

MAEGLIN BAA Overview

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Intelligence Advanced Research Projects Activity



Office of the Director of National Intelligence

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MAEGLIN
REVEALING THE UNSEEN



MAEGLIN Phase 1 (BAA-16-01) Previous

Phase 1, 18 month duration, IARPA-BAA-16-01

Track	Collection	Separation	Identification
Goals	Low power, reversible gas phase collection, storage, release technology. An optional modular front end sampling adaptor to add additional capability for liquid or particulate aerosol and/or bulk liquid and solid phase collection and volatilization.	Low power, non-destructive separation of chemical mixtures with a broad concentration range, potentially including the ability to “bleed off” all or part of the collected sample if desired. System will use minimal (preferably no) consumables.	Low power, high-accuracy identification of large library of chemicals from pure compounds or low-count mixtures. System will use minimal (preferably no) consumables.

Component development. Will be complete in July 1018.

Power system and vacuum technology NOT addressed in Phase 1.



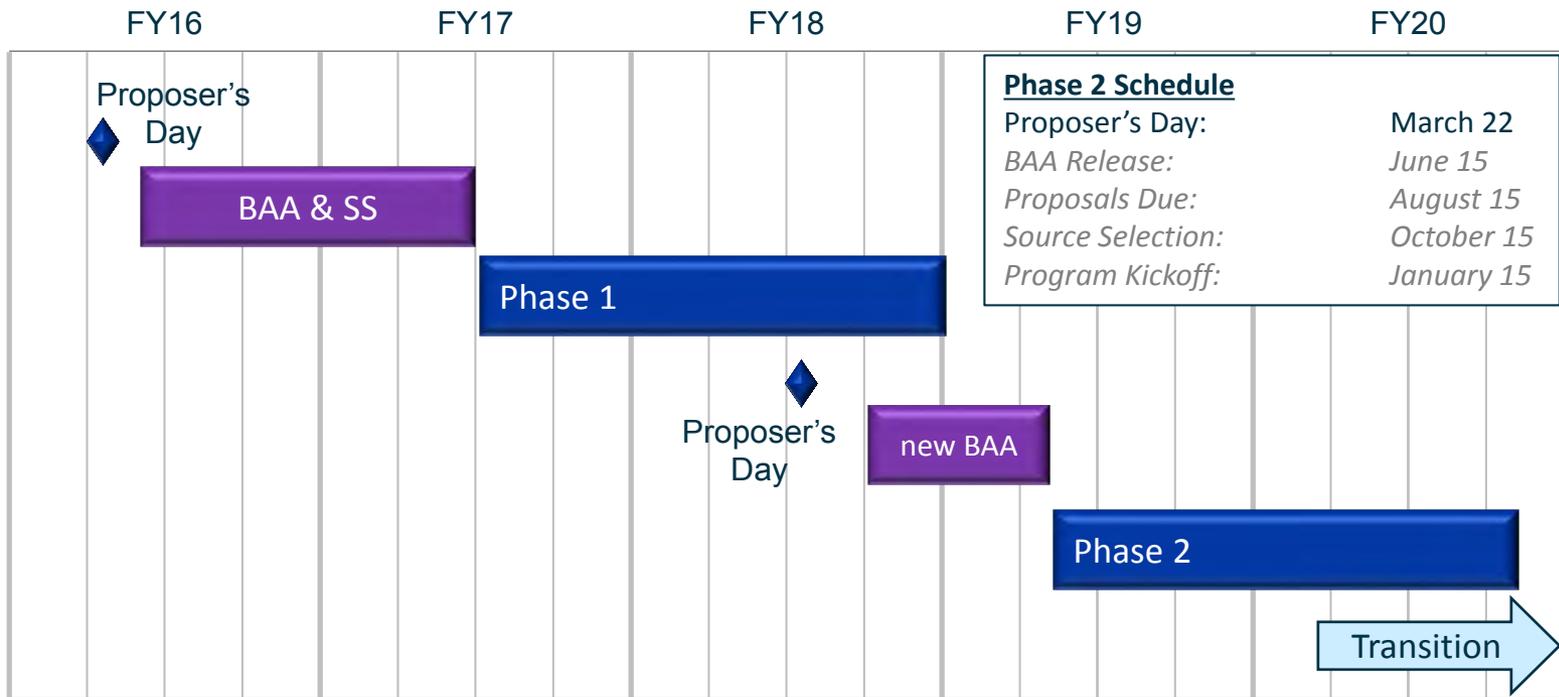
MAEGLIN Phase 2 (BAA-18-04) This Solicitation

Phase 2, 18 month duration, IARPA-BAA-18-04		
Track	Chemical Detection	Chemical Identification
Goals	Low power, high accuracy, integrated system capable of collecting complex chemical mixtures, screen backgrounds and interferents, and provide warning based on a robust chemical library. No definitive ID required.	Low power, high accuracy, integrated system capable of collecting and identifying target chemicals at low concentrations (potentially several orders of magnitude below ambient background). Full analysis of complex mixtures with positive identification of a broad range of species, including multiple target chemicals.

Integrated prototype demonstration.



Program Level Schedule





BAA Highlights

- Separate BAAs for Phases 1 and 2
- Phase 2 BAA is a fully open solicitation – does not require Phase 1 participants to participate in any capacity
- Offeror team must address all of program requirements within a track, no partial proposals, such as development of specific component technology, will be accepted
- May bid to one or both tracks – separate proposals in for each
- The Government anticipates that proposals submitted under this BAA will be unclassified
- Multiple awards are expected
- 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



Definitions for Metrics

- **Target:** specific chemical of interest identified in the GFI library listing
- **Background:** specific non-target chemical identified in the GFI library listing. Background compounds include synthesis precursors, decomposition products, and common contaminants associated with target compounds, signatures to be expected as clutter or interferences in the natural environmental background, and signatures that have very similar spectral features to the target compounds.
- **True Unknown:** a compound provided in a physical test sample that does not appear as either a target or background chemical in the GFI library listing. True unknowns will be individual chemical species selected from the International Union of Pure and Applied Chemistry (IUPAC) catalog of known, named chemicals. The Government will not use new, custom synthesized compounds as true unknowns.
- **Threshold:** minimum performance baseline for offeror to satisfy the given metric
- **Goal:** desired performance level for a given metric



Detection Track Metrics

2.A: Chemical Detection Track

Category	Metrics
# of Compounds	50 targets, 200 backgrounds
Compound Scope	polar, non-polar, volatile, semi-volatile compounds
Compound Mass Range	Threshold: 30 – 250 amu Goal: 3 – 300 amu
Input	Required (base component): gas-phase samples in ambient air Optional: liquid or particulate aerosol, bulk liquid or solid
Output	Automated compound detection (not real time)
Concentration Range	500 pg/cm ³ to 10 µg/cm ³
Sampling Duration	Minimum: 5 minutes Maximum: 4 hours
Detection Capability	Collect a mixture of up to 25 chemicals from the combined target and background library, provide warning of presence of any target chemical in this mixture with a concentration of 1% of the total chemical mixture volume or greater with $P_D > 95\%$, $P_{FA} < 1\%$. Detection systems do not have to identify specific target chemicals, only the presence of chemical on target list.
Reusability	Threshold: 100 X Goal: 500 X
Size	0.5 Liters
Weight	Less than or equal to 1.5 kg
Power	Threshold: < 7.5 kJ per analysis run Goal: < 1.5 kJ per analysis run
Consumables	Minimal consumables (none preferred); no exotic consumables – must be safe and transportable; sufficient consumables for 100 cycles must be included in package size and weight evaluation
Form Factor of Optional Aerosol or Bulk Collectors	Modular, removable adaptor attached to base gas phase collector; may increase SWaP by 0.25L, 1kg, including consumables



Identification Track Metrics

2.B: Chemical Identification Track

Category	Metrics
# of Compounds	100 targets, 200 backgrounds, 10 true unknowns
Compound Scope	polar, non-polar, volatile, semi-volatile compounds
Compound Mass Range	Threshold: 30 – 350 amu Goal: 3 – 500 amu
Input	Required (base component): gas-phase samples in ambient air Optional: liquid or particulate aerosol, bulk liquid or solid
Output	Automated compound identification (not real time)
Concentration Range	50 pg/cm ³ to 500 □g/cm ³
Sampling Duration	Minimum: 30 minutes Maximum: 24 hours
Limit of Identification (neat compound)	10 ng/cm ³
Response Range to a Single Compound	Threshold: 1000 X Goal: 10,000 X
Analysis Capability	Identification of all neat library compounds at 10□g/cm ³ concentration
Size	1.5 Liters
Weight	Less than or equal to 7 kg
Power	Threshold: < 7.5 kJ per analysis run Goal: < 1.5 kJ per analysis run
Consumables	Minimal consumables (none preferred); no exotic consumables – must be safe and transportable; sufficient consumables for 730 cycles must be included in package size and weight evaluation
Form Factor of Optional Aerosol or Bulk Collectors	Modular, removable adaptor attached to base gas phase collector; may increase SWaP by 0.25L, 1kg, including consumables



Milestones and Waypoints

- **Milestones** are Government-defined progress metrics that must be met by the end of each phase
- **Waypoints** are offeror-defined, task-driven intermediate steps towards a milestone
 - Depending on an offeror's specific approach, progress towards a milestone is not expected to be linear in all areas
 - Waypoints are how the offeror clearly explains to the Government the quantitative and timely progress that must be made for their overall concept to meet the end-of-phase Milestones – performance against these waypoints is reviewed throughout program
- **Technical reviews** held at months 4, 7, 11, 13, and 17 will quantify progress against the waypoints & assess whether course corrections are needed for success



GFI/GFE

- At **kickoff**, the Government will provide performers with a list of the target and background compounds in each track. Performers will be responsible for any characterization of these compounds that is necessary to choose system materials and components, or build libraries for compound identification.
- At months **9** and **14**, performers will travel to Government-selected test and evaluation (T&E) facilities and undergo a series of tests that will measure their system performance against the metrics described in Table 2. A comprehensive description of the tests to be conducted will be provided to the performers two months prior to each test. For planning purposes, performers should allow two days of testing in the Washington DC metro area for month **9** and the same for month **14**.



Test and Evaluation

- In month **17**, performers will travel to a Government-selected T&E facility and undergo a series of tests that will provide an end-of-phase assessment of their system performance against the metrics for Government review and evaluation. These tests will be a more comprehensive battery of the tests performed at months 9 and 14. For planning purposes, performers should allow three to five days of testing in the Washington DC metro area.



Other Information

- The compound library will include challenges for both physical (retention time, ionization cross section, etc.) and functional (similar spectra) characteristics.
- No proposals that involve chemical reactions or degradation during storage or sample release will be considered.
- Isotopic analysis is desirable in the Chemical Identification track, but not required.
- In addition to the Government-specified metrics, offerors should provide a clear listing with supporting modeling and/or calculations of other metrics relevant to their particular chemical approach.



Out of Scope

- Solutions that address component technology instead of an integrated system prototype
- Research that does not have strong theoretical and experimental foundations or plausible scientific support for the offeror's claims
- Approaches that propose or are likely to result in only incremental improvements over the current state of the art
- Approaches that require significant or exotic consumables or present safety hazards incompatible with remote, unattended operation
- Approaches with significantly limited operation parameters such as: not accommodating day/night, indoor/outdoor, or variable climate operation
- Development of component technology that is not required for the offeror's proposed approach.



Phase 2 Schedule

Month	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Kickoff	█																		
WMA Review								█						█					█
Site Visits					█							█							
WMA Workshop														█					
Library List	█																		
Benchmark Test										█					█				
Final Test																			█
Independent Gov. Eval.																	█	█	█



Top-Level Expected Performance Schedule

Months After Kickoff	Performance
5	Component design complete, long-lead fabrication started. System design showing traceability to SWaP requirements
9	Test components against a subset of Phase 2 library
14	Test integrated system against a subset of Phase 2 library
17	Meet all Phase 2 Milestones/Metrics

List of Deliverables

Deliverable	Month
Kickoff meeting. Corrected slide package provided within 15 days after meeting date.	0
WMA technical reviews. Corrected slide packages provided within 15 days after meeting date.	7, 13
On-site technical reviews. Corrected slide packages provided within 15 days after meeting date.	4, 11
Benchmark testing at Government T&E facility.	9, 14
WMA workshop	13
Demonstration of Phase 2 Milestones per 1.B.5	17
System available for independent Government testing/evaluation	17
Final report. Format provided upon contract award.	18
Demonstration hardware and software	18
Monthly technical and financial reports	Monthly, by 10 th day of the following month

Doing Business with IARPA

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Doing Business with IARPA - Recurring Questions

- Questions and Answers (<http://www.iarpa.gov/index.php/faqs>)
- Eligibility Info
- Intellectual Property
- Pre-Publication Review
- Preparing the Proposal (Broad Agency Announcement (BAA) Section 4)
 - Electronic Proposal Delivery (<https://iarpa-ideas.gov>)
- Organizational Conflicts of Interest
(<http://www.iarpa.gov/index.php/working-with-iarpa/iarpas-approach-to-oci>)
- Other points to consider

RECOMMENDATION: Please read the entire BAA. There may be some changes to our standard BAA template so please take note.



Questions & Answers

- There will be a specified period for questions stated in the BAA. All questions and answers will be posted. (Note: Questions may be submitted not only regarding technical requirements but all other sections of the BAA).
- Send your questions as soon as possible
 - MAEGLIN Phase 2 BAA: **dni-iarpa-baa-18-04@iarpa.gov**
 - Write questions as clearly as possible
 - Do NOT include proprietary information *or mark as proprietary or otherwise confidential.*
- Pay attention to Section 4 (Proposal & Submission Information)
- Frequently Asked Questions can be found on the IARPA website: <http://www.iarpa.gov/index.php/faqs>



Eligible Applicants

- Collaborative efforts/teaming strongly encouraged
 - Content, communications, networking, and team formation are the responsibility of Proposers

- Foreign organizations and/or individuals may participate subject to: Non-Disclosure Agreements, Security Regulations, Export Control Laws, etc., as appropriate. See BAA for further information.



Ineligible Organizations

Other Government Agencies, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and any organizations that have a special relationship with the Government, including access to privileged and/or proprietary information, or access to Government equipment or real property, are not eligible to submit proposals under this BAA or participate as team members under proposals submitted by eligible entities.



Intellectual Property (IP)

- Intellectual Property Ownership.
 - The Government generally does not seek to own the intellectual property in technical data and computer software developed under Government contracts; it generally acquires only the right to use the technical data/computer software.
 - Thus, performers may usually freely use their data for their own commercial purposes (unless restricted by U.S. export control laws or security classification).
 - For inventions first conceived or actually reduced to practice under a contract, grant, or cooperative agreement for this effort, IARPA will obtain a nonexclusive, nontransferable, irrevocable, paid-up license to practice, or have practiced for or on its behalf, such invention throughout the world; Offeror may elect to retain title as described in the award instrument.
- Please note that IARPA generally uses the Government Purpose Rights (GPR) approach for data developed with mixed funding, however, please see the BAA for specific program requirements regarding IP.
- *Explicitly state* in the proposal any *asserted* restrictions on deliverables relating to existing materials (data, software, tools, etc.)



Pre-Publication Review

- IARPA encourages publication for peer review of UNCLASSIFIED research
- It is anticipated that research funded under this Program will be unclassified research that shall not require a pre-publication review. However, performers should note that pre-publication approval of certain information may be required if it is determined that its release may result in the disclosure of sensitive intelligence information.
- A courtesy soft copy of any work submitted for publication shall be provided to the IARPA Program Manager and the Contracting Officer Representative (COR) a minimum of 5 days prior to release in any forum.



Preparing the Proposal

- Follow the detailed instructions for preparing the proposal (BAA Section 4)
- Proposal submissions (BAA Section 4):
 - Offerors must follow BAA instructions regarding submittal of proposal
 - Interested Offerors must register electronically IAW instructions on: <https://iarpa-ideas.gov>
 - Interested Offerors are strongly encouraged to register in IDEAS at least 1 week prior to proposal “Due Date”
 - For Classified proposal submissions, the BAA will have further instructions. Not anticipated for MAEGLIN Phase 2.
- Check FBO & IARPA website for amendments and Q&As
- Read proposal Evaluation Criteria and Method of Evaluation and Selection carefully (BAA Section 5)



Organizational Conflict of Interest (OCI)

- If a prospective offeror, or any of its proposed subcontractor teammates, believes that a potential conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with IARPA as instructed in the BAA. (BAA Section 3)
- Potential conflicts include but are not limited to any instance where an offeror, or any of its proposed subcontractor teammates, is providing either scientific, engineering and technical assistance (SETA) or technical consultation to IARPA.
- Without a waiver from the IARPA Director, neither an offeror, nor its proposed subcontractor teammates, can simultaneously provide SETA support or technical consultation to IARPA and compete or perform as a Performer under this solicitation.



Other

- IARPA funds Applied Research for the Intelligence Community (IC)
- IARPA cannot waive the requirements of Export Administrative Regulation (EAR) or International Traffic in Arms Regulation (ITAR)
- Not subject to DoD funding restrictions for R&D related to overhead rates - IARPA is not DoD



Disclaimer

- Content of the Final BAA will be specific to this program
- The information conveyed in this brief and discussion is for planning purposes and is subject to change prior to the release of the Final BAA.



Point of Contact

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Website: www.iarpa.gov

Questions? Please fill out cards.



Time	Topic	Speaker
7:30 - 8:00	Arrival, Badging	
8:00-8:15	Logistics, Proposer's Day Goals	Dr. Kristy DeWitt Program Manager
8:15-8:30	IARPA Overview and Remarks	Marianne Kramer Chief of Technology Transition
8:30-9:00	MAEGLIN Technical Overview	Dr. Kristy DeWitt
9:00-9:30	Government Presentation of Phase 1 Testbed and Results	Dr. Kristy DeWitt
9:30-9:45	Break	
9:45-10:45	MAEGLIN BAA Overview	Dr. Kristy DeWitt
10:15-10:45	Doing Business w/ IARPA	Dr. Kristy DeWitt
10:45-11:00	Break	
11:00-11:30	Q&A Session	Dr. Kristy DeWitt
11:30-1:00	Lunch - Posters/Demos/Teaming Discussions	No Government
1:00-2:45	"Lightning Round" Presentations	No Government
1:00-1:10	BAE Systems	
1:10-1:20	Signature Science	
1:20-1:30	U.M. - Zellers	
1:30-1:40	U.M. - Gianchandani	
1:40-1:50	U. M. - Fan	
1:50-2:05	Break	
2:05-2:15	MassTech	
2:15-2:25	Leidos	
2:25-2:35	SRI International	
2:35-2:45	UTAS	
2:45-3:00	Break	
3:00-4:00	5 Minute Capability Briefs (No Government)	No Government

Q & A Session

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