AWARD/CONTRACT

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)

RATING: DO-C9

PAGE 1 OF PAGES 15

2. CONTRACT (Proc. Inst. Ident.) NO.: HR0011-05-C-0148

3. EFFECTIVE DATE: 15 AUG 2005

4. REQUISITION/PURCHASE REQUEST/PROJECT NO.: U314/02

5. ISSUED BY — CODE HR0011
DARPA
CMO
ATTN: ALGERIA TATE
3701 NORTH FAIRFAX DRIVE
ARLINGTON VA 22203-1714

6. ADMINISTERED BY (If other than Item 5) — CODE S2101A
DCMA MARYLAND
217 EAST REDWOOD STREET
SUITE 1600
BALTIMORE MD 21202-5299

7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, state and zip code)
JOHNS HOPKINS UNIVERSITY-APPLIED PHYSICS
11100 JOHNS HOPKINS ROAD
LAUREL MD 20723-6099

CODE 88898 — FACILITY CODE

8. DELIVERY
[ ] FOB ORIGIN [X] OTHER (See below)

9. DISCOUNT FOR PROMPT PAYMENT
N/A

10. SUBMIT INVOICES 3 (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN: ITEM Section G

11. SHIP TO/MARK FOR — CODE
See Schedule

12. PAYMENT WILL BE MADE BY — CODE HQ0338
DFAS COLUMBUS CENTER
SOUTH ENTITLEMENT OPERATIONS
P.O. BOX 182264
COLUMBUS OH 43218-2264

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
[ ] 10 U.S.C. 2304(c)( ) [ ] 41 U.S.C. 253(c)( )

14. ACCOUNTING AND APPROPRIATION DATA
See Schedule

15A. ITEM NO.	15B. SUPPLIES/ SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	SEE SCHEDULE				

15G. TOTAL AMOUNT OF CONTRACT $950,000.00

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CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. [X] CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 2 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

18. [ ] AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

19A. NAME AND TITLE OF SIGNER (Type or print)
Mr. Nick Langhauser, CFO

20A. NAME AND TITLE OF CONTRACTING OFFICER
TEL: (b)(6) EMAIL:

19B. NAME OF CONTRACTOR
BY _____ (Signature of person authorized to sign)

19C. DATE SIGNED
8/12/05

20B. UNITED STATES OF AMERICA
BY (b)(6) (Signature of Contracting Officer)

20C. DATE SIGNED
15 AUG 2005

Section B - Supplies or Services and Prices

CONTRACT LINE ITEM NO. (CLIN)	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL ESTIMATED COST PLUS FIXED FEE
0001	X-ray Source Navigation Program, Phase I, in accordance with Attachment No. 1, Statement of Work and Section C-1 of the contract	(b)(4)	(b)(4)	$950,000.00 b4
000101	Funding for CLIN 0001 ACRN AA: $427,000.00			
0002	Data and Reports and Other Deliverables in accordance with Section C-2 of the contract	*NSP	*NSP	*NSP
TOTAL CONTRACT CONSIDERATION: *NSP = Not Separately Priced		(b)(4)	(b)(4)	**$950,000.00**

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Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

C-1 Scope of Work

(a) The Contractor shall furnish the necessary personnel, materials, facilities and other services as may be required to perform Contract Line Item Nos. (CLINs) 0001 and 0002 in accordance with the Contractor's technical proposal entitled, "X-ray Source Navigation (XNAV) Program," dated May 26, 2005, copies of which proposal are in possession of both parties. Specifically, the Contractor shall perform Phase I of the XNAV Program in accordance with the Statement of Work which is incorporated herein and made part of the contract as Attachment No. 1.

(b) The X-ray Source Navigation Program will be performed by several contractors of which Ball Aerospace & Technologies Corporation (BATC) is the lead Contractor. The other Associate Contractors (Johns Hopkins Applied Physics Laboratory, Los Alamos National Laboratory, and National Institute for Standards and Technology) have significant roles that will impact the performance of the lead Contractor, Ball Aerospace. See Section H and Attachment 5 for the performance impact.

(c) In the event of any inconsistency between the provisions of this contract and the technical proposal, the inconsistency shall be resolved by giving precedence in the following order: (1) the contract, (2) the attachments to the contract, and then (3) the technical proposal.

C-2 Deliverables

(a) The Contractor shall submit the following reports and other deliverables in accordance with the delivery schedule set forth in Section F.

1. R&D PROGRESS, STATUS AND MANAGEMENT REPORT.

This brief narrative shall contain the following:

- For first report only: the date work actually started.
- Brief description of progress during the reporting period.
- Planned activities and milestones for next reporting period.
- Description of any major items of experimental or special equipment purchased or constructed during the reporting period.
- Notification of any changes in key personnel associated with the contract during the reporting period.
- Summary of substantive information derived from noteworthy trips, meetings, and special conferences held in connection with the contract during the reporting period.
- Summary of all problems or areas of concern.
- Summary of subcontractor(s) progress, interactions, noteworthy accomplishments.
- Related accomplishments since last report.
- Fiscal status to include reporting of summary level financial data in the following format:

FINANCIAL REPORT
PROGRAM FINANCIAL STATUS

WORK BREAKDOWN STRUCTURE OR TASK ELEMENT	CUMULATIVE TO DATE			AT COMPLETION		
	PLANNED EXPEND	ACTUAL EXPEND	% COMPL	BAC*	LRE*	REMARKS

Subtotal
Management Reserve or
Unallocated Resources
TOTAL

*Budget At Completion (BAC) changes only with the amount of any scope changes (not affected by underrun/overrun)
** Latest Revised Estimate (LRE)

2. MISCELLANEOUS TECHNICAL PLANS, DESIGN, AND SOFTWARE; AND PRESENTATION MATERIALS. The Contractor shall provide a conceptual architecture design, a software development plan, and navigation algorithm development plans, etc. as stipulated in Attachment No. 1, Statement of Work. The Contractor shall also contribute to the deliverables to be submitted through the lead Contractor, Ball Aerospace & Technologies Corporation, for the XNAV Program. See Attachment 2 - BATC deliverables. All briefing and presentation viewgraphs and associated materials shall be provided to the Government on an as-required basis.

3. FINAL REPORT. The report shall provide a comprehensive summary of the entire research effort, referencing (where applicable) previously submitted status and financial reports, and interim reports (if any) and program reviews. Contractor format is acceptable.

The Final Report summary shall include:

- Task Objectives
- Technical Problems
- General Methodology (i.e., literature review, laboratory experiment(s), survey(s), etc.)
- Technical results
- Important Findings and Conclusions
- Significant Hardware/Software Development
- Special Comments
- Implications for Further Research
- Standard Form 298, Report Documentation Page
- Data Deliverable Updates

(b) Reports delivered by the Contractor in the performance of the contract shall be considered "Technical Data" as defined in the applicable Rights in Technical Data clause in Section I of this contract.

(c) Bulky reports shall be mailed by other than first-class mail unless the urgency of submission requires use of first-class mail. In this case, mail one copy first-class and the remaining copies forwarded by less than first-class mail.

(d) All papers and articles published as a result of DARPA sponsored research shall include a statement reflecting that sponsorship. A bibliography of the titles and authors of all such papers shall be included in the Final Report.

(e) The cover/title page of each of the above reports or publications prepared will have the following citation:

Sponsored by
Defense Advanced Research Projects Agency
Tactical Technology Office (TTO)
Program: X-ray Source Navigation (XNAV) Program
ARPA Order No. U314/02, Program Code: 5F40
Issued by DARPA/CMO under Contract No. HR0011-05-C-0148

(f) The title page shall include a disclaimer worded substantially as follows:

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressed or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

(g) All technical reports must (1) be prepared in accordance with American National Standards Institute (ANSI) Standard Z39.18; (2) include a Standard Form 298, and (3) be marked with an appropriate distribution statement.

Section D - Packaging and Marking

CLAUSES INCORPORATED BY FULL TEXT

D-1 Packaging and Marking

All items shall be preserved, packaged, packed and marked in accordance with best commercial practices to meet the packing requirements of the carrier, and to ensure safe delivery at destination.

Section E - Inspection and Acceptance

CLAUSES INCORPORATED BY REFERENCE

52.246-9	Inspection Of Research And Development (Short Form)	APR 1984
252.246-7000	Material Inspection And Receiving Report	MAR 2003

CLAUSES INCORPORATED BY FULL TEXT

E-1 Inspection and Acceptance

Inspection and acceptance of the supplies or services to be furnished hereunder shall be made at destination by the receiving activity.

Section F - Deliveries or Performance

CLAUSES INCORPORATED BY REFERENCE

52.247-34	F.O.B. Destination	NOV 1991

CLAUSES INCORPORATED BY FULL TEXT

F-1 Term of Contract

As authorized by the Advance Agreement to Authorize Incurrence of Pre-Award Costs (as amended) incorporated into the contract as Attachment No. 1, the period of performance for the basic contract, CLINs 0001 and 0002, commences on June 20, 2005 and continues through December 31, 2006.

F-2 Reports and Other Deliverables

Delivery of all reports and other deliverables shall be made to the addressees specified in Section F-3 in accordance with the following:

Description	Due Date
R&D Progress, Status and Management Report	Monthly basis; by the 15th of the month
Conceptual architecture design, software development plan, and navigation algorithm development plans, and other	According to Attachment No. 1, Statement of Work
Presentation Materials	On an as-required basis
Final Report	Upon completion of the contract

F-3 Distribution of Reports and Other Deliverables

(a) DARPA/Contracts Management Office (CMO)
ATTN: Algeria K. Tate
3701 N. Fairfax Drive
Arlington, VA 22203-1714
Email: algeria.tate@darpa.mil
(One copy of the R&D Progress, Status and Management Report, and Final Report; a copy of the cover letter only for all other reports and deliverables)

(b) DARPA/Tactical Technology Office (TTO)
ATTN: Dr. Darryll Pines, Contracting Officer's Representative
3701 N. Fairfax Drive
Arlington, VA 22203-1714
Email: darryll.pines@darpa.mil
(One ORIGINAL of every report/deliverable)

(c) DARPA/Tactical Technology Office (TTO)
ATTN: Jeffrey A. Smith, Assistant Director, Program Management
3701 N. Fairfax Drive
Arlington, VA 22203-1714
Email: adpm-tto@darpa.mil
(One copy of the R&D Progress, Status and Management Report, and Final Report)

(d) DARPA/Defense Sciences Office (DSO)
ATTN: Riva Meade, Assistant Director, Program Management
3701 N. Fairfax Drive
Arlington, VA 22203-1714
Email: riva.meade@darpa.mil
(One copy of the R&D Progress, Status and Management Report, and Final Report)

(e) DARPA/Administration Directorate (AD)
ATTN: Library
3701 N. Fairfax Drive
Arlington, VA 22203-1714
Email: library@darpa.mil
(One copy of the R&D Progress, Status and Management Report, and Final Report)

(f) DCMA Maryland
217 East Redwood Street
Suite 1800
Baltimore, MD 21202-5299
(One copy of the Monthly R&D Progress, Status and Management Report, and Final Report)

(g) Defense Technical Information Center (DTIC)

(i) Email: TR@dtic.mil
(one electronic copy of the Final Technical Report, if unclassified);
or
(ii) Attn: DTIC-BCS
8725 John J. Kingman Road
Suite 0944
Fort Belvoir, VA 22060-0944
(Two copies of Final Report only, if unclassified)

F-4 Notice Regarding Late Delivery

In the event the Contractor anticipates difficulty in complying with the contract delivery schedule, the Contractor shall immediately notify the Contracting Officer in writing, giving pertinent details, including the date by which it expects to make delivery; PROVIDED, however, that this date shall be informational only in character and the receipt thereof shall not be construed as a waiver by the Government of any contract delivery schedule, or any rights or remedies provided by law or under this contract.

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

ACRN AA 9750400 1320 U314 P5F40 2525 DPAC 5 5409 S12136 63287E $427,000.00
(ARPA Order No. U314/02)

CLAUSES INCORPORATED BY FULL TEXT

G-1 Procuring Office Representative

The Procuring Office Representative for this contract is Ms. Algeria K. Tate, DARPA/CMO, 3701 North Fairfax Drive, Arlington, VA 22203-1714, telephone (703) 696-2384, E-mail: algeria.tate@darpa.mil; FAX (571) 218-4670.

G-2 Delegation of Authority For Contract Administration

Defense Contract Management Agency (DCMA) Maryland as set forth in Block 6 of the Standard Form (SF) 26, is hereby designated as the Contracting Officer's authorized representative for administering this contract in accordance with current directives; however, technical cognizance is retained by DARPA because of the technical nature of the work.

G-3 Contracting Officer's Representative (COR)

(a) Dr. Darryll Pines, DARPA Tactical Technology Office, is hereby designated the cognizant Contracting Officer's Representative (COR) who will represent the Contracting Officer in the administration of technical details within the scope of this contract including inspection and acceptance. The COR is not otherwise authorized to make

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any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or change the specifications in the contract.

(b) COR technical direction shall not include any direction which:

(1) Constitutes additional work outside the scope of work;
(2) Constitutes a change as defined in the Section I contract clause entitled "Changes;"
(3) In any manner causes an increase or decrease in the total price or period of performance;
(4) Changes any of the stated terms, conditions, or specifications of the contract.

(c) Notwithstanding any other provisions of this contract, the Contracting Officer is the only individual authorized to redirect the effort or in any way amend or modify any of the terms of this contract. If, as a result of technical discussions, it is desirable to alter contract obligations or statement of work, a modification must be issued in writing and signed by the Contracting Officer.

G-4 Accounting and Appropriation Data

Refer to the Accounting and Appropriate Data indicated above under Section G.

G-5 Payment/Invoices

(a) Vouchers - Original plus three (3) copies, identified by contract number, with supporting statements, shall be submitted for review and provisional approval to the following:

Defense Contract Audit Agency (DCAA)
Columbia Branch Office
One Mall North, Suite 200
10025 Governor Warfield Parkway
Columbia, MD 21044
or
Directed by DCAA

(b) In addition to the above, one copy of each voucher submitted for payment shall be submitted to the Contracting Officer and the COR of this contract.

G-6 Payment Instructions for Multiple Accounting Classification Citations

Payments under contract line items funded by multiple accounting classification citations shall be made from the earliest available fiscal year funding sources. The earliest assigned ACRN must be fully disbursed before making disbursements from a succeeding ACRN.

G-7 Payment of Cost and Fee

(a) As consideration for the proper performance of work required under this contract, the Contractor shall be paid as follows:

(1) Costs, as provided for under Section I contract clause titled "Allowable Cost and Payment" not to exceed the amount set forth as "Total Estimated Cost" in Section B, and subject further to those Section I clauses entitled "Limitation of Cost" or "Limitation of Funds."

(2) A fixed fee in the amount set forth as "Fixed Fee" in Section B, in accordance with the Section I contract clause entitled "Fixed Fee." The Contractor may bill on each invoice the amount of the fixed fee bearing the same percentage to the total fixed fee as the amount of cost billed bears to the total estimated cost.

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G-8 Explanation of Limitation of Funds

The total estimated cost plus fixed fee of this contract as set forth in Section B shall be subject to incremental funding with $427,000.00 presently available for payment and allotted under this contract. (b)(4) (b)(4) (b)(4) (b)(4) b4 The total funds allotted are expected to last through February 28, 2006. Except in accordance with the clause at FAR 52.232.22, "Limitation of Funds," no legal liability on the part of the Government for payment of any money in excess of $427,000.00 shall arise unless and until additional funds are made available by the Contracting Officer through written modification to this contract.

Section H - Special Contract Requirements

CLAUSES INCORPORATED BY FULL TEXT

H-1 Contracting Officer

Notwithstanding any other provision of this contract, the Contracting Officer is the only individual authorized to redirect the effort or in any way amend or modify any of the terms of this contract.

H-2 Type of Contract

This is a cost-plus-fixed-fee, completion contract.

H-3 Invention Disclosures and Reports

The Contractor shall submit all invention disclosures and reports required by the Patent Rights clause of this contract to the Administrative Contracting Officer (ACO).

H-4 Restrictions on Printing

Unless otherwise authorized in writing by the Contracting Officer, reports, data, or other written material produced using funds provided by this contract and submitted hereunder shall be reproduced only by duplicating processes and shall not exceed 5,000 single page reports or a total of 25,000 pages of a multiple-page report. These restrictions do not preclude the writing, editing, preparation of manuscript or reproducible copy of related illustrative materials if required as a part of this contract, or incidental printing such as forms or materials necessary to be used by the Contractor to respond to the terms of the contract.

H-5 Insurance Schedule

(a) The Contractor shall maintain the types of insurance listed in FAR 28.307-2 (a), (b) and (c), with the minimum amounts of liability indicated therein. The types of insurance coverage listed in paragraphs (d) and (e) shall also be maintained when applicable.

(b) In the event that the contractor is self-insured, the contractor shall comply with FAR 28.308.

H-6 Metric System

(a) The Defense Advanced Research Projects Agency (DARPA) will consider the use of the metric system in all of its activities consistent with operational, economical, technical and safety requirements.

(b) The metric system will be considered for use in all new designs. When it is deemed not to be in the best interest of the DoD to provide metric design, justification shall be provided.

b7

(c) Physical and operational interfaces between metric items and U.S. customary items will be designed to assure that interchangeability and interoperability will not be affected.

(d) Existing designs dimensioned in U.S. customary units will be converted to metric units only if determined to be necessary or advantageous. Unnecessary retrofit of existing systems with new metric components will be avoided where both the new metric and existing units are interchangeable and interoperable. Normally, the system of measurement in which an item is originally designed will be retained for the life of the item.

(e) During the metric transition phase hybrid metric and U.S. customary designs will be necessary and acceptable. Material components, parts, subassemblies, and semifabricated materials, which are of commercial design will be specified in metric units only when economically available and technically adequate or when it is otherwise specifically determined to be in the best interest of the Department of Defense. Bulk materials will be specified and accepted in metric units when it is expedient or economic to do so.

(f) Technical reports, studies, and position papers (except those pertaining to items dimensioned in U.S. customary units) will include metric units of measurement in addition to or in lieu of U.S. customary units. With respect to existing contracts, this requirement applies only if such documentation can be obtained without an increase in contract costs.

(g) Use of the dual dimensions (i.e., both metric and U.S. customary dimensions) on drawings will be avoided unless it is determined in specific instances that such usage will be beneficial. However, the use of tables on the document to translate dimensions from one system of measurement to the other is acceptable.

H-7 Proprietary Technical Data and Computer Software

Any deliverable technical data or computer software developed or generated solely at private expense and considered to be proprietary by the Contractor or subcontractors, shall be delivered in accordance with DFARS 252.227-7013 and DFARS 252.227-7014.

H-8 Key Personnel

(a) The Contractor shall notify the Contracting Officer prior to making any change in key personnel. Key personnel are identified as follows:

(1) Personnel identified in the proposal as key individuals to be assigned for participation in the performance of the contract;

(2) Personnel whose resumes were submitted with the proposal; or

(3) Individuals who are designated as key personnel by agreement of the Government and the Contractor during negotiations.

(b) The Contractor must notify the COR that the qualifications of prospective replacement personnel are equal to or better than the qualifications of the personnel being replaced. Notwithstanding any of the foregoing provisions, key personnel shall be furnished unless the Contractor has notified the COR of the qualifications of proposed substitute personnel, which are equal to or better than the qualifications of the personnel being replaced.

H-9 Consent to Subcontract

Evaluation during negotiations of subcontractor cost or pricing data shall not satisfy the requirements for consent pursuant to FAR 52.244-02 Subcontracts (AUG 1998) and its Alternate I.

H-10 Travel

(a) Reimbursement for travel-related expenses shall be in accordance with the Contractor's approved travel policy. The Federal Travel Regulations, Joint Travel Regulations (JTR), and Standardized Regulations as stated in FAR 31.205-46 will be used as a guide in determining reasonableness of per diem costs. Costs for travel shall be allowable subject to the provisions of FAR 31.205-46.

(b) In connection with direct charge to the contract of travel-related expenses, the Contractor shall hold travel to the minimum required to meet the objectives of the contract, and substantial deviations from the amount of travel agreed to during contract negotiation shall not be made without the authorization of the Contracting Officer. When applicable, the Contractor shall notify the COR of proposed travel of an employee beyond that agreed to during negotiations.

(c) Approval of the Contracting Officer shall be obtained in advance for attendance by personnel at training courses, seminars, and other meetings not directly related to contract performance if the costs for the courses, seminars, and other meetings are charged to the contract.

(d) All foreign travel shall be authorized and approved in advance, in writing, by the Contracting Officer. Request for such travel must be submitted to the Contracting Officer at least forty-five (45) days in advance of traveler's anticipated departure date, and shall include traveler's itinerary of United States Flag Air Carriers.

H-11 Information Technology

(a) All Information Technology (IT) under this contract shall be "Year 2000 Compliant".

(b) IT, as used in this part, means all computer related hardware and/or software purchased and/or developed under this contract.

(c) "Year 2000 compliant," as used in this part, means, with respect to IT, that the IT accurately processes date/time data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations, to the extent that other IT, used in combination with the IT being acquired, properly exchanges date/time data with it.

H-12 Contractor-Acquired Property

(a) The Contractor shall not acquire any property prior to the Contracting Officer's written approval.

(b) The Contractor shall not use contractor-acquired property for work other than that performed pursuant to this contract unless so authorized in writing by the Contracting Officer.

(c) All property acquired shall be considered Government Property and shall be subject to FAR 52.245-05.

H-13 Contractor's Representations and Certifications

The Contractor's Representations and Certifications dated July 21, 2005 (revised July 25, 2005) is incorporated herein by reference and made part of this contract.

H-14 Public Release or Dissemination of Information

(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 approval of the COR.

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(b) All technical reports developed under the contract will be given proper review by appropriate authority to determine which distribution statement is to be applied prior to any distribution.

(c) When submitting material for clearance for open publication, the Contractor must submit five (5) copies to DARPA Security and Intelligence Directorate (SID) and allow for four (4) weeks for processing. If the paper is to be presented at a meeting, the contractor must indicate the subject and the exact date of the meeting, or deadline date, for submitting material. A full and final text of material requiring review, including any supplemental audiovisual material, shall be submitted. Notes, abstracts, outlines or viewgraphs shall not be cleared as substitutes for a complete text.

H-15 Pre-Contract Cost

The extent of allowability of costs incurred by the Contractor prior to the effective date of the contract shall be governed by the Advance Agreement to Authorize Incurrence of Pre-Award Costs incorporated into the contract as Attachment No. 3 under Section J.

H-16 Small Business Subcontracting Plan

The Contractor's Small, Small Disadvantaged, and Women-Owned Small Business Subcontracting Plan, dated July 21, 2005 is incorporated into the contract as Attachment No. 4 under Section J.

H-17 Performance Impact

(a) In the event the Contractor refuses, in writing, to deliver performance/data called for under the contract directly to the lead Contractor (i.e., Ball Aerospace), the Contractor must notify the Contracting Officer immediately. The Contractor agrees that the Contracting Officer and Contracting Officer's Representative (COR) shall engage with all parties to resolve pertinent issues in conjunction with the Contractor.

(b) The Contractor shall work with the Contracting Officer and COR to fulfill the performance obligation to the XNAV Program, if possible. See Attachment No. 5 for performance impact based on tasks.

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	JUL 1995
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	JUN 2003
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	OCT 2003
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JAN 2005
52.211-15	Defense Priority And Allocation Requirements	SEP 1990
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-10	Price Reduction for Defective Cost or Pricing Data	OCT 1997

52.215-12	Subcontractor Cost or Pricing Data	OCT 1997
52.215-14 Alt I	Integrity of Unit Prices (Oct 1997) - Alternate I	OCT 1997
52.215-15	Pension Adjustments and Asset Reversions	OCT 2004
52.215-16	Facilities Capital Cost of Money	JUN 2003
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	OCT 1997
52.215-19	Notification of Ownership Changes	OCT 1997
52.215-20	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data	OCT 1997
52.216-7	Allowable Cost And Payment	DEC 2002
52.216-8	Fixed Fee	MAR 1997
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9	Small Business Subcontracting Plan	JAN 2002
52.219-16	Liquidated Damages - Subcontracting Plan	JAN 1999
52.222-2	Payment For Overtime Premiums	JUL 1990
52.222-3	Convict Labor	JUN 2003
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	APR 2002
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	DEC 2001
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	DEC 2001
52.222-39	Notification of Employee Rights Concerning Payment of Union Dues or Fees	DEC 2004
52.223-6	Drug-Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	DEC 2003
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1 Alt I	Authorization And Consent (Jul 1995) - Alternate I	APR 1984
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	AUG 1996
52.227-11	Patent Rights--Retention By The Contractor (Short Form)	JUN 1997
52.228-7	Insurance--Liability To Third Persons	MAR 1996
52.230-2	Cost Accounting Standards	APR 1998
52.230-6	Administration of Cost Accounting Standards	NOV 1999
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-17	Interest	JUN 1996
52.232-22	Limitation Of Funds	APR 1984
52.232-23	Assignment Of Claims	JAN 1986
52.232-25	Prompt Payment	OCT 2003
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-3 Alt I	Protest After Award (Aug 1996) - Alternate I	JUN 1985
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.242-1	Notice of Intent to Disallow Costs	APR 1984
52.242-4	Certification of Final Indirect Costs	JAN 1997
52.242-13	Bankruptcy	JUL 1995
52.242-15 Alt I	Stop-Work Order (Aug 1989) - Alternate I	APR 1984
52.243-2 Alt V	Changes--Cost-Reimbursement (Aug 1987) - Alternate V	APR 1984
52.244-2 Alt I	Subcontracts (Aug 1998) - Alternate I	AUG 1998
52.244-5	Competition In Subcontracting	DEC 1996

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52.244-6	Subcontracts for Commercial Items	DEC 2004
52.245-5 Alt I Dev	Government Property (Government Property (Cost-Reimbursement, Time-and-Material, or Labor-Hour Contracts) (May 2004) Alternate I Deviation	JUN 2003
52.245-5 Dev	Government Property (Cost-Reimbursement, Time-and-Material, or Labor-Hour Contracts) Deviation	MAY 2004
52.245-19	Government Property Furnished "As Is"	APR 1984
52.246-23	Limitation Of Liability	FEB 1997
52.247-1	Commercial Bill Of Lading Notations	APR 1984
52.247-63	Preference For U.S. Flag Air Carriers	JUN 2003
52.249-6	Termination (Cost-Reimbursement)	MAY 2004
52.249-14	Excusable Delays	APR 1984
52.251-1	Government Supply Sources	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2004
252.203-7002	Display of DOD Hotline Poster	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004 Alt A	Required Central Contractor Registration (52.204-7) Alternate A	NOV 2003
252.205-7000	Provision of Information to Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 1998
252.209-7005	Reserve Officer Training Corps and Military Recruiting on Campus	JAN 2000
252.211-7003	Item Identification and Valuation	JAN 2004
252.215-7002	Cost Estimating System Requirements	OCT 1998
252.219-7003	Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts)	APR 1996
252.225-7012	Preference For Certain Domestic Commodities	JUN 2004
252.225-7016	Restriction On Acquisition Of Ball and Roller Bearings	MAY 2004
252.225-7025	Restriction on Acquisition of Forgings	APR 2003
252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	JUN 1995
252.227-7015	Technical Data--Commercial Items	NOV 1995
252.227-7016	Rights in Bid or Proposal Information	JUN 1995
252.227-7019	Validation of Asserted Restrictions--Computer Software	JUN 1995
252.227-7027	Deferred Ordering Of Technical Data Or Computer Software	APR 1988
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7034	Patents--Subcontracts	APR 1984
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.227-7039	Patents--Reporting Of Subject Inventions	APR 1990
252.232-7003	Electronic Submission of Payment Requests	JAN 2004
252.235-7010	Acknowledgment of Support and Disclaimer	MAY 1995
252.235-7011	Final Scientific or Technical Report	NOV 2004
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	MAR 2000
252.245-7001	Reports Of Government Property	MAY 1994
252.246-7000	Material Inspection And Receiving Report	MAR 2003
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

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252.251-7000 Ordering From Government Supply Sources NOV 2004

REMARKS:
At FAR 52.222-2, insert the word, "zero," in the spaces marked with an asterisk (*).

CLAUSES INCORPORATED BY FULL TEXT

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es): http://www.arnet.gov/far

52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any N/A (48 CFR N/A) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

SECTION J - List of Documents, Exhibits and Other Attachments

Attachment No. 1 - Statement of Work entitled, "X-ray Source Navigation (XNAV) Program"

Attachment No. 2 - BATC Deliverables

Attachment No. 3 - Advance Agreement to Authorize Incurrence of Precontract Costs

Attachment No. 4 - Small, Small Disadvantaged, and Women-Owned Small Business Subcontracting Plan, dated July 21, 2005

Attachment No. 5 - Performance Impact per task

Statement of Work
for
X-ray Source Navigation (XNAV) Program

I. With respect to Task 2 of Phase I of the XNAV Program, the Contractor shall:

Task APL-1 Develop a conceptual design for the readout electronics for the (b)(4) b4
(b)(4) sensor that is consistent with the system requirements of
(b)(4)

To accomplish Task APL-1, the contractor shall also:

Assist LANL and BATC in sensor (b)(4) requirements definition, trade studies, development planning, integration and test planning, risk management planning, cost estimation, data processing algorithm development, and science model building and testing.

II. With respect to Task 3 of Phase I of the XNAV Program, the Contractor shall:

Task APL-2. Develop a conceptual design for tracking signals from X-ray pulsars, and develop algorithms that will use these time difference of arrival (TDOA) measurements for spacecraft navigation. The conceptual design will be based on the use of phase-locked loop techniques, developed in conjunction with wavelet transforms under investigation by NIST, in order to coherently and synchronously track pulsars using the photon measurements provided by th (b)(4) b4
(b)(4) a the sensor readout electronics.

To accomplish Task APL-2, the contractor shall also:

Define the Navigation Algorithm requirements, e.g., algorithm, modeling, and simulation requirements development, decomposition, and functional allocation.

Develop navigation algorithm trade studies, e.g., determine tradeoff between orbital instability and the observation time required to detect pulsars of interest.

Develop plans for navigation algorithm development, e.g., use mathematical analysis supported by simulation using standard software tools such as Matlab, to ascertain and quantify the effectiveness of the various algorithmic approaches for use in space borne X-ray navigation systems.

Develop plans for managing navigation algorithm development risks, e.g., risk identification and assessment, risk reduction methods, risk probability and consequence analyses.

Develop Navigation Algorithm cost estimates, e.g., design and development costs, security costs, management costs, accounting costs.

Task APL-3. Develop a conceptual design, using sensor characteristics provided by LANL, for an attitude determination algorithm based on sensor pointing angles.

To accomplish Task APL-3, the contractor shall also:

Define algorithm requirements.

Perform trade studies, development planning, risk management planning, and cost estimation.

Relate these parameters to the navigation algorithms developed in Task 1 for time difference of arrival measurements.

Task APL-4. Develop prototype demonstration software for the TDOA and Attitude Determination Algorithms.

To accomplish Task APL-4, the contractor shall also:

Design a conceptual architecture for the software required to execute the navigation and attitude determination algorithms developed during Phase I.

Develop prototype software, as indicated in a Software Development Plan, to demonstrate for the purposes of Phase I, the ability to ultimately develop flight software for a spacecraft demonstration in Phases II and III, if applicable. The prototype software will demonstrate the utility and scalability of the conceptual architecture when used to process data obtained from the (b)(4) b4

Develop a conceptual design for extensions to the navigation algorithms. These extensions will smooth noise and further improve the navigation performance of the conceptual X-ray navigation algorithms.

Task APL-5. Implement the conceptual TDOA algorithm design, in hardware and/or software, for the purpose of enabling a time difference of arrival test using measured data from an X-ray sensor that detects a simulated pulsar signal.

Deliverables

	TITLE	DUE DATE
1	Conceptual Readout Electronics Design Plan	January 31, 2006
2	Conceptual Readout Electronics Design Final Report	October 15, 2006
3	Conceptual Navigation Algorithms Report, detailing pulsars of interest as a function of orbital parameters and computations of expected pulsar signals based on the (b)(specifications and characteristics of known Xray pulsars.	November 30, 2005
4	Software Development Plan for attitude and TDOA measurements	January 31, 2006
5	Pulsar Tracking Algorithms Report, including algorithms based on TDOA measurements	March 30, 2006
6	Software Architecture Report for TDOA measurements, including optimized versions using Kalman filter or other optimized techniques	June 30, 2006
7	Attitude Navigation Algorithms Report including mapping of S/C position & time to sensor pointing angles	August 31, 2006
8	Experimental hardware and/or software for end-to-end demonstration of TDOA capabilities using X-ray sensor measurements of a simulated X-ray pulsar	September 30, 2006
9	Optimized Navigation Algorithms Final Report, included aided and non-aided acquisition and reacquisition of signals from X-ray pulsars, and a test plan for the end-to-end experiment described in Task 6 above.	October 15, 2006

b4

End

BATC DELIVERABLES

TITLE	DUE DATE (MONTHS AFTER AWARD)
Preliminary Interface Control Document	October 15, 2006
Preliminary Systems Requirements Document	October 15, 2006
Preliminary Traceability Matrix	October 15, 2006
Preliminary CONOPS	October 15, 2006
Preliminary Integration and Test Plan	October 15, 2006
Preliminary Risk Mitigation Plan	October 15, 2006
Preliminary Detector/Imager System Design	October 15, 2006
Preliminary Candidate Missions Study	October 15, 2006

*BATC - Ball Aerospace & Technologies Corporation

ADVANCE AGREEMENT TO AUTHORIZE INCURRENCE OF PRECONTRACT COSTS

The Contracts Management Office, DARPA, has received a valid and properly funded requirement for award of a contract under Broad Agency Announcement BAA 04-23.

The proposed Contractor, Johns Hopkins University Applied Physics Laboratory, has submitted a proposal to support the X-ray Source Navigation Program.

Since the Contracting Officer has determined that incurrence of costs before the effective date of the contract is necessary to ensure compliance with the proposed contract delivery schedule, the Government and the Contractor, pursuant to the requirements of FAR 31.109 and 10 U.S.C. 2326, agree as follows:

FIRST: In the event that a contract is awarded, precontract costs, not to exceed $50,000, shall be an allowable expense, provided that the individual costs therein shall be --

(a) otherwise allowable, reasonable and allocable,
(b) incurred no sooner than June 20, 2005, or no later than July 31, 2005
(c) incurred specifically for the following proposed tasks: (N/A)

SECOND: Contractual terms, specifications and price shall be agreed to by the earlier of --

(a) the end of the 180-day period beginning on the date on which the Contractor submits a qualifying proposal to definitize the contractual terms, specifications and price; or

(b) the date on which the amount of funds obligated or expended under this advance agreement is equal to more than 50 percent of the negotiated overall ceiling price for this advance agreement.

THIRD: It is the intention of the Government to award the subject contract to the proposed Contractor subject to final agreement as to contractual terms, specifications and price, and to incorporate this agreement therein. It is understood and agreed by both parties that this agreement deals with the treatment of precontract costs in the event of contract award. This agreement does not require the Contractor to incur such costs and any costs incurred are at the risk of the proposed Contractor pending execution of a definitive contract.

Nicholas J. Langhauser
Chief Financial Officer

6/22/05
DATE

(b)(6)
Contracting Officer

6/27/05
Date

HR0011-05-C-0148
Attachment No. 4

The Johns Hopkins University
Applied Physics Laboratory

SMALL, SMALL DISADVANTAGED, AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN

July 21, 2005

1. Contract Number: **LHP01**

Under this multi-year CPFF contract, the Johns Hopkins University Applied Physics Laboratory shall furnish the necessary personnel, materials, facilities and other services as may be required to support the X-Ray Navigation For Autonomous Position Determination (XNAV). The period covered by this plan is 06/01/2005 through11/30/2006.

2. Contractor name:

The Johns Hopkins University
Applied Physics Laboratory
11100 Johns Hopkins Road
Laurel, Md., 20723-6099

3. Individual completing this plan:

Mr. James R. Ruth
Supervisor of Purchasing
Applied Physics Laboratory
Johns Hopkins Road
Laurel, MD 20723-6099
(240) 228-6168

4. Goals:

It is JHU/APL policy that Small Business (SB), Small Disadvantaged Business (SDB), Woman Owned Small Business (WOSB), Historically Underutilized Business Zone (HUBZone), Serviced Disabled Veteran Owned Small Business (SDVOSB), Veteran Owned Small Business (VOSB) and Historically Black Colleges and Universities and Minority Institutions (HBCU/MI) be given an equitable opportunity to compete for APL's requirements for material, equipment and services to the fullest extent possible, consistent with the efficient performance of this prime contract.

The following goals are expressed as a percentage of total subcontract value in accordance with the terms specified in the RFP:

Total Contract Value: ..... $ 1,000,000

Total dollars planned to be subcontracted: ..... $ 15,000
(1.5 %) of total contract value

Total dollars planned to be procured from
Small business concerns: ..... $ 6,000
(40.0 %) of total subcontract value

Total dollars planned to be procured from
Small Disadvantaged Business concerns: ..... $ 750
(5.0 %) of total subcontract value

Total dollars planned to be procured from
Woman Owned Small Business concerns: ..... $ 450
(3.0 %) of total subcontract value

Total dollars planned to be procured from
HUBZone Small Business concerns: ..... $ 75
(0.5 %) of total subcontract value

Total dollars planned to be procured from
HBCU/MI concerns: ..... $ 0
(0.0 %) of total subcontract value

Total dollars planned to be procured from
Veteran Owned Small Business concerns: ..... $ 75
(0.5 %) of total subcontract value

Total dollars planned to be procured from
Service Disabled Veteran Owned Business concerns: ... $ 75
(0.5%) of total subcontract value

* Please be advised that procurements for this Prime are very limited. The procurements have been identified for board fabrication and chassis parts. Every good faith efforts will be made to procure from the above Small Business categories.

5. A description of the supplies & services being subcontracted:

This contract requires JHU/APL to perform work in accordance with the Statement of Work.

A proactive effort will be undertaken to subcontract as much of this activity as is practicable to the below listed concerns:

Small Business concerns (SB)
Small Disadvantaged Business concerns (SDB)
Women-Owned Small Business concerns (WOSB)
Historically Black Colleges and Universities (HBCU)
Minority Institutions (MI)
Historically Underutilized Business Zone (HUBZone)
Veteran Owned Small Business (VOSB)
Service Disabled Veteran Owned Small Business (SDVOSB)

6. The method used to develop the goals in paragraph 4, Above:

In developing the small business goals for this plan, the first step was to examine the procurements associated with this proposal, past history performance and develop a preliminary baseline.

This baseline provided a basis for SB, SDB, WOSB, SDVOSB, VOSB and HUBZone business procurement activities.

The second step was to involve the JHU/APL SBLO and Procurement Office in the response to this proposal to help determine where and how small and small disadvantaged contractors, might have an opportunity to participate in the proposed work.

The Procurement staff, SBLO, and Program Office staff collaborated to obtain the following results: Total procurements and subcontracting for this task is $15,000.

APL's efforts in the small business area are monitored by the Resident Administrative Contracting Officer, Defense Contract Management Agency, and are periodically reviewed by the Assistant Director for Small Business, Defense Contract Management Agency.

7. The method used to identify potential sources for solicitation purposes:

Efforts by the Small Business Liaison Officer, procurement supervisors, and program managers are ongoing to insure that SB, SDB, WOSB, HBCU, MI, SDVOSB, VOSB and HUBZone businesses, that are owned and controlled by the socially and economically disadvantaged will have an equitable opportunity to compete for subcontracts as they pertain to this prime contract.

These efforts include:

a. Participation in the Maryland High Technology Council. Attending regular meetings and networking with Council members to solicit SB, SDB, WOSB, SDVOSB, VOSB and HUBZone opportunities.

b. Hosting visits by the concerns to discuss their capabilities and the services that they could provide to APL. For example, APL has hosted the Deans of twelve HBCU/MI's for a two-day meeting to determine skills available that APL might subcontract. This initiative has resulted in two subcontracts to date. In addition a second HBCU/MEI Day was hosted, which has resulted into two subcontracts, with one pending.

c. Attendance at SB, SDB, WOSB, SDVOSB, VOSB and HUBZone business fairs, expositions, and seminars. For example: some of the shows that APL would normally participate in: (1) the "Business Conference/Opportunity Fair"; (2) Technology Exposition Show; (3) NASA Technology Showcase; (4) Bolling AFB Small Industry DAY; (5) Mega Success Conference (Governor's Office) and (6) The Annual NASA Small and Small Disadvantaged Business Conference; (7) Department of Labor HUBZone and Disabled Veteran Service concerns conference.

d. Maintenance of directories and company brochures of the concerns, and making APL technical and procurement staff aware of these directories.

e. Circulating company brochures to APL staff.

f. Continuing education for APL management (including program managers and staff members responsible for initiating procurement actions) to make them aware of APL's responsibilities in connection with small and minority procurements.

g. APL has made site visits to the following HBCU's in an attempt to match requirements with capabilities: Morgan State University, Bowie State, Howard University, Tuskegee University, Clark Atlanta University and is a member of the AMIE Conference annually held at various HBCU Universities. APL representatives included both technical and contracting staff.

h. Incorporate and update appropriate instructions in the APL Practices & Procedures Manual.

i. The APL SBLO maintains active communication with both the NASA SBLO and DoD representatives.

8. Use of indirect costs to support the goals:

In establishing APL's subcontracting goals under this prime contract, overhead charges will be considered and a comparison will be made between 'total' overhead expenditures and those overhead expenditures directly attributable to small, small disadvantaged and women owned small business. A report has been developed to determine a pro-rata share of SB/SDB expenditures that will be allocated to this program, and that allocation amount for SB, SDB, WOSB, SDVOSB, VOSB and HUBZone business will be included in the reports for this Small Business Plan.

9. Name of the individual who will administer the subcontracting program:

The designated individual who administers all of APL's subcontracting under this prime contract is:

Mr. James R. Ruth
Supervisor of Purchasing
Applied Physics Laboratory
Johns Hopkins Road
Laurel, MD 20723-6099
(240) 228-6168

He will be assisted in the administration of APL's subcontracting program by:

Mr. O. D. Stevenson
Small Business Liaison Officer
Applied Physics Laboratory
Johns Hopkins Road
Laurel, MD 20723-6099
(240) 228-6389

The duties of the Small Business Liaison Officer include the following:

a. Identify qualified small, small disadvantaged, woman-owned, service disabled, veteran owned and HUBZone small business as potential supplies of APL's procurement requirements.

b. Coordinate with the supervisors of subcontracts and purchasing to ensure that the concerns are considered fairly as subcontractors and suppliers under this prime contract.

c. Maintain appropriate records and files for review and audit

d. Prepare and submit required reports (e.g., SF-294 and SF-295)

e. Keep abreast of current requirements; attendance at small, small disadvantage, woman-owned, veteran owned and HUBZone small business fairs, expositions, and seminars. For example: some of the shows that APL would normally participate in: (1) the "Business Conference/Opportunity Fair"; (2) Technology Exposition Show; (3) NASA Technology Showcase; (4) Bolling AFB Small Industry DAY; (5) Mega Success Conference (Governor's Office) and (6) The Annual NASA Small and Small Disadvantaged Business Conference.

f. Participation in the Maryland High Technology Council. Attending regular meetings and networking with Council members to solicit SB, SDB, WOSB, SDVOSB, VOSB and HUBZones opportunities;

g. Continuing education for APL management (including program managers and staff members responsible for initiating procurement actions) to make them aware of APL's responsibilities in connection with small and minority procurements;

h. Developing and promoting company-wide policy initiatives the demonstrate APL's support for awarding contracts and subcontracts to small, small disadvantage, woman-owned, veteran owned and HUBZone small business concern; and for assuring that these concerns are included on the source lists for solicitations for products and services they are capable of providing;

i. Ensuring that requests for quotes (RFQ) are designed to permit the maximum practicable participation of small, small disadvantage, woman-owned, veteran owned and HUBZone small business;

j. Accessing various sources for the identification of small, small disadvantage, woman-owned, veteran owned and HUBZone small business concerns to include SBA's PRO-Net System, the National Minority Purchasing Council Vendor Information Service, the Office of Minority Business Data Center, local small business and minority associations, contact with local chambers of commerce and Federal agencies' Small Business Office;

k. Ensuring that small, small disadvantaged, veteran owned, woman-owned and HUBZone small business concerns are made aware of subcontracting opportunities and assisting concerns in preparing responsive bids to APL;

10. A description of the efforts APL will make to assure that the concerns have an equitable opportunity to compete for subcontracts:

APL supports not only the letter, but also the spirit of the laws pertaining to subcontracting, competition, ethics, etc. Paragraph (7) describes many proactive initiatives that the Laboratory is taking to identify potential small and minority businesses, and to foster teaming relationships with many national HBCU's and minority businesses in the Baltimore, Washington D.C. and Virginia area's. It is a standard practice among our procurement buyers and subcontract representatives for APL procurements to be made available to these concerns, as a normal part of our competitive process.

11. Required flow down of FAR 52.219-8 and FAR 52.219-9

The APL will include the clause entitled: "Utilization of Small, Small Disadvantaged and Women-Owned Small Business Concerns" (FAR 52.219-8) in all subcontracts that offer further subcontracting opportunities.

The APL will require all subcontractors *(except small business concerns)* who receive subcontracts in excess of $500,000.00 under this prime contract *($1,000,000. For construction of any public facility)*, to adopt a "Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan" (FAR 52.219-9) similar to the APL plan.

12. Studies, Surveys, and Reports:

APL will

i. Cooperate in any studies or surveys as may be required

ii. Submit periodic reports in order to allow the Government to determine the extent of compliance by APL with this subcontracting plan

iii. Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts and/or (SF) 295, Summary Subcontract Report, in accordance below:

Reporting Period	Report Due	Due Date
Oct 1 - Mar 31	SF-294	4/30
Apr 1 - Sep 30	SF-294	10/30
Oct 1 - Sep 30	SF-295	10/30

(a) Submit SF-294 Form to: cognizant Contracting Officer

(b) Submit "info" copy to SBA Commercial Market Representative (CMR) and

iv. Ensure that its subcontractors agree to submit Standard Forms 294 and 295 when required

13. Recitation of the types of records that will be maintained to support this plan's goals:

a. Small and disadvantaged business source lists, guides, and other data identifying SB, SDB, WOSB, SDVOSB, VOSB, HBCU, and MIs.

b. Organizations contacted for small, small disadvantaged, veteran owned, HubZone, and women-owned small business sources.

c. Records on all subcontract solicitations over $100,000.00 indicating on each Solicitation: (I) whether small business was solicited and if not, why not; (ii) whether small disadvantaged business was solicited and if not, why not; and (iii) whether women-owned small business was solicited and if not, why not; and (iv) if applicable, the reason award was not made to a small business concern.

d. Records of any outreach efforts to contact:

1. trade associations
2. business development organizations
3. attendance at conferences and trade fairs

e. Records to support internal activities to guide and encourage procurement buyers:

1. workshops, seminars, training programs, etc., and
2. monitoring activities to evaluate compliance with program and goals

f. Records to support award data submitted by APL to the Government, including the name, address, and business size of each subcontractor

PERFORMANCE IMPACT PER TASK

TASK	RESPONSIBILITY	ASSISTANCE REQUIRED	DELIVERABLE	IMPACT OF FAILED ASSISTANCE
Interface Definitions	*BATC	**ALL	Preliminary Interface Control Document	BATC is dependent upon the three Associate Contractors (AC's) to identify interface information. Minimal work can be accomplished without this information.
System Requirements Definition	BATC	ALL	Preliminary Systems Requirements Document	The AC's will provide subsystem and system requirements to BATC. These will be tracked against the program KPP's. BATC will be prevented from tracking the system performance without the AC's support.
Requirements Traceability	BATC	ALL	Preliminary Traceability Matrix	See note above
CONOPS Development	BATC	ALL	Preliminary CONOPS	A notional CONOPS can be developed independent of the AC's. However, without their assistance BATC cannot provide a fully coordinated, system level CONOPS approach.
Integration and Test Planning	BATC	ALL	Preliminary Integration and Test Plan	A notional I&T Plan can be developed independent of the AC's. However, without their assistance BATC cannot provide an adequately detailed I&T Plan for the XNAV system.
Risk Assessment and Mitigation	BATC	ALL	Preliminary Risk Mitigation Plan	BATC can identify some of the Risks associated with the X-ray sensor system. However, without the AC's assistance, BATC cannot identify all of the risks or provide detailed mitigation plans.
Draft Detector/Imager System Design	BATC	ALL	Preliminary Detector/Imager System Design	BATC can formulate a conceptual Detector/Imager system design. However without the AC's assistance BATC cannot identify all of the design parameters or provide subsystem information.
Candidate Mission Analysis	BATC	ALL	Preliminary Candidate Missions Study	This task has some dependence to the CONOPS development and the instrument performance. The analysis cannot be adequately completed without the AC's assistance.
Final Report	BATC	ALL	Final Report	BATC is dependent upon the AC's for a majority of information contained in the final report. Minimal work can be accomplished without their assistance.
Preliminary Design Review (PDR)	BATC	ALL	PDR Presentation	Same as final report note (The PDR submissions is limited to the deliverables identified in the respective AC SOW's)

* BATC - Ball Aerospace & Technologies Corporation
** ALL - All associate contractors to BATC (i.e., Johns Hopkins Applied Physics Laboratory, Los Alamos National Laboratory, and National Institute for Standards and Technology)