



Broad Agency Announcement

Gravity Anomaly for Tunnel Exposure (GATE)

STRATEGIC TECHNOLOGY OFFICE

DARPA-BAA-09-20

13 March 2009

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Part One: Overview Information

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Strategic Technology Office
- **Funding Opportunity Title:** Gravity Anomaly for Tunnel Exposure
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** Broad Agency Announcement (BAA) DARPA-BAA-09-20
- **Catalog of Federal Domestic Assistance Numbers (CFDA):** Not applicable
- **Dates:**
 - Proposer's Day 24 Apr 2009
 - Initial Selection Proposal Due Date 05 Jun 2009
 - BAA Closing Date 12 Mar 2010

Concise Description of the Funding Opportunity: The Defense Advanced Research Projects Agency's (DARPA) Strategic Technology Office (STO) is soliciting proposals under this BAA for prototype development of a gravity-based tunnel detection capability. The Gravity Anomaly for Tunnel Exposure (GATE) program objective is to develop and demonstrate a prototype airborne gravity sensor system to detect and characterize tunnel networks.

- **Anticipated Individual Awards:** Multiple awards are anticipated.
- **Types of Instruments that may be Awarded:** Procurement contract or other transaction.
- **Any Cost Sharing Requirements:** None.
- **Agency Contact:**
 - Points of Contact
 - The technical POC for this effort is Dr. Joseph Durek
 - DARPA/STO
 - ATTN: BAA 09-20
 - 3701 North Fairfax Drive
 - Arlington, VA 22203-1714
 - Fax: 703-807-4992
 - Phone: 703-812-1974
 - Email: DARPA-BAA-09-20@darpa.mil

Part Two: Full Text of Announcement

1. 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/>. The following information is for those wishing to respond to the BAA.

DARPA is soliciting innovative research proposals in the area of detection and characterization of subsurface tunnels by their gravity signature. 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.

This BAA will be open for **one (1) year** from its date of publication. Although this BAA will be open for one (1) year from the date of its publication, the Government anticipates that the majority of initial funding for this program will be committed during First Selections. To be considered for funding during First Selections, full proposals must be received no later than 04:00 PM local Arlington, Virginia time on 05 Jun 2009.

1.1 PROGRAM OVERVIEW

The Gravity Anomaly for Tunnel Exposure (GATE) program will expand our ability to prevent both underground infiltration of secure perimeters and tactical underground operations. The specific goal of the program is to develop a prototype airborne system which significantly increases our capability to detect and characterize these subterranean tactical threats by their anomalous gravity signature.

DARPA's Strategic Technology Office (STO) is soliciting proposals under DARPA-BAA-09-20 for the performance of research, design, development, and testing to support the GATE objectives. This BAA and its classified Addendum address the specific program goals.

The explicit action of digging tunnels introduces a void into the subsurface geology. Gravity gradiometers measure tiny spatial variations in the pull of gravity caused by these underground voids. The Gravity Anomaly for Tunnel Exposure program objective is to develop, integrate, and demonstrate a prototype airborne gravity gradiometer system which is capable of detecting the mass deficit of a void in the presence of geological and topological variability. To address the more immediate underground tactical threats, the Gravity Anomaly for Tunnel Exposure program will focus on border and perimeter breaching tunnels.

The Gravity Anomaly for Tunnel Exposure program will provide this system capability by integrating a gravity gradiometer, signal processing payloads, and mounting system on a low-altitude manned aircraft (MAC)/Unmanned Aerial System (UAS) and verifying performance in relevant geologic environments. The prototype sensor system will provide:

1. Transducer: a gravity gradiometer sensor which, when operated from a MAC/UAS platform, provides sufficient sensitivity to detect tunnels. The sensor sensitivity is

defined as the noise floor registered on an operating MAC/UAS following isolation from platform noise sources (acoustic, vibration, electromagnetic interference (EMI)),

2. Tunnel Detection: the ability to detect the presence of a tunnel at high-confidence and low-false alarm rate through processing of the gravity gradient field data collected during a limited number of passes perpendicular to the tunnel,
3. Tunnel Imaging: the ability to image skeletal outline of a tunnel network through processing of the gravity gradient field data collected during multiple passes over the tunnel network,
4. Topography Compensation: the ability to collect and process information required to compensate for topographic effects on gravity data,
5. Clutter Rejection: the ability to distinguish and reject natural geologic structures from man-made tunnels; and,
6. On board, low-latency processing of the data.

Specific system requirements related to the operational concept (CONOPS) are provided in the classified Addendum 1.

The above-listed system capabilities should be self-contained within an airborne MAC/UAS platform. DARPA recognizes that multiple approaches exist to reject signals from natural geologic structures and acknowledges that fusion with additional sensor modalities is one viable approach. Proposed system concepts incorporating additional sensor modalities should be consistent with the envisioned airborne MAC/UAS platform.

DARPA is interested in those technologies that can be quickly integrated into a prototype system. The GATE program will leverage emerging and existing research and development in gravity gradiometer technologies and develop these sensor technologies into a prototype airborne gradiometer system which will provide an additional intelligence and surveillance capabilities to the warfighter. The proposer must clearly state the maturity of the proposed technology (as defined by Department of Defense Technology Readiness Level) and discuss laboratory demonstrations of the viability of the transducer technology. Proposals addressing only individual subsystem-level technologies or partial phases will be considered non-compliant under the requirements of this BAA.

DARPA anticipates a three phase program to achieve sufficient maturity for a demonstration prototype system with residual operator value. DARPA requests proposals for the full scope of technical development across the three phases (e.g. an end-to-end demonstration system). Full cost proposals should also be submitted for all three phases, with Phases 2 and 3 provided as costed options. Based on the results of each phase, DARPA will decide whether to fund additional phases.

The following sections describe the program phasing and expected tasks required for successful completion of each phase.

1.1.1. Phase 1 System Concept Feasibility

Phase 1 will develop and validate the proposed end-to-end system concept prior to DARPA investment in full subsystem and system development. The system concept is defined as all hardware and algorithms required to achieve the desired performance metrics, including but not limited to transducer technology, platform isolation, and processing algorithms. Using modeling, simulation, and focused data collections, the performer will demonstrate the ability to meet performance metrics, as defined in classified Addendum 1.

In particular, the performer will validate that the system concept provides sufficient transducer noise isolation and processing clutter rejection to meet the detection performance metrics listed under the classified Addendum 1. Noise sources include the vibration and electromagnetic interference (EMI) induced by the MAC/UAS platform. Clutter sources include both deterministic structures (e.g. Paleo-stream channels) and random variability (e.g. referred to as Sub-Surface Density Variation) in the subsurface geology.

1.1.1.1. Phase 1 Task 1: System and Sub-system Performance Predictions

The proposer will demonstrate the ability of the end-to-end system concept and individual subsystems to meet prototype system performance metrics in classified Addendum 1. Taking existing transducer technology from the laboratory, performers will demonstrate through validated modeling and focused experiments that the projected gravity sensor noise floor when modified for this application and integrated into a MAC/UAS platform will support the end-to-end performance goals in classified Addendum 1. The performer will detail the impact of the MAC/UAS environment on the transducer noise floor and will project the achievable isolation.

1.1.1.2. Phase 1 Task 2: Signal Processing and Clutter Rejection Algorithm Concept Development

Performers will develop advanced signal processing algorithms concepts to process gradiometer data for enhanced signature signal-to-noise ratio (SNR), clutter rejection in complex geologies, and tunnel detection and characterization. Utilizing simulated and/or actual gradiometer data provided by the Government team, the algorithms must achieve the end-to-end performance goals in Addendum 1.

To facilitate Task 2, the Government team will release simulated gradiometer data with geo-statistical properties similar to areas of interest. In addition, the Government team may provide a limited amount of gradiometer survey data to support performer analysis of geologic clutter statistics and topographic uncertainty errors.

1.1.1.3. Phase 1 Task 3: System Concept Design

Performers will provide an end-to-end concept design outlining the GATE system deployment and operations and will develop a concept design for the prototype system which the performer proposes to develop in Phase 2 and Phase 3. Performers should describe the Phase 2 hardware, software, and communications sub-systems designs and present notional hardware platforms, software tools, and communications channels to be used for the Phase 2 System and Design Development and Phase 3 Systems Demonstration. The design should also provide projections of which operational, or to-be operational, platforms are appropriate to host the GATE platform

as well as ground station computational and communications design and requirements of a future transitioned system.

1.1.1.4. Phase 1 Task 4: CONOPS

Performers will provide a concept of operation (CONOPS) detailing the GATE system deployment, operational platform, and flight profiles that will allow the GATE system to meet performance metrics. Performers shall conduct trade analyses, which at minimum define mission requirements, concept of operation, and candidate platforms. The operability requirements for the gravity gradiometer platform will be developed in conjunction with operational users. Also, working with operational users, performers will describe the optimum form factor for the GATE system concept.

1.1.1.5 Phase 1 Deliverables

The minimum expected deliverables are:

- Monthly performance and financial reports.
- Quarterly reviews including kick-off review and a final review.
- System Concept document describing the subsystem- and system-level architecture of the proposed concept.
- CONOPS document describing the proposed operational profile for the GATE system, including proposed platforms and flight profiles required to meet performance objectives.
- Final Report detailing the algorithm concepts and prototype system specifications required to meet the GATE performance metrics.
- Updated Phase 2 technical and cost proposal.

Monthly reports will be due within two weeks of the end of each month and will summarize the actual accomplishments, schedule, and cost relative to the project plan. The performance report will describe the technical activities during the previous month, the expected activities for the following month, and any significant technical challenges that have occurred or are expected. The financial report will identify any aspects of the work that is ahead of or behind schedule and will track the expenditures of funds by task, by month and cumulatively, relative to the anticipated plan.

1.1.2. Phase 2 Subsystem Validation

In this phase, performers will develop critical GATE subsystems, demonstrating specifications sufficient to support system level performance metrics in the classified Addendum 1, to collect data from a relevant geologic environment to validate the sub-system performance. This phase of the program is to define a system level architecture and accomplish risk-reduction subsystem development as required to establish confidence that the gravity sensor payload can be integrated successfully with an airborne platform and will perform as required.

1.1.2.1. Phase 2 Task 1: Gravity Gradiometer Transducer Integration

The performer will integrate GATE sensor package hardware and, combined with Task 2, demonstrate it on a performer-selected surrogate airborne platform that is prototypical of the expected Phase 3 demonstration platform. This risk-reduction activity should show that the transducer is capable of providing gravity gradiometer data with adequate signal-to-noise to

achieve the performance projected during Phase 1. Also, it is expected that application-specific sensor development is required to mature and adapt the underlying transducer technology to the airborne platform. However, the transducer technology in this phase is not required to meet the final size, weight, and power (SWaP) of the final demonstration subsystem for an operational platform. This is not expected to be a sensor technology development activity, but rather focus adapting the existing technology to GATE application.

1.1.2.2. Phase 2 Task 2: Prototype of Isolation Mounting

Performers will build a prototype isolation mount and demonstrate that it meets the subsystem performance determined in Phase 1 to provide sufficient sensor sensitivity. The GATE platform mounting will compensate for vibration, acoustics, electro-magnetic, inertial, or any other noise/vibration sources identified in Phase 1 and maintain the required signal to noise ratio for GATE sensor system.

1.1.2.3. Phase 2 Task 3: Algorithm and Clutter Rejection Enhancement

Performers will develop advanced signal processing algorithms to process gradiometer data to demonstrate sensor SNR enhancement and detection and characterization performance meeting the classified Addendum 1 metrics. This is a continuation of algorithm efforts from Phase 1 and is intended to test advanced detection and inversion algorithms to extract extremely weak target signatures from the noise and clutter background. The algorithm enhancement should include signature SNR improvement, clutter rejection, and tunnel network layout imaging while demonstrating a strategy to reduce expert intervention during processing and improving target detection. The performer will demonstrate the ability to measure terrain for topography correction or Terrain Precision of the sensor data as stated in classified Addendum 1.

1.1.2.4. Phase 2 Task 4: Transition Plan

Performers will provide details of a transition plan to operational user(s) which will be developed in cooperation with the Government.

1.1.2.5 Phase 2 Deliverables

The minimum expected deliverables are:

- Performer defined test / validation plan to be reviewed and approved by DARPA for any system subsystem tests.
- Monthly performance and financial reports.
- Quarterly reviews including kick-off review and a final review.
- Subsystem Validation Report documenting the performance of the individual and integrated GATE risk-reduction sub-system.
- Final Report, to include the results of the demonstration on the performer-selected surrogate airborne platform, integrating GATE sensor package hardware and documenting the performance of the system sub-system relative to the specifications determined in Phase 1 and the expected performance of an integrated GATE system.
- Transition Plan documenting strategy for hand-off of the GATE system to an operational user(s).
- Updated Phase 3 technical and cost proposal.

Monthly reports will be due within two weeks of the end of each month and will summarize the actual accomplishments, schedule, and cost relative to the project plan. The performance report will describe the technical activities during the previous month, the expected activities for the following month, and any significant technical challenges that have occurred or are expected. The financial report will identify any aspects of the work that is ahead of or behind schedule and will track the expenditures of funds by task, by month and cumulatively, relative to the anticipated plan.

1.1.3. Phase 3 Prototype System Demonstration

Phase 3 will develop, integrate, and demonstrate on a surrogate airborne platform a prototype system at a relevant environment which has similar geographical noise and features as the areas of concern. Demonstration is defined as evaluation of the end-to-end prototype system in a relevant field environment and is expected to meet the prototype system performance objectives stated in the classified Addendum 1.

1.1.3.1. Phase 3 Task 1: Preliminary Design Review

The Preliminary Design is an update to the System Design, leveraging the results of the Phase 2 Subsystem Validation. The design will take into account the final platform selection and all remaining design elements required for an end-to-end demonstration.

1.1.3.2. Phase 3 Task 2: Critical Design Review

The Critical Design will provide final design for all elements of the prototype system required to proceed to system development and integration. The Government team shall decide the readiness of the design to proceed to full prototype system development, and that the associated risks are sufficiently low to justify continuation.

1.1.3.3. Phase 3 Task 3: GATE System Development and Platform Integration

The GATE sensor, sensor mounting, processing, and platform will be integrated at the system level. Performers will perform integration testing to demonstrate that the sensor payload meets the prototype system attributes defined in Addendum 1.

1.1.3.4. Phase 3 Task 4: Test Planning and Coordination

Performers will work with the government team to plan and coordinate the execution of the prototype system demonstration. This task includes submitting a test plan and completing a formal Test Readiness Review (TRR). The performer will work with the local test site authority to obtain approval of the proposed flight profiles over the selected area. For planning purposes, the performer will be responsible for operating the platform, the platform location, the GATE system, and all post- processing hardware. Performers will also be responsible for ground-to-air communications with the GATE platform.

1.1.3.5. Phase 3 Task 5: Prototype System Demonstration and Performance Analysis

Performers shall execute the prototype system demonstration and perform on-site data analysis and processing to extract target signatures from the background, interpret the signatures, and validate the GATE system prototype. The Government-supplied test site will provide a geological environment relevant to areas of interest listed in Addendum 1. Performers will

analyze the data and interact with the Government to understand and increase the system performance and to spot and resolve technical issues.

The performer will provide a Final Report presenting the system performance relative to the performance metrics and system attributes. Performers must also provide documentation on the data sets and formatting of the data files, including data headers and synchronization for supporting information. GPS platform history files must be provided, along with their formats. All data products will also be archived and made available for Government team review and analysis.

1.1.3.6 Phase 3 Deliverables

The minimum expected deliverables include:

- Preliminary Design and Critical Design Document detailing the prototype system design.
- Monthly performance and financial reports.
- Quarterly reviews including kick-off review and a final review.
- Demonstration test plan describing including description of flight profiles sufficient for Government safety review.
- Report documenting the results of the demonstration on a surrogate airborne platform of a prototype system at a relevant environment
- Final Report documenting the as-built demonstration system specifications and the system performance against the GATE program metrics.
- The GATE demonstration system, suitable for independent operational evaluation by the user community.

Monthly reports will be due within two weeks of the end of each month and will summarize the actual accomplishments, schedule, and cost relative to the project plan. The performance report will describe the technical activities during the previous month, the expected activities for the following month, and any significant technical challenges that have occurred or are expected. The financial report will identify any aspects of the work that is ahead of or behind schedule and will track the expenditures of funds by task, by month and cumulatively, relative to the anticipated plan.

1.2 PROGRAM METRICS

In order for the Government to evaluate the effectiveness of a proposed solution in achieving the stated program objectives, proposers should note that the Government hereby promulgates the program metrics in classified Addendum 1 that may serve as the basis for determining whether satisfactory progress is being made to warrant continued funding of the program. Although the program metrics are specified in classified Addendum 1, proposers should note that the government has identified these goals with the intention of bounding the scope of effort, while affording the maximum flexibility, creativity, and innovation in proposing solutions to the stated problem.

Proposals should cite the quantitative and qualitative success criteria that the proposed effort will achieve by the time of each Phase's program metric measurement.

2. AWARD INFORMATION

Multiple awards are possible. 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 proposers. 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 proposer. If the proposed effort is inherently divisible and nothing is gained from the Gravity Anomaly for Tunnel Exposure, proposers 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 proposers on the basis of the evaluation criteria listed below (see section labeled “Application Review Information”, Sec. 5.), and program balance to provide overall value to the Government. Proposals identified for negotiation may result in a procurement contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Such additional information may include but is not limited to Representations and Certifications. The Government reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time or the proposer fails to timely provide requested additional information.

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

3. ELIGIBILITY INFORMATION

3.1 ELIGIBLE APPLICANTS

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

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

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

DARPA is anticipating classified submissions because the program metrics provided in classified Addendum 1 will serve as the basis for determining whether satisfactory progress is being made to warrant continued funding of the program. Thus, applicants shall ensure all industrial, personnel, and information system processing security requirements are in place and at the appropriate level (e.g., Facility Clearance (FCL), Personnel Security Clearance (PCL), certification and accreditation (C&A)) and any Foreign Ownership Control and Influence (FOCI) issues are mitigated prior to such submission or access. Additional information on these subjects can be found at: www.dss.mil.

3.1.1 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 Dr. Joseph Durek. 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 proposer if any appear to exist. (Please note the Government assessment does NOT affect, offset, or mitigate the proposer's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.) The Program Manager is required to review and evaluate all proposals received under this BAA and to manage all selected efforts. Proposers 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 rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the Proposer should promptly raise the issue with DARPA by sending Proposer's contact information and a summary of the potential conflict by email to the mailbox address for this BAA at DARPA-BAA-09-20@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.

3.2 COST SHARING/MATCHING

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

3.3 OTHER ELIGIBILITY REQUIREMENTS

3.3.1 Collaborative Efforts

Collaborative efforts/teaming are encouraged. Specific content, communications, networking, and team formation are the sole responsibility of the participants.

4. APPLICATION AND SUBMISSION INFORMATION

4.1 ADDRESS TO REQUEST APPLICATION PACKAGE

With the exception of the classified Addendum, this solicitation contains all information required to submit a proposal. A formal Request for Proposal (RFP) or additional solicitation regarding this announcement will not be issued. Requests for same will be disregarded.

A request for the GATE Classified Addendum DARPA-BAA-09-20 packet may be submitted by filling out the DARPA-BAA-09-20 Classified Packet Request Form (found on page 32 of this BAA) and Emailing the Request Form to DARPA-BAA-09-20@darpa.mil with Subject line titled "Request DARPA-BAA-09-20 Classified Packet" or fax to 703-807-4992. Proposers are encouraged to submit this request as soon as possible to allow for adequate time for BAA Packet preparation and delivery. The DARPA-BAA-09-20 Classified Packet Request Form is the only method of request for this information that will be accepted. All requestors will receive a confirmation email with a delivery tracking number. Prior to receipt of any classified information, proof of facility clearance level (FCL) must be validated by the Program Security POC.

The full GATE DARPA-BAA-09-20 packet consists of a FOUO CD (which includes this DARPA-BAA-09-20, BAA DD254 (DoD Contract Security Classification Specification), and DARPA-CG-513 (Security Classification Guide for Gravity Anomaly for Tunnel Exposure (GATE)) and a paper copy of a 4 page classified BAA Addendum 1. Please specify on Attachment A if you need the entire packet in paper form only, all other packets will be sent as a FOUO CD with a 4 page paper Addendum.

Proposers must demonstrate ability to receive and access DoD Collateral Secret material. All appropriate security safeguards must exist prior to receiving the classified addendum. No extension of the proposal due date will be granted based on inability to acquire security accreditations in a reasonable timeframe.

4.2 SECURITY AND PROPRIETARY ISSUES

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

Classified submissions shall be appropriately and conspicuously marked with the proposed classification level and declassification date.

Classified submissions shall be in accordance with the following guidance:

Confidential and Secret Collateral Information: Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another Original Classification Authority. Classified information at the Confidential and Secret level may be mailed via appropriate U.S. Postal Service methods (e.g., (USPS) Registered Mail or USPS Express Mail). All classified information will be enclosed in opaque inner and outer

covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be address to:

Defense Advanced Research Projects Agency
ATTN: STO DARPA-BAA-09-20
3701 North Fairfax Drive
Arlington, VA 22203-1714

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

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

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

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

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

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

Security classification guidance via a DD254 will be issued based on confirmation of company CAGE code. Based on award of a contract a final DD254 will be attached to the contract.

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 but at least SECRET.

It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies

destroyed. A certification of destruction may be requested, provided the formal request is received at this office within 5 days after unsuccessful notification.

Security questions should be addressed to the BAA Coordinator for this effort.

4.3 CONTENT AND FORM OF APPLICATION SUBMISSION

4.3.1 Proposal Information

Proposers are required to submit full proposals by the time and date specified in the BAA in order to be considered during the initial round of selections. DARPA may evaluate proposals received after this date for a period up to one year from date of posting on FedBizOpps.

Selection remains contingent on 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.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a full proposal to this BAA, should be directed to DARPA-BAA-09-20@darpa.mil. DARPA intends to use electronic mail and fax for correspondence regarding DARPA-BAA-09-20. Proposals 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.

Points of Contact: The BAA Coordinator for this effort can be reached at:

Electronic Mail: DARPA-BAA-09-20@darpa.mil

Unclassified fax: 703-812-3307

DARPA

ATTN: STO DARPA-BAA-09-20

3701 North Fairfax Drive

Arlington, VA 22203-1714

4.3.2 Restrictive Markings on Proposals

All proposals should clearly indicate limitations on the disclosure of their contents. Proposers who include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall-

(1) Mark the title page with the following legend:

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed-in whole or in part-for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this proposer as a result of, or in connection with, the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [*insert numbers or other identification of sheets*]; and

(2) Mark each sheet of data it wishes to restrict with the following legend:

Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

Markings like "Company Confidential" or other phrases that may be confused with national security classifications shall be avoided. See Section 6.0, for additional information.

4.4 FORMATTING CHARACTERISTICS

4.4.1 Proposal Format

All 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. Smaller font may be used for figures, tables and charts. The page limitation for 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 number pages. All proposals must be written in English.

4.4.1.1 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 (if available), electronic mail (if available)
 - (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available), total funds requested from DARPA, and the amount of cost share (if any) and
 - (10) Date proposal was submitted.
- B. Official transmittal letter.

Section II. Summary of Proposal

- A. 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. 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. If there are not proprietary claims, this should be stated.
- C. 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. **Note: Measurable critical milestones should occur every three (3) months after start of effort.** These milestones should enable and support a go/no go decision for the next part of the effort. Additional interim non-critical management milestones are also highly encouraged at a regular interval.
- D. Technical rationale, technical approach, and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable production. (In the proposal, this section should be supplemented by a more detailed plan in Section III.)
- E. General discussion of other research in this area.
- F. A clearly defined organization chart for the program team which includes, as applicable: (1) the programmatic relationship of team member; (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.
- G. A one-slide summary, a penta chart, of the proposal in PowerPoint that quickly and succinctly indicates the main objective, key innovations, expected impact, and other unique aspects of the proposal.

Section III. Detailed Proposal Information

- A. 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. 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. Do not include any proprietary information in the SOW.

- B. Description of the results, products, transferable technology, and expected technology transfer path enhancing that of Section II. B.
- C. Detailed technical rationale enhancing that of Section II.
- D. Detailed technical approach enhancing and completing that of Section II.
- E. Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.
- F. Discussion of proposer's previous accomplishments and work in closely related research areas.
- G. Description of the facilities that would be used for the proposed effort.
- H. Detail support enhancing that of Section II, including formal teaming agreements which are required to execute this program.
- I. 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. **Note: Measurable critical milestones should occur every (3)months after start of effort.** These milestones should enable and support a go/no go decision for the next part of the effort. Additional interim non-critical management milestones are also highly encouraged at regular intervals. 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.

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.

4.4.2.2 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 proposer’s cognizant Defense Contract Management Agency (DCMA) administration office (*if known*);
- (14) Name, address, and telephone number of the proposer’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;
- (20) Proposal validity period;
- (21) Any Forward Pricing Rate Agreement, other such approved rate information, or such other documentation that may assist in expediting negotiations (if available).

Detailed cost breakdown to include:

- (1) total program cost broken down by major cost items to include:
 - i) Direct Labor including individual labor category or person, with associated labor hours and unburdened direct labor rates;
 - ii) If consultants are to be used, proposer must provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate;
 - iii) Indirect costs including fringe Benefits, Overhead, General and Administrative Expense, Cost of Money, etc. (Must show base amount and rate);
 - iv) Travel – Number of trips, number of days per trip, departure and arrival destinations, number of people, etc.
 - v) Other Direct Costs – Should be itemized with costs or estimated costs. Backup documentation should be submitted to support proposed costs.
- (2) major program tasks by fiscal year
- (3) an itemization of major subcontracts and equipment purchases, to include: a cost proposal as detailed as the Proposer’s cost proposal; the subcontractor’s cost proposal can be provided in a sealed envelope with the Proposer’s cost proposal. Materials

should be specifically itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, shall be provided.

Please include a brief description of the Proposers' procurement method to be used;

- (4) an itemization of any information technology (IT) purchase including subcontractor cost (NOTE: For IT equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding)
- (5) a summary of projected funding requirements by month; and
- (6) the source, nature, and amount of any industry cost-sharing. 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; and identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished / Facilities / Information, access to Government Subject Matter Expert/s, etc.

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.

Supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates in Section II C. 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 proposer is seeking a procurement contract award of \$650,000 or greater unless the proposers request an exception from the requirement to submit cost of pricing data. "Cost or pricing data" are not required if the proposer 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 shall be provided to the Government either by the prime contractor or by the subcontractor organization when the proposal is submitted. Subcontractor proposals submitted to the Government by the prime contractor should be submitted in a sealed envelope that the prime contractor will not be allowed to view. The subcontractor must provide the same number of hard copies and/or electronic proposals as is required of the prime contractor.

All proposers requesting an 845 Other Transaction Agreement for Prototypes (OTA) must include a detailed list of payment milestones. Each such payment 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 proposer's proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer; however, it is noted that the Government prefers use of fixed price payable milestones to the maximum extent possible. 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" dated 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.

Proposers must submit an OCI Mitigation Plan (if applicable) to detail what steps the contractor is performing to mitigate an actual or perceived conflict of interest.

4.5 SUBMISSION DATES AND TIMES

4.5.1 Proposal Date

The proposal (original hardcopy and two (2) electronic copies of the proposal (in PDF (preferred) and MS word on a CD-ROM shall be submitted to:

DARPA/STO
ATTN: STO DARPA-BAA-09-20
3701 North Fairfax Drive, Arlington
VA 22203-1714

on or before 4:00 p.m., local time at Arlington, VA, 05 Jun 2009, 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. Proposals submitted after the due date specified in the BAA may be selected contingent upon the availability of funds.

See paragraph 4.2 for information on submitting classified proposals.

DARPA will post a consolidated Question and Answer response after Proposer's Day, before proposals are due. In order to receive a response to your question, submit your question by 01 May 2009 to the DARPA-BAA-09-20@darpa.mil email address.

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.

5. APPLICATION REVIEW INFORMATION

5.1 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: (5.1.1) Ability to Meet Program Go/No Metrics, (5.1.2) Overall Scientific and Technical Merit; (5.1.3) Potential Contribution and Relevance to the DARPA Mission; (5.1.4) Realism of Proposed Schedule; (5.1.5) Proposer's Capabilities and/or Related Experience; (5.1.6) Plans and Capability to Accomplish Technology Transition; and (5.1.7) 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:

5.1.1 Ability to Meet Program Go/No-Go Metrics

The feasibility and likelihood of the proposed approach for satisfying the program go/no-go metrics are explicitly described and clearly substantiated. The proposal reflects a mature and quantitative understanding of the program 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.

5.1.2 Overall Scientific and Technical Merit

The proposed technical approach is feasible, achievable, and complete. 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.

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.

5.1.3 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.

5.1.4 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.

5.1.5 Proposer's Capabilities and/or 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's expertise to manage the cost and schedule will be evaluated. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors.

5.1.6 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, and the extent to which intellectual property rights limitations creates a barrier to technology transition.

5.1.7 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.

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

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 advantageous to the Government regardless of its overall rating.

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

5.2 REVIEW AND RECOMMENDATION PROCESS

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and 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 Format", Section 4.4.2. 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.

6. AWARD ADMINISTRATION INFORMATION

6.1 AWARD NOTICES

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

6.2 MEETING AND TRAVEL REQUIREMENTS

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

6.3 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.

6.4 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."

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>

6.5 PUBLIC RELEASE OR DISSEMINATION OF INFORMATION

It is the policy of the Department of Defense for products of fundamental research to remain unrestricted to the maximum extent possible. Contracted fundamental research:

Includes research performed under grants and contracts that are (a) Basic Research"), whether performed by universities or industry or (b) applies research and performed on-campus at a university. The research shall not be considered fundamental in those rare and exception circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.

It is anticipated that the performance of research resulting from the BAA is not expected to be fundamental research.

The following provision will be incorporated into any resultant procurement contract or other transaction:

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

(b) When submitting material for written approval for open publication as described in subparagraph (a) above, the Contractor must submit a request for public release request 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'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.

6.6 EXPORT CONTROL

Since gravity gradiometer technology has military or dual-use applications, the following will apply to the GATE program:

(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, 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.

6.7 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.

6.8 ELECTRONIC AND INFORMATION TECHNOLOGY

All electronic and information technology acquired through this solicitation must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. 794d) and FAR Subpart 39.2. Each proposer who submits a proposal involving the creation or inclusion of electronic and information technology must ensure that Federal employees with disabilities will have access to and use of information that is comparable to the access and use by Federal employees who are not individuals with disabilities and members of the public with disabilities seeking information or services from DARPA will have access to and use of information and data that is comparable to the access and use of information and data by members of the public who are not individuals with disabilities.

6.9 REPORTING

The number and types of reports will be specified in the award document, but will include as a minimum monthly 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.

6.9.1 Central Contractor Registration (CCR)

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

6.9.2 Representations and Certifications

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

6.9.3 Wide Area Work Flow (WAWF)

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

6.9.4 i-Edison

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

6.10 AGENCY CONTACTS

DARPA will use electronic mail for all technical and administrative correspondence regarding this BAA, with the exception of selected/not-selected notifications.

Administrative, technical or contractual questions should be sent via e-mail to DARPA-BAA09-20@darpa.mil. If e-mail is not available, fax questions to 703-807-4992, Attention: DARPA-BAA09-20. All requests must include the name, email address, and phone number of a point of contact.

The technical POC for this effort is Dr. Joseph Durek

DARPA/STO
ATTN: DARPA-BAA 09-20
3701 North Fairfax Drive
Arlington, VA 22203-1714
Fax: 703-807-4992
Phone: 703-812-1974
Email: DARPA-BAA-09-20@darpa.mil

7. OTHER INFORMATION

7.1 INTELLECTUAL PROPERTY

7.1.1 Procurement Contract Proposers

7.1.1.1 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)

7.1.1.2 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)

7.1.2 NonProcurement Contract Proposers

7.1.2.1 Noncommercial and Commercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting an Other Transaction for Prototype shall follow the applicable rules and regulations governing that instrument, but in all cases should appropriately identify any potential restrictions on the Government's use of any Intellectual Property contemplated under that award instrument. 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."

7.1.2.2 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.

7.1.2.3 All Proposers-Intellectual Property Representations

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

**ATTACHMENT A:
Gravity Anomaly for Tunnel Exposure (GATE) DARPA-BAA-09-20 Classified Packet
Request Form**

Date:_____

Company Name: _____

Company Address (Unclassified): _____

Company Address (Classified): _____

Unclassified Fax: _____

Point of Contact Name: _____

POC Phone Number: _____

POC Fax Number: _____

POC E-mail: _____

Company CAGE code: _____

Security or FSO Phone Number: _____

Security or FSO Fax Number: _____

Security or FSO e-mail: _____

Company Secure Fax number: _____