

AWARD/CONTRACT		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)		RATING NONE	PAGE OF PAGES 1 29		
2. CONTRACT (Proc. Inv. Ident.) NO. HR0011-09-C-0083		3. EFFECTIVE DATE 26 Jun 2009		4. REQUISITION/PURCHASE REQUEST/PROJECT NO. Y410/05			
5. ISSUED BY DARPA CMO ATTN: ROBIN SWATLOSKI 3701 N FAIRFAX DR ARLINGTON VA 22203-1714		CODE HR0011	6. ADMINISTERED BY (If other than Item 5) DCMA DETROIT US ARMY TANK & AUTOMOTIVE COMMAND (TACOM) WARREN MI 48397-5000		CODE S2306A		
7. NAME AND ADDRESS OF CONTRACTOR (No. street, city, county, state and zip code) RAYTHEON COMPANY 1010 PRODUCTION RD FORT WAYNE IN 46808-4106			8. DELIVERY [] FOB ORIGIN [X] OTHER (See below)		9. DISCOUNT FOR PROMPT PAYMENT N/A		
CODE 37695		FACILITY CODE		10. SUBMIT INVOICES 2 (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN: ITEM Section G			
11. SHIP TO/MARK FOR DARPA LARRY STOTTS ATTN: STRATEGIC TECHNOLOGY OFFICE 3701 NORTH FAIRFAX DRIVE ARLINGTON VA 22203-1714		CODE HR0011	12. PAYMENT WILL BE MADE BY DFAS COLUMBUS CENTER NORTH ENTITLEMENT OPERATIONS P O. BOX 182266 COLUMBUS OH 43216-2266		CODE HQ0337		
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					\$24,366,000.00		
16. TABLE OF CONTENTS							
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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. (All enclosures are listed herein.)			18 [] AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number				
19A. NAME AND TITLE OF SIGNER (b)(4)			20A. NAME OF CONTRACTING OFFICER Robin M. Swatloski, Contracting Officer TEL: 571-216-4542 EMAIL: Robin.Swatloski@darpa.mil				
19B. NAME OF CONTRACTOR (b)(4)		19C. DATE SIGNED 06-26-09	20B. UNITED STATES OF AMERICA (b)(6)		20C. DATE SIGNED 26 Jun 09		
BY (Signature of person authorized to sign)			BY (Signature of Contracting Officer)				

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0001	<p>MainGate CPFF Contractor shall furnish the necessary personnel, material, facilities and other services as may be required to perform the work in accordance with the contract, Attachment 1, Statement of Work (SOW), Attachment 2, Contract Data Requirements List (CDRL), and Attachment 3, Program Metrics from the proposal entitled Mobile Ad hoc Interoperability Network GATEway (MAINGATE) dated 26 AUG 2008 and updated 13 MAY 2009 and 04 JUN 2009 for the WIPN Gateway and Spatial Diversity Multiple Input / Multiple Output (SD MIMO). FOB: Destination AO No. Y410/00</p>	(b)(4)		\$24,366,000.00
				\$24,366,000.00

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
000101	<p>Funding for CLIN 0001 CPFF FOB: Destination AO No. Y410/00</p>	\$0.00	\$0.00	\$0.00
	ACRN AA			\$21,746,737.00

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002 OPTION	Option 1 - Limited User Test (LUT 1) FFP Contractor shall furnish the necessary personnel and material and other services as may be required to perform Option 1 LUT work in accordance with the contract, Attachment 1, SOW, and Attachment 2, CDRL and Attachment 3, Program Metrics. FOB: Destination	(b)(4)	Each		\$62,712,493.00
				NET AMT	\$62,712,493.00

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0003 OPTION	Option 2 - CONUS Test Support CPFF Contractor shall furnish the necessary personnel and material and other services as may be required to perform Option 2 CONUS Test Support work in accordance with the contract, Attachment 1, SOW, and Attachment 2, CDRL and Attachment 3, Program Metrics. FOB: Destination		(b)(4)	\$3,100,000.00 \$3,100,000.00

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004 OPTION	Option 3 - Limited User Test (LUT 2) FFP Contractor shall furnish the necessary personnel and material and other services as may be required to perform Option 3 LUT work in accordance with the contract, Attachment 1, SOW, and Attachment 2, CDRL and Attachment 3, Program Metrics. FOB: Destination		Each	(b)(4)	\$62,847,303.00
				NET AMT	\$62,847,303.00

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0005 OPTION	Option 4 - OCONUS Test Support CPFF Contractor shall furnish the necessary personnel and material and other services as may be required to perform Option 4 OCONUS Test Support work in accordance with the contract, Attachment 1, SOW, and Attachment 2, CDRL and Attachment 3, Program Metrics. FOB: Destination		(b)(4)	\$1,550,000.00 \$1,550,000.00

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0006	Reports and Other Deliverables CPFF The contractor shall provide the Reports and Other Deliverables in accordance with Sections C-2 and F-2, and contractor's proposal identified in CLIN 0001. FOB: Destination AO No. Y410/00	\$0.00	\$0.00	\$0.00 NSP

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 Numbers (CLINs) 0001 and 0006, and Option CLINs 0002, 0003 and 0004, in accordance with the contract, Attachment 1, Statement of Work (SOW), Attachment 2, Contract Data Requirements List (CDRL), and Attachment 3, Program Metrics attached hereto. The work and services to be performed hereunder shall be subject to the requirements and standards contained in the Contractor's proposal entitled "Mobile Ad hoc Interoperability Network GATEway (MAINGATE)" dated 26 AUG 2008 and updated 13 MAY 2009 and 04 JUN 2009, copies of which are in the possession of both parties.

(b) In the event of an inconsistency between the provisions of this contract and the Contractor's 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 Contractor's proposal.
(end of clause)

C-2 Reports and Other Deliverables

(a) The Contractor shall submit the reports in accordance with Attachment 2, CDRL, and other deliverables in accordance with the delivery schedule set forth in Section F. Reports and other deliverables shall be submitted in writing, as defined in FAR 2.101, or as otherwise specified in this contract.

(b) Reports delivered by the Contractor in the performance of the contract shall be considered "Technical Data" as defined in Section I contract clauses entitled "Rights in Technical Data - Noncommercial Items" and "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation."

(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 situation, one copy shall be mailed first-class and the remaining copies forwarded by less than first-class.

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

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

Sponsored by
Defense Advanced Research Projects Agency
Strategic Technology Office (STO)
Program: Mobile Ad hoc Interoperability Network GATEway
ARPA Order No. Y410/00, Program Code: 9410
Issued by DARPA/CMO under Contract No. HR0011-09-C-0083

(2) 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 expressly or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

(3) All technical reports must (i) be prepared in accordance with American National Standards Institute (ANSI) Standard Z39.18; (ii) include a Standard Form 298, August 1998; and (iii) be marked with an appropriate Distribution Statement.

(end of clause)

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.
(end of clause)

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Destination	Government	Destination	Government
000101	N/A	N/A	N/A	N/A
0002	Destination	Government	Destination	Government
0003	Destination	Government	Destination	Government
0004	Destination	Government	Destination	Government
0005	Destination	Government	Destination	Government
0006	Destination	Government	Destination	Government

CLAUSES INCORPORATED BY REFERENCE

52.246-8	Inspection Of Research And Development Cost Reimbursement	MAY 2001
252.246-7000	Material Inspection And Receiving Report	MAR 2008

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	20-AUG-2010		DARPA LARRY STOTTS ATTN: STRATEGIC TECHNOLOGY OFFICE 3701 NORTH FAIRFAX DRIVE ARLINGTON VA 22203-1714 571-218-4346 FOB: Destination	HR0011
000101	20-AUG-2010		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011
0002	30-SEP-2011		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011
0003	31-OCT-2011		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011
0004	30-JUN-2012		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011
0005	31-JUL-2012		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011
0006	20-AUG-2010		(SAME AS PREVIOUS LOCATION) FOB: Destination	HR0011

CLAUSES INCORPORATED BY REFERENCE

52.242-15 Alt I	Stop-Work Order (Aug 1989) - Alternate I	APR 1984
52.247-34	F.O.B. Destination	NOV 1991

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F-1 Term of Contract

(a) The term of the contract commences on 23 MAR 2009 and continues through 20 AUG 2010 unless the government exercises any Option as set forth below.

(b) The period of performance for Option 1, as set forth in CLIN 0002, shall be from the Option Exercise Date plus seventeen (17) months. The government may exercise Option 1, CLIN 0002, Limited User Test (LUT 1), at

the price specified in the contract. The Contracting Officer may exercise the option by written notice to contractor on or before 30 SEP 2010.

(c) The period of performance for Option 2, as set forth in CLIN 0003, shall be from the Option Exercise Date plus eighteen (18) months. The government may exercise Option 2, CLIN 0003, CONUS Test Support, at the price specified in the contract. The Contracting Officer may exercise the option by written notice to contractor on or before 30 SEP 2010.

(d) The period of performance for Option 3, as set forth in CLIN 0004, shall be from the Option Exercise Date plus seventeen (17) months. The government may exercise Option 3, CLIN 0004, Limited User Test (LUT 2), at the price specified in the contract. The Contracting Officer may exercise the option by written notice to contractor on or before completion of the tenth (10th) month of Limited User Test (LUT 1) (CLIN 0002) to allow for continuous production and retention of contractor personnel.

(e) The period of performance for Option 4, as set forth in CLIN 0005, shall be from the Option Exercise Date plus seven (7) months. The government may exercise Option 4, CLIN 0005, OCONUS Test Support, at the price specified in the contract. The Contracting Officer may exercise the option by written notice to contractor on or before completion of the tenth (10th) month of Limited User Test (LUT 1) (CLIN 0002) to allow for continuous production and retention of contractor personnel.

(end of clause)

F-2 Reports and Other Deliverables

Delivery of all reports and other deliverables shall be made to the addressee specified in F-3 entitled "Report Distribution" in accordance with Attachment 2, CDRL.

(end of clause)

F-3 Report Distribution

(a) DARPA/STO

Attn: Dr. Larry Stotts, Program Manager
3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: Larry.Stotts@darpa.mil
(one copy each report)

(b) DARPA/STO

Attn: Patrick Bailey, ADPM
3701 North Fairfax Drive
Arlington, VA 22203-1714
Phone: (703) 696-5277
Fax: (703) 807-0968
Email: Patrick.Bailey@darpa.mil
(one copy each report)

(c) DARPA/Library

3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: library@darpa.mil
(one copy of the Final Technical Report)

(d) Defense Technical Information Center

- (1) Email: TR@dtic.mil
(one electronic copy of the Final Technical Report, if unclassified)

OR

- (2) Attn: DTIC-BCS
8725 John J. Kingman Road, Suite 0944
Fort Belvoir, VA 22060-0944
(two hard copies of the Final Technical Report if unclassified)

(e) DARPA/CMO
Attn: Robin Swatloski, Contracting Officer
3701 North Fairfax Drive
Arlington, VA 22203-1714
Phone: (571) 218-4542
Fax: (703) 741-7801
Email: Robin.Swatloski@darpa.mil
(one copy each report)

(f) COR
Attn: Neil Hoff
SPAWAR Systems Center Pacific (Code 55450)
4297 Pacific Highway, Bldg. 7
San Diego, CA 92110-5000
Phone: 619-553-9402
Email: neil.hoff@navy.mil
(one copy each report)
(end of clause)

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.
(end of clause)

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 9790400 1320 Y410 P9410 2525 DPAC 9 5213 S12136 63760E
AMOUNT: \$21,746,737.00
CIN 00000000000000000000000000000000: \$21,746,737.00

CLAUSES INCORPORATED BY FULL TEXT

G-1 Procuring Office Representative

The Procuring Office Representative is Robin Swatloski, Contracting Officer, DARPA/CMO, 3701 North Fairfax Drive, Arlington, VA 22203-1714, telephone: (571) 218-4542, e-mail: Robin.Swatloski@darpa.mil.
(end of clause)

G-2 Electronic Submission of Payment Requests

(a) Invoices for goods received or services rendered under this contract shall be submitted electronically through Wide Area Work Flow – Receipt and Acceptance (WAWF):

(1) Vendors that have never used WAWF shall follow the directions in the WAWF Vendor Getting Started Guide available at the following website:
<http://www.dfas.mil/contractorpay/electroniccommerce/wideareaworkflow.html>. This website also contains links for Vendor training and practice. Additional support can be obtained by calling WAWF Customer Service at 866-618-5988.

(2) Back up documentation (such as timesheets, monthly status reports, etc.) can be included and attached to the invoice in WAWF. Attachments should be in PDF format, but Attachments created in any Microsoft Office product may be attached. Total limit for the size of files per invoice is 5 megabytes.

(b) The following information, regarding invoice routing DoDAAC's, must be entered for completion of the invoice in WAWF:

WAWF Invoice Type:	Cost Voucher for all Cost or T&M contracts or CLINs
Issuing Office DoDAAC	HR0011
Admin Office DoDAAC	S2305A
Service Approver DoDAAC (Cost Voucher)	S2305A
DCAA Office DoDAAC (Used on Cost Vouchers only)	HAA155
Paying Office DoDAAC	HQ0337

(c) Cost Vouchers from Contractors approved by DCAA for direct billing will be directly routed to DFAS. Cost Vouchers from Contractors not approved for direct billing will be routed to DCAA for approval before the Cost Voucher is routed to DFAS. All Final Cost Voucher submissions will be routed to the Service Approver for approval. The DCAA office for this award is:

DCAA Raytheon Systems Co.

1010 Production Road, Mail Stop D4 33
Fort Wayne, IN 46808-4106

DoDAAC: HAA155

Phone No: Larry Roberts, 260-429-6454

E-mail: larryj.roberts@dcaa.mil

(d) For each invoice/cost voucher submitted for payment, the contractor shall also e-mail the WAWF automated invoice notice directly to the following points of contact:

Name	E-mail	Phone	Role
Neil Hoff	neil.hoff@navy.mil	619-553-9402	COR

(e) Submission of Invoices under Fixed Price Type Contracts

1. "Invoice" as used in this paragraph does not include the contractor's requests for progress payments.
2. The use of WAWF-RA electronic form and invoice are in accordance with DFARS Appendix F.
3. In addition to the requirements of the Prompt Payment clause of the contract, the contractor shall cite on each invoice the contract line item (CLIN); the contract subline item number (SUBCLIN), if applicable; the accounting classification reference number (ACRN), and the payment terms.
4. The contractor shall prepare either:

_____ a separate invoice for each activity designated to receive the supplies or services or
_____ a consolidated invoice covering all shipments delivered under an individual order.
5. If acceptance is at origin, the contractor shall submit the WAWF-RA electronic form or other acceptance verification directly to the designated payment office.
6. If acceptance is at destination, the consignee will forward acceptance verification to the designated payment office.

G-3 Delegation of Authority for Contract Administration

DCMA Detroit, is hereby designated as the Contracting Officer's authorized representative for administering this contract in accordance with current directives.
(end of clause)

G-4 Contracting Officer's Representative (COR)

(a) Performance of work under this contract shall be subject to the technical direction of Neil Hoff, SPAWAR Systems Center Pacific (Code 55450), 4297 Pacific Highway, Bldg. 7, San Diego, CA 92110-5000, Phone: 619-553-9402, Email: neil.hoff@navy.mil. Such technical direction includes those instructions to the Contractor necessary to accomplish the Statement of Work. The COR is not otherwise authorized to make 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 to change the specifications of the contract.

(b) Technical direction shall not include any direction which:

- (1) Constitutes additional work outside the scope of work;

- (2) Constitutes a change as defined in Section I contract clause entitled "Changes";
 - (3) In any manner causes an increase or decrease in the total estimated cost or the time required for contract performance; or
 - (4) Changes any of the stated terms, conditions, or specifications of the contract.
- (end of clause)

G-5 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.

(end of clause)

G-6 Incremental Funding

This contract shall be subject to incremental funding with \$21,746,737 presently made available for performance under this contract. It is estimated that the funds presently available are sufficient to permit the Contractor's performance through 15 JUN 2010. Except in accordance with the Section I clause FAR 52.232-22, "Limitation of Funds," no legal liability of the part of the Government for payment of any money in excess of \$21,746,737 shall arise unless and until additional funds are made available by the Contracting Officer through a modification to this contract.

(end of clause)

G-7 Payment of Cost and Fee

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.
- (end of clause)

G-8 Payment Terms for Limited User Test (LUT) Options

Performance based payments or progress payments will be determined upon exercise of Option CLIN 0002.

(end of clause)

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. 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.

(end of clause)

H-2 Type of Contract

This is a Cost Plus Fixed Fee (CPFF) contract. Options are provided as CPFF (CLINs 0003 and 0005) and Firm Fixed Price (FFP) (CLINs 0002 and 0004).

(end of clause)

H-3 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 written approval of the DARPA Technical Information Officer (DARPA/TIO). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. Papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

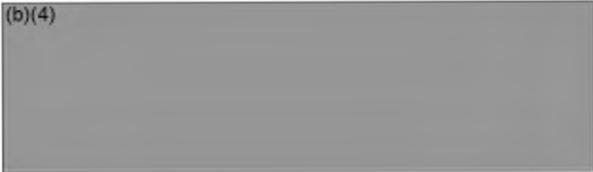
(b) When submitting material for written approval for open publication as described in subparagraph (a) above, the Contractor must submit a request for public release request to the DARPA TIO and include the following information: 1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx 30 words), number of pages (or minutes of video) and document type (briefing, report, abstract, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to tio@darpa.mil or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571) 218-4235. Refer to www.darpa.mil/tio for information about DARPA's public release process.

(end of clause)

H-4 Key Personnel

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

(b)(4)



(b)(4)

- (1) Personnel identified above as key individuals to be assigned for participation in the performance of the contract;
- (2) Personnel listed above 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 demonstrate that the qualifications of the prospective 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 demonstrated to the satisfaction of the COR that the qualifications of the proposed substitute personnel are equal to or better than the qualifications of the personnel being replaced.

(end of clause)

H-5 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 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.

(end of clause)

H-6 Contractor Representations and Certifications

The Contractor's (a) ORCA Submission valid for the period of 21 JAN 2009 through 21 JAN 2010, and (b) Representations and Certifications dated 26 JUN 2009 are incorporated herein by reference.

(end of clause)

H-7 Insurance Schedule

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.

(end of clause)

H-8 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 thirty (30) days in advance of traveler's anticipated departure date, and shall include traveler's itinerary of United States Flag Air Carriers.

(end of clause)

H-9 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.

(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 semi-fabricated material, which are of 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 economical 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.

(end of clause)

H-10 Consent to Subcontract

(a) Pursuant to the clause of the General Provisions entitled "Subcontracts (JUN 2007)," FAR 52.244-2(j), the Contracting Officer hereby consents to the placement of subcontract(s) with the following firm(s)/consultant(s) at the ceiling amounts specified:

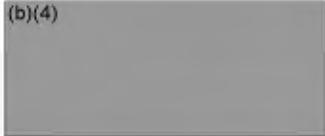
NAME

(b)(4)

TOTAL AMOUNT

As Proposed

As Proposed



As Proposed
As Proposed
As Proposed
As Proposed

(b) Approval must be obtained from the Administrative Contracting Officer to increase the use or number of subcontractors from the level established in subparagraph a.
(end of clause)

H-11 Pre-contract Costs

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 listed in Section J as Attachment 5.
(end of clause)

H-12 RESERVED
(end of clause)

H-13 Government Furnished Property/Facilities and Services

In accordance with the Section I contract clause entitled "Government Property", the following property, facilities and/or services shall be provided for use in the performance of this contract.

<u>Need Date</u>	<u>QTY</u>	<u>PROPERTY NOMENCLATURE</u>	<u>DELIVERY TO</u>
------------------	------------	------------------------------	--------------------

See Statement of Work attached to this contract as Attachment 1

Contractor shall provide a preliminary request for GFE two (2) weeks after contract award and any additional GFE identified in the SOW will be requested thirty (30) days prior to the need date.
(end of clause)

H-14 Contractor-Acquired Property (Facilities)

(a) The Contractor is authorized to acquire the following items of facilities which are needed to accomplish this contract:

<u>Items To Be Acquired</u>	<u>Estimated Cost</u>
-----------------------------	-----------------------

NONE AUTHORIZED AS OF THE EFFECTIVE DATE OF THIS CONTRACT

Total

(b) The costs incurred by the Contractor in acquiring the facilities listed in paragraph (a) above shall be considered allowable costs under the contract provided that the total net amount of the facilities does not exceed \$0. The Contractor shall have no obligation to acquire facilities and the Government shall have no obligation to reimburse any amount for facilities in excess of the amount set forth above unless the contract is amended to increase this amount.

(c) The facilities listed above shall be considered Government Property and shall be subject to the provisions of FAR 52.245-1, incorporated by reference in Section I.

(d) The Contractor shall not use Contractor-acquired property listed above for work other than that performed pursuant to this contract unless so authorized in writing by the Contracting Officer.
(end of clause)

H-15 Contractor-Acquired Property (Special Test Equipment)

(a) The Contractor is authorized to acquire the following items of special test equipment which are needed to accomplish this contract:

Items To Be Acquired

Estimated Cost

NONE AUTHORIZED AS OF THE EFFECTIVE DATE OF THIS CONTRACT

Total

(b) The costs incurred by the Contractor in acquiring the special test equipment listed in paragraph (a) above shall be considered allowable costs under the contract provided that the total net amount of the special test equipment does not exceed \$0. The Contractor shall have no obligation to acquire special test equipment and the Government shall have no obligation to reimburse any amount for special test equipment in excess of the amount set forth above unless the contract is amended to increase this amount.

(c) The special test equipment listed above shall be considered Government Property and shall be subject to the provisions of FAR 52.245-1, incorporated by reference in Section I.

(d) The Contractor shall not use Contractor-acquired property listed above for work other than that performed pursuant to this contract unless so authorized in writing by the Contracting Officer.
(end of clause)

H-16 Contractor-Acquired Property (Special Tooling)

(a) The Contractor is authorized to acquire the following items of special tooling which are needed to accomplish this contract:

Items To Be Acquired

Estimated Cost

NONE AUTHORIZED AS OF THE EFFECTIVE DATE OF THIS CONTRACT

Total

(b) The costs incurred by the Contractor in acquiring the special tooling listed in paragraph (a) above shall be considered allowable costs under the contract provided that the total net amount of the special tooling does not exceed \$0. The Contractor shall have no obligation to acquire special tooling and the Government shall have no obligation to reimburse any amount for special tooling in excess of the amount set forth above unless the contract is amended to increase this amount.

(c) The special tooling listed above shall be considered Government Property and shall be subject to the provisions of FAR 52.245-1, incorporated by reference in Section I.

(d) The Contractor shall not use Contractor-acquired property listed above for work other than that performed pursuant to this contract unless so authorized in writing by the Contracting Officer.
(end of clause)

H-17 Contractor Acquired Property (IT)

(a) Performance of this contract will require use of the information technology (IT) resources listed below, acquisition of which (or equivalent) is hereby authorized:

ITEM	TOTAL AMOUNT
NONE AUTHORIZED AS OF THE EFFECTIVE DATE OF THIS CONTRACT	

(b) The costs incurred by the Contractor in acquiring the IT listed in paragraph (1.) above shall be considered allowable costs under the contract provided that the total net amount of the IT does not exceed \$0. The Contractor shall have no obligation to acquire IT and the Government shall have no obligation to reimburse any amount for IT in excess of the amount set forth above unless the contract is modified to increase this amount.

(c) The IT resources listed above shall be considered Government Property and shall be subject to the provisions of FAR 52.245-1, incorporated in Section I.

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

(end of clause)

H-18 Proprietary Technical Data and Computer Software

Any deliverable technical data or computer software developed or generated at private expense and considered to be proprietary by the Contractor or subcontractors shall be delivered in accordance with DFARS 252.227-7013 and 252.227-7014. A list of such data and/or software is incorporated into the contract as Attachment No. 4.
(end of clause)

H-19 Technical Data – Withholding of Payment

- (a) If technical data specified to be delivered under this contract, is not delivered within the time specified by this contract or is deficient upon delivery (including having restrictive markings not identified in the list described in the clause at 252.227-7013(e)(2) or 252.227-7018(e)(2) of this contract), the Contracting Officer may until such data is accepted by the Government, withhold payment to the Contractor in the amount of One Hundred Thousand Dollars (\$100,000). Payments shall not be withheld nor any other action taken pursuant to this paragraph when the Contractor's failure to make timely delivery or to deliver such data without deficiencies arises out of causes beyond the control and without the fault or negligence of the Contractor.
- (b) The withholding of any amount or subsequent payment to the Contractor shall not be construed as a waiver of any rights accruing to the Government under this contract.

H-20 Consultants

(a) The contractor is authorized to use the following consultants to the extent indicated:

<u>Name</u>	<u>No. of Hours</u>	<u>Rate</u>	<u>Total Amount</u>
-------------	---------------------	-------------	---------------------

NO CONSULTANTS AUTHORIZED AS OF THE EFFECTIVE DATE OF THIS CONTRACT.

(b) Approval must be obtained from the Administrative Contracting Officer to increase the use of consultants from the level estimated in subparagraph (1.).

(end of clause)

H-21 (RESERVED)

(end of clause)

H-22 Export Control Clause

Should this project develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community) with military or dual-use applications the following apply:

- (a) The contractor shall comply with all U. S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.
- (b) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technical data or software.
- (c) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.
- (d) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

H-23 Contractor Code of Business Ethics

The "agency Office of the Inspector General" referenced in FAR clause 52.203-13, "Contractor Code of Business Ethics" (DEC 2008) contained in Section I of this Contract, shall be the Department of Defense Office of the Inspector General (DoD OIG). Contact information is as follows:

Office of the Inspector General
United States Department of Defense
Investigative Policy and Oversight
Contract Disclosure Program
400 Army Navy Drive, Suite 1037
Arlington, VA 22202-4704
Toll Free Telephone: 866-429-8011
(end of clause)

H-24 Invention Disclosure and Reports

All written communications required for invention disclosures and reports shall be submitted to the Administrative Contracting Officer (ACO). All unclassified required reporting shall be accomplished using the i-Edison.gov reporting website (<https://s-edison.info.nih.gov/iEdison/>).
(end of clause)

H-25 Security

Military Security requirements in the performance of this contract shall be maintained in accordance with the security provisions required by the DD Form 254, Contract Security Classification Specification, Attachment No. 6 hereto. The highest classification involved in the performance of this effort is Secret. The contract is unclassified.
(end of clause)

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	SEP 2006
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	SEP 2007
52.203-13	Contractor Code of Business Ethics and Conduct	DEC 2008
52.203-14	Display of Hotline Poster(s)	DEC 2007
52.204-2	Security Requirements	AUG 1996
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	APR 2008
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	SEP 2006
52.211-5	Material Requirements	AUG 2000
52.215-2	Audit and Records--Negotiation	MAR 2009
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-9	Changes or Additions to Make-or-Buy Program	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
52.215-13	Subcontractor Cost or Pricing Data--Modifications	OCT 1997
52.215-14	Integrity of Unit Prices	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	JUL 2005
52.215-19	Notification of Ownership Changes	OCT 1997
52.215-21	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications	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	APR 2008
52.219-28	Post-Award Small Business Program Rerepresentation	APR 2009
52.222-2	Payment For Overtime Premiums	JUL 1990
52.222-3	Convict Labor	JUN 2003
52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	JUL 2005
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	SEP 2006
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	SEP 2006

52.222-39	Notification of Employee Rights Concerning Payment of Union Dues or Fees	DEC 2004
52.222-50	Combating Trafficking in Persons	FEB 2009
52.223-6	Drug-Free Workplace	MAY 2001
52.223-13	Certification of Toxic Chemical Release Reporting	AUG 2003
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1 Alt I	Authorization And Consent (Dec 2007) - Alternate I	APR 1984
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	DEC 2007
52.228-7	Insurance--Liability To Third Persons	MAR 1996
52.230-2	Cost Accounting Standards	OCT 2008
52.230-4	Disclosure and Consistency of Cost Accounting Practices for Contracts Awarded to Foreign Concerns	OCT 2008
52.230-6	Administration of Cost Accounting Standards	MAR 2008
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-17	Interest	OCT 2008
52.232-20	Limitation Of Cost	APR 1984
52.232-22	Limitation Of Funds	APR 1984
52.232-23	Assignment Of Claims	JAN 1986
52.232-25	Prompt Payment	OCT 2008
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-2	Service Of Protest	SEP 2006
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
52.242-3	Penalties for Unallowable Costs	MAY 2001
52.242-4	Certification of Final Indirect Costs	JAN 1997
52.242-13	Bankruptcy	JUL 1995
52.243-2 Alt V	Changes--Cost-Reimbursement (Aug 1987) - Alternate V	APR 1984
52.244-2	Subcontracts	JUN 2007
52.244-5	Competition In Subcontracting	DEC 1996
52.244-6	Subcontracts for Commercial Items	MAR 2009
52.245-1	Government Property	JUN 2007
52.245-9	Use And Charges	JUN 2007
52.246-23	Limitation Of Liability	FEB 1997
52.246-24	Limitation Of Liability--High-Value Items	FEB 1997
52.247-67	Submission Of Transportation Documents For Audit	FEB 2006
52.249-6	Termination (Cost Reimbursement)	MAY 2004
52.249-14	Excusable Delays	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7000	Requirements Relating to Compensation of Former DoD Officials	JAN 2009
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	JAN 2009
252.204-7000	Disclosure Of Information	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004 Alt A	Central Contractor Registration (52.204-7) Alternate A	SEP 2007
252.204-7006	Billing Instructions	OCT 2005

252.204-7009	Requirements Regarding Potential Access to Export-Controlled Items	JUL 2008
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.211-7000	Acquisition Streamlining	DEC 1991
252.211-7003	Item Identification and Valuation	AUG 2008
252.211-7007	Reporting of Government-Furnished Equipment in the DoD Item Unique Identification (IUID) Registry	NOV 2008
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	DEC 2006
252.215-7004	Excessive Pass-Through Charges	MAY 2008
252.219-7003	Small Business Subcontracting Plan (DOD Contracts)	APR 2007
252.223-7002	Safety Precautions For Ammunition And Explosives	MAY 1994
252.223-7004	Drug Free Work Force	SEP 1988
252.225-7001	Buy American Act And Balance Of Payments Program	JAN 2009
252.225-7002	Qualifying Country Sources As Subcontractors	APR 2003
252.225-7012	Preference For Certain Domestic Commodities	DEC 2008
252.225-7013	Duty-Free Entry	OCT 2006
252.225-7031	Secondary Arab Boycott Of Israel	JUN 2005
252.227-7000	Non-estoppel	OCT 1966
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
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.227-7038	Patent Rights--Ownership by the Contractor (Large Business)	DEC 2007
252.227-7039	Patents--Reporting Of Subject Inventions	APR 1990
252.231-7000	Supplemental Cost Principles	DEC 1991
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	MAR 2008
252.232-7010	Levies on Contract Payments	DEC 2006
252.234-7001	Notice of Earned Value Management System	APR 2008
252.235-7010	Acknowledgment of Support and Disclaimer	MAY 1995
252.235-7011	Final Scientific or Technical Report	NOV 2004
252.242-7004	Material Management And Accounting System	NOV 2005
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	JAN 2009
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

CLAUSES INCORPORATED BY FULL TEXT

52.247-1 COMMERCIAL BILL OF LADING NOTATIONS (FEB 2006)

When the Contracting Officer authorizes supplies to be shipped on a commercial bill of lading and the Contractor will be reimbursed these transportation costs as direct allowable costs, the Contractor shall ensure before shipment is made that the commercial shipping documents are annotated with either of the following notations, as appropriate:

(a) If the Government is shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the _____ and the actual total transportation charges paid to the carrier(s) by the consignor or consignee are assignable to, and shall be reimbursed by, the Government."

(b) If the Government is not shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the _____ and the actual total transportation charges paid to the carrier(s) by the consignor or consignee shall be reimbursed by the Government, pursuant to cost-reimbursement contract no. _____. This may be confirmed by contacting _____."

(End of clause)

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://farsite.hill.af.mil>

(End of clause)

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 Defense Federal Acquisition Regulation (48 CFR Part 201 et seq.) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

252.225-7006 QUARTERLY REPORTING OF ACTUAL CONTRACT PERFORMANCE OUTSIDE THE UNITED STATES (MAY 2007)

(a) Definition. United States, as used in this clause, means the 50 States, the District of Columbia, and outlying areas.

(b) Reporting requirement. Except as provided in paragraph (c) of this clause, within 10 days after the end of each quarter of the Government's fiscal year, the Contractor shall report any subcontract, purchase, or intracompany transfer that--

(1) Will be or has been performed outside the United States;

(2) Exceeds the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation; and

(3) Has not been identified in a report for a previous quarter.

(c) Exception. Reporting under this clause is not required if--

- (1) A foreign place of performance is the principal place of performance of the contract; and
- (2) The Contractor specified the foreign place of performance in its offer.

(d) Submission of reports. The Contractor shall submit the reports required by this clause to: Deputy Director of Defense Procurement and Acquisition Policy (Contract Policy and International Contracting), OUSD(AT&L)DPAP(CPIC), Washington, DC 20301-3060.

(e) Report format. The Contractor--

(1) Shall submit reports using--

(i) DD Form 2139, Report of Contract Performance Outside the United States; or

(ii) A computer-generated report that contains all information required by DD Form 2139; and

(2) May obtain copies of DD Form 2139 from the Contracting Officer or via the Internet at <http://www.dtic.mil/whs/directives/infomgt/forms/formsprogram.htm>.

(f) Subcontracts. The Contractor--

(1) Shall include the substance of this clause in all first-tier subcontracts exceeding \$550,000, except those for commercial items, construction, ores, natural gases, utilities, petroleum products and crudes, timber (logs), or subsistence;

(2) Shall provide the number of this contract to its subcontractors required to submit reports under this clause; and

(3) Shall require the subcontractor, with respect to performance of its subcontract, to comply with the requirements directed to the Contractor in paragraphs (b) through (e) of this clause.

(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION
Attachment 1	Attachment 1- Statement of Work (SOW)
Attachment 2	Attachment 2 - CDRLs
Attachment 3	Attachment 3 - Program Metrics
Attachment 4	Attachment 4 - Asserted Rights
Attachment 5	Attachment 5 - Pre-Contract Cost Authorization
Attachment 6	Attachment 6 - DD254

Section III A – Statement of Work for MAINGATE

1.0 SCOPE

The objective of the Mobile Ad hoc Interoperability Network GATEway (MAINGATE) program is to develop the next generation Network Centric Radio System (NCRS) with additional capabilities and an assured, affordable unit price to the user. MAINGATE will be a connection point that allows a multitude of users, employing a heterogeneous set of radio technologies (both proprietary and non-proprietary) on different subnets, to attach to and communicate through an IP Network tolerant to high latency and packet loss. The technologies developed for the program will permit affordable, tactical, real-time, high fidelity video, data, and voice services to be deployed in a networked environment to support tactical operations in either maneuver or dismounted operations. As a result of this effort, DARPA expects a clear demonstration of advanced mobile ad hoc network (MANET) gateway technology with basic Spatial Diversity MIMO capability and Dynamic Spectrum Access (DSA) that allows coexistence with communications and CREW systems. It will incorporate a Wireless IP-capable Network (WIPN), which provides interconnectivity between nodes bridging heterogeneous mixtures of radio networks. The output of this program will be a demonstrated suite of hardware and software components that can be configured for specific DoD, coalition, and first responders/public safety requirements and provide the threshold overall information rate to the user, defined as the application payload information rate. The specific program requirements are in Appendix A of the Broad Agency Announcement and take precedence over all other technical information provided in this SOW. Appendix A of the BAA is incorporated by reference. Each metric in Appendix A will be considered fully compliant only if it can be achieved concurrently with all other fully compliant metrics. All fully compliant metrics should be considered to be pre-conditions for meeting other metrics.

This Statement of Work (SOW) defines tasks and responsibilities of the Raytheon Team (hereinafter "contractor") required to complete the defined deliverables for Defense Advanced Research Projects Agency (DARPA) and their selected agent, the Space and Naval Warfare Systems Command (SPAWAR) System Center Pacific (SSC PAC), (hereinafter "Government") as part of the Mobile Ad hoc Interoperability Network GATEway (MAINGATE) basic award (Advanced Concept Technology (ACT) phase), CONUS Limited User Testing Production and Test Support (Options 1 and 2), and OCONUS LUT Production and Test Support (Options 3 and 4). The Contract Line Item Numbers (CLINS) associated with each option are listed in Figure 1.0. The Contractor shall provide the engineering and management services as described in this SOW for development, testing, and production of the MAINGATE hardware, software, and documentation.

Figure 1.0: Option and CLIN Titles for MAINGATE Program

Basic: Advanced Concept Technology (ACT) phase

CLIN 0001 - Advanced Concept Technology (ACT) phase including quantity 20 MAINGATE Node systems with Spatial Diversity Multiple Input / Multiple Output (SD MIMO) and Next Generation Dynamic Spectrum Access (XG) functionality.*

Option 1: [REDACTED] Preproduction units

CLIN 0002 - Quantity [REDACTED] MAINGATE Node systems with quantity 200 operator consoles and quantity 200 AC power adapters.**

Option 2: CONUS Test Support

CLIN 0003 – Support and Training (including materials) to CONUS Demonstration.

Option 3: [REDACTED] Preproduction units

CLIN 0004 -Quantity █████ MAINGATE Node systems with quantity 200 operator consoles and quantity 200 AC power adapters for vehicular installations.**

Option 4: OCONUS Test Support

CLIN 0005 –Support and Training (utilizing CONUS materials) to OCONUS Demonstration .

* This CLIN includes an additional 5 units beyond the 15 to support lab integration/support. The 5 additional units will be lab assets that may have been altered, modified or degraded during testing. These units will be operational for lab use but may not be ruggedized for all environmental and field conditions. The ACT MAINGATE nodes and ancillaries include the following:

- 2-channel WIPN (dual RF, BCP, NCP hardware)
- Gateway
- Operator console
- Power Adapter
- GPS, Wi-Fi, Cell, and WIPN Antennas
- Installation cables for power and antennas
- Any legacy external radios and cables purchased on the contract

** The LUT MAINGATE nodes and ancillaries include the following:

- 2-channel WIPN (dual RF, BCP, NCP hardware)
 - Gateway
 - Operator console (qty. 200)
 - A/C Power Adapter (qty. 200)
-

2.0 APPLICABLE DOCUMENTS

The documents listed hereunder form a part of the SOW and are provided for guidance. In the event of conflict between the documents referenced and this SOW, the SOW takes precedence.

2.1 Government Documents

Document No.	Document Description	Document Date
DARPA-BAAD8-21	Mobile Ad-hoc Interoperability Network Gateway (MANICAT) Broad Agency Announcement (BAA)	30 May 2009

2.2 Non-Government Documents

Document No.	Document Description	Document Date
AS 9100	Quality Management System	2004 (Revision B)
EIA Standard 469A	National Electronic Standard for Configuration Management	24 October 2004

3.0 REQUIREMENTS

3.1 Program Management (Raytheon)

The Contractor shall provide overall management and technical direction, including but not limited to, program planning, management control and reporting, risk and opportunity management, quality management, schedule management and control, Earned Value Management (EVM), configuration management and control, data management, coordination, reporting and administration to ensure the performance of the tasks delineated in this SOW. The program management and controls system employed must be sufficient to provide the Government with in-depth, accurate, and timely visibility into the Contractor's technical, schedule and cost performance and status by milestones in accordance with this SOW.

The Contractor shall identify to the Government a single individual as the Program Manager for the work required. The identified Program Manager shall be responsible for ensuring compliance with the requirements of this SOW. This individual's name shall be supplied to the Government as the point of contact for all technical and programmatic details. The Program Manager shall ensure that the personnel and facilities necessary for the performance of the contract are assigned and made available at the times and places necessary to meet the established schedule. Program Manager support is required for all contract CLINs. This includes, but is not limited to the following:

- Maintain the Work Breakdown Structure (WBS)
- Maintain the Integrated Master Plan (IMP) and Integrated Master Schedule (IMS)
- Function as the day-to-day point of contact to Government
- Organize and define internal responsibilities
- Assure that program milestones are met
- Assure that technical milestones are met
- Assure compliance with product quality requirements,
- Assure program control and schedule (Earned Value Management System (EVMS))
- Conduct program status meetings with the Government
- Ensure metrics are collected and reported
- Report progress on a monthly basis as described
- Ensure risks are identified and appropriate action taken (Risk Management).

- Work with the Government to submit necessary export licenses to market and sell to NATO countries (per CDRL A031).

3.1.1 Integrated Master Plan (IMP) (Raytheon)

The Contractor shall develop an IMP to describe how the program shall be accomplished. The IMP shall be a table organized around program Significant Events (SE) that are the transition points between major program activities. Each Significant Event is subordinated by Significant Accomplishments (SA), each of which is supported by a specific Accomplishment Criteria (AC). The IMP is directly traceable to the WBS and SOW and provides the primary input into the development of the IMS which resource loads the tasks by date and duration. The IMP shall be maintained during the entire program. The IMP, summarized below, provides exit criteria for each task in the SOW.

MAINGATE EVENT DICTIONARY	
Event Code/Title	Event Purpose, Expected Results and Exit Criteria
Event A Contract Award	Objective: Marks the beginning of program execution <ul style="list-style-type: none"> • Establishes a time reference for the beginning of the project. Expected Results: <ul style="list-style-type: none"> • Contract modification authorizing work to proceed
Event B Post Award Baseline Review 4 th Month	Objective: <ul style="list-style-type: none"> • Ensure joint understanding of the contract, objectives and requirements. Approach: <ul style="list-style-type: none"> • Review of MAINGATE Program Master Schedule • Review of contract requirements and objectives • Review of contract data requirements • Review of Integrated Master Plan • Review of other available program plans Expected Results: <ul style="list-style-type: none"> • Mutual concurrence with approach to program execution Exit Criteria: <ul style="list-style-type: none"> • Satisfactory mutual understanding of contract objectives and program plan achieved • Contractor program plans consistent with contract objectives • GFE/GFI requirements mutually acceptable
Event C Architectural Review 6 th Month	Objective: <ul style="list-style-type: none"> • Ensure joint understanding of the architecture design and test strategy. Approach: <ul style="list-style-type: none"> • Review of MAINGATE Program Master Schedule • Review of Integrated Master Plan • Review Architecture design • Review Test strategy Expected Results: <ul style="list-style-type: none"> • Mutual concurrence with system architecture Exit Criteria: <ul style="list-style-type: none"> • Mutual understanding of system architecture • Mutual understanding of test/demo strategy • Issues identified and actions assigned

MAINGATE EVENT DICTIONARY

Event Code/Title	Event Purpose, Expected Results and Exit Criteria
<p>Event D</p> <p>Interim Demonstration #1 10th Month</p>	<p>Objective:</p> <ul style="list-style-type: none"> Establish that the incremental system design is maturing according to the plan. <p>Approach:</p> <ul style="list-style-type: none"> Review the Phase Requirements and Architecture for Interim Demo #1 Review the Test and Evaluation Plan for Interim Demo #1 Identify the proposed Allocated Baseline (Hardware and software CIs and related requirements documents) <p>Expected Results:</p> <ul style="list-style-type: none"> Concurrence that incremental system design is maturing Agreement with Allocated Baseline structure Approval to proceed with the Interim Demo #1 <p>Exit Criteria:</p> <ul style="list-style-type: none"> Phase Requirements and Architecture approved Test and Evaluation Plan approved Interim Demo #1 conducted Test report released Action items captured and assigned
<p>Event E</p> <p>Interim Demonstration #2 13th Month</p>	<p>Objective:</p> <ul style="list-style-type: none"> Establish that the incremental system design is maturing according to the plan. <p>Approach:</p> <ul style="list-style-type: none"> Review the Phase Requirements and Architecture for Interim Demo #2 Review the Test and Evaluation Plan for Interim Demo #2 Identify the proposed Allocated Baseline (Hardware and software CIs and related requirements documents) <p>Expected Results:</p> <ul style="list-style-type: none"> Concurrence that incremental system design is maturing Agreement with Allocated Baseline structure Approval to proceed with the Interim Demo #2 <p>Exit Criteria:</p> <ul style="list-style-type: none"> Phase Requirements and Architecture approved Test and Evaluation Plan approved Interim Demo #2 conducted Test report released Action items captured and assigned
<p>Event F</p> <p>Final Demonstration 15th Month</p>	<p>Objective:</p> <ul style="list-style-type: none"> Establish that the incremental system design is ready for LUT production <p>Approach:</p> <ul style="list-style-type: none"> Review the Phase Requirements and Architecture for Final Demo Review the Test and Evaluation Plan for Final Demo Identify the proposed Allocated Baseline (Hardware and software CIs and related requirements documents) <p>Expected Results:</p> <ul style="list-style-type: none"> Concurrence that incremental system design is ready for LUT production Agreement with Allocated Baseline structure Approval to proceed with the Final Demo <p>Exit Criteria:</p>

MAINGATE EVENT DICTIONARY

Event Code/Title	Event Purpose, Expected Results and Exit Criteria
	<ul style="list-style-type: none"> • Phase Requirements and Architecture approved • Test and Evaluation Plan approved • Final Demo conducted • Test report released

3.1.2 Integrated Master Schedule (IMS) (Raytheon)

The Contractor shall implement and maintain the agreed-upon IMS (CDRL A003) that provides sufficient detail and insight to allow the Government to track the overall program (e.g. all CLINs) schedule. All tasks/activities in the IMS are logically linked, showing predecessor/successor relationships and critical path. The activities and tasks defined are sufficient to account for the Contractor's program under contract, and as a minimum, integrate all required data items, testing, hardware deliverables and major program events/reviews, contract milestones, technical milestones, key decision points and program events requiring Government participation. The IMS shall be maintained during the entire program with updates provided monthly along with CDRL A008.

3.1.3 Work Breakdown Structure (WBS) (Raytheon)

The Contractor shall provide a multi-level WBS. The Contractor WBS (CWBS) (CDRL A002) shall represent the total contract SOW (e.g. all CLINs). The Contractor shall use the WBS for planning, managing, and reporting programs status and projections for cost, schedule, and technical achievements. No changes can be made at or above the reporting level of the WBS (defined in CDRL A002) without the Government's concurrence. The CWBS shall be base lined at the Program Kickoff Meeting or by a mutually agreed to date. Each CLIN shall utilize distinct CWBS elements.

3.1.4 Reviews/Meetings/Conferences (Raytheon)

The Contractor shall support all planned Government attended reviews/meetings/conferences (hereinafter referred to as reviews) listed in **Table 3.1.4-1**. Specific dates shall be specified in the IMS to the extent they are known at the time of the proposal. Thereafter, the IMS shall be updated as required to reflect changes to the review/meeting schedule. Each schedule meeting shall be preceded by publication of an agenda (CDRL A005) and 'read ahead' presentation materials (CDRL A006). The contractor is responsible for capturing action items and decisions in summary minutes for each meeting (CDRL A007).

Table 3.1.4-1. Summary of Program Reviews/Meetings (CLIN 0001)

Name of Reviews/Meetings	Frequency	SOW Paragraph
Program Kickoff	Once	3.1.4
Program Reviews	Monthly Teleconference	3.1.4
Architecture Review and Interim Demo 1 Readiness Review	Once	3.9.4, 3.9.5.1

Name of Reviews/Meetings	Frequency	SOW Paragraph
Architecture Review and Interim Demo 2 Readiness Review	Once	3.9.4, 3.9.5.1
Architecture Review and Final Demo Readiness Review	Once	3.9.4, 3.9.5.1

The Contractor shall hold a Program Kickoff meeting (CDRL A001). The purpose of the Program Kickoff meeting is to review the Integrated Master Plan (IMP), the Integrated Master Schedule (IMS) (CDRL A003), the Contractor Work Breakdown Structure (CWBS) (CDRL A002) and the SOW for MAINGATE as well as the system design and program approach.

The Contractor shall be responsible for submitting a monthly status report (CDRL A008), and associated cost schedule and status reporting (CDRL A009) information including an updated Integrated Master Schedule (IMS) (CDRL A003). The Contractor shall also be responsible for attending program review teleconferences as mutually agreed upon with the Government. Program Review teleconferences shall occur monthly, concurrent with the delivery of the monthly status report. The Contractor shall be prepared during all Program Review teleconferences to address all contract performance issues. The Program Reviews provide a working management level forum to identify, discuss, and resolve issues that could affect the overall system from achieving the contract requirements.

Stoplight charts may be used to summarize the current status. Minutes and action items shall be taken by the Contractor and reviewed prior to the conclusion of each meeting and issued per CDRL A007. Items to be discussed at the Monthly Program Reviews (MPR) include, but not limited to the following:

- Earned value and Schedule status/progress
- Risk management and mitigation status
- Review of Demonstration Issues
- GFE/GFI need dates
- Data Item Delivery Review
- Metrics
- Review of last month's Action Items and open action item status
- Review of Technical Issues.

3.1.5 Risk Management (All)

The Contractor shall provide a Risk Management Plan (RMP) (CDRL A004) that details the risk management process for the program. It shall identify the program risk manager and the membership of the Risk Management Working Group (RMWG). The RMWG shall meet monthly or as needed and provide risk progress status inputs into the monthly progress status report (CDRL A008). Designated risk items shall have corresponding discussion/cross-references in the monthly status report and applicable financial reports.

3.2 Business Management (Raytheon)

The Business Management Office is responsible for implementing, tracking, and reporting business and financial management metrics/status across all CLINs for the MAINGATE Program. In this role, the Business Manager provides financial planning and development information and optimizes program schedule, cost and cash performance. The Business Manager implements and maintains the required MAINGATE Program Earned Value Management System (EVMS) information and records for the purpose of providing the Monthly Progress Status Report (CDRL A008) as well as all funding status

reports (CDRLs A009, A021, A022, and A023) to the Government. Business Management responsibilities include, but are not limited to, the following:

- Work with the Program Manager and Program Engineer to ensure Program budgets are defined, updated, monitored and achieved
- Support the Program Scheduler and IPT leads in the preparation of Integrated Master Schedule (IMS) data
- Prepare and report required Program EVMS data using Micro-Frame Program Manager (MPM) on a monthly basis to include an updated Estimate at Complete (EAC) in the monthly status report and detailed EVM data, rationale, and cause/effect/mitigation in the monthly Cost Performance Reports (CPRs)
- Track and maintain program billings
- Coordinate with the Program Manager and Program Engineer to manage Program risks relating to cost
- Coordinate with the Program Manager and Program Engineer to identify Program opportunities and develop optimal courses of action
- Support Program status meetings (Program Management Reviews with internal Management)
- Facilitate dissemination of business information (budget and cost), including weekly labor and expenditures reports
- Establish and maintain Program cost accounts (charge numbers) in compliance with the Contract Work Breakdown Structure, IMS, and Company practice.

3.3 Contract Management (Raytheon)

The Contractor's contract management organization shall provide the primary point of contact to the Government regarding all contractual items, including any issues that arise during the execution of the program. The Contractor shall maintain records of communications and these records will be made available to the Government if requested.

3.4 Supply Chain Management (Raytheon)

The Contractor's Supply Chain Management organization shall provide the primary point of contact to the subcontractors and teammates regarding all subcontract items including any issues that arise during the execution of the program. Supply Chain Management shall also coordinate with Business Management to ensure consistency of cost and technical performance reporting. The Contractor shall maintain records of communications and these records will be made available to the Government if requested.

3.5 Production Coordinator (Raytheon, [REDACTED])

The Contractor shall assign a Production Coordinator to oversee and coordinate the activities of Supply Chain, Manufacturing, Engineering, subcontractors and parts suppliers to ensure that all test and deliverable assets are available when needed. The WIPN radio shall be produced by Raytheon and the MAINGATE Node (to include integration of the Raytheon supplied WIPN radio) shall be produced by [REDACTED]

Production Coordinator tasks include:

- Order engineering development material and items identified as critical long lead
 - Program status of hardware (includes placement/receipt of parts, follow up with suppliers and program office/production personnel on any critical part shortages that come up in weekly status meetings)
-

- Shipment and receipt of long lead parts coming in from suppliers to be routed as CFM (customer furnished material) to production
- Shipment and receipt of parts coming in from suppliers and production to be routed for engineering analysis and test.

A priced hardware long lead list for timely execution of either of the LUT options shall be provided to the Government no later than 8 months after contact award. The list shall detail all assumptions associated with it.

3.6 Program Engineer (Raytheon, [REDACTED])

A Program Engineer (PE) shall be assigned to support the MAINGATE program. The PE reports to the Chief Engineer and assists the Chief Engineer in his responsibilities for engineering cost, schedule and technical performance, including management of the engineering content on MAINGATE, engineering direction across Integrated Product Teams (IPTs) and sites, and ensuring the MAINGATE project is compliant with Raytheon engineering processes. This includes creation and execution of project plans, staffing (including skills and training), and reporting program status.

The PE assigned to the program will plan and manage the various engineering activities to ensure proper engineering processes are followed across the team. The PE also supports the Chief Engineer in providing technical subcontract management to ensure the team is communicating and working to the same revision of information.

3.7 Configuration Management /Data Management (Raytheon, [REDACTED])

The Contractor shall implement, document, and maintain a Configuration Management (CM) system that is based on an industry-recognized quality management system, such as EIA Standard 649, National Consensus Standard for Configuration Management, to ensure technical and administrative integrity of all hardware and software products, documentation, and data pertaining to this contract. The CM system shall implement processes for configuration identification, control, status accounting and audits. The Government shall be provided copies of the documentation upon request.

All delivered CDRLS are to be under Prime contractor Configuration Management control. The documents shall be delivered by electronic means (MAINGATE Portal or CD-ROM via mail or package service) to the Government Contract Manager, as applicable. If a collaboration web site is established, an email notification will be provided as new material is posted, providing a meaningful title, revision number, and location on the site. If CDs are used for delivery, file names will include a revision number to preclude overwriting previous deliveries and to ensure all parties are working from the same version. In addition, any submittal made in response to, or incorporating Government comments from the preceding submittal shall include an attached or appended memorandum summarizing the comments and their disposition. **Table 3.7-I** provides a summary of the CDRL documents that the Contractor is required to deliver to Government.

Table 3.7-1. Summary of Documentation

Final CDRL	Description	CLIN
A001	Program Kickoff Meeting/Review	0001
A002	Contract Work Breakdown Structure (CWBS)	ALL
A003	Integrated Master Schedule (IMS)	ALL
A004	Risk Management Plan	0001
A005	Conference Agenda	0001, ASREQ
A006	Presentation Material	0001, ASREQ
A007	Conference Minutes	0001, ASREQ
A008	Research & Development (R&D) Project Summary - Status Report (Mthly)	ALL
A009	Contract Performance Report (CPR) - Status Report (Mthly)	ALL
A010	System Requirements Document	0001
A011	System/Hardware Design Document	0001
A012	System Specification	0001
A013	RESERVED	N/A
A014	Software Requirements Specification	0001
A015	Software Development and Test Plan	0001
A016	Software Version Description	ALL
A017	RESERVED	N/A
A018	Software / Hardware Test Report	ALL
A019	Test & Evaluation Plan	0001
A020	Production Unit Cost (PUC) estimate	ALL
A021	Contract Funds Status Report (CFSR)	ALL
A022	Cost Data Summary Report (DD Form 1921)	0002 and 0004
A023	Funding Report	ALL
A024	Project Information and Description	ALL
A025	Technical Status Report (Qtrly)	ALL
A026	Data Accession List	ALL
A027	Operations Manual / Training Material	ALL

Final CDRL	Description	CLIN
A028	Interface Control Document	ALL
A029	Software Source Code	ALL
A030	Final Report	ALL
A031	International Traffic in Arms Regulations (ITAR) Commodity Jurisdiction (CJ)	ALL

3.8 Quality Engineering (Raytheon)

The Contractor shall utilize its existing quality engineering system, which shall be AS9100 compliant. The Contractor shall implement, document, and maintain a quality assurance system, including reviews, inspection, test, reporting, procedures, processes evaluations, and product evaluations. The Contractor's quality control system shall ensure conformance to all SOW requirements in accordance with AS 9100. For newly developed hardware, the Contractor shall perform to their internal workmanship standards, or Government approved equivalent.

The Contractor shall perform inspection of all developed and purchased materials, and shall perform Identification, Damage, and Workmanship inspections on Government Furnished Equipment (GFE). The Contractor's Quality Assurance representative(s) shall conduct inspections and audits during all phases of development and production. Dates, performance, scope, and results of Quality Assurance inspections shall be documented and made available to the Government.

3.9 System Engineering (Raytheon, [REDACTED])

The Contractor shall provide system engineering to develop a System of Systems Network Architecture for MAINGATE and to conduct a set of demonstrations that prove its capabilities. This shall consist of a requirements management process providing clear traceability of requirements to each design configuration. Key products will be a System Requirements Document (CDRL A010), System/Hardware Design Document (CDRL A011), System Specification (CDRL A012), Interface Control Document (CDRL A028), Software Requirements Specification (CDRL A014), and Software Development and Test Plan (CDRL A015).

3.9.1 Chief Engineer and Technical Director ([REDACTED] Raytheon)

A Chief Engineer shall be assigned to support the MAINGATE program. The Chief Engineer is responsible for the MAINGATE technical functionality, the technical content of each demonstration, and the successful execution of the demonstrations. The Chief Engineer is responsible for the overall technical fidelity of MAINGATE, ensure MAINGATE equipment and subsystems are designed to interoperate efficiently and effectively, providing the required system accuracy, reliability, maintainability, and safety.

The Technical Director (TD), as required, shall manage the technical coordination, oversee the System Integration Labs (SIL) at Raytheon (Ft. Wayne and Fullerton), [REDACTED] oversee the test sites in Fayetteville, TN, Ft. Benning, GA and Ft. Gordon, GA, and assist in the independent evaluation of test and demonstration results.

3.9.2 Test Director [REDACTED]

The Contractor shall provide a Test Director for Interim Demonstration #1, Interim Demonstration #2, and the Final Demonstration. The Test Director shall act as the single point of contact for all demonstration related activities, including demonstration planning, demonstration execution, and demonstration reports. Additionally, the Test Director shall coordinate all demonstration activities, obtain all communications frequency authorizations, provide for all data collection, and resolve all issues that arise during the demonstrations. A comprehensive Test and Evaluation Plan for the program shall be created (CDRL A019).

3.9.3 System Requirements and Architecture Definition (Raytheon, [REDACTED])

The Contractor shall define the requirements and architecture in a single System Requirements Document (CDRL A010). This effort shall result in System Block Diagrams depicting the architectural elements and their interfaces. The MAINGATE system architecture shall describe the network characteristics of the gateway and the MANET radio required to support tactical, real-time, high fidelity video, data, and voice services to users on legacy subnets. The architecture shall describe routing protocol options and Quality of Service requirements necessary to support the heterogeneous networks of legacy radios. The architecture shall define the interfaces to all required radios including EPLRS, MicroLight EPLRS, SLICE/SRW, SecNet11, PRC-117F, SINCGARS, 802.11g, WiMAX (2.5 GHz), UMTS, TETRA, PRC-119, PRC-150, FRS, Cellular, VoIP devices, PSTN, and 800 MHz Public Safety Radio. Requirements for both the Gateway component and the Wireless Internet Protocol Network (WIPN) radio shall be defined. This effort shall be completed during CLIN 0001.

3.9.4 Requirements and Architecture Reviews (All)

The Contractor shall conduct a review of the requirements and architecture at the start of the program to ensure all stakeholders clearly understand the design objectives as documented in the System Requirements Document (CDRL A010). Demonstration specific Requirements and Architecture descriptions shall be detailed and reviewed as part of the test and evaluation planning for each demonstration event.

3.9.5 Demonstrations [REDACTED]

Two interim demonstrations and a final demonstration shall be conducted during CLIN 0001. The purpose of these demonstrations is to verify and assess the degree of compliance to the performance metrics in the MAINGATE BAA, including Appendix A.

3.9.5.1 Demonstration Readiness Review [REDACTED]

The Contractor shall prepare a comprehensive MAINGATE Test and Evaluation Plan (CDRL A019), in Contractor format that facilitates and documents Interim Demonstration #1, Interim Demonstration #2, and the Final Demonstration. This modular document describes the detailed testing used for each demonstration to verify that the system has met the performance metrics. Interim Demonstration #1 test objectives shall be developed by the Contractor and published as a draft module to CDRL A019, Test and Evaluation Plan. This shall be provided to the Government 15 days prior to the Interim Demonstration #1 Readiness Review. The readiness review will involve all stakeholders and ensure that all aspects of the demonstration are ready for execution, including target hardware, software, test setups, and all required test equipment. Any changes to the test and evaluation plan shall be incorporated into the final interim Demonstration #1 Test and Evaluation Plan 15 days after the review. This process will

be used for next demonstrations as well. Spatial Diversity (SD) MIMO, DSA, and coexistence with communications shall be included in Interim Demo #1, Interim Demo #2 and the Final Demonstration. Link range testing shall include tests with and without SD MIMO to prove the results / benefits. Prior to Final Demonstration, coexistence with CREW systems will be demonstrated in a mutually agreed environment. DARPA shall provide the GFE, GFI, and support requested for CREW testing.

3.9.5.2 Demonstration Execution and Final Report [REDACTED]

Preparation for each Demonstration will be led by the Test Director and will include:

- Finalize integration of system into test vehicles (e.g. HMMMMVs)
- Verify system and network operations on a daily basis
- Characterize network operations to optimize objectives
- Troubleshoot and repair failures associated with the network
- Verification of proper revisions for all Hardware and Software components
- Manpower assigned to operate each node during the demonstration
- Satellite access and frequency authorizations secured for the demonstration
- Integration and logistics support during demonstration, including field facilities
- Required Flight safety certifications in place
- SATCOM and/or ISR feed, Legacy radios, commercial radios, and First Responder radios are all available
- Test ground/air vehicles, including drivers and pilots are all ready for test.

The tests defined in the test plan shall be executed under the direction of the Test Director and all results will be recorded per the instructions in the test plan. The Contractor shall prepare Test Reports, in Contractor format, for Interim Demonstration 1, Interim Demonstration 2, and the Final Demonstration to facilitate briefing of results and be incorporated in the final report (CDRL A030). These Test Reports (e.g. CDRL A018) shall document the test conducted, results and provide an assessment indicating the degree to which the system meets the Appendix A Program Metrics.

3.9.6 Training and Onsite Technical Support [REDACTED] (Base award and Option(s))

The Contractor shall provide training, preparatory, and onsite technical support as a component of the Final Demonstration (CLIN 0001) and as part of the Limited User Testing (LUT) options (CLIN 0003 (CONUS) and 0005 Outside Continental United States (OCONUS)).

Training will consist of:

1. Developing training material suitable for use by Military personnel to support operation of the MAINGATE system. Training material will consist of classroom type material as well as "cut sheet" summary material for use in the field.
2. Support to onsite use of the training material by the Military operators, including hands on training in a classroom and field environment.
3. Leave behind training material (paper and CD) to enable further training as required.

Preparatory technical support will consist of:

1. Establishing a System Integration Lab (SIL) to facilitate development of training material, testing of system level components inserted into the system after the MAINGATE final demonstration, and testing of the system prior to employment.
2. Final system testing of a select subset of MAINGATE systems prior to employment

Onsite technical support will consist of:

1. Assistance in developing a mounting configuration for platforms of employment.
2. Support for the development of Tactics, Techniques, and Procedures (TTPs) for employment of MAINGATE.
3. Support during the conduct of a Limited User Test (LUT) (including up to two (2) smaller pre-LUT tests to enable familiarization with the MAINGATE hardware and its employment and development of TTPs) to answer questions related to employment, operation, mounting, or troubleshooting MAINGATE systems.

3.10 Software Design (Raytheon, [REDACTED])

The Contractor shall provide TRL 6 software for both the MAINGATE Node and the WIPN radio. Software planning and management will be performed throughout the development process. Key products will be a Software Requirements Specification (CDRL A014) and Software Development and Test Plan (CDRL A015).

3.10.1 Software Design, Code, Unit Test and SW Integration (Raytheon, [REDACTED])

The Contractor shall analyze software requirements, design, integrate and test software for MAINGATE. This encompasses modifying existing software in the MAINGATE Node and the WIPN to satisfy the MAINGATE BAA Appendix A Program Metrics. Software shall be developed and tested to support Interim Demonstration #1. Updates will be provided and tested for Interim Demonstration #2 and the Final Demonstration to optimize system functionality. Key products will be Software Development and Test Plan (CDRL A015) and Software/Hardware Test Reports (CDRL A018). The majority of the effort is anticipated to be completed in CLIN 0001 with potential for additional software efforts in remaining CLINS as needed.

3.10.2 Software Releases (Raytheon, [REDACTED])

There shall be iterative releases of the MAINGATE software during the development and integration process. An informal software qualification test is performed to ensure the software functions properly prior to each release to software configuration management. The Contractor shall prepare Software Release Notes with each software release. The Contractor shall prepare a Software Version Description for each formal release of the software for demonstration. All software shall be properly controlled via configuration management. Key products will be Software Version Description (CDRL A016). The effort shall be completed during CLIN 0001. The initial software source code will be delivered after the completion of the final demonstration via CDRL A029.

3.10.3 Graphical User Interface

The Graphical User Interface (GUI) shall be provided in a representative draft before it is coded to obtain government feedback. The representative draft will be pseudo-functional, for example

using a PowerPoint brief with point-and-click navigation. The Government will have 20 days to provide the GUI feedback to the Contractor to prevent schedule slippage.

3.11 Hardware Design and integration (Raytheon, [REDACTED])

The Contractor shall provide TRL 6 MAINGATE Node and the WIPN radio hardware. Hardware engineering shall be performed for CLIN 0001. Key products will be System/Hardware Design Document (CDRL A011) for the system and for each hardware controlled item (HWCI that has changed for the MAINGATE program.

3.11.1 Hardware Design, Build, Unit Test and HW Integration (Raytheon, [REDACTED])

The Contractor shall make the required modifications to existing hardware designs (i.e., WIPN radio modules), select compliant commercial off-the-shelf products (e.g. Gateway components), and design the required packaging for all the hardware comprising a MAINGATE node. These hardware changes are required to satisfy, to the best degree possible, the MAINGATE BAA Appendix A Program Metrics. All MAINGATE hardware will be unit tested and integrated together to create a MAINGATE Node which will undergo a hardware level integration test to ensure it is functioning properly. All hardware shall be developed to support Interim Demonstration #1. Minor updates may be implemented for Interim Demonstration #2 and the Final Demonstration if required. The effort shall be completed in CLIN 0001. The Production Unit Cost (PUC) estimate (CDRL A020) shall be briefed at contract kickoff and progressively matured throughout the MAINGATE Program period to ensure a high confidence estimate is achieved with final delivery of CDRL A020 at completion of the final demonstration. It will include a "design for production" discussion on the path forward to achieve these final design cost projections.

3.11.2 Hardware Environmental Evaluations (Raytheon, (b)(4) [REDACTED])

The Contractor shall conduct environmental evaluations, including EMI/EMC on MAINGATE node hardware during CLIN 0001 development. The EMI/EMC evaluations include: Radiated Emissions, Radiated Susceptibility, Conducted Emissions, and Conducted Susceptibility per Mil-Std-461. The purpose is to characterize the design as early as possible to allow for modifications to ensure compliance with these program metrics.

3.12 Advanced Concept Technology (ACT) Production (Raytheon, [REDACTED])

The Contractor shall produce the required amount of hardware for the three demonstrations of the ACT portion of the program. These 13 MAINGATE Nodes, two spare MAINGATE Nodes, and five additional MAINGATE Nodes (lab units) are used to facilitate the various test scenarios of the program for a total of 20 MAINGATE Nodes. This is performed as part of CLIN 0001.

3.13 Preproduction Units (Raytheon, [REDACTED]) (Option)

The Contractor shall produce the required amount of hardware for the LUT(s) portion of the program if Options 1 and/or 3 are exercised. The current defined quantities and list of various CLINs for these options are identified in Section 1.0 of this SOW. Effort shall include all personnel and tooling required to produce the product, program management, and engineering support. The performance specification for the LUT units will be as demonstrated during the ACT Phase.

3.14 Government Furnished Information/Property

The contractor shall provide timely notification of need dates for GFI/GFP, generally not less than 30 calendar days before the information/property is required.

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

rm Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. 0001 **B. EXHIBIT** B **C. CATEGORY:** TDP ___ TM ___ OTHER ___ MISC ___

D. SYSTEM/ITEM MAINGATE **E. CONTRACT/PR NO.** HR0011-09-C-0083 **F. CONTRACTOR** THE RAYTHEON COMPANY

1. DATA ITEM NO. A011 **2. TITLE OF DATA ITEM** SCIENTIFIC AND TECHNICAL REPORTS **3. SUBTITLE** SYSTEM/HARDWARE-DESIGN DOCUMENT

4. AUTHORITY (Data Acquisition Document No.) DI-MISC-80711A/T **5. CONTRACT REFERENCE** CSOW **6. REQUIRING OFFICE** DARPA/STO

7. DD 250 REQ LT	9. DIST STATEMENT C	10. FREQUENCY 3TIMES	12. DATE OF 1ST SUBMISSION *	14. DISTRIBUTION		
8. APP CODE N/A		11. AS OF DATE *	13. DATE OF SUBSEQUENT *	a. ADDRESSEE	b. COPIES	
					Draft	Final
					Reg	Repro

16. REMARKS

Block 3: This CDRL captures both the system design and the new hardware design being introducing into the Node. It combines the system and hardware design documents.

Block 9 is clarified so that, "Pursuant to DFARS 252.235-7011, the Government will forward the approved interim report to the Defense Technical Information Center (DTIC)."

Block 9: C: Distribution authorized to US Government agencies and their contractors.

ASREQ means as required to document plans for System Design throughout the effort.

Block 10: 3TIMES means one is issued prior to each of the three, demos. In addition, any other design changes to the effort.

Contractor Format

* Submit as generated.

Block 14: One (1) copy of reports and materials shall be placed on MAINGATE Customer Collaboration E-Room and email notification sent to:

neil.hoff@navy.mil

larry.stotts@darpa.mil

15. TOTAL -----> 0 2 0

G. PREPARED BY **H. DATE** 12 June 2009 **I. APPROVED BY** Robin Swatloski **J. DATE**

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

Attachment 2

CDRL A013 RESERVED

Attachment 2

CDRL A017 RESERVED

Attachment 2

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. ALL	B. EXHIBIT B	C. CATEGORY: TDP ___ TM ___ OTHER_IPSC ___
---	------------------------	--

D. SYSTEM/ITEM MAINGATE	E. CONTRACT/PR NO. HR0011-09-C-0083	F. CONTRACTOR THE RAYTHEON COMPANY
-----------------------------------	---	--

1. DATA ITEM NO. A018	2. TITLE OF DATA ITEM SCIENTIFIC AND TECHNICAL REORTS	3. SUBTITLE SOFTWARE /HARDWARE TEST REPORT
---------------------------------	---	--

4. AUTHORITY (Data Acquisition Document No.) DI-IPSC-81440A/T	5. CONTRACT REFERENCE CSOW	6. REQUIRING OFFICE DARPA/STO
---	--------------------------------------	---

7. DD 250 REQ LT	9. DIST STATEMENT D	10. FREQUENCY 3TIMES	12. DATE OF 1ST SUBMISSION *	14. DISTRIBUTION		
8. APP CODE N/A		11. AS OF DATE *	13. DATE OF SUBSEQUENT * R/ASR	a. ADDRESSEE	b. COPIES	
					Draft	Final
					Reg	Repro

16. REMARKS R/ASR means revisions as required to keep the STR up to date, make changes or corrections, and submit revisions as generated. Block 9: D: Distribution authorized to Department of Defense and U.S. DoD Contractors only. Block 10: 3TIMES means issued 15 days after each of the three, demos. In addition, any other design changes to the effort. Contractor Format * Submit as generated. Block 14: Submit electronically, placed on MAINGATE Customer Collaboration E-Room and email notification sent to: neil.hoff@navy.mil and larry.stotts@darpa.mil	SSC-PAC/COTR	0	1	0	
	DARPA/STO	0	1	0	
	15. TOTAL ----->	0	2	0	

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE 12 June 2009	I. APPROVED BY Robin Swatloski	J. DATE
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Attachment 2

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Jrm Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. 0001 **B. EXHIBIT** B **C. CATEGORY:** TDP ___ TM ___ OTHER ___ NDTI ___

D. SYSTEM/ITEM MAINGATE **E. CONTRACT/PR NO.** HR0011-09-C-0083 **F. CONTRACTOR** THE RAYTHEON COMPANY

1. DATA ITEM NO. A019 **2. TITLE OF DATA ITEM** TEST AND EVALUATION PLAN **3. SUBTITLE** STATUS REPORT

4. AUTHORITY (Data Acquisition Document No.) DI-NDTI-80566A/T **5. CONTRACT REFERENCE** CSOW **6. REQUIRING OFFICE** DARPA/STO

7. DD 250 REQ LT	9. DIST STATEMENT C	10. FREQUENCY 3TIMES	12. DATE OF 1ST SUBMISSION *	14. DISTRIBUTION			
8. APP CODE A		11. AS OF DATE N/A	13. DATE OF SUBSEQUENT SUBMISSION **	a. ADDRESSEE	b. COPIES		
					Draft	Final	
						Reg	Repro

16. REMARKS

DARPA/STO 1 1 0

SSC-PAC/COTR 1 1 0

Block 9: C: Distribution authorized to US Government agencies and their contractors.

Block 10: 3TIMES means issued 15 days prior to each of the three, demos. In addition, any other design changes to the effort.

Contractor Format
* Submit as generated.

**Approval/disapproval by letter from the COTR within 15 days after receipt. Disapproval requires correction/resubmission within 15 days after receipt.

Block 14: Submit electronically, placed on MAINGATE Customer Collaboration E-Room and email notification sent to :

neil.hoff@navy.mil and

larry.stotts@darpa.mil

15. TOTAL -----> 0 2 0

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY **H. DATE** 12 June 2009 **I. APPROVED BY** Robin Swatoski **J. DATE**

Attachment 2

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

rm Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. ALL **B. EXHIBIT** B **C. CATEGORY:** TDP ___ TM ___ OTHER_MGMT ___

D. SYSTEM/ITEM MAINGATE **E. CONTRACT/PR NO.** HR0011-09-C-0083 **F. CONTRACTOR** THE RAYTHEON COMPANY

1. DATA ITEM NO. A021 **2. TITLE OF DATA ITEM** CONTRACT FUNDS STATUS REPORT (CFSR) **3. SUBTITLE**

4. AUTHORITY (Data Acquisition Document No.) DI-MGMT-81468 **5. CONTRACT REFERENCE** CSOW **6. REQUIRING OFFICE** DARPA/STO

7. DD 250 REQ LT	9. DIST STATEMENT D	10. FREQUENCY QRTL	12. DATE OF 1ST SUBMISSION **	14. DISTRIBUTION		
8. APP CODE N/A		11. AS OF DATE *	13. DATE OF SUBSEQUENT SUBMISSION **	a. ADDRESSEE	b. COPIES	
					Draft	Final
						Reg Repro

16. REMARKS

The report shall contain forecasts by month for the next six months, by quarter for the remaining fiscal year, and by year for the remaining fiscal years. CFSR data shall be reconciled to the Government's fiscal year end at 30 September if the contractor's fiscal year end does not coincide with the Government's fiscal year end.

* The last day of the contractor's monthly accounting period nearest the end of the government's fiscal year quarter.

** The initial submission shall be within 25 calendar days after close of the contractor's monthly accounting period nearest the end of the first government fiscal year quarter after contract award. Subsequent submissions shall be 25 calendar days after Block 11 date.

Block 9: D: Distribution authorized to Department of Defense and U.S. DoD Contractors only.

Block 14: Submit electronically, placed on MAINGATE Customer Collaboration E-Room and email notification sent to:

- neil.hoff@navy.mil and
- larry.stotts@darpa.mil
- patrick.bailey@darpa.mil and
- robin.swatloski@darpa.mil

Electronic submissions shall be via access to the DARPA Extranet reporting page www.tfims.darpa.mil

15. TOTAL -----> 0 5 0

G. PREPARED BY **H. DATE** 12 June 2009 **I. APPROVED BY** Robin Swatloski **J. DATE**

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

Attachment 2

STRATEGIC TECHNOLOGY OFFICE
Mobile Ad hoc Interoperability Network GATEway (MAINGATE) Program

PE Project Number: 0603760E/CCC-02

PAD ID Number: 090023

APPENDIX A: PROGRAM METRICS

The Performance Metrics have been developed to provide a set of measurable indicators that can be validated during the testing phases and are designed to correlate with anticipated operational scenarios.

<u>MANET GATEWAY METRICS</u>	<u>CRITERIA</u>	<u>REMARKS</u>
1. Radio	≥ TRL 6	
Frequency Range	VHF/UHF (Low Band)	Use with Omni-Directional Antennas
Bandwidth	Support non-contiguous frequency assignments	Instantaneous Bandwidth must support data rate
Mobility	Ground Speed (0-125 kph) Air Speed (0-250 kph)	HMMWV (typical) UH-60 / C-12 (typical)
Overall Information Rate		
- Low Band (VHF/UHF)	> 6 Mbps (T); > 20 Mbps (O)	
IP Radio Bit Error Rate	≤ 1E-4 (uncorrected), ≤ 1E-5 (corrected)	Availability tests over 2 hour period
Adaptive Data Rate	≥ 5 data rates supported	Operation to automatically adjust to highest reliable data rate and thus should extend to low order modulations with narrower bandwidths (e.g. 32 kbps)
RF Link Availability	≥ 95%	Node-to-node when within range
Link Ranges (Ground – Ground)		
- Urban Canyons	200 m (Occluded - LOS)	Horizon is 3.6 km (1.5 mi)
- Suburban	2 km (Occluded - LOS)	Horizon is 3.6 km (1.5 mi)
- Rural	10 km (Occluded - LOS)	Assume elevated antennas
Link Ranges (Air – Ground)	50 km (LOS)	
Link Margin	6 dB	Required margin for all range/rate measurements
Transmitter Power	≤ 50 W	Must meet system performance requirements in Appendix A, with minor exceptions
2. Security	Secure communications capability (i.e. HAIPE) for end-to-end secure transport that is permissible by the source and destination pair;	
LPD/LPI	None (T)	
	Contractor Provided (O)	
Payload	Required	KG-250 or AES-256 or similar

<u>PERFORMANCE</u>	<u>METRICS</u>
3. Networking	Field demonstration of both ground to ground and air to ground networking supporting one air platform and eleven (11) ground nodes with direct interface to a tactical gateway and supporting up to 64 IP-addressable nodes and 512 IP addressable devices.
	Demonstrate end-to-end connectivity (between tactical gateways) of > 95% reliability with 75% of end-to-end disruptions < 300 sec;
	Conformity to IPv4 protocol standard IPv4 inclusive of link/network security
	Provide network that supports tactical applications
	Latency of the network to support voice operations (without disruptions) <ul style="list-style-type: none"> • 300 ms (Threshold for 3 end-to-end hops) • 150 ms (Objective for 3 end-to-end hops)
	Network formation and Network join times that support tactical operations (without disruptions) <ul style="list-style-type: none"> • < 10 seconds (Network Join) • < 30 seconds (Network Formation of 10 nodes)
	Network supports tactical applications including (but not limited to) <ul style="list-style-type: none"> • Sensor Data associated with ISR (e.g. video) • Voice (e.g. VOIP) • Peer-to-Peer networking (e.g. distributed CHAT) • Network management
	Supports tactical topologies and routing requirements including (but not limited to) <ul style="list-style-type: none"> • Unicast, multicast, and broadcast traffic • Ad Hoc networks that <ul style="list-style-type: none"> ○ are autonomous, self forming/healing with minimal or no intervention ○ dynamically adjust to topology changes
	Network supports network traffic of <ul style="list-style-type: none"> • 80% of traffic is multicast, and • 20 simultaneous video streams (nominally 384 kbps), and • Normal voice traffic
	Traffic shaping/prioritization to allow resource management of Gateway network traffic.
	Support QoS in standard TCP/IP protocol suite (e.g.) <ul style="list-style-type: none"> • CS6 • Expedited Forwarding • Assured Forwarding • Best Effort

<u>PERFORMANCE</u>	<u>METRICS</u>	<u>REMARKS</u>
4. Gateway		
Data Radio Support		
- Military Radios	EPLRS, MicroLight EPLRS, SLICE/SRW, SecNet11, PRC-117F, SINCGARS	Sufficient modules to provide support for the radios listed and capacity to incorporate new modules for radios not listed
- Commercial Radios	802.11g, WiMAX (2.5 GHz), UMTS	Sufficient modules to provide support for the radios listed and capacity to incorporate new modules for radios not listed
- Public Safety/Critical Infrastructure Radios	Terrestrial Trunked Radio (TETRA) 4.9 GHz Public Safety Radio	Sufficient modules to provide support for the radios listed and capacity to incorporate new modules for radios not listed
Voice Radio Support		
- Military Radios	PRC-117, PRC-119, PRC-150, SINCGARS	Sufficient modules to provide support for the radios listed and capacity to incorporate new modules for radios not listed
- Commercial Radios	Family Radio Service (FRS), Cellular, VOIP devices, PSTN	Sufficient modules to provide support for the radios listed and capacity to incorporate new modules for radios not listed
- Public Safety/Critical Infrastructure Radios	800 MHz Public Safety Radio	Sufficient modules to provide support for the radios listed and capacity to incorporate new modules for radios not listed
Wide Area Network Support	IPv4, IPv6, etc. enabled Wide Area Network	Support WAN protocols (e.g. BGP, OSPFv2, and IGMP)
- Military Network	Global Information Grid	
- Commercial Radios	Internet	
Local Area Network Support	IPv4 enabled Local Area Network	
- Military Networks	SATCOM and Terrestrial (e.g. NCR)	
Application Support		
- Routing	Unicast, Multicast, Broadcast	
- Tactical applications	Including (but not limited to) <ul style="list-style-type: none"> • Sensor Data associated with ISR (e.g. video) • Voice • Peer-to-Peer networking (e.g. distributed CHAT) • Network management 	
Data Capacity	> 100 Mbps	Aggregate capacity for entire Gateway
Ports (bidirectional)	Support: <ul style="list-style-type: none"> • Three (3) Voice Radios • Three (3) Data Radios • One (1) WAN • One (1) LAN 	
Physical	Modular Architecture	Additional radios are added by compatibility with current modules or by new modules.
Frequency Range	Above UHF (High Band)	Use with Directional Antennas
Overall Information Rate		
- High Band (Above UHF)	> 10 Mbps (T); > 100 Mbps (O)	
Location of Highband Capability	Internal or external to MAINGATE Unit	

Attachment-3

<u>ENVIRONMENTAL</u>	<u>METRIC</u>	<u>REMARKS</u>
Antenna Testing	IEEE Standard 149-1979, "Standard Test Procedures for Antennas"	Perform to Standard
	IEEE Standard 1100-1999, "Recommended Practice for Powering and Grounding Electronic Equipment"	Perform to Standard
Marking Requirements	MIL-STD-27733, "Modification and Marking Requirements for Test Equipment in Aerospace Vehicles and Related Support Equipment"	Perform to Standard
EMI/EMC	MIL-STD -461 (EMI/EMC electrical interference testing and isolation techniques)	Perform to Standard
Electronic Component Testing	MIL-STD -202 (electronic component testing)	Perform to Standard
Environmental Testing	MIL-STD-810F "Environmental Engineering Considerations and Laboratory Tests." Part II, Laboratory Test Methods	Perform to Standard
		Temperature range: -30 C to + 50 C (MIL-STD-810F Method 501.4 + 502.4)
		Method 509.4 - Salt Fog
		Method 520.2 - Temperature, Humidity, Vibration, and Altitude
		MIL-HDBK-1568 - material and processes for corrosion prevention and control in aerospace weapons systems
		MIL-HDBK-1250a - corrosion prevention and deterioration control in electronic components and assemblies
<u>PHYSICAL</u>	<u>METRIC</u>	<u>REMARKS</u>
Size	5U high (8.75") x 21" deep (Fits in standard 19" rack)	If proposed, data logging and control computer to be located on separate 2U sliding drawer mount (total 19" rack of 7U). All installations for air/ground use should be identical system
Weight	≤45 lbs	Credible Design, with supporting Documentation
Power	<400 Watts (max)	Credible Design, with supporting Documentation
Aircraft Power	400 Hz AC and 28VDC	If other voltage sources are available the contractor can use any available extra power as agreed to by the owner
Ground Power	120V 60Hz AC and 24VDC	

Attachment 3

<u>PROGRAMMATIC</u>		<u>REMARKS</u>
Test Sites	Interim Test Site Final Test Site	Interim Test site to be proposed by performer (terrain similar to Ft. Benning) Final Test Site, expected to be Ft. Benning, subject to change by Government
Test Duration	10 weeks	Inclusive of setup, personnel training, testing, and demonstrations
Test Participants - Military Personnel - Coalition - First Responders	- US - UK, Canada, Australia, and other NATO - TBD prior to Program Kickoff	All equipment testing and demonstrations must be compatible for operation by non-contractor personnel
Test Equipment	11 Ground MAINGATE Nodes + 2 Spare 2 Airborne MAINGATE Nodes	
- Contractor Furnished	Radios	Include associated support equipment (antennas, mounts, connectors, etc)
	- (2) SATCOM and/or ISR Feed (e.g. ROVER) of same type	These are IPv4 compatible networks
	- (33) Legacy Radios	One (1) of each type (there are 11) for connection to Gateway and two (2) for outside gateway (nominal)
	- (21) Commercial Radios	One (1) of each type (there are 7) for connection to Gateway and two (2) for outside gateway (nominal)
	- (9) First Responder Radios	One (1) of each type (there are 3) for connection to Gateway and two (2) for outside gateway (nominal)
	Test Vehicles	
	- 10 Ground Vehicles	Including drivers
	- 2 Air Vehicles	Including pilots
- Government Furnished		
	Radios	
	- (TBD) Allied Radios	To be determined at Program Kickoff
Ground Platform for Design	Moving Vehicles (e.g. M998 High Mobility Multipurpose Wheeled Vehicle - HMMWV)	Subject to change by Government
Air Platform for Design	UH-60, C-12, C130	Subject to change by Government
<u>COST</u>	<u>METRIC</u>	<u>REMARKS</u>
Production Unit Cost		Total sell price to the Government

Attachment 3

**252.227-7017 IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE
RESTRICTIONS (JUN 1995)**

(a) The terms used in this provision are defined in following clause or clauses contained in this solicitation-

(1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data--Noncommercial Items clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.

(2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.

Attachment 4

(b) The identification and assertion requirements in this provision apply only to technical data, including computer software documents, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the Small Business Innovative Research Program, the notification requirements do not apply to technical data or computer software that will be generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.

(c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.

(d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Item #	Computer Software (or S/W Documentation) to be furnished with Restrictions	Basis for Assertion*	Asserted Rights Category	Name of Company Asserting Restrictions
1	(b)(4)			
2				
3				
4				
5				
6				
7				
8				

Attachment 4

Item #	Computer Software (or S/W Documentation) to be furnished with Restrictions	Basis for Assertion*	Asserted Rights Category	Name of Company Asserting Restrictions
9				
10				
11				
12				
13				
14				
15				
16				
17				

Patents

The Raytheon MAINGATE Team anticipates using technology based on the following patents, which have data rights assigned by the inventors to Raytheon Company:

Item #	Item Title	Patent, Disclosure, or Application Number	Name of Company Asserting Restrictions
1	(b)(4)		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

*For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such items, component, or process. For computer software or computer software documentation identify the software or documentation.

**Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.

***Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).

****Corporation, individual, or other person, as appropriate.

*****Enter "none" when all data or software will be submitted without restrictions.

Date 26 June 2009

Printed Name and Title [REDACTED]

Attachment 4

Signature 

(End of identification and assertion)

(e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.

(f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

(End of clause)

ADVANCE AGREEMENT TO AUTHORIZE INCURRENCE OF PRE-AWARD COSTS UNDER
CONTRACT HR0011-09-C-0083

AMENDMENT 6

- Re: (a) ARPA Order Y410/00
(b) Raytheon proposal entitled "Mobile Ad hoc Interoperability GATEway (MAINGATE)", reference number RA536 dated 26 August 2008 submitted in response to DARPA-BAA-08-21 dated 30 May 2008
(c) Pre-Award Costs Agreement dated 23 March 2009

The Government and Contractor hereby agree to the following changes to reference (c):

FIRST: In the event that a contract is awarded, pre-award costs, not to exceed \$2,000,000 shall be allowable under the contract, provided that the individual cost elements therein shall be:

- (a) otherwise allowable, reasonable, and allocable;
- (b) incurred no sooner than 23 March 2009 or after 26 Jun 2009, and;
- (c) incurred specifically and exclusively to accomplish the work described in the proposal referenced above.

SECOND: Contract terms and conditions shall be agreed to by the earlier of:

- (a) 26 Jun 2009; or
- (b) the date on which the amount of funds obligated, committed or expended under this Advance Agreement is equal to no more than \$2,000,000

THIRD AND FINALLY: It is the intention of the Government to award a contract to the contractor, subject to final agreement on the contract terms and conditions, specifications and price(s), which contract shall incorporate this Advance Agreement. It is understood and agreed by the parties herein that this Agreement concerns the treatment of pre-award costs in the event of a contract. This Agreement does not require the contractor to incur any such costs, and any costs so incurred are strictly at the risk of the contractor, until such time that a contract may be awarded.

FOR THE CONTRACTOR:

(b)(4)


Tactical Communication Systems
Raytheon

24 June 2009
Date

FOR THE UNITED STATES OF AMERICA
DEFENSE ADVANCED RESEARCH PROJECTS
AGENCY

(b)(6)


Robin M. Swatloski
Contracting Officer

24 Jun 09
Date

5 PAGES DENIED IN FULL
PURSUANT TO 5 U.S.C. § 552
(b)(2)(High).

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			I. CONTRACT ID CODE J	PAGE OF PAGES 1 2
2. AMENDMENT/MODIFICATION NO. P00001	3. EFFECTIVE DATE 23 JUL 2009	4. REQUISITION/PURCHASE REQ. NO. Y410/00	5. PROJECT NO.(If applicable)	
6. ISSUED BY DARPA CMO ATTN: ROBIN SWATLOSKI 3701 N FAIRFAX DR ARLINGTON VA 22203-1714	CODE HR0011	7. ADMINISTERED BY (If other than item 6) DCMA DETROIT US ARMY TANK & AUTOMOTIVE COMMAND (TACOM) WARREN MI 48397-5000		CODE S2305A
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) RAYTHEON COMPANY 1010 PRODUCTION RD FORT WAYNE IN 46808-4106			9A. AMENDMENT OF SOLICITATION NO.	
			9B. DATED (SEE ITEM 11)	
			X 10A. MOD. OF CONTRACT/ORDER NO. HR0011-09-C-0083	
			X 10B. DATED (SEE ITEM 13) 26-Jun-2009	
CODE 37695		FACILITY CODE		
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
X D. OTHER (Specify type of modification and authority) Bilateral modification by mutual agreement of the parties.				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: jenkins09965 See Page 2.				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
(b)(4)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Robin M. Swatloski, Contracting Officer TEL: 571-218-4542 EMAIL: Robin.Swatloski@darpa.mil		
(b)(4)	15C. DATE SIGNED 23 July 09	16B. (b)(6)	16C. DATE SIGNED 23 Jul 09	
(Signature of person authorized to sign)		(Signature of Contracting Officer)		

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

The purpose of this modification is to revise the Statement of Work (SOW) at no additional cost to the government.

SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents is deleted in its entirety and replaced with the following:

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION
Attachment 1	Attachment 1- Statement of Work (SOW)
Attachment 1A	Attachment 1A – SOW Revisions
Attachment 2	Attachment 2 - CDRLs
Attachment 3	Attachment 3 - Program Metrics
Attachment 4	Attachment 4 - Asserted Rights
Attachment 5	Attachment 5 - Pre-Contract Cost Authorization
Attachment 6	Attachment 6 - DD254

Except as modified above, the terms and conditions of Contract No. HR0011-09-C-0083 shall remain unchanged and in full force and effect.

(End of Summary of Changes)

Attachment 1 A

Statement of Work (SOW) Revisions

The parties agree to make the following revision(s) to the Statement of Work for HR0011-09-C-0083:

Revision No.	SOW Section No. and Location	Deleted Language	Inserted Language
1	3.1.1; MAINGATE EVENT DIRECTORY; Event B	"4 th Month"	"5 th Month"

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE J		PAGE OF PAGES 1 2	
2. AMENDMENT/MODIFICATION NO. P00002	3. EFFECTIVE DATE 09 Dec 09	4. REQUISITION/PURCHASE REQ. NO. Y410/00	5. PROJECT NO.(If applicable)
6. ISSUED BY DARPA CMO ATTN: ROBIN SWATLOSKI 3701 N FAIRFAX DR ARLINGTON VA 22203-1714	CODE HR0011	7. ADMINISTERED BY (If other than item 6) DCMA DETROIT US ARMY TANK & AUTOMOTIVE COMMAND (TACOM) WARREN MI 48397-5000	CODE S2305A
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) RAYTHEON COMPANY 1010 PRODUCTION RD FORT WAYNE IN 46808-4106		9A. AMENDMENT OF SOLICITATION NO.	
		9B. DATED (SEE ITEM 11)	
		X 10A. MOD. OF CONTRACT/ORDER NO. HR0011-09-C-0083	
		X 10B. DATED (SEE ITEM 13) 26-Jun-2009	
CODE 37695		FACILITY CODE	

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer is extended, is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
 (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

- A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
- B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).
- C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
- X D. OTHER (Specify type of modification and authority)
Bilateral modification by mutual agreement of the parties.
- E. IMPORTANT: Contractor is not, is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
 Modification Control Number: jenkins10100
 See Page 2.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND ADDRESS (Type or print) (b)(4)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Robin M. Swatloski, Contracting Officer TEL: 571-218-4542 EMAIL: Robin.Swatloski@darpa.mil
15C. DATE SIGNED 04 DEC 2009	16B. SIGNATURE (Type or print) (b)(4) BY (Signature of Contracting Officer)
	16C. DATE SIGNED 9 Dec 09

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

The purpose of this modification is to revise the second and third sentences of Section 3.10.3 of the Statement of Work (SOW), and revise CDRL 31. Accordingly, the SOW (Attachment 1) and CDRL 31 (Attachment 2) are entirely replaced, and Section J is revised.

SECTION J - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

The Table of Contents is deleted in its entirety and replaced with the following:

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION
Attachment 1	Attachment 1- Statement of Work (SOW) [Revised 13 NOV 09]
Attachment 2	Attachment 2 - CDRLs [Revised 13 NOV 09]
Attachment 3	Attachment 3 - Program Metrics
Attachment 4	Attachment 4 - Asserted Rights
Attachment 5	Attachment 5 - Pre-Contract Cost Authorization
Attachment 6	Attachment 6 - DD254

Except as modified above, the terms and conditions of Contract No. HR0011-09-C-0083 shall remain unchanged and in full force and effect.

(End of Summary of Changes)

Section III A – Statement of Work for MAINGATE

1.0 SCOPE

The objective of the Mobile Ad hoc Interoperability Network GATEway (MAINGATE) program is to develop the next generation Network Centric Radio System (NCRS) with additional capabilities and an assured, affordable unit price to the user. MAINGATE will be a connection point that allows a multitude of users, employing a heterogeneous set of radio technologies (both proprietary and non-proprietary) on different subnets, to attach to and communicate through an IP Network tolerant to high latency and packet loss. The technologies developed for the program will permit affordable, tactical, real-time, high fidelity video, data, and voice services to be deployed in a networked environment to support tactical operations in either maneuver or dismounted operations. As a result of this effort, DARPA expects a clear demonstration of advanced mobile ad hoc network (MANET) gateway technology with basic Spatial Diversity MIMO capability and Dynamic Spectrum Access (DSA) that allows coexistence with communications and CREW systems. It will incorporate a Wireless IP-capable Network (WIPN), which provides interconnectivity between nodes bridging heterogeneous mixtures of radio networks. The output of this program will be a demonstrated suite of hardware and software components that can be configured for specific DoD, coalition, and first responders/public safety requirements and provide the threshold overall information rate to the user, defined as the application payload information rate. The specific program requirements are in Appendix A of the Broad Agency Announcement and take precedence over all other technical information provided in this SOW. Appendix A of the BAA is incorporated by reference. Each metric in Appendix A will be considered fully compliant only if it can be achieved concurrently with all other fully compliant metrics. All fully compliant metrics should be considered to be pre-conditions for meeting other metrics.

This Statement of Work (SOW) defines tasks and responsibilities of the Raytheon Team (hereinafter "contractor") required to complete the defined deliverables for Defense Advanced Research Projects Agency (DARPA) and their selected agent, the Space and Naval Warfare Systems Command (SPAWAR) System Center Pacific (SSC PAC), (hereinafter "Government") as part of the Mobile Ad hoc Interoperability Network GATEway (MAINGATE) basic award (Advanced Concept Technology (ACT) phase), CONUS Limited User Testing Production and Test Support (Options 1 and 2), and OCONUS LUT Production and Test Support (Options 3 and 4). The Contract Line Item Numbers (CLINS) associated with each option are listed in Figure 1.0. The Contractor shall provide the engineering and management services as described in this SOW for development, testing, and production of the MAINGATE hardware, software, and documentation.

Figure 1.0: Option and CLIN Titles for MAINGATE Program

Basic: Advanced Concept Technology (ACT) phase

CLIN 0001 - Advanced Concept Technology (ACT) phase including quantity 20 MAINGATE Node systems with Spatial Diversity Multiple Input / Multiple Output (SD MIMO) and Next Generation Dynamic Spectrum Access (XG) functionality.*

Option 1: [REDACTED] Preproduction units

CLIN 0002 - Quantity [REDACTED] MAINGATE Node systems with quantity 200 operator consoles and quantity 200 AC power adapters.**

Option 2: CONUS Test Support

CLIN 0003 – Support and Training (including materials) to CONUS Demonstration.

Option 3: [REDACTED] Preproduction units

CLIN 0004 -Quantity █████ MAINGATE Node systems with quantity 200 operator consoles and quantity 200 AC power adapters for vehicular installations.**

Option 4: OCONUS Test Support

CLIN 0005 –Support and Training (utilizing CONUS materials) to OCONUS Demonstration .

* This CLIN includes an additional 5 units beyond the 15 to support lab integration/support. The 5 additional units will be lab assets that may have been altered, modified or degraded during testing. These units will be operational for lab use but may not be ruggedized for all environmental and field conditions. The ACT MAINGATE nodes and ancillaries include the following:

- 2-channel WIPN (dual RF, BCP, NCP hardware)
- Gateway
- Operator console
- Power Adapter
- GPS, Wi-Fi, Cell, and WIPN Antennas
- Installation cables for power and antennas
- Any legacy external radios and cables purchased on the contract

** The LUT MAINGATE nodes and ancillaries include the following:

- 2-channel WIPN (dual RF, BCP, NCP hardware)
 - Gateway
 - Operator console (qty. 200)
 - A/C Power Adapter (qty. 200)
-

2.0 APPLICABLE DOCUMENTS

The documents listed hereunder form a part of the SOW and are provided for guidance. In the event of conflict between the documents referenced and this SOW, the SOW takes precedence.

2.1 Government Documents

Document No.	Document Description	Document Date
DARPA-BAA08-21	Mobile Ad hoc Interoperability Network GATEway (MAINGATE) Broad Agency Announcement (BAA)	30 May 2008

2.2 Non-Government Documents

Document No.	Document Description	Document Date
AS 9100	Quality Management System	2004 (Revision B)
EIA Standard 469A	National Consensus Standard for Configuration Management	28 October 2004

3.0 REQUIREMENTS

3.1 Program Management (Raytheon)

The Contractor shall provide overall management and technical direction, including but not limited to, program planning, management control and reporting, risk and opportunity management, quality management, schedule management and control, Earned Value Management (EVM), configuration management and control, data management, coordination, reporting and administration to ensure the performance of the tasks delineated in this SOW. The program management and controls system employed must be sufficient to provide the Government with in-depth, accurate, and timely visibility into the Contractor's technical, schedule and cost performance and status by milestones in accordance with this SOW.

The Contractor shall identify to the Government a single individual as the Program Manager for the work required. The identified Program Manager shall be responsible for ensuring compliance with the requirements of this SOW. This individual's name shall be supplied to the Government as the point of contact for all technical and programmatic details. The Program Manager shall ensure that the personnel and facilities necessary for the performance of the contract are assigned and made available at the times and places necessary to meet the established schedule. Program Manager support is required for all contract CLINs. This includes, but is not limited to the following:

- Maintain the Work Breakdown Structure (WBS)
 - Maintain the Integrated Master Plan (IMP) and Integrated Master Schedule (IMS)
 - Function as the day-to-day point of contact to Government
 - Organize and define internal responsibilities
 - Assure that program milestones are met
 - Assure that technical milestones are met
 - Assure compliance with product quality requirements,
 - Assure program control and schedule (Earned Value Management System (EVMS))
 - Conduct program status meetings with the Government
 - Ensure metrics are collected and reported
 - Report progress on a monthly basis as described
 - Ensure risks are identified and appropriate action taken (Risk Management).
-

- Work with the Government to submit necessary export licenses to market and sell to NATO countries (per CDRL A031).

3.1.1 Integrated Master Plan (IMP) (Raytheon)

The Contractor shall develop an IMP to describe how the program shall be accomplished. The IMP shall be a table organized around program Significant Events (SE) that are the transition points between major program activities. Each Significant Event is subordinated by Significant Accomplishments (SA), each of which is supported by a specific Accomplishment Criteria (AC). The IMP is directly traceable to the WBS and SOW and provides the primary input into the development of the IMS which resource loads the tasks by date and duration. The IMP shall be maintained during the entire program. The IMP, summarized below, provides exit criteria for each task in the SOW.

MAINGATE EVENT DICTIONARY	
Event Code/Title	Event Purpose, Expected Results and Exit Criteria
Event A Contract Award	Objective: Marks the beginning of program execution <ul style="list-style-type: none"> • Establishes a time reference for the beginning of the project. Expected Results: <ul style="list-style-type: none"> • Contract modification authorizing work to proceed
Event B Post Award <i>Baseline Review</i> 5 th Month	Objective: <ul style="list-style-type: none"> • Ensure joint understanding of the contract, objectives and requirements. Approach: <ul style="list-style-type: none"> • Review of MAINGATE Program Master Schedule • Review of contract requirements and objectives • Review of contract data requirements • Review of Integrated Master Plan • Review of other available program plans Expected Results: <ul style="list-style-type: none"> • Mutual concurrence with approach to program execution Exit Criteria: <ul style="list-style-type: none"> • Satisfactory mutual understanding of contract objectives and program plan achieved • Contractor program plans consistent with contract objectives • GFE/GFI requirements mutually acceptable
Event C Architectural Review 6 th Month	Objective: <ul style="list-style-type: none"> • Ensure joint understanding of the architecture design and test strategy. Approach: <ul style="list-style-type: none"> • Review of MAINGATE Program Master Schedule • Review of Integrated Master Plan • Review Architecture design • Review Test strategy Expected Results: <ul style="list-style-type: none"> • Mutual concurrence with system architecture Exit Criteria: <ul style="list-style-type: none"> • Mutual understanding of system architecture • Mutual understanding of test/demo strategy • Issues identified and actions assigned

MAINGATE EVENT DICTIONARY

Event Code/Title	Event Purpose, Expected Results and Exit Criteria
<p>Event D</p> <p>Interim Demonstration #1 10th Month</p>	<p>Objective:</p> <ul style="list-style-type: none"> Establish that the incremental system design is maturing according to the plan. <p>Approach:</p> <ul style="list-style-type: none"> Review the Phase Requirements and Architecture for Interim Demo #1 Review the Test and Evaluation Plan for Interim Demo #1 Identify the proposed Allocated Baseline (Hardware and software CIs and related requirements documents) <p>Expected Results:</p> <ul style="list-style-type: none"> Concurrence that incremental system design is maturing Agreement with Allocated Baseline structure Approval to proceed with the Interim Demo #1 <p>Exit Criteria:</p> <ul style="list-style-type: none"> Phase Requirements and Architecture approved Test and Evaluation Plan approved Interim Demo #1 conducted Test report released Action items captured and assigned
<p>Event E</p> <p>Interim Demonstration #2 13th Month</p>	<p>Objective:</p> <ul style="list-style-type: none"> Establish that the incremental system design is maturing according to the plan. <p>Approach:</p> <ul style="list-style-type: none"> Review the Phase Requirements and Architecture for Interim Demo #2 Review the Test and Evaluation Plan for Interim Demo #2 Identify the proposed Allocated Baseline (Hardware and software CIs and related requirements documents) <p>Expected Results:</p> <ul style="list-style-type: none"> Concurrence that incremental system design is maturing Agreement with Allocated Baseline structure Approval to proceed with the Interim Demo #2 <p>Exit Criteria:</p> <ul style="list-style-type: none"> Phase Requirements and Architecture approved Test and Evaluation Plan approved Interim Demo #2 conducted Test report released Action items captured and assigned
<p>Event F</p> <p>Final Demonstration 15th Month</p>	<p>Objective:</p> <ul style="list-style-type: none"> Establish that the incremental system design is ready for LUT production <p>Approach:</p> <ul style="list-style-type: none"> Review the Phase Requirements and Architecture for Final Demo Review the Test and Evaluation Plan for Final Demo Identify the proposed Allocated Baseline (Hardware and software CIs and related requirements documents) <p>Expected Results:</p> <ul style="list-style-type: none"> Concurrence that incremental system design is ready for LUT production Agreement with Allocated Baseline structure Approval to proceed with the Final Demo <p>Exit Criteria:</p>

MAINGATE EVENT DICTIONARY

Event Code/Title	Event Purpose, Expected Results and Exit Criteria
	<ul style="list-style-type: none"> • Phase Requirements and Architecture approved • Test and Evaluation Plan approved • Final Demo conducted • Test report released

3.1.2 Integrated Master Schedule (IMS) (Raytheon)

The Contractor shall implement and maintain the agreed-upon IMS (CDRL A003) that provides sufficient detail and insight to allow the Government to track the overall program (e.g. all CLINs) schedule. All tasks/activities in the IMS are logically linked, showing predecessor/successor relationships and critical path. The activities and tasks defined are sufficient to account for the Contractor's program under contract, and as a minimum, integrate all required data items, testing, hardware deliverables and major program events/reviews, contract milestones, technical milestones, key decision points and program events requiring Government participation. The IMS shall be maintained during the entire program with updates provided monthly along with CDRL A008.

3.1.3 Work Breakdown Structure (WBS) (Raytheon)

The Contractor shall provide a multi-level WBS. The Contractor WBS (CWBS) (CDRL A002) shall represent the total contract SOW (e.g. all CLINs). The Contractor shall use the WBS for planning, managing, and reporting programs status and projections for cost, schedule, and technical achievements. No changes can be made at or above the reporting level of the WBS (defined in CDRL A002) without the Government's concurrence. The CWBS shall be base lined at the Program Kickoff Meeting or by a mutually agreed to date. Each CLIN shall utilize distinct CWBS elements.

3.1.4 Reviews/Meetings/Conferences (Raytheon)

The Contractor shall support all planned Government attended reviews/meetings/conferences (hereinafter referred to as reviews) listed in **Table 3.1.4-1**. Specific dates shall be specified in the IMS to the extent they are known at the time of the proposal. Thereafter, the IMS shall be updated as required to reflect changes to the review/meeting schedule. Each schedule meeting shall be preceded by publication of an agenda (CDRL A005) and 'read ahead' presentation materials (CDRL A006). The contractor is responsible for capturing action items and decisions in summary minutes for each meeting (CDRL A007).

Table 3.1.4-1. Summary of Program Reviews/Meetings (CLIN 0001)

Name of Reviews/Meetings	Frequency	SOW Paragraph
Program Kickoff	Once	3.1.4
Program Reviews	Monthly Teleconference	3.1.4
Architecture Review and Interim Demo 1 Readiness Review	Once	3.9.4, 3.9.5.1

Name of Reviews/Meetings	Frequency	SOW Paragraph
Architecture Review and Interim Demo 2 Readiness Review	Once	3.9.4, 3.9.5.1
Architecture Review and Final Demo Readiness Review	Once	3.9.4, 3.9.5.1

The Contractor shall hold a Program Kickoff meeting (CDRL A001). The purpose of the Program Kickoff meeting is to review the Integrated Master Plan (IMP), the Integrated Master Schedule (IMS) (CDRL A003), the Contractor Work Breakdown Structure (CWBS) (CDRL A002) and the SOW for MAINGATE as well as the system design and program approach.

The Contractor shall be responsible for submitting a monthly status report (CDRL A008), and associated cost schedule and status reporting (CDRL A009) information including an updated Integrated Master Schedule (IMS) (CDRL A003). The Contractor shall also be responsible for attending program review teleconferences as mutually agreed upon with the Government. Program Review teleconferences shall occur monthly, concurrent with the delivery of the monthly status report. The Contractor shall be prepared during all Program Review teleconferences to address all contract performance issues. The Program Reviews provide a working management level forum to identify, discuss, and resolve issues that could affect the overall system from achieving the contract requirements.

Stoplight charts may be used to summarize the current status. Minutes and action items shall be taken by the Contractor and reviewed prior to the conclusion of each meeting and issued per CDRL A007. Items to be discussed at the Monthly Program Reviews (MPR) include, but not limited to the following:

- Earned value and Schedule status/progress
- Risk management and mitigation status
- Review of Demonstration Issues
- GFE/GFI need dates
- Data Item Delivery Review
- Metrics
- Review of last month's Action Items and open action item status
- Review of Technical Issues.

3.1.5 Risk Management (All)

The Contractor shall provide a Risk Management Plan (RMP) (CDRL A004) that details the risk management process for the program. It shall identify the program risk manager and the membership of the Risk Management Working Group (RMWG). The RMWG shall meet monthly or as needed and provide risk progress status inputs into the monthly progress status report (CDRL A008). Designated risk items shall have corresponding discussion/cross-references in the monthly status report and applicable financial reports.

3.2 Business Management (Raytheon)

The Business Management Office is responsible for implementing, tracking, and reporting business and financial management metrics/status across all CLINs for the MAINGATE Program. In this role, the Business Manager provides financial planning and development information and optimizes program schedule, cost and cash performance. The Business Manager implements and maintains the required MAINGATE Program Earned Value Management System (EVMS) information and records for the purpose of providing the Monthly Progress Status Report (CDRL A008) as well as all funding status

reports (CDRLs A009, A021, A022, and A023) to the Government. Business Management responsibilities include, but are not limited to, the following:

- Work with the Program Manager and Program Engineer to ensure Program budgets are defined, updated, monitored and achieved
- Support the Program Scheduler and IPT leads in the preparation of Integrated Master Schedule (IMS) data
- Prepare and report required Program EVMS data using Micro-Frame Program Manager (MPM) on a monthly basis to include an updated Estimate at Complete (EAC) in the monthly status report and detailed EVM data, rationale, and cause/effect/mitigation in the monthly Cost Performance Reports (CPRs)
- Track and maintain program billings
- Coordinate with the Program Manager and Program Engineer to manage Program risks relating to cost
- Coordinate with the Program Manager and Program Engineer to identify Program opportunities and develop optimal courses of action
- Support Program status meetings (Program Management Reviews with internal Management)
- Facilitate dissemination of business information (budget and cost), including weekly labor and expenditures reports
- Establish and maintain Program cost accounts (charge numbers) in compliance with the Contract Work Breakdown Structure, IMS, and Company practice.

3.3 Contract Management (Raytheon)

The Contractor's contract management organization shall provide the primary point of contact to the Government regarding all contractual items, including any issues that arise during the execution of the program. The Contractor shall maintain records of communications and these records will be made available to the Government if requested.

3.4 Supply Chain Management (Raytheon)

The Contractor's Supply Chain Management organization shall provide the primary point of contact to the subcontractors and teammates regarding all subcontract items including any issues that arise during the execution of the program. Supply Chain Management shall also coordinate with Business Management to ensure consistency of cost and technical performance reporting. The Contractor shall maintain records of communications and these records will be made available to the Government if requested.

3.5 Production Coordinator (Raytheon, [REDACTED])

The Contractor shall assign a Production Coordinator to oversee and coordinate the activities of Supply Chain, Manufacturing, Engineering, subcontractors and parts suppliers to ensure that all test and deliverable assets are available when needed. The WIPN radio shall be produced by Raytheon and the MAINGATE Node (to include integration of the Raytheon supplied WIPN radio) shall be produced by [REDACTED]. Production Coordinator tasks include:

- Order engineering development material and items identified as critical long lead
 - Program status of hardware (includes placement/receipt of parts, follow up with suppliers and program office/production personnel on any critical part shortages that come up in weekly status meetings)
-

- Shipment and receipt of long lead parts coming in from suppliers to be routed as CFM (customer furnished material) to production
- Shipment and receipt of parts coming in from suppliers and production to be routed for engineering analysis and test.

A priced hardware long lead list for timely execution of either of the LUT options shall be provided to the Government no later than 8 months after contact award. The list shall detail all assumptions associated with it.

3.6 Program Engineer (Raytheon, [REDACTED])

A Program Engineer (PE) shall be assigned to support the MAINGATE program. The PE reports to the Chief Engineer and assists the Chief Engineer in his responsibilities for engineering cost, schedule and technical performance, including management of the engineering content on MAINGATE, engineering direction across Integrated Product Teams (IPTs) and sites, and ensuring the MAINGATE project is compliant with Raytheon engineering processes. This includes creation and execution of project plans, staffing (including skills and training), and reporting program status.

The PE assigned to the program will plan and manage the various engineering activities to ensure proper engineering processes are followed across the team. The PE also supports the Chief Engineer in providing technical subcontract management to ensure the team is communicating and working to the same revision of information.

3.7 Configuration Management /Data Management (Raytheon, [REDACTED])

The Contractor shall implement, document, and maintain a Configuration Management (CM) system that is based on an industry-recognized quality management system, such as EIA Standard 649, National Consensus Standard for Configuration Management, to ensure technical and administrative integrity of all hardware and software products, documentation, and data pertaining to this contract. The CM system shall implement processes for configuration identification, control, status accounting and audits. The Government shall be provided copies of the documentation upon request.

All delivered CDRLS are to be under Prime contractor Configuration Management control. The documents shall be delivered by electronic means (MAINGATE Portal or CD-ROM via mail or package service) to the Government Contract Manager, as applicable. If a collaboration web site is established, an email notification will be provided as new material is posted, providing a meaningful title, revision number, and location on the site. If CDs are used for delivery, file names will include a revision number to preclude overwriting previous deliveries and to ensure all parties are working from the same version. In addition, any submittal made in response to, or incorporating Government comments from the preceding submittal shall include an attached or appended memorandum summarizing the comments and their disposition. **Table 3.7-I** provides a summary of the CDRL documents that the Contractor is required to deliver to Government.

Table 3.7-I. Summary of Documentation

Final CDRL	Description	CLIN
A001	Program Kickoff Meeting/Review	0001
A002	Contract Work Breakdown Structure (CWBS)	ALL
A003	Integrated Master Schedule (IMS)	ALL
A004	Risk Management Plan	0001
A005	Conference Agenda	0001, ASREQ
A006	Presentation Material	0001, ASREQ
A007	Conference Minutes	0001, ASREQ
A008	Research & Development (R&D) Project Summary - Status Report (Mthly)	ALL
A009	Contract Performance Report (CPR) - Status Report (Mthly)	ALL
A010	System Requirements Document	0001
A011	System/Hardware Design Document	0001
A012	System Specification	0001
A013	RESERVED	N/A
A014	Software Requirements Specification	0001
A015	Software Development and Test Plan	0001
A016	Software Version Description	ALL
A017	RESERVED	N/A
A018	Software / Hardware Test Report	ALL
A019	Test & Evaluation Plan	0001
A020	Production Unit Cost (PUC) estimate	ALL
A021	Contract Funds Status Report (CFSR)	ALL
A022	Cost Data Summary Report (DD Form 1921)	0002 and 0004
A023	Funding Report	ALL
A024	Project Information and Description	ALL
A025	Technical Status Report (Qtrly)	ALL
A026	Data Accession List	ALL
A027	Operations Manual / Training Material	ALL

Final CDRL	Description	CLIN
A028	Interface Control Document	ALL
A029	Software Source Code	ALL
A030	Final Report	ALL
A031	International Traffic in Arms Regulations (ITAR) Commodity Jurisdiction (CJ)	ALL

3.8 Quality Engineering (Raytheon)

The Contractor shall utilize its existing quality engineering system, which shall be AS9100 compliant. The Contractor shall implement, document, and maintain a quality assurance system, including reviews, inspection, test, reporting, procedures, processes evaluations, and product evaluations. The Contractor's quality control system shall ensure conformance to all SOW requirements in accordance with AS 9100. For newly developed hardware, the Contractor shall perform to their internal workmanship standards, or Government approved equivalent.

The Contractor shall perform inspection of all developed and purchased materials, and shall perform Identification, Damage, and Workmanship inspections on Government Furnished Equipment (GFE). The Contractor's Quality Assurance representative(s) shall conduct inspections and audits during all phases of development and production. Dates, performance, scope, and results of Quality Assurance inspections shall be documented and made available to the Government.

3.9 System Engineering (Raytheon, [REDACTED])

The Contractor shall provide system engineering to develop a System of Systems Network Architecture for MAINGATE and to conduct a set of demonstrations that prove its capabilities. This shall consist of a requirements management process providing clear traceability of requirements to each design configuration. Key products will be a System Requirements Document (CDRL A010), System/Hardware Design Document (CDRL A011), System Specification (CDRL A012), Interface Control Document (CDRL A028), Software Requirements Specification (CDRL A014), and Software Development and Test Plan (CDRL A015).

3.9.1 Chief Engineer and Technical Director ([REDACTED] Raytheon)

A Chief Engineer shall be assigned to support the MAINGATE program. The Chief Engineer is responsible for the MAINGATE technical functionality, the technical content of each demonstration, and the successful execution of the demonstrations. The Chief Engineer is responsible for the overall technical fidelity of MAINGATE, ensure MAINGATE equipment and subsystems are designed to interoperate efficiently and effectively, providing the required system accuracy, reliability, maintainability, and safety.

The Technical Director (TD), as required, shall manage the technical coordination, oversee the System Integration Labs (SIL) at Raytheon (Ft. Wayne and Fullerton), [REDACTED] oversee the test sites in Fayetteville, TN, Ft. Benning, GA and Ft. Gordon, GA, and assist in the independent evaluation of test and demonstration results.

3.9.2 Test Director

The Contractor shall provide a Test Director for Interim Demonstration #1, Interim Demonstration #2, and the Final Demonstration. The Test Director shall act as the single point of contact for all demonstration related activities, including demonstration planning, demonstration execution, and demonstration reports. Additionally, the Test Director shall coordinate all demonstration activities, obtain all communications frequency authorizations, provide for all data collection, and resolve all issues that arise during the demonstrations. A comprehensive Test and Evaluation Plan for the program shall be created (CDRL A019).

3.9.3 System Requirements and Architecture Definition (Raytheon,

The Contractor shall define the requirements and architecture in a single System Requirements Document (CDRL A010). This effort shall result in System Block Diagrams depicting the architectural elements and their interfaces. The MAINGATE system architecture shall describe the network characteristics of the gateway and the MANET radio required to support tactical, real-time, high fidelity video, data, and voice services to users on legacy subnets. The architecture shall describe routing protocol options and Quality of Service requirements necessary to support the heterogeneous networks of legacy radios. The architecture shall define the interfaces to all required radios including EPLRS, MicroLight EPLRS, SLICE/SRW, SecNet11, PRC-117F, SINCGARS, 802.11g, WiMAX (2.5 GHz), UMTS, TETRA, PRC-119, PRC-150, FRS, Cellular, VoIP devices, PSTN, and 800 MHz Public Safety Radio. Requirements for both the Gateway component and the Wireless Internet Protocol Network (WIPN) radio shall be defined. This effort shall be completed during CLIN 0001.

3.9.4 Requirements and Architecture Reviews (All)

The Contractor shall conduct a review of the requirements and architecture at the start of the program to ensure all stakeholders clearly understand the design objectives as documented in the System Requirements Document (CDRL A010). Demonstration specific Requirements and Architecture descriptions shall be detailed and reviewed as part of the test and evaluation planning for each demonstration event.

3.9.5 Demonstrations

Two interim demonstrations and a final demonstration shall be conducted during CLIN 0001. The purpose of these demonstrations is to verify and assess the degree of compliance to the performance metrics in the MAINGATE BAA, including Appendix A.

3.9.5.1 Demonstration Readiness Review

The Contractor shall prepare a comprehensive MAINGATE Test and Evaluation Plan (CDRL A019), in Contractor format that facilitates and documents Interim Demonstration #1, Interim Demonstration #2, and the Final Demonstration. This modular document describes the detailed testing used for each demonstration to verify that the system has met the performance metrics. Interim Demonstration #1 test objectives shall be developed by the Contractor and published as a draft module to CDRL A019, Test and Evaluation Plan. This shall be provided to the Government 15 days prior to the Interim Demonstration #1 Readiness Review. The readiness review will involve all stakeholders and ensure that all aspects of the demonstration are ready for execution, including target hardware, software, test setups, and all required test equipment. Any changes to the test and evaluation plan shall be incorporated into the final interim Demonstration #1 Test and Evaluation Plan 15 days after the review. This process will

be used for next demonstrations as well. Spatial Diversity (SD) MIMO, DSA, and coexistence with communications shall be included in Interim Demo #1, Interim Demo #2 and the Final Demonstration. Link range testing shall include tests with and without SD MIMO to prove the results / benefits. Prior to Final Demonstration, coexistence with CREW systems will be demonstrated in a mutually agreed environment. DARPA shall provide the GFE, GFI, and support requested for CREW testing.

3.9.5.2 Demonstration Execution and Final Report [REDACTED]

Preparation for each Demonstration will be led by the Test Director and will include:

- Finalize integration of system into test vehicles (e.g. HMMMVs)
- Verify system and network operations on a daily basis
- Characterize network operations to optimize objectives
- Troubleshoot and repair failures associated with the network
- Verification of proper revisions for all Hardware and Software components
- Manpower assigned to operate each node during the demonstration
- Satellite access and frequency authorizations secured for the demonstration
- Integration and logistics support during demonstration, including field facilities
- Required Flight safety certifications in place
- SATCOM and/or ISR feed, Legacy radios, commercial radios, and First Responder radios are all available
- Test ground/air vehicles, including drivers and pilots are all ready for test.

The tests defined in the test plan shall be executed under the direction of the Test Director and all results will be recorded per the instructions in the test plan. The Contractor shall prepare Test Reports, in Contractor format, for Interim Demonstration 1, Interim Demonstration 2, and the Final Demonstration to facilitate briefing of results and be incorporated in the final report (CDRL A030). These Test Reports (e.g. CDRL A018) shall document the test conducted, results and provide an assessment indicating the degree to which the system meets the Appendix A Program Metrics.

3.9.6 Training and Onsite Technical Support [REDACTED] (Base award and Option(s))

The Contractor shall provide training, preparatory, and onsite technical support as a component of the Final Demonstration (CLIN 0001) and as part of the Limited User Testing (LUT) options (CLIN 0003 (CONUS) and 0005 Outside Continental United States (OCONUS)).

Training will consist of:

1. Developing training material suitable for use by Military personnel to support operation of the MAINGATE system. Training material will consist of classroom type material as well as "cut sheet" summary material for use in the field.
2. Support to onsite use of the training material by the Military operators, including hands on training in a classroom and field environment.
3. Leave behind training material (paper and CD) to enable further training as required.

Preparatory technical support will consist of:

1. Establishing a System Integration Lab (SIL) to facilitate development of training material, testing of system level components inserted into the system after the MAINGATE final demonstration, and testing of the system prior to employment.
2. Final system testing of a select subset of MAINGATE systems prior to employment

Onsite technical support will consist of:

1. Assistance in developing a mounting configuration for platforms of employment.
2. Support for the development of Tactics, Techniques, and Procedures (TTPs) for employment of MAINGATE.
3. Support during the conduct of a Limited User Test (LUT) (including up to two (2) smaller pre-LUT tests to enable familiarization with the MAINGATE hardware and its employment and development of TTPs) to answer questions related to employment, operation, mounting, or troubleshooting MAINGATE systems.

3.10 Software Design (Raytheon, [REDACTED])

The Contractor shall provide TRL 6 software for both the MAINGATE Node and the WIPN radio. Software planning and management will be performed throughout the development process. Key products will be a Software Requirements Specification (CDRL A014) and Software Development and Test Plan (CDRL A015).

3.10.1 Software Design, Code, Unit Test and SW Integration (Raytheon, [REDACTED])

The Contractor shall analyze software requirements, design, integrate and test software for MAINGATE. This encompasses modifying existing software in the MAINGATE Node and the WIPN to satisfy the MAINGATE BAA Appendix A Program Metrics. Software shall be developed and tested to support Interim Demonstration #1. Updates will be provided and tested for Interim Demonstration #2 and the Final Demonstration to optimize system functionality. Key products will be Software Development and Test Plan (CDRL A015) and Software/Hardware Test Reports (CDRL A018). The majority of the effort is anticipated to be completed in CLIN 0001 with potential for additional software efforts in remaining CLINS as needed.

3.10.2 Software Releases (Raytheon, [REDACTED])

There shall be iterative releases of the MAINGATE software during the development and integration process. An informal software qualification test is performed to ensure the software functions properly prior to each release to software configuration management. The Contractor shall prepare Software Release Notes with each software release. The Contractor shall prepare a Software Version Description for each formal release of the software for demonstration. All software shall be properly controlled via configuration management. Key products will be Software Version Description (CDRL A016). The effort shall be completed during CLIN 0001. The initial software source code will be delivered after the completion of the final demonstration via CDRL A029.

3.10.3 Graphical User Interface

The Graphical User Interface (GUI) shall be provided in a representative draft before it is coded to obtain government feedback. The representative draft briefing material will be maintained through Operator Console development and include information on concepts, types of MG users,

tools, screens, general layout of the GUI and the how baseline user interfaces are incorporated. The contractor will conduct meetings with Army operational user(s) identified by the Government in order to receive input and feedback on the initial design and updates to the Operator Console.

3.11 Hardware Design and integration (Raytheon, [REDACTED])

The Contractor shall provide TRL 6 MAINGATE Node and the WIPN radio hardware. Hardware engineering shall be performed for CLIN 0001. Key products will be System/Hardware Design Document (CDRL A011) for the system and for each hardware controlled item (HWCI that has changed for the MAINGATE program.

3.11.1 Hardware Design, Build, Unit Test and HW Integration (Raytheon, [REDACTED])

The Contractor shall make the required modifications to existing hardware designs (i.e., WIPN radio modules), select compliant commercial off-the-shelf products (e.g. Gateway components), and design the required packaging for all the hardware comprising a MAINGATE node. These hardware changes are required to satisfy, to the best degree possible, the MAINGATE BAA Appendix A Program Metrics. All MAINGATE hardware will be unit tested and integrated together to create a MAINGATE Node which will undergo a hardware level integration test to ensure it is functioning properly. All hardware shall be developed to support Interim Demonstration #1. Minor updates may be implemented for Interim Demonstration #2 and the Final Demonstration if required. The effort shall be completed in CLIN 0001. The Production Unit Cost (PUC) estimate (CDRL A020) shall be briefed at contract kickoff and progressively matured throughout the MAINGATE Program period to ensure a high confidence estimate is achieved with final delivery of CDRL A020 at completion of the final demonstration. It will include a "design for production" discussion on the path forward to achieve these final design cost projections.

3.11.2 Hardware Environmental Evaluations (Raytheon, [REDACTED])

The Contractor shall conduct environmental evaluations, including EMI/EMC on MAINGATE node hardware during CLIN 0001 development. The EMI/EMC evaluations include: Radiated Emissions, Radiated Susceptibility, Conducted Emissions, and Conducted Susceptibility per Mil-Std-461. The purpose is to characterize the design as early as possible to allow for modifications to ensure compliance with these program metrics.

3.12 Advanced Concept Technology (ACT) Production (Raytheon, [REDACTED])

The Contractor shall produce the required amount of hardware for the three demonstrations of the ACT portion of the program. These 13 MAINGATE Nodes, two spare MAINGATE Nodes, and five additional MAINGATE Nodes (lab units) are used to facilitate the various test scenarios of the program for a total of 20 MAINGATE Nodes. This is performed as part of CLIN 0001.

3.13 Preproduction Units (Raytheon, [REDACTED]) (Option)

The Contractor shall produce the required amount of hardware for the LUT(s) portion of the program if Options 1 and/or 3 are exercised. The current defined quantities and list of various CLINs for these options are identified in Section 1.0 of this SOW. Effort shall include all personnel and tooling required to produce the product, program management, and engineering support. The performance specification for the LUT units will be as demonstrated during the ACT Phase.

3.14 Government Furnished Information/Property

The contractor shall provide timely notification of need dates for GFI/GFP, generally not less than 30 calendar days before the information/property is required.

Attachment 2

CDRLs

Revised 13 NOV 2009

CDRL A013 RESERVED

CDRL A017 RESERVED

CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. ALL		B. EXHIBIT B		C. CATEGORY: TDP ___ TM ___ OTHER_IPSC ___			
D. SYSTEM/ITEM MAINGATE		E. CONTRACT/PR NO. HR0011-09-C-0083		F. CONTRACTOR THE RAYTHEON COMPANY			
1. DATA ITEM NO. A018	2. TITLE OF DATA ITEM SCIENTIFIC AND TECHNICAL REORTS		3. SUBTITLE SOFTWARE /HARDWARE TEST REPORT				
4. AUTHORITY (Data Acquisition Document No.) DI-IPSC-81440A/T		5. CONTRACT REFERENCE CSOW		6. REQUIRING OFFICE DARPA/STO			
7. DD 250 REQ LT	9. DIST STATEMENT D	10. FREQUENCY 3TIMES	12. DATE OF 1ST SUBMISSION *	14. DISTRIBUTION			
8. APP CODE N/A		11. AS OF DATE *	13. DATE OF SUBSEQUENT R/ASR	a. ADDRESSEE	b. COPIES		
16. REMARKS					Draft	Final	
					Reg	Repro	
<p>R/ASR means revisions as required to keep the STR up to date, make changes or corrections, and submit revisions as generated.</p> <p>Block 9: D: Distribution authorized to Department of Defense and U.S. DoD Contractors only.</p> <p>Block 10: 3TIMES means issued 15 days after each of the three, demos. In addition, any other design changes to the effort.</p> <p>Contractor Format</p> <p>* Submit as generated.</p> <p>Block 14: Submit electronically, placed on MAINGATE Customer Collaboration E-Room and email notification sent to:</p> <p>neil.hoff@navy.mil and</p> <p>larry.stotts@darpa.mil</p>				SSC-PAC/COTR	0	1	0
				DARPA/STO	0	1	0
				15. TOTAL ----->	0	2	0

17. PRICE GROUP

18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE 12 June 2009	I. APPROVED BY Robin Swatloski	J. DATE
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CONTRACT DATA REQUIREMENTS LIST

(1 Data Item)

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either of these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

A. CONTRACT LINE ITEM NO. ALL	B. EXHIBIT B	C. CATEGORY: TDP ___ TM ___ OTHER ___MGMT___
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D. SYSTEM/ITEM MAINGATE	E. CONTRACT/PR NO. Hr0011-09-C-0083	F. CONTRACTOR THE RAYTHEON COMPANY
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1. DATA ITEM NO. A026	2. TITLE OF DATA ITEM DATA ACCESSION LIST	3. SUBTITLE
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4. AUTHORITY (Data Acquisition Document No.) DI-MGMT-81453A/T	5. CONTRACT REFERENCE CSOW	6. REQUIRING OFFICE DARPA/STO
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7. DD 250 REQ LT	9. DIST STATEMENT C	10. FREQUENCY QTRLY	12. DATE OF 1ST SUBMISSION **	14. DISTRIBUTION		
8. APP CODE N/A		11. AS OF DATE *	13. DATE OF SUBSEQUENT SUBMISSION **	a. ADDRESSEE	b. COPIES	
					Draft	Final
					Reg	Repro

16. REMARKS * As of 30 Sep, 31 Dec, 31 Mar and 30 Jun ** Submit 15 calendar days after Block 11 time. Contractor Format Block 9: C: Distribution authorized to US Government agencies and their contractors. Block 14: Submit electronically, placed on MAINGATE Customer Collaboration E-Room and email notification sent to: neil.hoff@navy.mil Report shall include revision number, date, and electronic file name associated with each document as well as location on any collaboration site employed for document exchange.	SSC-PAC/COTR	0	1	0
15. TOTAL ----->	0	1	0	

17. PRICE GROUP
18. ESTIMATED TOTAL PRICE

G. PREPARED BY	H. DATE 12 June 2009	I. APPROVED BY Robin Swatloski	J. DATE
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