NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

FY06.1 SUBMISSION OF PROPOSALS

GENERAL INFORMATION

The mission of the National Geospatial-Intelligence Agency (NGA) is to provide timely, relevant, and accurate Geospatial-Intelligence in support of national security.   Therefore, NGA pursues research that will help guarantee the information edge over potential adversaries. Information on NGA's SBIR Program can be found on the NGA SBIR website at http://www.nga.mil/sbir. Additional information pertaining to the National Geospatial-Intelligence Agency's mission can be obtained by viewing the website at http://www.nga.mil/.

Inquiries of a general nature or questions concerning the administration of the SBIR program should be addressed to:

> National Geospatial-Intelligence Agency
> Attn: SBIR Program Manager, IB, MS: DN-11
> 12310 Sunrise Valley Dr. Reston, VA 20191
> Email: SBIR@nga.mil

For technical questions about the topic, directly contact the Topic Authors listed under each topic before 13 December 2005, after that questions may be posted through SITIS at http://www.dodsbir.net/sitis/. For general inquiries or problems with the electronic submission, contact the DoD Help Desk at 1-866-724-7457 (8AM to 5PM EST).

PHASE I PROPOSAL INFORMATION

Read the DoD Program Solicitation at www.dodsbir.net/solicitation for detailed instructions on proposal format and program requirements.

NGA has developed topics to which small businesses may respond in the fiscal year 2006 SBIR Phase I iteration. These topics are described on the following pages. NGA will accept only unclassified proposals on its topics.

The maximum amount of SBIR funding for a Phase I award is $100,000 and the maximum period of performance for a Phase I award is 9 months. NGA does not participate in the Fast Track program nor Phase II Enhancement.

Selection of Phase I proposals will be in accordance with the evaluation procedures and criteria discussed in this solicitation (refer to section 4.2 of the program solicitation). NGA will apply the criteria in descending order of importance with the first criterion on soundness, technical merit, and incremental progress toward topic or subtopic solution being the most important. Due to limited funding, NGA reserves the right to limit awards under either topic, and only those proposals of superior scientific and technical quality will be funded.

Federally Funded Research and Development Contractors (FFRDC) and other government contractors may be used in the evaluation of your proposal.

NGA typically provides a firm fixed price level of effort contract for Phase I awards. The type of contract is at the discretion of the contracting officer.

NEW REQUIREMENT: ALL PROPOSAL SUBMISSIONS TO THE NGA SBIR PROGRAM MUST BE SUBMITTED ELECTRONICALLY

It is mandatory for both Phase I and Phase II of the NGA SBIR Program that the entire technical proposal, DoD Proposal Cover Sheet, Cost Proposal, and the Company Commercialization Report are submitted electronically through the DoD SBIR website at http://www.dodsbir.net/submission. If you have any questions or problems with the electronic submission contact the DoD SBIR Helpdesk at 1-866-724-7457 (8AM to 5PM EST).

Complete electronic submission includes the submission of the Cover Sheets, Cost Proposal, Company Commercialization Report, the Entire technical proposal and any appendices via the DoD Submission site. The DoD proposal submission site http://www.dodsbir.net/submission will lead you through the process for submitting your technical proposal and all of the sections electronically. Each of these documents are submitted separately

through the website. You are responsible for performing a virus check on each proposal to be uploaded electronically. The detection of a virus on any submission may be cause for the rejection of the proposal. Your proposal must be submitted via the submission site on or before the 6:00 a.m. EST, 13 January 2006 deadline.

If a vendor occupies space in a NGA activity or has a support contract to provide services outside of an SBIR Phase I, II or III contract award with NGA, they must indicate this on the front of the Proposal Cover Sheet. NGA is concerned with potential conflicts of interest. If a vendor replies yes to either of these questions, and it is determined that their participation in the NGA SBIR program would create a conflict of interest, then the vendor will not be allowed to participate in NGA's SBIR program.

Phase I contracts will include a requirement to produce an interim report not later than 7 1/2 months after award. This report shall include the following sections:

- A summary of the results of the Phase I research to date

- A summary of the Phase I tasks not yet completed, with an estimated completion date for each task

- A statement of potential applications and benefits of the research.

The report shall be no more than 750 words long. The report shall be prepared single spaced in 12 pitch or 11 point Times New Roman font, with at least a one inch margin on top, bottom, and sides, on 8 ½" by 11" paper. The pages shall be numbered. The interim report shall be evaluated on the same criteria used to evaluate Phase I proposals to decide which Phase I projects will be invited to submit Phase II proposals.

PHASE II GUIDELINES

Phase II proposals are invited by NGA from Phase I projects that have demonstrated the potential for commercialization of useful products and services. The invitation will be issued in writing by NGA.

NGA typically provides a cost plus fixed fee contract as a Phase II award. The type of contract is at the discretion of the Contracting Officer.

Phase II proposals shall be limited to $500,000 over a two year period, with a $250,000 base proposal (first year) and a $250,000 option period (second year). Phase II base and Phase II option costs shall be shown separately in the proposal. A work breakdown structure that shows the number of hours and labor category broken out by task and subtask, as well as the start and end dates for each task and subtask, shall be included. The option shall be included with the base proposal at the time of submission.

Selection of Phase II proposals will be in accordance with the evaluation procedures and criteria discussed in this solicitation (refer to section 4.3 of the program solicitation). Those SBIR participants that are selected to submit Phase II proposals will receive a detailed package of NGA submission requirements, which will include the relevant importance of the evaluation criteria and also may include additional evaluation criteria.

Phase II contracts shall include a requirement to produce an interim report not later than 10 months after contract award. This report shall include the following sections:

- A summary of the results of the Phase II research to date

- A summary of the Phase II tasks not yet completed, including those in the Option year, with an estimate of the completion date for each task

- A statement of potential applications and benefits of the research.

The report shall be no more than 750 words long. The report shall be prepared single spaced in 12 point Times New Roman font, with at least a one inch margin on top, bottom, and sides, on 8 ½" by 11" paper. The pages shall be numbered. The report shall be evaluated in accordance with this solicitation (refer to section 4.3 of this solicitation).

NGA PROPOSAL CHECKLIST

This is a Checklist of Requirements for your proposal. Please review the checklist carefully to ensure that your proposal meets NGA SBIR requirements. Failure to meet these requirements will result in your proposal not being considered for review or award. <u>Do not include this checklist with your proposal.</u>

_____ 1.   The Proposal Cover Sheet along with the full Technical Proposal, Cost Proposal, and Company Commercialization Report were submitted using the SBIR proposal submission system, which can be accessed directly at http://www.dodsbir.net/submission.   The Proposal Cover Sheet clearly shows the proposal number assigned by the system to your proposal. Indicate if you are a NGA support contractor.

_____ 2.   The proposal addresses a Phase I effort (up to $100,000 with up to a nine-month duration) .

_____ 3.   The proposal is limited to only ONE NGA solicitation topic.

_____ 4.   The Project Content and other content provided on the Proposal Cover Sheet contains no proprietary information and is limited to the space provided.

_____ 5.   The Technical Content of the proposal includes the items identified in Section 3.5 of the program solicitation.

_____ 6.   The Company Commercialization Report is submitted online in accordance with Section 3.5.d. This report is required even if the company has not received any SBIR funding (This report does not count towards the 25-page limit).

_____ 7.   The proposal is 25 pages or less in length (excluding the Company Commercialization Report). Pages in excess of this length will not be considered for review or award.

_____ 8.   The proposal contains no type smaller than 12 pitch or 11 point font size (except as legend on reduced drawings, but not tables).

_____ 9.   The Cost Proposal has been completed for the Phase I costs. The Cost Proposal has been filled in electronically or included as the last page of the uploaded technical proposal. The total cost should match the amount on the cover pages.

_____ 10.   The proposal must be electronically submitted through the online submission site (http://www.dodsbir.net/submission) by 6a.m. January 13, 2006

NGA06-001   TITLE: <u>Modularized Transliteration Engine</u>

TECHNOLOGY AREAS: Information Systems, Human Systems

OBJECTIVE: Develop a user-friendly modular transliteration engine which employs a standard transliteration system template format capable of efficiently expressing the 70 toponymic transliteration systems represented in the National Geospatial-Intelligence (NGA) Geographic Names Database.

DESCRIPTION: NGA provides geospatial intelligence and geospatial data and information for planning, decision-making and action in support of national security. Geospatial analysts depend upon NGA for geographic names that accurately describe, depict, and locate geographically referenced physical features and activities on the Earth. To accomplish this, NGA maintains approximately 70 official transliteration systems and standards provided by the United States Board on Geographic Names (BGN), external agencies, (international partners) foreign governments, international standardization organizations, and the Office of the Director of National Intelligence. These transliteration systems are part of a core knowledge base that is central to the NGA enterprise operations and made available to aid the operations of Department of Defense and Intelligence Community agencies.

There is no currently accepted standard that comprehensively encapsulates all transliteration systems. Current commercial transliteration tools are limited because they hard-code individual transliteration systems rather than comprehensively transliterating multiple languages.

NGA needs transliteration tools that are dynamic in order to react to legal, geopolitical, and linguistic factors. Technical parameters require the ability to update or create transliteration systems for those tools to support effective geographic name searching, automated transliteration, automated generation of data validation rules, automated generation of training examples, and, automated updates to documentation within one comprehensive knowledge base so that updates are easily propagated to all Defense and Intelligence users.

PHASE I: Conduct research to gain an understanding of existing transliteration systems used by the U.S. Board on Geographic Names, as well as other systems (United Nations Group of Experts on Geographic Names, United States Library of Congress, other Intelligence Community transliteration standards). Apply the knowledge gained through this research to define a design concept and develop a standard transliteration system template format (a meta-language) that captures and expresses language rules from all the systems examined. The level of complexity of the meta-language developed for the template should be equal to current transliteration systems and based on the Chomsky hierarchy.

Develop a design concept for a transliteration engine (i.e. software) that implements the modular transliteration architecture. The modular transliteration engine must be computationally fast and efficient and should integrate with the Global Information Grid and the National System for Geospatial Intelligence. The final products will be a report that describes the meta-language, including sample editable configuration files for several languages of interest, as well as a design concept for a prototype transliteration engine and a demonstration using sample configuration files.

PHASE II: Develop and deliver a prototype transliteration engine that is capable of reading editable files in the meta-language from Phase I, and applying them to textual input so as to produce correctly transliterated output in another script. Develop and deliver functional interfaces to implement into NGA systems.

PHASE III: Once a prototype has been demonstrated successfully, it is anticipated that a production-level version of the software may be available as a commercial product. Other agencies within the U.S. Government (Library of Congress) and, more importantly, within the Intelligence Community (CIA, Foreign Broadcast Information Service (FBIS), NSA, e.g.), have an expressed interest in embracing such technology once it becomes available. Commercial applications are easy to imagine: any company that needs to transform words in one language into words in another script could use such technology to support geographic names activities such as source ingestion, quality control, data validation, geographic names query processing and search, and gazetteer production.

REFERENCES:

Chomsky, Noam (1956). 'Three Models for the Description of Language.' IRE Transactions on Information Theory 2 (1956), pp. 113-124.

PC-Kimmo, a Morphological Parser. http://www.sil.org/pckimmo/. (Use for an example of a meta-language for editable transliteration files.)

United States Board on Geographic Names (1994). Romanization Systems and Roman Script Spelling Conventions. Defense Mapping Agency (available through NGA Political Geography Division, 4600 Sangamore Rd, Mailstop D-167, Bethesda, MD 20816).

Wellisch, Hans (1978). The Conversion of Scripts. New York, John Wiley and Sons.

KEYWORDS: Transliteration, Romanization, Script Conversion, Finite-State Technology, Transduction, Meta-language, Standardization