

Broad Agency Announcement  
Microtechnologies for Air-Cooled Exchangers (MACE)

DARPA MTO

BAA 08-15

January 8, 2008

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## Part One: Overview Information

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA)/  
Microsystems Technology Office (MTO)
- **Funding Opportunity Title** – Microtechnologies for Air-Cooled Exchangers  
(MACE)
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – Broad Agency Announcement (BAA) 08-15
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – N/A
- **Important Dates**
  - Proposal Abstract due no later than 12:00 p.m. Eastern Time on Wednesday,  
March 12, 2008
  - Proposal due no later than 12:00 p.m. Eastern Time on May 14, 2008
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Types of instruments that may be awarded** -- Procurement contract or other  
transaction.
- **Agency Contact:**
  - Point of Contact:  
The BAA Coordinator for this effort can be reached at, fax: (703) 741-0079;  
electronic mail: [BAA08-15@darpa.mil](mailto:BAA08-15@darpa.mil).  
Dr. Thomas Kenny  
DARPA/MTO  
ATTN: BAA 08-15  
3701 North Fairfax Drive  
Arlington, VA 22203-1714

## **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/>, and the DARPA/MTO Solicitation Page at <http://www.darpa.mil/mto/solicitations/index.html>. The following information is for those wishing to respond to the BAA.

DARPA is soliciting innovative research proposals in the area of Microtechnologies for Air-Cooled Exchangers (MACE). The primary goal of this program is the development and demonstration of air-cooled exchangers that offer significant reductions in thermal resistance (from case to air) and significant reductions in the total electrical power used to force the air through the system.

Possible approaches to these program goals could include the development of innovative concepts for modification of the airflow through the exchanger, such as with synthetic jets, moving mechanical structures, or surfaces that offer enhanced convective heat transfer. Approaches that improve the thermal conduction from the base to all the surfaces of the exchanger are also likely to be important. Approaches that reduce the airflow resistance of the exchanger so that the blower can operate at lower power are of interest. Approaches that improve the efficiency of the blower are also of interest. DARPA is interested in approaches that utilize combinations of enhanced convection and conduction in addition to reduced airflow resistance and improved blower efficiency, or any subset thereof that can meet the program requirements.

Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

#### **Background and Description**

DoD systems are driving conflicting needs for high performance as well as reduced size and weight. DARPA makes many investments in new technologies that can improve performance or reduce size and weight. Unfortunately, in many cases, the power consumption of these systems increases with each improvement. As a result, the performance of the heat rejection technology has become a dominant limitation in many applications.

Over the past 40 years, CMOS, telecommunications, active sensing and imaging and other technologies have undergone tremendous technological innovation. Over this same historical period the technologies, designs and performance of air-cooled heat exchangers has remained unchanged. The performance data for today's state of the art heat

exchangers and blowers is, in many cases, based on measurements performed in the 1960s.

Because of the improved performance, and the increased power consumption of these DoD systems, heat rejection systems have grown in size, weight, complexity and cost. Where conventional air-cooled heat sinks have become inadequate, more exotic liquid-cooled manifolds, spray-cooled enclosures, and vapor-compression refrigeration have been introduced. All of these cooling approaches bring added complexity associated with the operation of the active pumps and compressors, concerns over prevention of fluid or vapor leakage, long-term reliability, and many other factors that increase the cost of the systems. In many of these cases, it is much easier to supply forced airflow to the components to be cooled, and system designers would quickly return to the use of air cooling if the performance (thermal resistance, operating power) could meet other requirements.

The fundamental goal of the MACE program is to develop and demonstrate microtechnologies that enable performance improvements for air-cooled exchangers. If the MACE program is successful, some high-performance DoD systems will be allowed to replace the exotic cooling technologies (such as spray-cooled enclosures and vapor compression refrigeration) with simpler, less-expensive air-cooled exchangers.

To enable the use of air-cooled exchangers in high-performance DoD systems, DARPA is interested in ideas that can significantly reduce the thermal resistance and the power consumption of conventional blower/heat exchanger systems without increasing the size or weight.

### **State of the Art Example**

To aid in determination of program metrics, DARPA has identified a state-of-the-art example air-cooled exchanger system. The specifications for this system are:

Heat Source Power	1 kW
Inlet air temperature	30 C
Inlet Airflow	200 CFM
Pressure drop of the heat exchanger and manifold	0.6" H <sub>2</sub> O
Power consumption of the blower	100W
System Coefficient of Performance (Electronic device power dissipation/cooling system power)	10
Heat Sink thermal resistance	0.2 C/W
Lateral Dimensions of heat sink	4" x 4"
Fin height + base thickness	1"
Heat sink mass	300 g
Blower size	3" x 4" x 4"
Blower mass	500 g

The airflow is constrained by a manifold to enter one 4"x1" side of the heat sink and exit the opposite side.

For this example, a 1 kW heat source cooled with inlet air at 30 C with a thermal resistance of 0.2 C/W would rise to a temperature of 230 C, which is above the allowed operating temperatures of many device technologies. This is part of the reason that the present state of the art for air cooled exchangers is generally inadequate to the kind of cooling problem represented here. If successful, MACE will provide technologies with improved performance to address this example problem.

### **MACE Program Goals**

The Microtechnologies for Air-Cooled Exchangers Program is intended to improve on the state of the art performance described above. Final program goals for MACE are

Heat Source Power	1 kW
Inlet air temperature	30 C
Power consumption of the cooling system	33W
System Coefficient of Performance (Electronic device power dissipation/cooling system power)	30
Heat Sink thermal resistance	0.05 C/W
Lateral Dimensions of heat sink	4" x 4"
Fin height + base thickness	1"
Heat sink mass	300 g
Blower size	3" x 4" x 4"
Blower mass	500 g

Important notes related to this set of goals are :

- We expect that some ideas for enhancement of the cooling system performance will include introduction of active elements into the heat exchanger, such as synthetic jets, pumps, etc. The power consumption of these elements is to be accounted along with the power consumption of the blower, and the total must be reduced from 100W in the SOA example to less than 33W.
- Goals for airflow and pressure drop have been eliminated. It is left to the offerors to design and demonstrate a system that meets the other program requirements, using any combination of airflow and pressure that can be produced within the other requirements. Innovations in the design of the heat sink and the blower may be needed to meet this combined specification.
- Offerors who intend to focus on the heat sink and will use the blower as a pre-determined component may refer to the Ametek Propimax 3BS-3369 as a representative blower for experiments. In this program, we can assume that its performance is approximately represented by the Pressure-vs-Flow curve shown below in Figure 1. Further, the power consumption of this blower can be assumed to scale as the square of the operating voltage, and that the maximum pressure and maximum flow are exactly proportional to operating voltage. In order to achieve

a 4-fold reduction in power consumption, this blower would need to be operated at 50% of the nominal drive voltage (14V), and the  $P_{\max}$  and  $Q_{\max}$  points on the performance curve would each be reduced 2-fold. Such a system delivers less airflow to the heat sink and at a lower pressure, so innovations will be necessary in the heat sink to deliver the required thermal performance.

- Offerors may distribute effort between enhancements to the heat exchanger and to the blower, possibly relying on ideas to improve the efficiency of the motor driving the blower in addition to ideas for improving the heat sink performance. Proposals describing such efforts must carefully explain how the performance of the entire system is to be optimized and how the COP of the final system will be measured and compared against program goals.

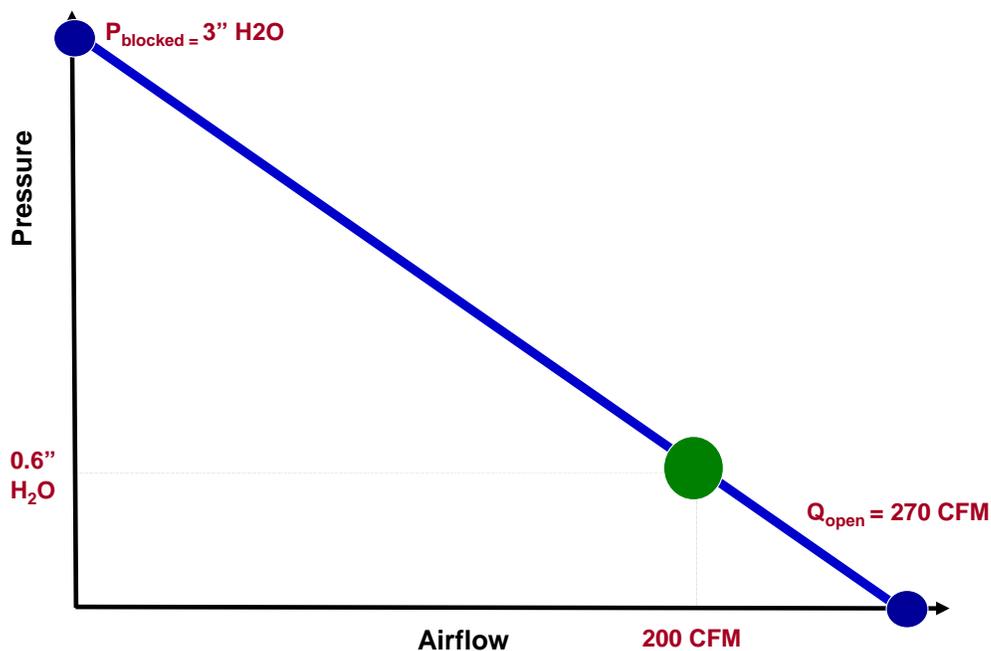


Figure 1: Model operating curve for State of Art Blower in MACE program at 28V.

DARPA plans a 2-phase program to meet the MACE research goals. During Phase 1 (base), “Preliminary Technology Development and Demonstration,” the performer(s) will be responsible for investigating, developing and demonstrating their proposed fundamental MACE technology(s). During Phase 2 (option), “Full System Demonstration and Application-Specific Effort,” the performer(s) will be responsible for 1) conducting performance and reliability testing of their candidate MACE system(s) (heat sink, blower and manifold) and 2) developing third-party customer (end-user) application-specific embodiments of their developed MACE system(s). For purposes of the MACE program, a third-party customer is any non-government entity that builds and sells high-powered electronic systems or purchases or integrates such components, is interested in supporting the development of improved thermal management technologies, and who can provide specifications and requirements for high-power systems that can

benefit from MACE technologies (e.g., application-specific embodiments of the MACE technology). DARPA is particularly interested in applications that are directly relevant to DoD systems. In the second phase of the program, offerors **are required** to develop an application-specific embodiment of MACE technology to the level of prototypes worthy of reliability testing, and DARPA will bear 50% of the cost of development of such prototypes, with the proposer or the third-party customer (end-user) organization(s) (or both) bearing the remaining 50% of the cost of development of such prototypes, in an effort to promote successful technology transition.

DARPA recognizes that team members that are also customers (end-users) may be unwilling to commit application-specific development funds to the program prior to the completion of the Phase 1 effort to demonstrate the fundamental technology. Cost proposals should therefore include estimates of the proposed cost-sharing arrangement and, from the third-party customer (end-user), letters of intent to participate and contribute financially (cost-share). Prior to exercising the Phase 2 option, DARPA expects the performer (prime) to have formalized the necessary cost-share contractual arrangements with the end user(s). Cost-shared activities are not necessarily required at the beginning of Phase 2; however, a detailed plan for the introduction and use of cost-sharing funds for development and demonstration of application-specific embodiments of MACE technology is required prior to the initiation of Phase 2.

All offerors are strongly encouraged to participate in the pre-proposal (“Abstract”) process so as to have the best opportunity to explain their core technology plans and application-specific plans to DARPA and to obtain feedback prior to submission of full proposals.

### MACE Program Milestones

Offerors must define their MACE approach and describe in detail how the performance characteristics of their designs will satisfy the requirements of the program. Though the performance characteristics will depend on the particular architecture proposed, DARPA envisions some common performance metrics and some metrics specific to the proposed architecture. Program metrics to be used for go/no-go evaluations between phases will be drawn from this list:

<i>Metric</i>	<i>Unit</i>	<i>SOA <sup>(4)</sup></i>	<i>Phase I</i>	<i>Phase II</i>
<i>Go/No-Go</i>				
<b>HSE Thermal Resistance</b>	C/W	0.2	0.05 <sup>(2)</sup>	0.05
<b>HSE Size</b>	in x in x in	4 x 4 x 1	“Single Fin”	4 x 4 x 1
<b>System Coefficient of Performance <sup>1</sup></b>	$W_{out}/W_{used}$	10	30 <sup>(2)</sup>	30
<b>Heat Sink Lifetime</b>	Hours	Infinite		2000 + Proposer- Specified Tests
<b>Electronic Device Power Dissipation</b>	W	1000	1000 <sup>(2)</sup>	1000
<b>Nominal Airflow</b>	CFM	200	<sup>(3)</sup>	<sup>(3)</sup>
<b>Airflow Resistance</b>	" H <sub>2</sub> O §	0.6	<sup>(3)</sup>	<sup>(3)</sup>

- (1)  $COP = (\text{Electronic Device Power Dissipation} / (\text{Blower} + \text{Heatsink total power}))$
- (2)  $R_{th}$  and Pressure/Flow Scaled to full 4" x 4" x 1" based on models and measured data.
- (3) Operating Parameters for heat sink and blower in Phase 1 and Phase 2 will result from performer-determined optimization
- (4) SOA based on commercially available heat sink and blower combination

### **Explanations and Rationale for Metrics**

**Thermal Resistance** : In order to meet the requirements for present and future DoD thermal management, improvements in the thermal resistance of heat sinks are required. In this program, DARPA is interested in ideas and approaches that can provide a 4-fold reduction in the thermal resistance of air cooled exchangers (to  $<0.05$  C/W) so that kW heat sources can be operated with  $\Delta T$  of 50 C or less.

**Size** : A 4" x 4" x 1" geometry is chosen to correspond to geometrically-constrained applications throughout DoD.

**System Coefficient of Performance** : Systems which offer improved thermal resistance at the expense of increased cooling system power consumption already exist – it is generally possible to improve the thermal resistance of a heat sink by simply forcing more air through the system. In this program, DARPA is interested in enhancements to air cooled systems that provide improved cooling *and* reduced power consumption. In order to capture this interest, a coefficient of performance has been defined which compares the total electronic device power (1 kW in this case) to the power consumption of the cooling system. Within this constraint, it is left to offerors to balance changes in airflow resistance, blower efficiency, and other parameters to achieve the overall goals. The details provided in the MACE Program Requirements section above should help explain how the performance of a typical blower scales with the power consumed by the blower.

**Heat Sink Lifetime** : DARPA is interested in MACE approaches that can be reliable in real applications. An initial requirement for a 2000 hour test of the system is imposed. DARPA is also interested in seeing a definition of a customer-defined reliability test program, sufficient to engage a customer in follow-on efforts after MACE is completed.

**Cost-Sharing** : Each proposal team is required to include a potential customer for the technology being developed. The customer is expected to define application-specific requirements in addition to the DARPA-defined requirements, and to provide some specific guidance on the nature and extent of reliability testing that must be initiated. The customer is also expected to provide 50% of the funding required to support any application-specific effort in the second phase of the program, including performance testing (Thermal Resistance and COP) and reliability testing, as well as any additional application-specific effort, testing, or other activities needed to initiate the transition to full support by the customer at the end of the program. All application-specific activities

and plans for completing the transition to full customer support are to be described in detail in the proposal.

## **Program Scope**

The MACE program will consist of two phases. The length of each phase shall be determined by the proposer and will be considered under the evaluation criteria. Generally, phases of shorter duration are preferred, but it is important that the phases include appropriate time and effort to meet the challenges associated with that phase. Each phase shall have measurable go/no-go metrics, based on the table presented above. The focus of each phase is described below:

**Phase 1 (Base)**      *Preliminary Technology Development and Demonstration.* In this phase, offerors are expected to investigate new approaches to enhancement of the performance of air-cooled exchangers. Offerors are required to develop and demonstrate the new technologies in a subset of a full 4"x4"x1" heat sink, described as a "single fin" in this phase. Depending on the technologies to be developed and demonstrated, the appropriate geometry may be something other than a "fin"; it will be left to the offerors to define a suitable fraction of a full system and describe this definition in the full proposal. Extrapolation of performance from the testing of a "single fin" to a full system will be based on full-system models that accurately capture the physics of the cooling system.

**Phase 2 (Option)**      *Full System Demonstration and Application-Specific Effort :* In this phase, scaling to a full 4" x 4" x 1" heat sink with blower and manifold is required, along with performance and reliability testing. In parallel with this DARPA-specified activity, effort on an application-specific cooling system based on the MACE technologies developed in this program is to be initiated. The application-specific effort should have a goal of building prototypes worthy of reliability testing and initiating application-specific performance and reliability testing. These application-specific activities should lead to customer-funded insertions at the completion of MACE. During MACE Phase II, 50% of the application-specific activities must be funded by the application customer or the proposer team or both.

## **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. If the proposed effort is inherently divisible and nothing is gained from the aggregation, offerors should consider submitting it as multiple independent efforts. 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”, Sec. 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. Offerors should note that the required degree of interaction between parties will be high and continuous.

### **III. ELIGIBILITY INFORMATION**

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

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

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

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

Certain post-employment restrictions on former federal officers and employees may exist, including special Government employees (including, but not limited to, Title 18, Section 207, United States Code, the Procurement Integrity Act, 41 U.S.C. 423, and FAR 3.104.) Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 USC 203, 205, and 208.) Prior to the start of proposal evaluations, the Government will assess whether any potential conflict of interest exists

in regards to the DARPA Program Manager, as well as those individuals chosen to evaluate proposals received under this BAA. The Program Manager is required to review and evaluate all proposals received under this BAA and to manage all selected efforts. The Program Manager for this BAA is a detailee to DARPA under the Intergovernmental Personnel Act (IPA) from Stanford University, and, as such, is highly likely to have a conflict of interest with respect to proposals utilizing that institution as a performer. Offerors should carefully consider the composition of their performer team before submitting a proposal to this BAA.

All Offerors 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 [BAA08-15@darpa.mil](mailto:BAA08-15@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/Matching**

Cost sharing of the customer-defined application-specific effort **is required** for this program. Each proposal team is required to include a potential customer for the technology being developed. The customer is expected to define application-specific requirements in addition to the DARPA-defined requirements, and to provide some specific guidance on the nature and extent of reliability testing that must be initiated. The customer is also expected to provide 50% of the funding required to support any application-specific development in the second phase of the program, including the development of prototypes worthy of reliability testing, application-specific performance testing (Thermal Resistance and COP) and reliability testing, as well as any additional application-specific effort, testing, or other activities that should initiate the transition to full support by the customer at the end of the program. All application-specific activities

and plans for completing the transition to full customer support are to be described in detail in the proposal.

## **C. Other Eligibility Criteria**

### **1. Collaborative Efforts**

Collaborative efforts/teaming are encouraged. A website (<http://teaming.sysplan.com/MACE>) has been established to facilitate formation of teaming arrangements between interested parties. Specific content, communications, networking, and team formation are the sole responsibility of the participants. Neither DARPA nor the Department of Defense (DoD) endorses the destination web site or the information and organizations contained therein, nor does DARPA or the DoD exercise any responsibility at the destination. This website is provided consistent with the stated purpose of this BAA.

## **IV. APPLICATION AND SUBMISSION INFORMATION**

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

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

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

#### **1. Abstract and Proposal Information**

Offerors are strongly encouraged to submit a proposal abstract in advance of a full proposal. This procedure is intended to minimize unnecessary effort in proposal preparation and review. The time and date for submission of proposal abstracts is specified on page 3 in the Overview Information section and in Section C below.

**DARPA will acknowledge receipt of the submission and assign a control number that should be used in all further correspondence regarding the proposal abstract.**

DARPA will respond to proposal abstracts with a recommendation to propose or not propose and the time and date for submission of a full proposal. DARPA will attempt to review proposal abstracts within thirty (30) calendar days after receipt and will allow offerors at least thirty (30) calendar days after review of their proposal abstracts in order to complete and submit their proposals. Proposal abstracts will be reviewed as they are received. Early submissions of proposal abstracts and full proposals are strongly encouraged because selections may be made at any time during the evaluation process. Regardless of the recommendation, the decision to propose is the responsibility of the proposer. All submitted proposals will be fully reviewed regardless of the disposition of the proposal abstract. Offerors not submitting proposal abstracts are required to submit

full proposals at the time and date specified in the BAA in order to be considered during 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. Full proposals submitted after the due date stated in the BAA or due date otherwise specified by DARPA after review of proposal abstracts may be selected contingent on the availability of funds.

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.

Restrictive notices notwithstanding, proposals may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate nondisclosure requirements. Proposals and proposed abstracts may not be submitted by fax or e-mail; any so sent will be disregarded.

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

For Offerors submitting electronically by means of an Electronic Business Application Tool Posting:

DARPA/MTO will employ an electronic upload process, the Technical Financial Information Management System (T-FIMS) Proposal Submission System, for proposal submissions to this BAA. Abstracts and proposals should be in Microsoft Word format or PDF and submitted via a web site interface: <https://www.tfims.darpa.mil/baa>. \*Please note that T-FIMS will acknowledge receipt of the submission via e-mail upon clicking "FINALIZE SUBMISSION." \*

All proposals submitted electronically to T-FIMS must be encrypted using Winzip or PKZip with 256-bit AES encryption. Only **one** zipped/encrypted file will be accepted per proposal and proposals not zipped/encrypted will be rejected by DARPA. An encryption password form must be completed and emailed to [BAA08-15@darpa.mil](mailto:BAA08-15@darpa.mil) at the time of proposal submission. See <https://www.tfims.darpa.mil/baa/> for the encryption password form.

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. For further information and instructions on how to zip and encrypt proposal files, see <https://www.tfims.darpa.mil/baa/>.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal abstract or full proposal to this BAA, should be directed to one of the administrative addresses below; e-mail is preferred. Please email [BAA08-15@darpa.mil](mailto:BAA08-15@darpa.mil) or check

<http://www.darpa.mil/mto/solicitations/index.html>. **DARPA intends to use electronic mail and/or fax for correspondence regarding BAA 08-15.** However, proposals and proposal abstracts may **not** be submitted by fax or e-mail; any so sent will be disregarded. DARPA encourages use of the Internet for retrieving the BAA and any other related information that may subsequently be provided.

## 2. Proposal Abstract Format

Proposal abstracts are encouraged in advance of full proposals in order to provide potential offerors with a rapid response to minimize unnecessary effort. Proposal abstracts should follow the same general format as described for Volume I under PROPOSAL FORMAT (see below), but include ONLY Sections I and II. The cover sheet should be clearly marked "PROPOSAL ABSTRACT" and the total length should not exceed **12** pages, excluding cover page and official transmittal letter. All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. The page limitation for proposal abstracts includes all figures, tables, and charts. No formal transmittal letter is required. All proposal abstracts must be written in English.

## 3. Full Proposal Format

All full proposals must be in the format given below. **Nonconforming proposals may be rejected without review.** Proposals shall consist of two volumes. All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. The page limitation for full proposals includes all figures, tables, and charts. 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 the attached bibliography and Section I, Volume I shall not exceed 50 pages, excluding cover sheet and transmittal letter. Recommended page lengths for each section are shown in braces { } below. All full proposals must be written in English.

## 4. Volume I, Technical and Management Proposal

### Section I. Administrative

A. Cover sheet to include:

- (1) BAA number
- (2) Technical area
- (3) Lead Organization Submitting proposal
- (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"

- (5) Contractor's reference number (if any)
  - (6) Other team members (if applicable) and type of business for each
  - (7) Proposal title
  - (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (where correspondence will be received), and electronic mail.
  - (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (where correspondence will be received), electronic mail,
  - (10) Total funds requested from DARPA, and the amount of cost share (if any); in addition to total funds requested, the total amount should also be broken down by Phase, duration of phase, and total cost of phase (e.g. Phase I, X months, \$Y).
  - (11) Date proposal was submitted.
- B. Official transmittal letter (optional for Abstract phase).

## Section II. Summary of Proposal

- A. {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 approach relative to the current state-of-art alternate approaches.
- B. {2} Deliverables associated with the proposed research and the plans and capability to meet program requirements. In addition to DARPA-defined requirements, a statement of the customer-defined application, its quantitative requirements, and the plans to meet all requirement should be offered. 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. If there are not proprietary claims, this should be stated.
- C. {1} 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. **Customer-defined application-specific effort should be clearly identified, along with the cost for those activities, and the proposed cost-sharing arrangements.**
- D. {4} Technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production. (In the full proposal, this section should be supplemented by a more detailed plan in Section III.)
- E. {1} General discussion of other research in this area.
- F. {1} 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 task of 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.

### Section III. 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.

- A. {8} 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 amount of the effort involved; however, it should be written so that it can be made a part of any resulting award instrument. 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.

*Note: It is recommended that the SOW should be developed so that each Phase of the program is separately defined and, within Phase 2 (Option), the DARPA-specific and application-specific efforts are separately defined. Do not include any proprietary information in the SOW, as it is intended to be made a part of any resulting award instrument.*

- B. {3} Description of the results, products, transferable technology, and expected technology transfer path enhancing that of Section II. B. See also VI (B)(2) "Intellectual Property."
- C. {15} Detailed technical rationale and approach enhancing that of Section II.
- D. {3} Discussion of proposer's previous accomplishments and work in closely related research areas.
- E. {3} Description of the facilities that would be used for the proposed effort.
- F. {3} Detail support enhancing that of Section II, including formal teaming agreements which are required to execute this program.

{5} Cost schedules and milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the primes and major subcontractors, total cost, and any company cost share. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. Additionally, 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. **This section should also clearly describe the cost, schedules and performance targets for**

**the customer-defined, application-specific activities in the proposed effort. These application-specific activities should include development of prototypes suitable for reliability and performance testing, and should be sufficient to trigger adoption by customers at the completion of MACE. Strategies and arrangements for 50% cost-sharing of this effort by customers should be clearly described in this section.**

#### Section IV. Additional Information

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.

### **5. Volume II, Cost Proposal – {No Page Limit}**

Cover sheet to include:

- (1) BAA number;
- (2) Technical area;
- (3) Lead Organization Submitting proposal;
- (4) Type of business, selected among the following categories: “LARGE BUSINESS”, “SMALL DISADVANTAGED BUSINESS”, “OTHER SMALL BUSINESS”, “HBCU”, “MI”, “OTHER EDUCATIONAL”, OR “OTHER NONPROFIT”;
- (5) Contractor’s reference number (if any);
- (6) Other team members (if applicable) and type of business for each;
- (7) Proposal title;
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
- (10) Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (*specify*), or other transaction;
- (11) Place(s) and period(s) of performance;
- (12) Total proposed cost separated by basic award and option(s) (if any);
- (13) Name, address, and telephone number of the offeror’s cognizant Defense Contract Management Agency (DCMA) administration office (*if known*);
- (14) Name, address, and telephone number of the offeror’s cognizant Defense Contract Audit Agency (DCAA) audit office (*if known*);
- (15) Date proposal was prepared;
- (16) DUNS number;
- (17) TIN number; and
- (18) Cage Code;
- (19) Subcontractor Information; and

(20) Proposal validity period.

Detailed cost breakdown 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 task and phase; (2) major program tasks by year; (3) an itemization of major subcontracts and equipment purchases (Interorganizational Transfers (IOTs), or similar, shall be treated as subcontractors for purposes of cost proposal development/support); (4) an itemization of any information technology (IT) purchase<sup>1</sup>; (5) a summary of projected funding requirements by month; and (6) the source, nature, and amount of any industry cost-sharing<sup>2</sup>; 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.). Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. NOTE: for IT and equipment purchases, include a letter stating why the offeror cannot provide the requested resources from its own funding.

Supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates in B. 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.) All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime, of which cannot be uploaded to TFIMS, 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.

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

<sup>2</sup> Customer cost-share letter(s) of intent shall be provided in the cost proposal.

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

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

The proposal abstract must be submitted to T-FIMS on or before **12:00 p.m., Eastern Time, Wednesday, March 12, 2008**. Proposal abstracts received after this time and date may not be reviewed.

### **2. Full Proposal Date**

The full proposal abstract must be submitted to T-FIMS on or before **12:00 p.m., Eastern Time, Wednesday, May 14, 2008** in order to be considered during the initial round of selections; proposals received after this deadline, however, may be received and evaluated up to one year from date of posting on FedBizOpps. Full proposals submitted after the due date specified in the BAA or due date otherwise specified by DARPA after review of proposal abstracts may be selected contingent upon the availability of funds.

The full proposal must be submitted in time to reach DARPA by **12:00 p.m. Eastern Time, Wednesday, May 14, 2008** (initial closing), in order to be considered during the initial evaluation phase; however, BAA 08-15 will remain open through 8 January 2009. Proposals may be submitted at any time from issuance of this announcement through 7 January 2009; offerors, however, 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 if using the T-FIMS system, upon clicking "FINAL SUBMISSION." Please use the control number assigned in T-FIMS in all further correspondence regarding proposals.

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

### **D. Intergovernmental Review (if applicable)**

Not Applicable.

### **E. Funding Restrictions**

See above discussion regarding Phase 2 application-specific cost-share requirements. .

## **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, in order of descending importance: (a) Overall Scientific and Technical Merit; (b) Potential Contribution and Relevance to the DARPA Mission; (c) Realism of Proposed Schedule; (d) Proposer's Capabilities and/or Related

Experience; (e) Plans and Capability to Accomplish Technology Transition; and (f) Cost Realism. 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. The following are descriptions of the above listed criteria:

**(a) Overall Scientific and Technical Merit**

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final product that achieves the goal can be expected as a result of award. The proposal identifies major technical risks and planned mitigation efforts are clearly defined and feasible. The proposal clearly explains the technical approach(es) that will be employed to meet or exceed each program metric and provides ample justification as to why the approach(es) is/are feasible.

**(b) Potential Contribution and Relevance to the 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.

**(c) Realism of Proposed Schedule**

The proposer's abilities to aggressively pursue performance metrics in the shortest timeframe and to accurately account for that timeframe will be evaluated, as well as proposer's ability to understand, identify, and mitigate any potential risk in schedule.

**(d) Proposer's Capabilities and Related Experience**

The proposer's prior experience in similar efforts must clearly demonstrate an ability to deliver products that meet the proposed technical performance within the proposed budget and schedule. The proposed team has the expertise to manage the cost and schedule. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors.

**(e) Plans and Capability to Accomplish Technology Transition**

The capability to transition the technology to the research, industrial, and operational military communities in such a way as to enhance U.S. defense, including the extent to which intellectual property rights limitations creates a barrier to technology transition.

**(f) 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 offerors 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.

After selection and before award the contracting officer will negotiate cost/price reasonableness.

Award(s) will be made to offerors 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.

*NOTE: OFFERORS 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. Upon completion of the source selection process, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

## **VI. AWARD ADMINISTRATION INFORMATION**

### **A. Award Notices**

As soon as the evaluation of a proposal is complete, the 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 fax (as listed in the proposal) or e-mail to the Technical POC identified on the proposal coversheet.

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

#### **1. Security**

The Government anticipates that proposals submitted under this BAA will be unclassified. In the event that a proposer chooses to submit a classified proposal or submit any documentation that may be classified, the following information is applicable.

Security classification guidance on a DD Form 254 will not be provided at this time since DARPA is soliciting ideas only. After reviewing the incoming proposals, if a determination is made that the award instrument may result in access to classified information, a DD Form 254 will be issued and attached as part of the award. Offerors choosing to submit a classified proposal must first receive permission from the Original Classification Authority to use their information in replying to this BAA. Applicable classification guide(s) should be submitted to ensure that the proposal is protected appropriately.

Classified submissions shall be in accordance with the following guidance:

**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: MTO  
Reference: BAA 08-15  
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.

**Special Access Program (SAP) Information:** Contact the DARPA Special Access Program Central Office (SAPCO) 703-526-4052 for further guidance and instructions prior to transmitting SAP information to DARPA. 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. *Prior to transmitting SAP material*, it is strongly recommended that you coordinate your submission with the DARPA SAPCO.

**Sensitive Compartmented Information (SCI) Data:** Contact the DARPA Special Security Office (SSO) at 703-812-1994/1984 for the correct SCI courier address and instructions. All SCI should be transmitted through your servicing Special Security Officer (SSO). SCI data must be transmitted through SCI channels only (i.e., approved SCI Facility to SCI facility via secure fax).

**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.

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 they propose. It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided that the formal request is received at this office within 5 days after unsuccessful notification.

## 2. Intellectual Property

### a. Procurement Contract Offerors

#### i. Noncommercial Items (Technical Data and Computer Software)

Offerors 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. Offerors shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that offerors 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 offerors 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. Offerors 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)

Offerors 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 offerors 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 Offerors – Noncommercial and Commercial Items (Technical Data and Computer Software)**

Offerors responding to this BAA requesting an Other Transaction 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, offerors 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 Offerors – 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 Offerors – 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.

### **3. Meeting and Travel Requirements**

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

### **4. Human Use**

Proposals selected for contract award are required to comply with provisions of the Common Rule (32 CFR 219) on the protection of human subjects in research (<http://www.dtic.mil/biosys/downloads/32cfr219.pdf>) and the Department of Defense Directive 3216.2 (<http://www.dtic.mil/whs/directives/corres/html2/d32162x.htm>). All proposals that involve the use of human subjects are required to include documentation of their ability to follow Federal guidelines for the protection of human subjects. This includes, but is not limited to, protocol approval mechanisms, approved Institutional Review Boards, and Federal Wide Assurances. These requirements are based on expected human use issues sometime during the entire length of the proposed effort.

For proposals involving “greater than minimal risk” to human subjects within the first year of the project, offerors must provide evidence of protocol submission to a federally approved IRB at the time of final proposal submission to DARPA. For proposals that are forecasted to involve “greater than minimal risk” after the first year, a discussion on how and when the offeror will comply with submission to a federally approved IRB needs to be provided in the submission. More information on applicable federal regulations can be found at the Department of Health and Human Services – Office of Human Research Protections website (<http://www.dhhs.gov/ohrp/>).

Any aspects of a proposal involving human use should be specifically called out as a separate element of the statement of work and cost proposal to allow for independent review and approval of those elements.

### **5. 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); and (ii) the

guidelines described in National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals."

## **6. Publication Approval**

Offerors are advised that DARPA has determined that award of assistance instruments (i.e., grants and cooperative agreements) is not appropriate for the MACE program. 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. For this reason, any award resulting from this solicitation will include a requirement for DARPA permission before publishing any information or results on the program.

The following provision, or one similar to it, will be incorporated into any resultant procurement contract or other transaction agreement:

"When submitting material for written approval for open publication as described in subparagraph (a) 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: Dr. Thomas Kenny, DARPA/MTO, 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 shall be sent either via e-mail to [tio@darpa.mil](mailto:tio@darpa.mil). Refer to [www.darpa.mil/tio](http://www.darpa.mil/tio) for information about DARPA's public release process."

## **7. Export Control**

The following provisions, or their equivalents, will be incorporated into any resultant procurement contract or other transaction agreement:

"(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.”

## **8. 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.

### **C. Reporting**

The number and types of reports will be specified in the award document, but will include as a minimum quarterly financial status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. 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.

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

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

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

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

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

Unless using another approved electronic invoicing system, offerors 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.

#### **VII. AGENCY CONTACTS**

E-mail is the preferred method of contact.

Administrative, technical or contractual questions should be sent via e-mail to [baa08-15@darpa.mil](mailto:baa08-15@darpa.mil). If e-mail is not available, fax questions to 703-741-0079, Attention: BAA 08-15. All requests must include the name, email address, and phone number of a point of contact.

##### Points of Contact

The technical POC for this effort is Dr. Thomas Kenny, fax: 703-741-0079, electronic mail: [baa08-15@darpa.mil](mailto:baa08-15@darpa.mil).

DARPA/MTO

ATTN: BAA 08-15

3701 North Fairfax Drive

Arlington, VA 22203-1714

PHONE: (703) 351-8479