adversary

- >10 year shelf life of cartridges
- Significantly reduced signature compared to current M107 sniper system
- Sufficient power to support 14 hour mission (i.e. longest day)
- Inherently producible
- Inherently low cost
- Fire and forget round
- Greater range, target velocity, and accuracy than non-tradeable requirements
- Uses current rifles (M82A1 or M107) without modification (ex. sights)
- Permits use of standard ammunition (Ball, M33)
- No worse accuracy at all ranges than current round
- Multiple round capability

Offerors are asked to explore the design space for the non-tradeable and desired attributes. The Government acknowledges that some of these desirable attributes may be mutually exclusive or conflicting. The offeror should propose and evolve an EXACTO prototype system design that best balances military utility, risk, program affordability, and schedule. Based on the EXACTO prototype system design, offerors will derive a Technology Development and Assessment Plan (TDAP) that outlines an overall risk reduction strategy for the EXACTO system culminating in live fire demonstration in Phase II.

The EXACTO program will be conducted in three phases:

- Phase I: Component Development, Preliminary Design and Performance Validation
- Phase II: System Integration and Prototype Demonstration
- Phase III: Operational Assessment/Transition

Each phase will progressively mature the design and technologies required to validate the ability to achieve the EXACTO system performance goals and move incrementally toward an operational system. The following sections describe the specific technical objectives of each phase.

B. Phase I Objectives

The top-level Phase I objectives are to 1) mature the EXACTO prototype system design; 2) conduct risk reduction of component technologies; and 3) validate the preliminary design using Monte Carlo hardware-in-the-loop simulation. More detail on each of these objectives is provided in the following paragraphs.

1. Mature EXACTO Prototype System Design

Offerors shall submit a prototype system conceptual design with their proposals. During Phase I, offerors will conduct more rigorous technology, producibility, CONOPS and military utility trades about the non-tradeable requirements and highly desirable attributes to develop system level requirements and ensure an optimized system design. Offerors shall conduct ongoing analysis of potential countermeasures to their EXACTO system to ensure a robust final design. Offerors shall implement a rigorous process to document

trade study results, derive and track requirements and design decisions as the design matures to ensure a robust system level design. It is expected that offerors will hold a system requirements review (SRR) early in Phase I. This SRR will map system performance capabilities to system level requirements, document the system level requirements, and provide draft segment level requirements and interface definitions. The SRR information will form the basis for deriving the technical objectives of the component level tests and demonstrations as well as the hardware-in-the-loop simulation required to validate the design. The offeror will continue to mature their design throughout Phase I, adding detail and incorporating the results of component and system level risk reduction activities. The final Phase I deliverable will be a Preliminary Design Review (PDR) of the EXACTO prototype system to be built in Phase II. A detailed list of expected SRR and PDR deliverables is provided in Section I-E.

2. Component Technology Risk Reduction

Offerors shall submit a Technology Development and Assessment Plan (TDAP) in their proposal that details the component technology risk reduction activities to be performed throughout Phases I and II. This TDAP will be finalized early in Phase I in conjunction with SRR. The TDAP will provide an integrated basis for all risk reduction activities that will be performed during Phases I and II, culminating in the live fire demonstration at the end of Phase II. The TDAP will identify and assess critical technologies, processes and system attributes (TPSAs) that constitute the major technical and system integration risks on the program; 2) identify major risk reduction tests and demonstrations required to validate the ability to achieve the EXACTO performance goals with a prototype system test in Phase II; 3) define credible intermediate performance objectives (success criteria) associated with each of these critical tests and demonstrations, and 4) define an integrated program for systematically reducing risk that meets the Phase I and II objectives, including the quantified go/no go criteria at the end of Phase I. The TDAP deliverable is described in detail in Section I-E. Following finalization of their TDAP, offerors will begin to execute the Phase I portion of the plan. DARPA envisions Phase I risk reduction to include testing of laboratory components that validate component level performance capabilities required to achieve the system level performance objectives.

3. Monte Carlo Hardware-in-the-Loop (HITL) Simulation

Offerors shall conduct a Monte Carlo hardware-in-the-loop simulation to validate that their proposed preliminary design can achieve the EXACTO performance objectives. Following completion of SRR, the offeror will finalize their HITL design. The HITL should have traceability to all of the system level requirements and show how each of them will be validated. The government desires use of 1x scale laboratory components and experimental data at scale. If the offeror elects to use an alternative approach, the offeror should provide rationale for why that approach will offer sufficient validation of the design and be of better value to the Government (e.g., reduces cost, shortens schedule, and reduces risk.) It is envisioned that the HITL will be the major tool used throughout Phase I to assess system level performance, with interim builds that successively add more functionality in terms of software and hardware component integration. Phase I will culminate in a full system simulation where the offeror will

“shoot” 1,000 rounds to predict system effectiveness (accuracy) at each range/target speed in a simulated operating environment.

C. Phase II Objectives

The decision to continue the program into Phase II will be based upon the Government’s determination that one or more offerors have successfully completed the Phase I exit criteria, defined in Section I-F, as well as the availability of Phase II funds. The Government intends to provide guidance and request a Phase II proposal update prior to the completion of Phase I. In Phase II, the offeror will continue execution of the TDAP, and conduct detailed design, fabrication, and live fire test of the EXACTO prototype system. The live fire test will consist of firing 500 rounds from the prototype system at a Government test range to demonstrate effectiveness at range/target speed in the operational environment. It is envisioned that the offeror’s Phase II program will include additional interim demonstration activities as part of their TDAP prior to the final live fire test.

D. Phase III Objectives

The decision to continue the program into Phase III will be based upon the Government’s determination that one or more offerors have successfully completed the Phase II exit criteria, the availability of Phase III funds, and other such programmatic considerations. The scope of Phase III will be largely dependent on the desires of the user organization. However the top level objective will be to conduct additional user testing in an operational environment as well as design refinement and productionization (including producibility and reliability).

E. Phase I Schedule and Deliverables

DARPA has not developed a detailed Phase I schedule. Offerors should propose a schedule appropriate for the design maturity and risk reduction required for their EXACTO system concept. In general, DARPA desires quarterly program reviews at the contractor’s facility. The objective of these reviews will be to assess progress, provide feedback and stay abreast of any emerging technical, cost or schedule issues. Offerors shall include a detailed list of deliverables to be provided at each quarterly review, along with associated accomplishment criteria. To successfully achieve the Phase I exit criteria, DARPA has developed a minimum list of events/deliverables that must be included in the offeror’s Phase I program. Each of these items must be reported at a program review, but the sequencing and relative timing is left to the offerors.

DARPA will staff a team of subject matter experts from Government and support contractors to attend program reviews to provide feedback to the Program Manager and to be a technical resource for the contractors. In addition to formal program reviews, regular telecoms are encouraged to enhance communications with the government team. Should important issues arise between program reviews, the Government team will be available to support informal interim technical interchange meetings.

The following events/deliverables must be included as part of the offeror’s review schedule.

- System Requirements Review (SRR) and Final TDAP
- Interim System Design Reviews (quarterly between SRR and PDR)
- Results of major component tests and demos as identified in proposal technology development and assessment plan (NLT 3 months after completion of each major event)
- Hardware in the Loop Simulation Design Review
- Preliminary Design Review (PDR)
- Hardware in the Loop Simulation Results

A description of each deliverable is provided in the following sections.

System Requirements Review (SRR) and Final TDAP

The offeror shall conduct an SRR to describe the system level requirements and functions necessary to achieve their predicted EXACTO prototype system performance. The requirements should have direct legacy to the non-tradeable requirements and Phase I trade study results. These system and functional requirements shall be decomposed and allocated as appropriate to various components of the system architecture to develop performance metrics for subsystems and components. These in turn will be used to establish quantified values for the success criteria for all of the risk reduction events in the TDAP. This review should show how each of the TDAP events has traceability to the overall system level performance requirements. In particular, this review should focus on substantiating how the planned laboratory component tests and HITL demonstrations will validate that the performance requirements and Phase I exit criteria can be met. The review encompasses the total system requirements, e.g., optical sight, rifle, guided bullet, packaging, computer software, and preliminary logistic support considerations. This review should also describe the process that produced the system requirements products. The offeror shall finalize their TDAP in conjunction with SRR. The TDAP will serve as the roadmap for executing the remainder of the program. Specific review items are as follows:

- Functional Flow Analysis
- Requirements & Requirements Allocation
- Trade Study Results
- Integrated Test/Lab Demonstration Planning
- Final Technology Development and Assessment Plan
 - Risk management and mitigation planning
 - Risk assessment (e.g. 5x5 risk cube)
 - System/segment risk waterfalls
 - Test and demonstration quantifiable success metrics
 - Technical Performance Metrics
- Prototype System Design Concept
 - Block diagram
 - Schematics
 - 3D CAD physical layout to the component level
 - Weight estimate/budgets
 - Software architecture
 - System specification

- System integration approach
- Mission and Requirements Analysis
 - CONOPS
- Phase II Systems Engineering
 - Process
 - Organization
 - Configuration management

Interim System Design Reviews

Between SRR and PDR, the offeror shall provide design periodic updates. These design updates should reflect an increasing level of design fidelity as requirements are flowed down through the segment to the configuration item level and as the results of risk reduction activities impact the design. Specifics and timing of deliverables to be included at each review are left to the offeror however, the following elements are envisioned:

- Review of latest EXACTO prototype system design
- Review of system requirements and system engineering activities

Results of Major Component Tests and Demonstrations

At each quarterly review, the offeror shall review the results of any risk reduction activities conducted since the prior milestone. This review shall provide a comparison of test results to pre-test performance predictions/component performance objectives as well as the success criteria established in the TDAP. If test results are unsuccessful, offerors shall describe fall-back plans (e.g., redesign, revise instrumentation, etc.) for addressing the deficiency.

Hardware in the Loop Simulation Design Review

At an appropriate time in the schedule and prior to major simulation builds, the offeror shall conduct a HITL design review. This review shall describe in detail the overall HITL simulation architecture and test plan.

Preliminary Design Review (PDR)

A PDR will be conducted to assess the maturity of the design and readiness to proceed into Phase II. At this review the government will evaluate the progress, technical adequacy, and risk of the EXACTO prototype system design; assess its compatibility with EXACTO performance requirements and the demonstration objectives of the TDAP; assess the robustness of the design against potential countermeasures; evaluate the degree of definition and assess the technical risk associated with the specific EXACTO prototype system design and processes; and establish the existence and compatibility of the physical and functional interfaces. For software items, the government will 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 design should be sufficiently complete that it can be put under formal configuration control at the beginning of Phase II. Specific PDR objectives are as follows:

- Verify functional, performance and interface design requirements for subsystem and configuration items to enable execution of the TDAP
- Verify the EXACTO prototype system preliminary design is sufficient and ready to be put under configuration control
- Review and evaluate the maturity of the software requirements
- Define Item Performance Specifications including software-related items
- Define the draft item detail, process, and material specifications
- Evaluate the design data defining major subsystems, equipment, software, and other elements
- Review results of risk reduction activities
- Document compliance with the Phase I Exit Criteria

Hardware-in-the-Loop Simulation Results

The offeror shall provide a comprehensive review of the results of the final 1,000 shot simulations at each range/target speed condition. This review shall provide a comparison of simulation results to pre-test performance predictions/system performance objectives as well as the Phase I exit criteria. Should the simulation results not demonstrate adequate performance capability, the offeror shall describe the source of failure and the scope/cost of additional risk reduction or design activities required to achieve a validated EXACTO prototype system preliminary design.

F. Program Metrics

In order for the Government to evaluate the effectiveness of proposed solutions in achieving the stated program objectives, exit criteria have been established for each program phase. These exit criteria will serve as the basis for determining whether satisfactory progress is being made to warrant continued funding of the program. The Government has identified these metrics with the intention of bounding the scope of the effort, while affording the maximum flexibility, creativity, and innovation in developing proposed solutions. The Government has defined the following exit criteria for Phase I and II.

Phase I Exit Criteria

- HITL simulation validates the feasibility of the EXACTO prototype system preliminary design to meet the non-tradeable requirements. See classified addendum for quantified metrics.
- PDR level design that closes about the non-tradeable requirements.

Phase II Exit Criteria

- Live fire prototype testing validates that the EXACTO prototype system meets all of the system performance objectives (range, accuracy, target speed, operating environment). See classified addendum for quantified metrics.

II. AWARD INFORMATION

Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

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

Awards under this BAA will be made to offerors on the basis of the evaluation criteria listed below (see section labeled “Application Review Information”, Section V.), and program balance to provide overall value to the Government. Proposals identified for negotiation may result in a procurement contract or Other Transaction Agreement, depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. **The Government reserves the right to choose the appropriate instrument.** Offerors should note that the required degree of interaction between parties, regardless of award instrument, will be high and continuous. Offerors should also note that grants and cooperative agreements will not be awarded under this solicitation.

III. ELIGIBILITY INFORMATION

A. Eligible Applicants

Due to security requirements, all prime contractors must be capable of receiving, processing, and storing export controlled and classified information under this effort. Foreign participants and/or individuals may participate as subcontractors or consultants to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, ITAR regulations, and other governing statutes applicable under the circumstances. Since DARPA does not intend to directly provide data to any international participants, offerors are reminded that implementation of applicable agreements and licenses is the responsibility of the offeror.

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Offerors are reminded that DARPA is only interested in full system solutions in response to this BAA. Technology developers with expertise in specific component areas are encouraged to team with an overall system developer.

Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit

proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities. Independent proposals from Government/National laboratories may be subject to applicable direct competition limitations, though certain Federally Funded Research and Development Centers are excepted per P.L. 103-337§ 217 and P.L 105-261 § 3136. Proposers from Government/ National Laboratories must provide documentation to DARPA to establish that they are eligible to propose and have unique capabilities not otherwise available in private industry.

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

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 USC 203, 205, and 208.). The DARPA Program Manager for this BAA is Mr. Lyndall Beamer. As of the date of first publication of the BAA, the Government has not identified any potential conflicts of interest involving this program manager. Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest and will promptly notify the offeror if any appear to exist. (Please note the Government assessment does NOT affect, offset, or mitigate the offeror's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.). The Program Manager is required to review and evaluate all proposals received under this BAA and to manage all selected efforts. Offerors should carefully consider the composition of their performer team before submitting a proposal to this BAA.

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

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Proposer should promptly raise the issue with DARPA by sending Proposer's contact information and a summary of the potential conflict by email to the mailbox address for this BAA at BAA08-19@darpa.mil, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole

opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively mitigated, the proposal may be returned without technical evaluation and withdrawn from further consideration for award under this BAA.

B. Cost Sharing and Matching

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

IV. APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Package

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

The classified addendum contains information on the detailed performance goals for the EXACTO system. To obtain a copy of the classified addendum and/or the EXACTO Program Security Classification Guide, proposers must send a request to the BAA mailbox, BAA08-19@darpa.mil.

The following information needs to be submitted via the BAA mailbox to request the classified addendum:

Company Name

Classified mailing address

Cage Code

Facility Security Officer (FSO) name and phone number

Technical POC name and phone number

Note: DARPA will have to verify the facility clearance and the clearance of the recipient before mailing the classified material.

B. Content and Form of Application Submission

1. Proposal Information

Proposers are required to submit full proposals by the time and date specified in Section C below in order to be considered for the initial round of selections; however, proposals received after this deadline may be received and evaluated up to one year from date of posting on FedBizOpps.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal to this BAA, should be directed to BAA08-19@darpa.mil or send facsimiles marked with “DARPA/IPTO, BAA 08-19” to (703) 812-5059. Frequently Asked Questions (FAQ) and other BAA related documents may be found on the BAA website: <http://www.darpa.mil/ipto/solicit/solicit.asp>. DARPA intends to use electronic mail and fax for correspondence regarding BAA 08-19. Proposals may **not** be submitted by fax or e-mail; any so sent may be disregarded. DARPA encourages use of the Internet for retrieving the BAA and any other related information that may subsequently be provided. See below for submittal instructions.

a) Unclassified Submissions

Responding to this announcement requires completion of an online cover sheet for each proposal prior to submission. To do so, the offeror must go to <https://csc-ballston.com/baa/index.asp?BAId=08-19> and follow the instructions there. Upon completion of the online cover sheet, a Confirmation Sheet will appear. Proposal submissions will be made via direct upload to DARPA. Instructions to do so will be provided upon completion of the cover sheet referenced above. Each offeror is responsible for ensuring that they include the Confirmation Sheet with their proposal upload. If an offeror intends to submit more than one proposal, a unique UserId and password must be used in creating each cover sheet.

All proposals must be encrypted using Winzip or PKZip with 256-bit AES encryption. Only one zipped/encrypted file will be accepted per proposal. Proposals which are not zipped/encrypted will be rejected by DARPA. An encryption password form must be completed and emailed to BAA08-19@darpa.mil at the time of proposal submission. See https://www.CSC-Ballston.com/baa/Encryption_Instructions.htm for the encryption password form and additional encryption information. Note: the word “PASSWORD” must appear in the subject line of the above email and there are minimum security requirements for establishing the encryption password. Failure to provide the encryption password may result in the proposal not being evaluated. **Since offerors may encounter heavy traffic on the web server, they SHOULD NOT wait until the day the proposal is due to fill out a coversheet and submit the proposal!**

DARPA will acknowledge receipt of the UNCLASSIFIED submission via email and assign a control number that should be used in all further correspondence regarding the submission. **NOTE: If you are also submitting a classified response, you MUST reference this control number on the classified submission. This will ensure that both portions (the classified and unclassified) of your submission will be kept together.**

b) Classified Submissions

The government anticipates that proposals submitted under this BAA will be unclassified. However, offerors may elect to submit a classified addendum to their proposal in order to more specifically address the performance of their proposed EXACTO system design.

THE CLASSIFIED ADDENDUM MUST BE SENT TO DARPA SEPARATELY FROM THE UNCLASSIFIED PROPOSAL. DO NOT SEND CLASSIFIED INFORMATION THROUGH THE ONLINE PROPOSAL SUBMISSION SYSTEM AS IT IS FORBIDDEN.

Proposers must submit five paper copies of the CLASSIFIED response, as well as one IBM PC-formatted CD-ROM, containing the electronic copy of the classified response. This document shall be in Microsoft Word or Adobe Acrobat (pdf). Please see instructions below on how to submit classified material to DARPA. **(AGAIN, once a control number is issued for the UNCLASSIFIED submission, please make sure it is also used in the CLASSIFIED response.)**

Security Classification guidance (DD Form 254) will be provided upon request. To obtain a copy of the EXACTO Program Security Classification Guide, proposers must send a request to the BAA mailbox at BAA08-19@darpa.mil. After reviewing the incoming proposals, a DD Form 254 will be issued and attached as part of any award(s).

Classified submissions shall be in accordance with the following guidance:

Collateral Classified Data: 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 (USPS only; not DHL, UPS or FedEx). All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be addressed to:

Defense Advanced Research Projects Agency (DARPA)
ATTN: BAA 08-19, DARPA, Dr. Lyn Beamer
3701 North Fairfax Drive, Suite 752
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 (DARPA)
Security & Intelligence Directorate, Attn: CDR
3701 North Fairfax Drive, Suite 255

Arlington, VA 22203-1714

Proposers must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose.

c) Additional Submission Information

The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included into a single proposal.

Proposals not meeting the format described in the BAA may not be reviewed.

It is the policy of DARPA to treat all proposals as competitive information and to disclose the contents only for the purposes of evaluation. The Government may use selected support contractor personnel to assist in administrative functions only. For this solicitation, non-Government advisors, who have signed appropriate non-disclosure and conflict of interest statements, may assist in the proposal administration when their assistance is required. However, they will not participate in the final source selection process.

Offerors are also advised that employees of commercial firms under contract to the Government may be used by DARPA agents to administratively process proposals, monitor contract performance, or perform other administrative duties requiring access to other contractors' proprietary information. These support contracts include nondisclosure agreements prohibiting their contractor employees from disclosing any information submitted by other contractors or using such information for any purpose other than that for which it was furnished. By submission of its proposal, each proposer agrees that proposal information may be disclosed to those non-Government personnel for the limited purposes stated above.

Proposers are advised that only contracting officers are legally authorized to contractually bind or otherwise commit the Government.

2. Proposal Format

All proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two volumes. Technical and cost proposals must be submitted as separate volumes (Volume I Technical, Volume II Cost) and must be valid for 120 days. All pages shall be formatted for 8-1/2 by 11 inch paper with type not smaller than 12 point. Volume I, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished), which document the technical ideas and approach upon which the proposal is based. Copies of not more than three (3) relevant papers can be included with the submission. The bibliography and attached papers are not included in the page counts given below. The submission of other supporting materials along with

the proposals is strongly discouraged and will not be considered for review. Except for Sections 1 and 4, Volume I shall not exceed seventy-five (75) pages, which includes all figures, tables, and charts. All proposals must be written in English.

3. Volume I, Technical and Management Proposal

The Volume I Technical Proposal shall be organized into four sections as described below.

Section 1. Administrative (Not included in the page count)

1.1 Confirmation Sheet (as described above) will contain the following information:

- Announcement number;
- Proposal title;
- Technical point of contact including: name, telephone number, electronic mail address, fax (if available), and mailing address;
- Administrative point of contact including: name, telephone number, electronic mail address, fax (if available), and mailing address;
- Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant;
- Contractor's type of business, selected from among the following categories:
 - WOMEN-OWNED LARGE BUSINESS,
 - OTHER LARGE BUSINESS,
 - SMALL DISADVANTAGED BUSINESS [Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other],
 - WOMEN-OWNED SMALL BUSINESS,
 - OTHER SMALL BUSINESS,
 - HBCU,
 - MI,
 - OTHER EDUCATIONAL,
 - OTHER NONPROFIT,
 - FOREIGN CONCERN/ENTITY.

1.2 Official transmittal letter.

1.3 Table of Contents. The Table of Contents should be keyed to the page numbers of the proposal sections.

1.4 Additional indexes/references such as List of Figures, List of Acronyms, etc.if desired.

Section 2. Summary of Proposal

This section provides an overview of the proposed work as well as an introduction to the associated technical and management issues. Further elaboration will be provided in Section 3.

- 2.1 Innovative claims for the proposed research. This section is the centerpiece of the proposal and should succinctly describe the uniqueness and benefits of the proposed EXACTO system concept relative to the current state-of-art alternate approaches.
- 2.2 Deliverables associated with the proposed research and the plans and capability to accomplish technology transition and commercialization. Include in this section all proprietary claims to the results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype. Offerors shall use standard FAR definitions for data rights categories. If there are not proprietary claims, this should be stated.
- 2.3 Cost, schedule and milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the prime and major subcontractors, total cost and company cost share, if applicable. **A measurable critical milestone should occur at the end of Phase I.** This milestone should enable and support a go/no go decision for Phase II. Additional interim non-critical management milestones are also highly encouraged at a regular interval. Please see Section I-E-Phase I Schedule and Deliverables above.
- 2.4 Technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production. (This section should be supplemented by a more detailed plan in Section 3.)
- 2.5 General discussion of other research in this area.
- 2.6 A clearly defined organization chart for the program team which includes, as applicable: (1) the programmatic relationship of team members; (2) the unique capabilities of team members; (3) the responsibilities of team members; (4) the teaming strategy among the team members; and (5) the key personnel along with the amount of effort to be expended by each person during each year. The offeror shall also address any relationships with international participants, including the status and schedule of any licenses or approvals that must be obtained to enable program execution.

Section 3. Detailed Proposal Information

This section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA.

- 3.1 Phase I Statement of Work (SOW) - In plain English, clearly define the technical tasks/subtasks to be performed, their durations, and dependencies among them. The page length for the SOW will be dependant on the effort. For each task/subtask, provide:
 - A general description of the objective (for each defined task/activity);

- A detailed description of the approach to be taken to accomplish each defined task/activity);
- Identification of the primary organization responsible for task execution (prime, sub, team member, by name, etc.);
- The exit criteria for each task/activity - a product, event or milestone that defines its completion.
- Define all deliverables (reporting, data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities.

Do not include any proprietary information in the SOW.

- 3.2 Phase I Integrated Master Schedule (IMS) fully linked with critical path displayed.
- 3.3 Description of the results, products, transferable technology, and expected technology transfer path enhancing that of Section 2.2. This section should include discussion of the military utility and proposed CONOPS for the offeror's proposed design.
- 3.4 Detailed description of the EXACTO Prototype System Conceptual Design. The offeror should provide a conceptual design of their EXACTO prototype system concept, consistent with the program objectives defined in Section I-A. The EXACTO system design should address all aspects of the offerors proposed system architecture, including the optical sighting system, the guidance system, the actively controlled guided bullet, and the rifle. The offeror shall provide a preliminary assessment of potential countermeasures and their approach for achieving a robust system design. At a minimum, the EXACTO prototype conceptual design should meet the non-tradeables provided in Section I-A. This design should also address the highly desirable attributes as outlined in the Program Goals section above. Where the offeror's design does not incorporate a highly desirable attribute, the offeror should provide rationale (e.g., adds significant cost/risk, adversely affects CONOPS, decreases performance, adds excessive weight, etc.).
- 3.5 Detailed technical rationale. The EXACTO prototype system conceptual design should be substantiated with first order analysis or experimental data consistent with the conceptual level of design maturity. This section should provide confidence that the offeror's proposed design is feasible, can meet the program performance objectives, and is not easily defeated by countermeasures. The offeror must describe the critical technologies integral to achieving its predicted system performance.
- 3.6 Technology Development and Assessment Plan. The offeror shall develop an initial Technology Development and Assessment Plan (TDAP) that defines the offeror's overall approach to mitigating risk and maturing the critical enabling technologies for their EXACTO prototype system conceptual design. The TDAP should address the offeror's risk management process. The plan will address all activities planned for Phases I and II and will specifically address the individual risk mitigation plans associated with each of the offeror's critical enabling technologies. The government expects a higher level of detail for those activities to be

performed during Phase I. The TDAP will be finalized early in Phase I and will be refined throughout the program based on emerging results from Phase I activities as well as further definition of Phase II activities. The offeror's TDAP shall also include a set of risk mitigation waterfall charts. These risk mitigation waterfalls will detail the series of simulations, component tests, demonstrations, and any off-program activities, that illustrate the progressive risk reduction across the program phases for each critical enabling technology. The waterfalls should sufficiently outline the activities required to reduce the risk of all critical technologies, meet the Phase I exit criteria, and complete live fire testing by the end of Phase II. For each critical enabling technology, the TDAP will also include preliminary quantifiable success metrics for each major risk reduction event. These metrics will be quantified and refined for the final TDAP upon completion of additional system design trade studies and requirements analyses early in Phase I. The intent of this requirement is to provide confidence as the program proceeds that sufficient performance is being achieved in the demonstrations to enable the prototype system demonstration and identify areas where additional risk reduction or alternative approaches are required.

- 3.7 Detailed technical approach enhancing and completing that of Section 2. This section should describe the offeror's approach to progressively refining its EXACTO conceptual design through preliminary design review (PDR). In addition, this section should describe the overall analysis plan, methodology, system engineering tools, and modeling and simulation tools to be used in the execution of the program.
- 3.8 Phase II and III Program Plans. The offeror's Phases II Program Plan shall include a top-level schedule based on the offeror's initial proposed risk reduction strategy. In addition to the live fire demonstration, the offeror should include other key events and demonstrations as appropriate for their concept. The Phase II Program Plan shall include a rough order of magnitude (ROM) cost estimate to assist the Government in assessing resource requirements for future phases. The detailed objectives of Phase III will be defined based on transition partner requirements to be established during Phase I. The overall scope of Phase III will be to conduct additional development and test activities to further mature the EXACTO prototype system. Offerors should describe potential activities they envision for Phase III.
- 3.9 Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.
- 3.10 Discussion of proposer's previous accomplishments and work in closely related research areas.
- 3.11 Description of the facilities that would be used for the proposed effort. Proposed use of government facilities and associated cost must be explicitly identified.
- 3.12 Additional management information enhancing that of Section 2, including formal teaming agreements which are required to execute this program.

- 3.13 Additional information on cost, schedule and milestones enhancing that of Section 2. Proposals should clearly explain the technical approach(es) that will be employed to meet or exceed each program metric and provide ample justification as to why the approach(es) is/are feasible. Proposers should use a program work outline or Work Breakdown Structure (WBS) and common numbering system to integrate all proposal documents. The SOW, IMS and cost proposal numbering should be completed to at least level 4 and in detail sufficient to highlight the significant points discussed throughout the proposal and within the WBS budget allocation.
- 3.14 Organizational Conflict of Interest Affirmations and Disclosure: Per the instructions in Section III.A.1 above, provide documentation on whether any team member is providing scientific, engineering, and technical assistance (SETA) or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. This disclosure must include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. **Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be returned without technical evaluation and withdrawn from further consideration for award.** If the offeror is not currently providing SETA support as described, then the offeror should state “NONE.”
- 3.15 Intellectual Property: See Section VI references within this BAA regarding “Intellectual Property.”
- 3.16 Human Use. For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. For further information on this subject, see Section VI below. If human use is not a factor in a proposal, then the offeror should state “NONE.”

Section 4. Additional Information (Not included in page count) A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant papers can be included in the submission.

4. Volume II, Cost Proposal – {No Page Limit}

a) Cover sheet to include:

- (1) Must include the words “Cost Proposal”;
- (2) BAA number;
- (3) Funds requested from DARPA for the Base Effort, each option and the total proposed cost;
- (4) Lead Organization Submitting proposal;

- (5) Type of business, selected among the following categories: “LARGE BUSINESS”, “SMALL DISADVANTAGED BUSINESS”, “OTHER SMALL BUSINESS”, “HBCU”, “MI”, “OTHER EDUCATIONAL”, OR “OTHER NONPROFIT”;
- (6) Contractor’s reference number (if any);
- (7) Other team members (if applicable) and type of business for each;
- (8) Proposal title;
- (9) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
- (10) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
- (11) Award instrument requested: cost-plus-fixed-fee (CPFF), cost-fee — no fee, cost sharing contract – no fee, or other type of procurement contract (*specify*);
- (12) Place(s) and period(s) of performance;
- (13) Total proposed cost separated by basic award and option(s) (if any);
- (14) Name, address, and telephone number of the offeror’s cognizant Defense Contract Management Agency (DCMA) administration office (*if known*);
- (15) Name, address, and telephone number of the offeror’s cognizant Defense Contract Audit Agency (DCAA) audit office (*if known*);
- (16) Any Forward Pricing Rate Agreement, other such Approved Rate Information, or such other documentation that may assist in expediting negotiations (if available);
- (17) All subcontractor proposal backup documentation to include items (1) through (12) above, as is applicable and available;
- (18) Date proposal was prepared;
- (19) Dun and Bradstreet (DUN) Number;
- (20) Taxpayer Identification Number (TIN);
- (21) Contractor And Government Entity (CAGE) Code;
- (22) Subcontractor Information; and
- (23) Proposal validity period.

b) Detailed cost breakdown at WBS level 4 to include: (1) total program cost broken down by major cost items (direct labor, including labor categories; subcontracts; materials; other direct costs, overhead charges, etc.) and further broken down by task and phase; (2) major program tasks by year; (3) an itemization of major subcontracts (i.e. subcontractors named in the proposal) and equipment purchases; (4) an itemization of any information technology (IT) purchase¹; (5) a summary of projected funding requirements by month; and (6) the source, nature, and amount of any industry cost-sharing; and (7) identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Expert/s, etc.). The offeror shall identify costs associated with any identified Government Furnished material. The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO). Subcontractor proposals should include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements.

c) Supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates, above. Include a description of the method used to estimate costs and supporting documentation. Note: “cost or pricing data” as defined in FAR Subpart 15.4 shall be required if the offeror is seeking a procurement contract award of \$650,000 or greater unless the offeror request an exception from the requirement to submit cost of pricing data. “Cost or pricing data” are not required if the offeror proposes an award instrument other than a procurement contract (e.g., other transaction agreement.) All proprietary subcontractor proposal documentation (prepared at the same level of detail as that required of the prime) if not uploaded with the rest of the proposal, shall be made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic/email, etc.), either by the Proposer or by the subcontractor organization.

d) All proposers requesting an 845 Other Transaction Agreement for Prototypes (OTA) must include a detailed list of payment milestones. Each such payment

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

milestone must include the following: milestone description, exit criteria, due date, milestone payment amount (to include, if cost share is proposed, contractor and government share amounts). It is noted that, at a minimum, such payable milestones should relate directly to accomplishment of program technical go/no-go criteria as defined in the BAA and/or the offeror's proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer; however, it is noted that the Government prefers use of fixed price payable milestones to the maximum extent possible. If the proposer requests award of an 845 OTA as a nontraditional defense contractor, as so defined in the OSD guide entitled "Other Transactions (OT) Guide For Prototype Projects" dtd January 2001 (as amended)(http://www.dau.mil/pubs/Online_Pubs.asp), information must be included in the cost proposal to support the claim. Additionally, if the proposer plans requests award of an 845 OTA, without the required one-third (1/3) cost share, information must be included in the cost proposal supporting that there is at least one non-traditional defense contractor participating to a significant extent in the proposed prototype project.

C. Submission Dates and Times

The proposal (the UNCLASSIFIED technical and cost volumes, which must be submitted via the electronic upload process), as well as any CLASSIFIED addendum, (which must be submitted to DARPA per the instructions found in Section IV.B.1.b above) must be submitted to DARPA/IPTO, on or before 1200 noon (ET), **05 May 2008** in order to be considered during the initial round of selections.

BAA 08-19 will remain open for a period of one year, 21 March 2008 through 20 March 2009. Proposals may be submitted at any time from issuance of this announcement through 1200 noon (ET), 20 March 2009; however, offerors are warned that the likelihood of funding is greatly reduced for proposals submitted after the initial closing date deadline.

DARPA will acknowledge receipt of complete submissions via email and assign control numbers that should be used in all further correspondence regarding proposals.

Failure to comply with the submission procedures may result in the submission not being evaluated.

V. APPLICATION REVIEW INFORMATION

A. Evaluation Criteria

Evaluation of proposals will be accomplished through a scientific/technical review of each proposal using the following criteria: (a) Ability to Meet Program Go/No-Go Metrics; (b) Overall Scientific and Technical Merit; (c) Technical Approach; (d) Proposer's Capabilities and Related Experience; (e) Potential Contribution and Relevance

to the DARPA Mission; and (f) Cost Realism. The first four criteria will have equal weight. The final two criteria are listed in descending order of importance. The following are descriptions of the above listed criteria:

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

1) Ability to meet Program Go/No-Go Metrics

The feasibility and likelihood of the proposed approach for satisfying the program go/no-go metrics is explicitly described and clearly substantiated. The proposal reflects a mature and quantitative understanding of the performance go/no-go metrics, the statistical confidence with which they may be measured, and their relationship to the concept of operations that will result from successful performance in the program.

2) Overall Scientific and Technical Merit

The offeror's conceptual design reflects an understanding of the EXACTO program objectives, system requirements and performance goals.

The offeror's conceptual design satisfies the following non-tradeables:

- Daytime range: (See classified addendum)
- Nighttime range: (See classified addendum)
- Maximum crosswinds: (See classified addendum)
- Maximum target speed: (See classified addendum)
- Accuracy (1 σ radius): (See classified addendum)
- Ability to adequately identify target at maximum range
- Does not expose the shooter more than the current M107 system (minimal firing signature, covertness)
- Energy and momentum of projectile equal to current 50-cal sniper round (Ball, M33) at all ranges beyond 300 meters

The offeror's conceptual design addresses the following highly desirable attributes. These are listed in descending order of importance.

- No heavier than 46 lbs and with similar volume to current two-man sniper system (Based on M107 rifle with Leupold scope, magazine loaded with 8 rounds, M551 Gold Ring observation telescope with tripod, AN/PAS 13C heavy thermal weapon sight, AN/PVS 14 monocular night vision device, sniper's data book [including slide rules and data cards])
- Secure and tamper-proof design to prevent misuse and exploitation of any portion of the system if obtained by an adversary
- >10 year shelf life of cartridges
- Significantly reduced signature compared to current M107 sniper system
- Sufficient power to support 14 hour mission (i.e. longest day)
- Inherently producible
- Inherently low cost

- Fire and forget round
- Greater range, target velocity, and accuracy than non-tradeable requirements
- Uses current rifles (M82A1 or M107) without modification (ex. sights)
- Permits use of standard ammunition (Ball, M33)
- No worse accuracy at all ranges than current round
- Multiple round capability

The conceptual design is innovative, feasible, and not readily defeated by potential countermeasures.

The conceptual design is substantiated via analysis or previous experimental work.

3) Technical Approach

a) Technology Development and Assessment Plan (TDAP)

The TDAP identifies the major technical risks for the offeror's EXACTO prototype system conceptual design.

Initial risk assessments and risk reduction plans are reasonable and adequate for meeting the offeror's prototype demonstration schedule.

The TDAP provides an integrated roadmap for maturing the critical enabling technologies required to achieve prototype system live fire demonstration.

The TDAP identifies quantifiable success metrics for proposed Phase I major risk reduction events.

b) Analysis Tools and Approach

The proposed design tools and trade study process will yield a robust system design.

The proposed Monte Carlo HITL simulation approach will be adequate to validate the EXACTO prototype system preliminary design and performance predictions. The offeror has a well defined process for achieving Preliminary Design Review of the prototype system design in Phase I.

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

The task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined.

The SOW details activities to WBS Level 4, and is traceable to the IMS tasks and the Cost Proposal detailed estimates.

The SOW incorporates all of the activities described in the Phase I portion of the TDAP.

The proposed schedule is complete and achievable.

Phase I IMS is detailed to WBS Level 4, captures all the SOW tasks, shows the dependencies among the tasks, and correctly displays the critical path.

d) Phase II and III Program Plans

The proposed Phase II program plan meets the Phase II top level objectives with reasonable scope, schedule, technical risk and cost.

The proposed Phase III plan identifies appropriate follow-on development and test activities to further mature the prototype system.

4) Proposer's Capabilities and Related Experience

The professional capabilities and relevant experience of key personnel, including: the Program Manager, Chief Engineer and other proposed technology area leads, will be looked at. Proposers will also be evaluated on:

- Key personnel have sufficient time committed to the program for their described program roles;
- The proposed team has previous experience on prototype demonstration programs with a similar level of complexity to EXACTO;
- The proposed team has the ability to accomplish all phases of the EXACTO program;
- The proposed management construct provides adequate opportunities for addressing technical, schedule and cost issues with the Government team;
- The offeror's proposed intellectual property and data rights are consistent with the Government's need to be able to communicate program information across Government organizations and to support transition of the program to the users at a reasonable cost.

5) Potential Contribution and Relevance to DARPA Mission

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

Proposers will also be evaluated on if the EXACTO system concept has military utility and reasonable/effective CONOPS.

6) Cost Realism

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. This will be principally measured by cost per labor-hour and number of labor-hours proposed. The evaluation criterion recognize that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DARPA discourages such cost strategies. Cost reduction approaches that will be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

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

B. Review and Selection Process

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

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

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements. Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. Each proposal (including responses to the CLASSIFIED addendum) received will be retained at DARPA even after completion of the source selection process.

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort. Award(s) may be made to any proposer(s) whose proposal(s) is determined selectable regardless of its overall rating.

VI. AWARD ADMINISTRATION INFORMATION

A. Award Notices

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

B. Administrative and National Policy Requirements

1. Intellectual Property

a. Procurement Contract Proposers

i. Noncommercial Items (Technical Data and Computer Software)

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

the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. If no restrictions are intended, then the proposer should state “NONE.”

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

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

ii. Commercial Items (Technical Data and Computer Software)

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

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

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

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

Proposers responding to this BAA requesting a Technology Investment Agreement, or Other Transaction for Prototype shall follow the applicable rules and regulations governing these various award instruments, but in all cases should appropriately identify any potential restrictions on the Government’s use of any Intellectual Property contemplated under those award instruments in question. This includes both

Noncommercial Items and Commercial Items. Although not required, proposers may use a format similar to that described in Paragraphs 1.a and 1.b above. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions, and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposer should state "NONE."

c. All Proposers – Patents

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

d. All Proposers – Intellectual Property Representations

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the DARPA program. Additionally, offerors shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

2. Human Use

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

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

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

In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that confirmation of a current Assurance and appropriate human subjects protection training is required before headquarters-level approval can be issued.

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

3. Animal Use

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

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

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

4. Publication Approval

Any award resulting from DARPA determining that the research resulting from the proposed program will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense will include a requirement for DARPA permission before publishing any information or results on the program; the following provision will be incorporated into any resultant procurement contract or other transaction:

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

5. Export Control

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

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

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

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

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

6. Subcontracting

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

7. Central Contractor Registration (CCR)

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

8. On-line Representations and Certifications (ORCA)

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

9. Wide Area Work Flow (WAWF)

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

C. Reporting

The award document for each proposal selected and funded will contain a mandatory requirement for: 1) four Quarterly Status Reports each year, one of which will be an annual project summary and 2) monthly financial reports. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award.

TFIMS: Reports will be electronically submitted by each awardee under this BAA via the T-FIMS (Technical-Financial Information System) Interactive reporting system which facilitates technical and financial reporting online. Information on this system may be found at <http://www.tfims.darpa.mil/>. Offerors shall satisfy the T-FIMS reporting requirements presented at <http://www.tfims.darpa.mil/tfimsreqdoc.asp> as part of their proposed deliverables.

I-Edison: All required reporting shall be accomplished, as applicable, using the i-Edison.gov reporting website at <http://s-edison.info.nih.gov/iEdison>

VII. AGENCY CONTACTS

Administrative, technical or contractual questions should be sent via e-mail to BAA08-19@darpa.mil. If e-mail is not available, fax questions to (703) 812-5059, Attention: BAA 08-19. All requests must include the name, email address, and phone number of a point of contact.

The technical POC for this effort is Mr. Lyndall Beamer, fax: (703) 812-5059, electronic mail: BAA08-19@darpa.mil.
DARPA/Information Processing Techniques Office
ATTN: BAA 08-19
3701 North Fairfax Drive
Arlington, VA 22203-1714

VIII. OTHER INFORMATION

- A. An Industry Day was held on December 11, 2007. The proceedings, FAQ and attendee list may be found at:**
<http://dtsn.darpa.mil/ixo/solicitations.asp#exacto>