

SMALL BUSINESS INNOVATION RESEARCH
PHASE II STATEMENT OF OBJECTIVES
FOR
HUMAN GEOGRAPHY 3D (HG3D) STREET VIEW
TOPIC SOCOM20-D002

16 September 2019

I. INTERNATIONAL TRAFFIC AND ARMS REGULATION: The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), which controls the export and import of defense-related material and services. Offerors must disclose any proposed use of foreign nationals, their country of origin, and what tasks each would accomplish in the statement of work in accordance with section 5.4.c.(8) of the solicitation.

II. BACKGROUND:

This is a Direct to Phase II Small Business Innovation Research project to prototype a software tool for creating a “Human Geography 3D Street View” from crowd-sourced and commercial geospatial data. The automation tool will fuse high resolution 3D terrain data with human geography and volunteered geographic information such as aerial imagery, photos, point clouds and consolidated meshed data that can be correctly georeferenced to the earth’s surface and segmented into appropriate Open Geospatial Consortium (OGC) CDB-compliant data layers.

III. OVERALL OBJECTIVE:

This Phase II project will develop an automation algorithm for extracting 3D geospatial data from crowd-sourced imagery and fusing it with human geography to deliver a street level view of complex terrain in denied or semi-permissive areas. This Statement of Objectives describes the requirements to develop the prototype software capable of fusing multi-source geographic data into a Human Geography 3D street view to enhance shared situational awareness in areas where data is sparse.

IV. Requirements

A. General: The Contractor shall deliver a prototype software tool for automating the creation of OGC CDB-compliant geospatial data layers from crowd-sourced and commercial geospatial data in non-traditional formats for government testing, evaluation, and demonstration.

1. Detailed Tasks: The Contractor shall design, develop, test, demonstrate, and deliver a software tool capable of: 1) fusing multi-source geographic and

non-traditional data into a Human Geography 3D Street View, and 2) segmenting the data into the appropriate OGC CDB compliant data layers.

- a. To stimulate advances in technology and innovation, solutions including reusable code should be considered as well as re-use of open source code and integrations with fielded SOF systems utilizing existing open standards.
- b. To the maximum extent possible, intelligent automation shall be used to improve the algorithms and reduce the need for manual intervention over time.
- c. The desired system will co-register disparate data sources including imagery (both satellite and aerial), FMV, photos, point clouds, human geography data layers, and crowd-sourced or commercial geographic information.
- d. The system must be able to correlate and conflate data at the most accurate coordinate possible with trade-offs for simplicity, accuracy and error estimation. Speed is generally a higher priority than absolute accuracy.
- e. Most of the crowd-sourced and volunteered geographic information has some geo-referencing data to get it close to where the data exists in the real world. The non-traditional data also has good relative accuracy but needs to be georeferenced to existing geospatially accurate, globally correlated data.
- f. Once the fused data is in the correct location, then it needs to be segmented to provide a good Digital Terrain Model (DTM) and Digital Elevation Model (DEM). 3D features must be extracted into OGC CDB-compliant 3D models.
- g. To improve the data for simulation-ready applications such as Unity and Unreal, CDB raster material data and/or multi-spectral or hyper spectral signatures shall be used to improve the segmentation and apply material codes to the polygonal surfaces.
- h. HG3D products shall be optimized for dissemination and operational use on mobile devices using OGC-compliant formats.
- i. Meet a Technology Readiness Level 7 which is defined as “System prototyping demonstration in an operational environment (ground or space): System prototyping demonstration in operational environment. System is at or near scale of the operational system, with most functions available for demonstration and test. Well integrated with collateral and ancillary systems. Limited documentation available.”

2. UNIQUE ITEM IDENTIFICATION: The Contractor shall include the DoD unique item identifications or a DoD recognized unique identification equivalent for the prototypes delivered. This includes a description and cost breakout as applicable. Information on unique item identifier types is at http://www.acq.osd.mil/dpap/UID/uid_types.html. The guide is at <http://www.acq.osd.mil/dpap/UID/guides.htm>. This is in accordance with DFARS 252.211-7003.

3. **SHIP TO ADDRESS:** The Contractor shall deliver all prototypes systems under this contract to the following address:

USSOCOM SOF AT&L (DoDAAC: F2VUQ0)
Attn: Susan Raymie, PEO SRSE
7701 Tampa Point Blvd.
MacDill AFB, FL 33621
(813) 826-7486

4. **SHIPPING COSTS:** The Contractor shall pay all costs to ship all product deliverables to and from the validation testing /demonstration sites and to the final delivery location.

B. **DOCUMENT DELIVERABLES:** The Contractor shall provide the following documents to the respective specified addresses during the Phase II Period of Performance:

1. Kick-Off/System Requirements Review: See CDRL A001.
2. Monthly Progress Reports: See CDRL A002.
3. Financial Status Report: See CDRL A003.
4. Developmental Test Plan for Performance Validation: See CDRL A004.
5. Developmental Test Report for Performance Validation: See CDRL A005.
6. Business Plans: See CDRL A006.
7. Final Technical Report: See CDRL A007.
8. Preliminary Design Review: See CDRL A008.
9. Critical Design Review: See CDRL A009.

V. **TESTS AND DEMONSTRATIONS:** The Contractor shall conduct tests, demonstrations and hands-on workshops with users to validate that the prototype software tool meets or exceeds all the requirements specified in this Statement of Objectives. (See CDRL A004 and CDRL A005).

- A. The Contractor shall demonstrate that the prototype software tool meets or exceeds the technical performance requirements above.
- B. The Contractor shall participate in quarterly hands-on workshops with SOF users and incorporate user input received in contractor's development efforts.
- C. Contractor shall support test and evaluation in an operationally realistic environment including a test bed or other location determined by the COR.

VI. **ENVIRONMENTAL AND SAFETY:** Not applicable

VII. **GOVERNMENT FURNISHED PROPERTY (GFP) / GOVERNMENT FURNISHED PROPERTY (GFE) / GOVERNMENT FURNISHED INFORMATION (GFI):**

- A. Contractor requests for GFP, GFE or GFI shall be included in the proposal for consideration. Any materials delivered by the government to the contractor shall be listed here.
- B. Government will provide representative data and GFI with Limited Distribution (LIMDIS), For Official Use Only, for development, testing, experimentation, and evaluation. Release of LIMDIS shall be in accordance with 48 CFR Section 252.245.7000, "Government-Furnished Mapping, Charting, and Geodesy Property." All LIMDIS data will be returned to the Government or destroyed during contract close out.

VIII. MEETINGS AND REVIEWS: The Contractor shall attend the following meetings and reviews.

A. Phase II Kick-Off meeting shall be conducted in Tampa, Florida not later than thirty (30) calendar days after contract award. The Contractor shall provide the Government:

- 1. A Phase II Kick-Off Meeting Read-Ahead no less than ten (10) calendar days prior to the Phase II Kick-Off Meeting / System Requirements Review Meeting (See CDRL A001).
- 2. An initial Program Management Plan / Financial Status Report for accomplishing all objectives specified in this Statement of Work. (See CDRLs A002 and A003).
- 3. Conceptual Design Drawings no less than ten (10) calendar days prior to the Phase II Kick-Off/System Requirements Review Meeting (See CDRL A001).

B. Preliminary Design Review (PDR) - This meeting shall be conducted at the Contractor's facility no more than one hundred and eighty (180) calendar days after Phase II contract award. The Contractor shall provide teleconference capability for those participants unable to travel. The Contractor shall provide the Government:

- 1. A Preliminary Design Review and Materials Read-Ahead Briefing no less than fourteen (14) calendar days prior to the PDR (See CDRL A008).
- 2. A Detailed Design Report (See CDRL A008).
- 3. Trade off considerations for the design. (See CDRL A008).
- 4. Results of any testing to date. (See CDRL A005).
- 5. Resolution to any Contractor/Government issues or concerns.
- 6. An assessment of other potential benefits / impacts including total cost of ownership, software data rights, and a recommendation of any changes for

consideration / incorporation into the subsequent design that will be provided to the Government at the follow-on Critical Design Review. (See CDRL A008).

C. Critical Design Review (CDR): This teleconference meeting shall be arranged by the Contractor two (2) weeks prior to the end of the contract completion date. The Contractor shall provide the Government:

1. A Critical Design Review and Materials Read-Ahead Briefing no less than fourteen (14) calendar days prior to the CDR (See CDRL A009).
2. A Detailed Design Report (See CDRL A009).
3. Trade off considerations for the design. (See CDRL A009).
4. Results of any testing to date. (See CDRL A005).
5. Resolution to any Contractor/Government issues or concerns.

D. Phase II Close-Out Meeting: The Phase II Close-Out Meeting shall be conducted in Tampa, Florida no earlier than seven (7) calendar days prior to the conclusion of the Phase II Period of Performance. The Contractor shall provide the Government:

1. A briefing on the test verification (See CDRL A005).
2. An update of the progress to date. (See CDRL A002)
3. Resolution to any Contractor/Government issues or concerns.

IX. **NOTIFICATION:** The Contractor shall notify USSOCOM no less than thirty (30) calendar days prior to tests, demonstrations and reviews at the Contractor's facilities to ensure USSOCOM representatives can attend should they desire to do so.

X. **TRAVEL REQUIREMENTS:** The costs associated with the below travel requirements will be included in a separate Contract Line Item Number as a cost reimbursable expense. The Contractor shall comply with the Federal Acquisition Regulation 31.205-46 (<http://www.gsa.gov/perdiem>) on proposing all travel related costs. The Contractor shall include the costs associated with the following travel requirements in the proposal:

A. Phase II Kick-Off Meeting: Tampa, FL; one (1) overnight, no more than two (2) Contractor representatives.

B. Phase II Close-Out Meeting: Tampa, FL; one (1) overnight, no more than two (2) Contractor representatives.

C. Quarterly Workshops with Users: Tampa, FL, or Fort Bragg, NC; two (2) overnights, no more than two (2) contractor representatives. As part of the Phase II proposal, the Contractor shall include the most expensive trip.

XI. MANDATORY REPORTING:

A. The Contractor shall report ALL contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the U.S. Special Operations Commands via a secure data collection site. The Contractor is required to completely fill in all required data fields using the following web address: <http://www.ecmra.mil/>.

B. Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year, beginning with 2014. Contractors may direct questions to the help desk at help desk at: <http://www.ecmra.mil/>.

XIII. DISCLOSURE OF UNCLASSIFIED INFORMATION:

A. On September 21, 2001, the Department of Defense designated Headquarters US Special Operations Command (USSOCOM) a sensitive unit, as defined by Title 10 United States Code (USC) Section 552 (10 USC 552). In keeping with this designation, unclassified information related to USSOCOM military technology acquisitions managed by USSOCOM or any of its component commands, will be designated Controlled Unclassified Information (CUI). As such, the contractor hereby unequivocally agrees that it shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document, Contractor's external website, newspaper, magazine, journal, corporate annual report, etc.), pertaining to any part of this contract or any program related to this contract, unless the Contracting Officer has given prior written approval. Furthermore, any release of information which associates USSOCOM, Special Operation Forces (SOF), or any component command with an acquisition program, contractor, or this contract is prohibited unless specifically authorized by USSOCOM.

B. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Contracting Officer at least 45 days before the proposed date for release for approval. No release of any restricted information shall be made without specific written authorization by the Contracting Officer.

C. The Contractor shall include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor to the Contracting Officer.

UNCLASSIFIED

D. The Contractor further understands that Title 18 USC Section 701 specifically prohibits the use of the USSOCOM emblem or logo in any medium (e.g., corporate website, marketing brochure, newspaper, magazine, etc.) unless authorized in writing by USSOCOM. Forward any requests to use the USSOCOM emblem or logo through the Contracting Officer.

UNCLASSIFIED

Distribution A. Approved for public release: distribution unlimited.