**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. CONTRACT ID CODE

PAGE 1 OF PAGES 130

2. AMENDMENT/MODIFICATION NO. 1

3. EFFECTIVE DATE See Block 16C

4. REQUISITION/PURCHASE REQ. NO.

5. PROJECT NO. (If applicable)

6. ISSUED BY CODE GSFC

NASA/Goddard Space Flight Center
Procurement Operations Division
Greenbelt MD 20771

7. ADMINISTERED BY (If other than Item 6) CODE GSFC

NASA/Goddard Space Flight Center
Procurement Operations Division
Greenbelt MD 20771

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

PCMG, INC.
14120 NEWBROOK DR STE 100
CHANTILLY VA 20151-2273

CODE 4LNW7 FACILITY CODE

(x) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

x 10A. MODIFICATION OF CONTRACT/ORDER NO. NNG15SC18B

10B. DATED (SEE ITEM 13) 10/08/2014

**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 Offers ☐ is extended. ☐ is not extended.
Offers 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 ACKNOWLEDGEMENT 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 ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

| CHECK ONE | |
|---|---|
| | 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) Pursuant to FAR Clause 52.233-2 Service of Protest - Revocation on Stay of Performance |

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.)

SEWP V CONTRACT, Category A, Group A
The purpose of this conformed contract modification is to incorporate A.1.55 Service of Protest and revise/update the following under the contract:
Section I Terms and Conditions FAR 52.212-4
Section II Terms and Conditions FAR 52.212-5
Article A.1.1 DELIVERABLE REQUIREMENTS
Article A.1.4 ORDERING
Article A.2.1 LIST OF ATTACHMENTS
See pages 2-130, accordingly:
Payment Terms:
Net 30 days

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

15A. NAME AND TITLE OF SIGNER (Type or print) Cathy Boleyn, VP Operations

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) LaShawn K. Feimster

15B. CONTRACTOR/OFFEROR Cathy Boleyn (Signature of person authorized to sign)

15C. DATE SIGNED 4/7/15

16B. UNITED STATES OF AMERICA LaShawn K. Feimster (Signature of Contracting Officer)

16C. DATE SIGNED 4-9-15

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Previous edition unusable

STANDARD FORM 30 (REV. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

## Contents

I. CONTRACT TERMS AND CONDITIONS--COMMERCIAL ITEMS (52.212-4) (DEC 2014) ....6
A.1.1. DELIVERABLE REQUIREMENTS (GSFC 52.211-90) (OCT 1988) ....11
A.1.2. SUPPLIES AND/OR SERVICES TO BE FURNISHED ....11
A.1.3. PROCEDURES FOR ORDERS ....12
A.1.4. ORDERING (52.216-18) (OCT 1995) ....12
A.1.5. INDEFINITE QUANTITY (52.216-22) (OCT 1995) ....13
A.1.6. MINIMUM AND MAXIMUM QUANTITIES ....13
A.1.7. DISCOUNTS FOR TECHNOLOGY EQUIPMENT ....13
A.1.8. ACCEPTANCE--MULTIPLE LOCATIONS (GSFC 52.246-93) (SEPT 2013) ....15
A.1.9. MATERIAL INSPECTION AND RECEIVING REPORT (1852.246-72) (AUG 2003) ....15
A.1.10. TIME OF DELIVERY ....16
A.1.11. PARTIAL SHIPMENTS ....16
A.1.12. INDIVIDUALS AUTHORIZED TO ISSUE ORDERS ....16
A.1.13. APPROVAL OF CONTRACT (52.204-1) (DEC 1989) ....17
A.1.14. WARRANTY ....17
A.1.15. ELECTRONIC DATA AND REPORT INTERCHANGE ....17
A.1.16. OTHER FEDERAL AGENCY UTILIZATION ....17
A.1.17. CERTIFICATE OF MAINTAINABILITY ....18
A.1.18. SUBSTITUTE/ENHANCEMENTS FOR SPECIALIZED EQUIPMENT/SOFTWARE TO ACCOMMODATE USERS WITH DISABILITIES ....18
A.1.19. TECHNOLOGY REFRESHMENT ....18
A.1.20. ORDER LIMITATIONS (52.216-19) (OCT 1995) ....21
A.1.21. FAIR OPPORTUNITY AND REQUESTS FOR QUOTES ....21
A.1.22. INVOICES – SUBMISSION OF ....22
A.1.23. UNENFORCEABILITY OF UNAUTHORIZED OBLIGATIONS (52.232-39) (JUN 2013) ....22
A.1.24. F.O.B. DESTINATION (52.247-34) (NOV 1991) ....22
A.1.25. DELIVERY AND OTHER CHARGES ....23
A.1.26. EXPORT LICENSES (1852.225-70) (FEB 2000) ....23
A.1.27. CONTRACTOR COLLECTION OF AGENCY ADMINISTRATIVE HANDLING FEE ....23
A.1.28. OMBUDSMAN (1852.215-84) (NOV 2011)--ALTERNATE I (JUNE 2000) ....24
A.1.29. SAFETY AND HEALTH (SHORT FORM) (1852.223-72) (APR 2002) ....25
A.1.30. MAJOR BREACH OF SAFETY OR SECURITY (1852.223-75) (FEB 2002) ....25
A.1.31. CONTRACTOR PERFORMANCE ....26
A.1.32. RELEASE OF SENSITIVE INFORMATION (1852.237-73) (JUNE 2005) ....26
A.1.33. USE OF RURAL AREA SMALL BUSINESSES (1852.219-74) (SEP 1990) ....28
A.1.34. NASA 8 PERCENT GOAL (1852.219-76) (JUL 1997) ....28
A.1.35. RESERVED ....29
A.1.36. RESERVED ....29
A.1.37. RESERVED ....29
A.1.38. RESERVED ....29
A.1.39. RESERVED ....29
A.1.40. RESERVED ....29
A.1.41. RESERVED ....29
A.1.42. RESERVED ....29
A.1.43. Small Business Subcontracting Plan (Deviation) (52.219-9) (JAN 2014) ....30
A.1.44. SMALL BUSINESS SUBCONTRACTING PLAN AND REPORTS (GSFC 52.219-90) ( FEB 2014) ....38
A.1.45 SMALL BUSINESS SUBCONTRACTING REPORTING (1852.219-75)(MAY 1999) ....38
A.1.46. TRADE AGREEMENTS CERTIFICATE 52.225-6 (MAY 2014) ....39
A.1.47. SUPPLY CHAIN RISK ....39
A.1.48. SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (1852.204-76) (JAN 2011) ....40

(The following requirements do not apply to this contract; however, these requirements apply to applicable NASA Delivery Orders that involve contractor access to federal information or federal information systems) ... 40
A.1.49. NOTIFICATION PRIOR TO ACQUIRING INFORMATION TECHNOLOGY SYSTEMS FROM ENTITIES OWNED, DIRECTED OR SUBSIDIZED BY THE PEOPLE'S REPUBLIC OF CHINA (1852.225-74) (JUN 2013) (DEVIATION)(APPLIES TO NASA DELIVERY ORDERS ONLY) ... 41
A.1.50. OPTION TO EXTEND THE TERM OF THE CONTRACT (52.217-9)(MAR 2000) ... 41
A.1.51. PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (52.232-99) (AUG 2012) ... 42
A.1.52 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (52.232-40)(DEC 2013) ... 42
A.1.53 OFF-RAMP ... 42
A.1.54 REQUIREMENT TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS (1852.203-71)(AUG 2014) ... 43
A.1.55 SERVICE OF PROTEST ... 43
A.1.56 COMMERCIAL AND GOVERNMENT ENTITY CODE MAINTENANCE (52.204-18) (NOV 2014) ... 43
II. CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS--COMMERCIAL ITEMS (52.212-5) (MAR 2015) ... 44
ADDENDUM 1 - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS ... 50
A.2.1. LIST OF ATTACHMENTS ... 50
Attachment A Technical Specifications ... 52
List of Abbreviations ... 52
1. Introduction ... 55
1.1. Background ... 55
1.2. Requirements Structure ... 55
1.2.1. Category A Structure ... 55
1.2.2. Category B Structure ... 56
1.3. Structure of This Document ... 56
1.3.1. Category A Computer System Group ... 56
1.3.2. Category B Groups ... 56
1.4. Terminology ... 56
1.4.1. Provide / Support ... 56
1.4.2. Deliverables ... 57
1.4.3. Minimums / Desirables / Advanced Technology / Additional Technology ... 57
1.4.4. Authorized Reseller ... 57
1.5. Assistive Technology ... 58
1.5.1. Section 508 Information ... 58
1.6. Environmentally Preferable Purchasing Program ... 58
1.7. Minimum Mandatory Product Condition ... 58
1.8. Definitions ... 59
2. Contract Definitions ... 62
2.A. Category A: Scalable Computer System Group ... 62
2.B. Category B: Complementary Products Categories ... 63
2.B.1. Group B – Mass Storage Devices ... 63
2.B.2. Group C – Server Support and Multi-Functional Device ... 63
2.B.3. Group D –Network Devices, Computer Security Tools and Advanced Video and Conference Tool ... 63
3. Category A: Group A: Computer System Specifications ... 64
3.1. Core Specifications Introduction ... 64
3.1.1. Purpose ... 64
3.1.2. Background ... 64
3.1.3. Hardware ... 64
3.1.4. System Software ... 64
3.1.5. Documentation ... 65
3.2. Group A: Computer System Class Specific Specifications ... 66
3.2.1. Class 1: Mid-Range Cluster ... 66

3.2.2. Class 2: High-End Cluster ..... 69
3.2.3. Class 3: Container-based Servers ..... 73
3.3. Product Based Services Support ..... 75
4. Category B: Group B: Computer System Storage Devices ..... 76
4.1. Single Storage Devices ..... 76
4.2. Multiple Storage Devices ..... 76
4.2.1. Storage Devices Core Specification ..... 77
4.2.2. Multiple Storage Device Requirements ..... 77
4.3. Storage Devices Software ..... 78
4.4. Virtual Storage Technology ..... 78
4.5. Uninterruptible Power Supply ..... 79
4.5.1. Small Office Environment ..... 79
4.5.2. Small Server Room Environment ..... 79
4.6. Data Destruction Services ..... 79
4.7. Additional Storage Technology ..... 79
4.8. Storage Specialists ..... 79
5. Category B: Group C: Server Support and Multi-Functional Devices ..... 81
5.1. Display Devices ..... 81
5.1.1. LCD Display Monitor ..... 81
5.1.2. Portable Projector ..... 81
5.1.3. Manual screen ..... 81
5.1.4. Interactive Whiteboard ..... 82
5.2. Printers ..... 82
5.2.1. Core Printer Requirement ..... 82
5.3. Plotters ..... 83
5.3.1. Color Large-Format Plotter ..... 83
5.4. Scanners ..... 84
5.4.1. High Speed/High Performance Scanner ..... 84
5.4.2. Large Format Scanner ..... 84
5.5. Tablet Computing ..... 84
5.5.1. Small format Tablet ..... 84
5.6. Computer Peripherals ..... 85
5.6.1. Mouse ..... 85
5.6.2. Keyboards ..... 85
5.6.3. Data Input Devices ..... 85
5.7. Office Video Conferencing ..... 85
5.8. Point of Sale All in One System ..... 86
5.9. Multi-functional Devices ..... 86
5.9.1. High Volume Monochrome MFD Requirements ..... 86
5.9.1.1. MFD Monochrome Scanner Functionality ..... 86
5.9.1.2. MFD Monochrome Fax Functionality ..... 87
5.9.1.3. MFD Monochrome Print Functionality ..... 87
5.9.2. Medium Volume Color MFD Requirements ..... 87
5.9.2.1. MFD Color Scanner Functionality ..... 87
5.9.2.2. MFD Color Fax Functionality ..... 88
5.9.2.3. MFD Color Print Functionality ..... 88
5.9.3. MFD Consumables ..... 88
5.10. Additional Support Devices Technology ..... 88
5.11. Support Devices Specialists ..... 88
6. Category B: Group D: Network Devices, Computer Security Tools and Advanced Video and Conference Tools 90
6.1. Network and Communication Devices ..... 90
6.1.1. Network Technology Core Specification ..... 90
6.1.2. Wireless Networking Equipment ..... 93
6.1.3. LAN Switches ..... 93
6.1.4. Network Router ..... 94
6.1.5. Radio Equipment ..... 95

6.1.6. Internet Protocol (IP) Telephony System ..... 96
6.1.7. Cell Phone ..... 96
6.1.8. Network Diagnostic Tools ..... 96
6.1.9. Network Optimization Support for Core Routing & Switching ..... 97
6.1.10. Advanced Network Technology ..... 97
6.2. Computer Security Tools ..... 97
6.2.1. Security Tools Core Specification ..... 98
6.2.2. Anti-spam Appliance ..... 98
6.2.3. Anti-spyware Software ..... 98
6.2.4. Server Level Intrusion Protection and Detection Software ..... 99
6.2.5. Vulnerability Assessment Software ..... 99
6.2.6. Virtual Private Networking Appliance ..... 99
6.2.8. Biometric Scanning Devices ..... 100
6.2.9. Smart Card Readers ..... 100
6.3. Advanced Video and Conference Tools ..... 101
6.3.1. Video Acquisition Devices ..... 101
6.3.2. Audio Video Monitor and Display Devices ..... 102
6.3.3 Virtual Environment Devices ..... 102
6.4. Racks / Enclosures / Carts ..... 103
6.5. Additional Technology ..... 103
6.6. Specialists ..... 104
7. References ..... 105
Attachment B Mandatory Deliverables ..... 107
Group A (Computer Servers) deliverable items ..... 108
Group B (Mass Storage Devices) deliverable items ..... 109
Group C (Server Support and Multi-Functional Devices) deliverable items ..... 110
Group D (Network Devices, Computer Security Tools and Advanced Video and Conference Tools) deliverable items ..... 111
ATTACHMENT C STATEMENT OF WORK ..... 112
C.1. STATEMENT OF WORK ..... 112
C.1.1. OBJECTIVES ..... 112
C.1.2. GOVERNMENT'S OPERATING PLAN ..... 115
C.1.3. CONTRACTOR RESPONSIBILITIES ..... 116
C.1.4. GENERAL CONTRACT REQUIREMENTS ..... 121
C.1.5. WARRANTY ..... 121
C.1.6. USED EQUIPMENT AND MATERIALS ..... 123
C.1.7. INSTALLATION ..... 124
C.1.8. REHABILITATION ACT AMENDMENTS OF 1998 – SECTION 508 APPLICABILITY ..... 124
C.2. STATEMENT OF WORK FOR CONTRACTOR SUPPLIED PRODUCTS ..... 125
C.2.1. Supplies for On-Site Contractor-supplied Products ..... 125
C.2.2. Payment for Contractor-supplied Products ..... 125
Attachment D Contractor / Government Communication Requirements ..... 126
D.1. On-Line Quoting ..... 126
D.2. Ordering ..... 126
D.2.1. Delivery Order Processing ..... 126
D.2.2. Credit Card Orders ..... 128
D.3. CLIN Verification Reports ..... 129
D.4. Technology Refreshment Requests ..... 129
D.4.1 Manufacturer Request ..... 129
D.4.2. Technology Refreshment Request ..... 130
D.5. Order Status Report ..... 130
D.6. Administrative Handling Fee Report ..... 131
D.7. Order modifications ..... 131

**I. CONTRACT TERMS AND CONDITIONS--COMMERCIAL ITEMS (52.212-4) (DEC 2014)**

(a) *Inspection/Acceptance*. The Contractor shall only tender for acceptance those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or reperformance of nonconforming services at no increase in contract price. If repair/replacement or reperformance will not correct the defects or is not possible, the Government may seek an equitable price reduction or adequate consideration for acceptance of nonconforming supplies or services. The Government must exercise its post-acceptance rights—

(1) Within a reasonable time after the defect was discovered or should have been discovered; and

(2) Before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(b) *Assignment*. The Contractor or its assignee may assign its rights to receive payment due as a result of performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency in accordance with the Assignment of Claims Act (31 U.S.C. 3727). However, when a third party makes payment (*e.g.,* use of the Governmentwide commercial purchase card), the Contractor may not assign its rights to receive payment under this contract.

(c) *Changes*. Changes in the terms and conditions of this contract may be made only by written agreement of the parties.

(d) *Disputes*. This contract is subject to 41 U.S.C. chapter 71, Contract Disputes. Failure of the parties to this contract to reach agreement on any request for equitable adjustment, claim, appeal or action arising under or relating to this contract shall be a dispute to be resolved in accordance with the clause at FAR 52.233-1, Disputes, which is incorporated herein by reference. The Contractor shall proceed diligently with performance of this contract, pending final resolution of any dispute arising under the contract.

(e) *Definitions*. The clause at FAR 52.202-1, Definitions, is incorporated herein by reference.

(f) *Excusable delays*. The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence such as, acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(g) Invoice.

(1) The Contractor shall submit an original invoice and three copies (or electronic invoice, if authorized) to the address designated in the contract to receive invoices. An invoice must include—

(i) Name and address of the Contractor;

(ii) Invoice date and number;

(iii) Contract number, contract line item number and, if applicable, the order number;

(iv) Description, quantity, unit of measure, unit price and extended price of the items delivered;

(v) Shipping number and date of shipment, including the bill of lading number and weight of shipment if shipped on Government bill of lading;

(vi) Terms of any discount for prompt payment offered;

(vii) Name and address of official to whom payment is to be sent;

(viii) Name, title, and phone number of person to notify in event of defective invoice; and

(ix) Taxpayer Identification Number (TIN). The Contractor shall include its TIN on the invoice only if required elsewhere in this contract.

(x) Electronic funds transfer (EFT) banking information.

(A) The Contractor shall include EFT banking information on the invoice only if required elsewhere in this contract.

(B) If EFT banking information is not required to be on the invoice, in order for the invoice to be a proper invoice, the Contractor shall have submitted correct EFT banking information in accordance with the applicable solicitation provision, contract clause (*e.g.,* 52.232-33, Payment by Electronic Funds Transfer—System for Award Management, or 52.232-34, Payment by Electronic Funds Transfer—Other Than System for Award Management), or applicable agency procedures.

(C) EFT banking information is not required if the Government waived the requirement to pay by EFT.

(2) Invoices will be handled in accordance with the Prompt Payment Act (31 U.S.C. 3903) and Office of Management and Budget (OMB) prompt payment regulations at 5 CFR Part 1315.

(h) *Patent indemnity*. The Contractor shall indemnify the Government and its officers, employees and agents against liability, including costs, for actual or alleged direct or contributory infringement of, or inducement to infringe, any United States or foreign patent, trademark or copyright, arising out of the performance of this contract, provided the Contractor is reasonably notified of such claims and proceedings.

(i) Payment.—

(1) *Items accepted*. Payment shall be made for items accepted by the Government that have been delivered to the delivery destinations set forth in this contract.

(2) *Prompt payment*. The Government will make payment in accordance with the Prompt Payment Act (31 U.S.C. 3903) and prompt payment regulations at 5 CFR Part 1315.

(3) *Electronic Funds Transfer (EFT)*. If the Government makes payment by EFT, see 52.212-5(b) for the appropriate EFT clause.

(4) *Discount*. In connection with any discount offered for early payment, time shall be computed from the date of the invoice. For the purpose of computing the discount earned, payment shall be considered to have been made on the date which appears on the payment check or the specified payment date if an electronic funds transfer payment is made.

(5) *Overpayments*. If the Contractor becomes aware of a duplicate contract financing or invoice payment or that the Government has otherwise overpaid on a contract financing or invoice payment, the Contractor shall—

(i) Remit the overpayment amount to the payment office cited in the contract along with a description of the overpayment including the—

(A) Circumstances of the overpayment (*e.g.*, duplicate payment, erroneous payment, liquidation errors, date(s) of overpayment);

(B) Affected contract number and delivery order number, if applicable;

(C) Affected contract line item or subline item, if applicable; and

(D) Contractor point of contact.

(ii) Provide a copy of the remittance and supporting documentation to the Contracting Officer.

(6) *Interest*.

(i) All amounts that become payable by the Contractor to the Government under this contract shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in 41 U.S.C. 7109 , which is applicable to the period in which the amount becomes due, as provided in (i)(6)(v) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid.

(ii) The Government may issue a demand for payment to the Contractor upon finding a debt is due under the contract.

(iii) *Final decisions*. The Contracting Officer will issue a final decision as required by 33.211 if—

(A) The Contracting Officer and the Contractor are unable to reach agreement on the existence or amount of a debt within 30 days;

(B) The Contractor fails to liquidate a debt previously demanded by the Contracting Officer within the timeline specified in the demand for payment unless the amounts were not repaid because the Contractor has requested an installment payment agreement; or

(C) The Contractor requests a deferment of collection on a debt previously demanded by the Contracting Officer (see 32.607-2).

(iv) If a demand for payment was previously issued for the debt, the demand for payment included in the final decision shall identify the same due date as the original demand for payment.

(v) Amounts shall be due at the earliest of the following dates:

(A) The date fixed under this contract.

(B) The date of the first written demand for payment, including any demand for payment resulting from a default termination.

(vi) The interest charge shall be computed for the actual number of calendar days involved beginning on the due date and ending on—

(A) The date on which the designated office receives payment from the Contractor;

(B) The date of issuance of a Government check to the Contractor from which an amount otherwise payable has been withheld as a credit against the contract debt; or

(C) The date on which an amount withheld and applied to the contract debt would otherwise have become payable to the Contractor.

(vii) The interest charge made under this clause may be reduced under the procedures prescribed in 32.608-2 of the Federal Acquisition Regulation in effect on the date of this contract.

(j) *Risk of loss*. Unless the contract specifically provides otherwise, risk of loss or damage to the supplies provided under this contract shall remain with the Contractor until, and shall pass to the Government upon:

(1) Delivery of the supplies to a carrier, if transportation is f.o.b. origin; or

(2) Delivery of the supplies to the Government at the destination specified in the contract, if transportation is f.o.b. destination.

(k) *Taxes*. The contract price includes all applicable Federal, State, and local taxes and duties.

(l) *Termination for the Government's convenience*. The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges the Contractor can demonstrate to the satisfaction of the Government using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred which reasonably could have been avoided.

(m) *Termination for cause*. The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(n) *Title*. Unless specified elsewhere in this contract, title to items furnished under this contract shall pass to the Government upon acceptance, regardless of when or where the Government takes physical possession.

(o) *Warranty*. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

(p) *Limitation of liability*. Except as otherwise provided by an express warranty, the Contractor will not be liable to the Government for consequential damages resulting from any defect or deficiencies in accepted items.

(q) *Other compliances*. The Contractor shall comply with all applicable Federal, State and local laws, executive orders, rules and regulations applicable to its performance under this contract.

(r) *Compliance with laws unique to Government contracts.* The Contractor agrees to comply with 31 U.S.C. 1352 relating to limitations on the use of appropriated funds to influence certain Federal contracts; 18 U.S.C. 431 relating to officials not to benefit; 40 U.S.C. chapter 37, Contract Work Hours and Safety Standards; 41 U.S.C. chapter 87, Kickbacks; 41 U.S.C. 4712 and 10 U.S.C. 2409 relating to whistleblower protections; 49 U.S.C. 40118, Fly American; and 41 U.S.C. chapter 21 relating to procurement integrity.

(s) *Order of precedence*. Any inconsistencies in this solicitation or contract shall be resolved by giving precedence in the following order:

(1) The schedule of supplies/services.

(2) The Assignments, Disputes, Payments, Invoice, Other Compliances, Compliance with Laws Unique to Government Contracts, and Unauthorized Obligations paragraphs of this clause;

(3) The clause at 52.212-5.

(4) Addenda to this solicitation or contract, including any license agreements for computer software.

(5) Solicitation provisions if this is a solicitation.

(6) Other paragraphs of this clause.

(7) The Standard Form 1449.

(8) Other documents, exhibits, and attachments.

(9) The specification.

(t) System for Award Management (SAM).

(1) Unless exempted by an addendum to this contract, the Contractor is responsible during performance and through final payment of any contract for the accuracy and completeness of the data within the SAM database, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the SAM database after the initial registration, the Contractor is required to review and update on an annual basis from the date of initial registration or subsequent updates its information in the SAM database to ensure it is current, accurate and complete. Updating information in the SAM does not alter the terms and conditions of this contract and is not a substitute for a properly executed contractual document.

(2)(i) If a Contractor has legally changed its business name, "doing business as" name, or division name (whichever is shown on the contract), or has transferred the assets used in performing the contract, but has not completed the necessary requirements regarding novation and change-of-name agreements in FAR Subpart 42.12, the Contractor shall provide the responsible Contracting Officer a minimum of one business day's written notification of its intention to (A) change the name in the SAM database; (B) comply with the requirements of Subpart 42.12; and (C) agree in writing to the timeline and procedures specified by the responsible Contracting Officer. The Contractor must provide with the notification sufficient documentation to support the legally changed name.

(ii) If the Contractor fails to comply with the requirements of paragraph (t)(2)(i) of this clause, or fails to perform the agreement at paragraph (t)(2)(i)(C) of this clause, and, in the absence of a properly executed novation or change-of-name agreement, the SAM information that shows the Contractor to be other than the Contractor indicated in the contract will be considered to be incorrect information within the meaning of the "Suspension of Payment" paragraph of the electronic funds transfer (EFT) clause of this contract.

(3) The Contractor shall not change the name or address for EFT payments or manual payments, as appropriate, in the SAM record to reflect an assignee for the purpose of assignment of claims (see Subpart 32.8, Assignment of Claims). Assignees shall be separately registered in the SAM database. Information provided to the Contractor's SAM record that indicates payments, including those made by EFT, to an ultimate recipient other than

that Contractor will be considered to be incorrect information within the meaning of the "Suspension of payment" paragraph of the EFT clause of this contract.

(4) Offerors and Contractors may obtain information on registration and annual confirmation requirements via SAM accessed through https://www.acquisition.gov.

(u) Unauthorized Obligations

(1) Except as stated in paragraph (u)(2) of this clause, when any supply or service acquired under this contract is subject to any End User License Agreement (EULA), Terms of Service (TOS), or similar legal instrument or agreement, that includes any clause requiring the Government to indemnify the Contractor or any person or entity for damages, costs, fees, or any other loss or liability that would create an Anti-Deficiency Act violation (31 U.S.C. 1341), the following shall govern:

(i) Any such clause is unenforceable against the Government.

(ii) Neither the Government nor any Government authorized end user shall be deemed to have agreed to such clause by virtue of it appearing in the EULA, TOS, or similar legal instrument or agreement. If the EULA, TOS, or similar legal instrument or agreement is invoked through an "I agree" click box or other comparable mechanism (e.g., "click-wrap" or "browse-wrap" agreements), execution does not bind the Government or any Government authorized end user to such clause.

(iii) Any such clause is deemed to be stricken from the EULA, TOS, or similar legal instrument or agreement.

(2) Paragraph (u)(1) of this clause does not apply to indemnification by the Government that is expressly authorized by statute and specifically authorized under applicable agency regulations and procedures.

(v) Incorporation by reference. The Contractor's representations and certifications, including those completed electronically via the System for Award Management (SAM), are incorporated by reference into the contract.

(End of clause)

**Note!** All clauses within this contract apply to all Groups unless otherwise specified.

**A.1.1. DELIVERABLE REQUIREMENTS (GSFC 52.211-90) (OCT 1988)**

The Contractor shall perform and/or deliver the following:

| Item | Description | Reference | Schedule | Shipping Classification | Delivery Method/Addressee(s) |
|---|---|---|---|---|---|
| 01 | Annual Self-Certification | Section A.1.19 | Annually | IV | SEWP Contracting Officer |
| 02 | Small Business Subcontracting Reports - SSR | Section A.1.45 | Semiannually-March 31 and September 30 | IV | http://esrs.gov |
| 03 | Certificate of Maintainability | Section A.1.17 | Within 20 calendar days of the issuing Contracting Officer's request | IV | Issuing Contracting Officer |
| 04 | Administrative Handling Fee Report | Attachment D (D.6) and Section A.1.27 | Quarterly | IV | Electronically to the SEWP Program Management Office (PMO) |
| 05 | RESERVED | | | | |
| 06 | RESERVED | | | | |
| 07 | IT Security Management Plan (NASA Delivery Orders Only, when applicable) | Section A.1.48 | Within 30 calendars days of the issuing Contracting Officer's request | IV | SEWP Contracting Officer |

**A.1.2. SUPPLIES AND/OR SERVICES TO BE FURNISHED**

The Contractor shall provide all supplies and services in accordance with Attachment C, Statement of Work, and as described in Addendum 1, Attachments A (Technical Specifications) & B (Mandatory Deliverables) herein, at the following prices: Attachment F – Price Exhibit.

The contracts will be awarded by both Category and Group as follows:

**Category A** (Computer Systems/Servers) – NAICS 334111
Group A – Computer Based Systems (Full and Open Competition)

**Category B** (Complementary Products) – NAICS 541519
Group B – Mass Storage Devices (Service Disabled Veteran-Owned Small Business Set-Aside)
– Mass Storage Devices (Hub-Zone Small Business Set-Aside)
Group C – Server Support Devices / Multi-Functional Devices (Small Business Set-Aside)
Group D – Networking / Security / Video and Conference Tools (Full and Open Competition)

(End of Text)

**A.1.3. PROCEDURES FOR ORDERS**

Supplies or services to be furnished under this contract shall be specified by the issuance of delivery orders from any United States Government agency priced in accordance with Clause A.1.7 and Attachment F, Pricing Exhibits as defined in the SEWP database of record. Such orders may be issued from the effective date of the contract through the ordering period. Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order inclusive of all options for up to a period of five years beyond the effective ordering period (See A.1.5(d)). The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract after the last date of the last item to be delivered in the issued delivery order schedule**.**

The issuing Contracting Officer may negotiate additional terms and conditions for a specific order. Any additional terms and conditions including licensing agreements proposed by a Contractor must be clearly identified in writing in the quote. For example, the ordering Agency IT security policies, procedures and requirements or leasing of SEWP equipment may be included in individual orders. All proposed licenses and other terms and conditions must be in accordance with applicable regulations, laws, and policies. The terms and conditions contained in the basic contract shall prevail in the event of conflict with any terms and conditions imposed at the delivery order level.

Delivery orders will identify the exact destination for shipment and warranties, which may be limited to the United States and its possessions. Shipments to United States Government installations located outside the U.S. and its possessions are per mutual agreement between the ordering Government Agency and Contractor.

The fixed price for each delivery order may not be increased except when authorized by a modification to the delivery order. If the Contractor decreases the price of any item ordered, they shall notify the issuing Contracting Officer via e-mail within 2 business days of the price decrease.

The price of each item in a delivery order shall be no greater than the price in the SEWP database of record on the date the issuing Contracting Officer signs the order or the award date of the order field if the signature date is not present.

Unless an agency receives an exemption from the SEWP Program Management Office (PMO), all delivery orders shall be submitted by the issuing Agency directly to the SEWP PMO whose functions are described in Attachment C, Statement of Work prior to acceptance and processing of the delivery order by the contractor. Submission may be made either via e-mail, fax or other designated electronic commerce methods as defined by the SEWP PMO.

(End of text)

**A.1.4. ORDERING (52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from May 1, 2015 – April 30, 2020 (base ordering period) and one option (May 1, 2020- April 30, 2025).

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

**Note: The Small Business Jobs Act of 2010 allows any issuing CO to set aside orders placed against multiple-award contracts for Small Business Concerns, including small businesses in the 8(a), HUBZone, SDVOSB, and WOSB Programs.

(End of clause)

**A.1.5. INDEFINITE QUANTITY (52.216-22) (OCT 1995)**

(a) This is an indefinite-quantity contract for the supplies or services specified and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not guaranteed to be purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum. The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum."

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the Contractor shall not be required to make any deliveries under this contract beyond five (5) years from the end of the contract's effective ordering period for those orders placed within the effective ordering period.
.

(End of clause)

**A.1.6. MINIMUM AND MAXIMUM QUANTITIES**

As referred to in the "Indefinite Quantity" clause of this contract, the minimum amount of supplies or services that shall be ordered during the effective ordering period shall be $25.00 per contract.

The Government guarantees to issue at least one order for a total amount not less than the minimum. There will be no further obligation on the part of the Government to issue additional orders thereafter.

The maximum ordering value of each contract shall not exceed $ 20,000,000,000.

(End of text)

**A.1.7. DISCOUNTS FOR TECHNOLOGY EQUIPMENT**

The Contractor shall offer a discount which will be applied against its commercial list price, which shall be published in the SEWP database of record (Attachment F). The discount(s) proposed will be applied to all Technology Equipment purchases for the life of the contract(s). The Government requires that all items be available to order throughout the life of this contract, if available from the Original Equipment Manufacturer (OEM).

The price of all CLINs in Attachment F, Pricing Exhibits as defined in the SEWP database of record must be equal to or less than the price for the same offering on the Contractor's current GSA Schedule after discounting for any GSA or other Government fee. If the product is not available on the Contractor's current GSA schedule, then the SEWP contract price must be equal to or less than the same offering on the Contractor's current commercial price list and/or any Contractor's comparable Federal Government contracts unless any pricing difference can be justified. The Contractor shall notify the SEWP Contracting Officer and the ordering Agency Contracting Officer, within seven calendar days, of changes to prices below the offering price listed in this contract. If the Contractor's current GSA Schedule Contract price list after discounting any GSA or other Government fee or the Contractor's current

commercial or equivalent Federal Government price list is lower than the above discounted price, the Government retains the right to order at the lesser amount unless justification for the price difference exists.

Pricing must be comparable to that of other SEWP Contractors and similar contract vehicles. Markups above an OEM's wholesale / invoice price list must be reasonable and justified.

The Government may negotiate a lower price on an order-by-order basis.

**PRODUCT CLASSIFICATIONS**

All items offered under the contract, whether mandatory products, additional technology or available components shall be associated with a Product Classification Group and Classification Description Subgroup. The valid set of Product Classifications is pre-defined as listed in Attachment F, Pricing Exhibits and cannot be added to or deleted from or otherwise changed. One Classification Description Subgroup is predefined with an associated Classification Subgroup Discount of 0%. The Contractor may propose additional Classification Description Subgroups and an associated price discount. The discount for each item on contract will be automatically assigned based on the Product Classification Group and Classification Description Subgroup associated with that item.

These discounts shall remain constant over the life of the contract, and the applicable Classification Subgroup discount shall be used when adding new equipment to the contract.

**Training and Documentation**
Training and Documentation (both on-line and hardcopy) CLINS may be provided if the training and documentation directly relates to products that are in scope for SEWP as defined in Attachment C, Statement of Work.

**Maintenance, Warranty and Licensing**
Maintenance, warranty services and product licensing may be provided for any in scope product.

**Service Restrictions**
Agencies may utilize SEWP contracts to purchase product based services. These services include site planning, installation, integration and product engineering services using the Service CLINs on the contract provided that the services directly support the site planning, installation and implementation of in scope equipment/products. The products may either be purchased separately from SEWP or by another means, or at the same time as the services.

Labor services and ancillary products other than product training, maintenance, warranty, site planning, installation, integration and product engineering services and products already defined in the Product Classification Groups may be purchased using the Service CLINs on the contract provided that those services/products directly support the associated equipment purchased on that delivery and provided that these additional services/products do not exceed 5% of the price of the associated equipment/products. These limited services/products shall not be purchased separately from the related product purchase. The 5% restriction does not apply to product training, maintenance, warranty, site planning, installation, integration and product engineering services and products.

The rates for services contained in the contractor's price list applicable to this Contract are reviewed and approved as fair and reasonable. However, for orders with labor services based on labor rates, the issuing CO placing an order against the contract is responsible for considering the labor hours and mix of labor proposed to perform specific task being ordered and for making a determination that the price of those services is fair and reasonable.

(End of text)

**A.1.8. ACCEPTANCE--MULTIPLE LOCATIONS (GSFC 52.246-93) (SEPT 2013)**

The issuing Contracting Officer or authorized representative, as identified on the order will accomplish acceptance as specified on each order.

The Contracting Officer reserves the right to designate other Government agents as authorized representatives. The Contractor will be notified by a written notice or by a copy of the delegation letter if other agents are authorized.

If this is a fixed price type contract, acceptance shall be deemed to have occurred constructively--for the sole purpose of computing an interest penalty that might be due the Contractor under the Prompt Payment Act--on the 7th day after the Contractor has delivered the supplies or services in accordance with the terms and conditions of the contract. In the event that actual acceptance occurs within the constructive acceptance period, the determination of an interest penalty shall be based on the date of the actual acceptance.

(End of clause)

**A.1.9. MATERIAL INSPECTION AND RECEIVING REPORT (1852.246-72) (AUG 2003)**

NOTE: This clause is applicable to GSFC and Wallops delivery orders only.

(a) At the time of each delivery to the Government under this contract, the Contractor shall furnish a Material Inspection and Receiving Report (DD Form 250 series) prepared in an original copy and sufficient other copies to accomplish the following distribution:

(1) Via mail and marked "Advance Copy", one copy each to the Contracting Officer, the Contracting Officer's Technical Representative (if designated in the contract), and to the cognizant Administrative Contracting Officer, if any.

(2) Via mail, the original and 1 copy (unfolded) to the shipment address (delivery point) specified in Section F of this contract. Mark the exterior of the envelope "CONTAINS DD FORM 250". This must arrive prior to the shipment.

(3) With shipment in waterproof envelope (one copy) for the consignee.

(4) If the shipment address is not directly to the Goddard Space Flight Center (Greenbelt) or Goddard Space Flight Center (Wallops) central receiving areas, then one copy of the DD Form 250 must be provided (via mail) to one on the following addresses depending upon whether this contract is with GSFC Greenbelt or GSFC Wallops:

Receiving and Inspection (Code 279), Goddard Space Flight Center, Greenbelt, MD 20771.

Receiving and Inspection (Bldg. F16), Wallops Flight Facility, Wallops Island VA 23337.

(b) The Contractor shall prepare the DD Form 250 in accordance with NASA FAR Supplement 1846.6. The Contractor shall enclose the copies of the DD Form 250 in the package or seal them in a waterproof envelope, which shall be securely attached to the exterior of the package in the most protected location.

(c) When more than one package is involved in a shipment, the Contractor shall list on the DD Form 250, as additional information, the quantity of packages and the package numbers. The Contractor shall forward the DD Form 250 with the lowest numbered package of the shipment and print the words "CONTAINS DD FORM 250" on the package.

(End of clause)

**A.1.10. TIME OF DELIVERY**

The Government requires delivery to be made in accordance to the following schedule(s):

1. Standard Delivery: Items shall be delivered within 30 calendar days of receipt and processing of the Delivery Order at the SEWP PMO, for non-credit card orders, and within 30 calendar days of placement of credit card orders unless otherwise noted and mutually agreed upon as described below for Expedited and Non-standard Delivery.

2. Expedited Delivery: An expedited delivery schedule of less than 30 calendar days delivery, mutually agreed upon by the Ordering Agency and Contractor, may be added to Delivery Orders.

3. Non-standard Delivery: A delivery schedule other than the 30 calendar day standard delivery time may be proposed on an individual CLIN (item) basis or at the time a quote is provided to the Government

4. If an item cannot be delivered within the delivery time for that item, the Contractor shall notify the issuing Contracting Officer and the SEWP PMO within two business days of receipt of order or notification from the manufacturer of the expected delivery date for the ordered item(s). Upon notification, the Ordering Agency may choose to cancel the order or request due consideration for the delay.

(End of text)

**A.1.11. PARTIAL SHIPMENTS**

A partial shipment is any shipment that does not include all items specified in the order.

Partial shipments will not be accepted unless authorized on the delivery order or by the issuing Contracting Officer prior to the time of delivery. The Government reserves the right to return partial shipments to the Contractor, transportation charges collect.

(End of text)

**A.1.12. INDIVIDUALS AUTHORIZED TO ISSUE ORDERS**

**Strategic Sourcing Initiatives**
The Government reserves the right to utilize the SEWP V contracts to support strategic sourcing initiatives. These initiatives may range from a single facility, an agency, or to the entire Federal Government under the auspices of OMB. Socio-economic considerations and goals may be considered as an integral aspect of strategic sourcing.
Any Government Contracting Officer or duly authorized representative is authorized to place delivery orders against the contract. Credit card orders may be issued by agency designated ordering officials.

Support Service Contractors may be authorized by their Government Contracting Officer to purchase from the SEWP Contracts on behalf of the Government. To authorize a contractor to purchase from the SEWP contracts, the authorizing contracting officer should send a copy of the authorization letter to the SEWP Program Office containing all of the following information:

1. Authorizing Agency Name, Contracting Officer (CO/KO) Name, Mailing Address, Email Address, Phone/FAX number
2. Complete contractor corporate name, division, and address.
3. Contract number and period of performance
4. A statement that the contractor is authorized to purchase from SEWP contracts in support of the above contract.
5. The CO's/KO's signature and date signed.

Note: Local and State Governments, and Federal Tribes are not authorized to issue orders against these contracts.

(End of text)

**A.1.13. APPROVAL OF CONTRACT (52.204-1) (DEC 1989)**

This contract is subject to the written approval of the Associate Director for Acquisition and shall not be binding until so approved.

(End of clause)

**A.1.14. WARRANTY**

The Contractor shall provide an extended warranty, which can be purchased and begin at any time during the standard commercial warranty period up to and including the end of the commercial warranty period. Extended warranty packages may be invoiced and paid at the start of the warranty period. This extended warranty shall provide coverage based on the standard commercial warranty.

At the Government's discretion, the Government may order, at any time during a warranty period, monthly maintenance at a Discounted Monthly Extended Warranty amount in lieu of the extended warranty.

(End of text)

**A.1.14.1. SOFTWARE MAINTENANCE / PRODUCT EXTENDED WARRANTY AS A PRODUCT**

Product and software maintenance, warranty and licensing shall be treated as a commercial product unless such product is priced on a usage basis; e.g. maintenance on a printer based on usage must be invoiced monthly. Software maintenance as a product includes the publishing of bug/defect fixes via patches and updates/upgrades in function and technology to maintain the operability and usability of the software product. It may also include other no charge support that is included in the purchase price of the product in the commercial marketplace. No charge support includes items such as user blogs, discussion forums, on-line help libraries and Frequently Asked Questions (FAQ), hosted chat rooms, and limited telephone, email and/or web-based general technical support for users self diagnostics.
Software maintenance as a product does NOT include the creation, design, implementation, integration, etc. of a software package. These examples are considered software maintenance as a service and are to be billed monthly.

(End of text)

**A.1.15. ELECTRONIC DATA AND REPORT INTERCHANGE**

Electronic Data and Report Interchange shall apply in accordance with Attachment D, Contractor/Government Communication Requirements.

(End of text)

**A.1.16. OTHER FEDERAL AGENCY UTILIZATION**

Other Federal Agencies, and authorized Contractors, will be allowed to utilize this contract, on a non-mandatory basis.

***NOTE!** Non-Federal Governments are not authorized to use this contract unless mandated by Congress.

(End of text)

**A.1.17. CERTIFICATE OF MAINTAINABILITY**

A "Certificate of Maintainability" is not required for equipment acquired and maintained under this contract unless it is specifically requested by the issuing Contracting Officer. If it is requested, the Contractor shall issue the certification within twenty calendar days of the request.

The certificate shall state that at the time of delivery, preventive maintenance in accordance with the specifications of the Original Equipment Manufacturer (OEM) has been performed and that the equipment is performing in accordance with the OEM's specifications such that the OEM (or the OEM's successor in interest, if such exists at the time of the commitment) commits that it would assume maintenance of the equipment (or the OEM certifies that the equipment is eligible for maintenance, including but not limited to repair or inspection charges) if such maintenance were assumed effective the date after the Contractor's performance ceases. The Certificate of Maintainability shall also state that the equipment is at the most current OEM's revision level. The Contractor is responsible for bearing all costs associated with obtaining such certification at no charge to the Government.

If equipment is acquired under this contract without maintenance, at the time of product delivery, the Contractor shall issue a Certificate of Maintainability for such equipment if requested by the issuing Contracting Officer. The certificate shall list each item delivered by a component identification number (i.e. serial number) and state that the equipment is in such condition that the OEM commits that it would assume maintenance of the equipment (or the OEM certifies that the equipment is eligible for maintenance). All charges required to obtain the requisite performance of the equipment, shall be borne by the Contractor. The fact that the equipment may have been acquired with a warranty does not relieve the Contractor of its obligations under this subparagraph.

(End of text)

**A.1.18. SUBSTITUTE/ENHANCEMENTS FOR SPECIALIZED EQUIPMENT/SOFTWARE TO ACCOMMODATE USERS WITH DISABILITIES**

The Contractor is encouraged to offer equipment or software that becomes available after contract award and offers improvements in technology and that better suits the needs of users with disabilities. If the Government elects to do so, it may evaluate the equipment/software, and substitute the equipment for the equipment covered in the contract but not yet delivered. Any such proposal should contain the general information required by the “Technology Refreshment” clause A.1.19 in this Section.

When substitution of such specialized technology is made without charge to the Government, or as a planned part of the contract (e.g. planned upgrade), manuals and publications as required by the contract shall be provided to all addresses (in the stated quantities) affected by the change without charge to the Government (unless other payment arrangements are made by the ordering agency).

(End of text)

**A.1.19. TECHNOLOGY REFRESHMENT**

The Government shall have the right to require, at any time, that the Contractor offer under this contract state-of-the-art versions of hardware and software components that it agrees to offer SEWP customers. In this way the Government seeks to ensure that it can obtain the benefits of new design enhancements and technological updates or advances for equipment currently on the contract. When requested or offered, the Contractor shall provide, within 30 calendar days of receipt of request, a refreshment proposal including the components so identified, at the technology discount as indicated in Clause A.1.7.

In the event that the Contractor is no longer able to provide the products it previously offered (because they are no longer being manufactured, for example), the Contractor may, with the Government's approval, remove the products from the contract. For products in the mandatory deliverable lists, the Contractor shall provide substitute products

which shall have the functional capabilities of the products originally provided and shall meet or exceed the original products' rated performance characteristics, at the appropriate discount as indicated in Clause A.1.7.

On an annual basis, the Contractor shall provide the Government either with a self-certification that the mandatory deliverable items currently on the Contract are state-of-the-art technology, or a technology refreshment proposal updating the mandatory deliverable items. The Government will review the Contractor self-certification and/or technology refreshment proposal for acceptability in terms of scope and the current state of technology.

The Government reserves the right to remove any item from the current contract if it deems the item to be out of scope, not reasonably priced, out of date, or missing technical information. Any item on contract for more than 18 months may be considered out of date.

The price on the contract for any CLIN cannot change value within one week of the last update, unless a documented error has been identified and approved. The price on the contract for any CLIN cannot change value within one month of the last update unless prior approval is received from the SEWP PMO.

Any new technology which will upgrade, extend or enhance the components will be evaluated if the Contractor submits a technology refreshment (TR) proposal outlining the proposed technology. Included in this proposal shall be pricing data (i.e., current published commercial price list) and other technical information as listed below. With the receipt of a proposal from the Contractor, the Government will have the right to approve any or all of the proposed CLINs and to unilaterally modify the contract to provide for ordering of the new technology. The criteria for acceptance of the new technology proposal are as follows:

1) For mandatory deliverable items, each item must satisfy all original mandatory requirements in the technical specifications of this contract.

2) Each item must correspond with an appropriate existing contract product class code and its corresponding price discount.

At a minimum, the technology proposal shall include the following header information:

- TR Number (unique tracking number)
- Description of the proposed TR
- Contract Number
- Contact Name
- Contact Phone Number
- Contact E-mail address

At a minimum, the technology proposal shall include the following information for each product proposed:

- Contract Line Item Number (CLIN) (unique for this product)
- Name of Original Equipment Manufacturer
- Original Equipment Manufacturer Part Number
- Original Equipment Manufacturer's Model Number / Model Name
- Product Classification Code
- Classification Subgroup
- Base/Mandatory/Available Component Flag
- Full Item Description
- List Price
- SEWP Price
- GSA price (if item is currently on Contractor's GSA contract)

Additionally several line item specific flags must either be set or have defaulted values assigned to them. These include:

- Trade Act Agreement (TAA):
    - i. C =TAA Compliant
    - ii. NC=Not Compliant (can only be purchased if a FAR exception exists) - Default Flag

iii. NA=Not Applicable

- EPEAT
  i. A = Applicable but no EPEAT compliant product available
  ii. B = EPEAT certified Bronze
  iii. G = EPEAT certified Gold
  iv. NA = Not Applicable
  v. NC = Non-compliant- Default Flag
  vi. S = EPEAT certified Silver
  vii. Y = EPEAT compliant and registered, non-certified Business size
- Energy star compliant
  i. C = Compliant
  ii. NA = Not Applicable
  iii. NC = Not Compliant - Default Flag
- Product Condition
  i. N = Product is new – Default Flag
  ii. R = Product is refurbished
  iii. U = Product is used

All or part of a technology refreshment request may be approved by the Government. All approved items will immediately be added to the electronic SEWP database of record constituting the current data associated with Attachment F of this contract. At that point, the items may be quoted and ordered.

**A.1.19.1. SPECIALIZED CONTRACT LINE ITEM NUMBERS**

The following CLINs and their descriptions will be added to the Contract to cover non-product line items which have a varying price associated with them:

1) TRAVEL-Z: Travel expenses based on the current Government rates for per diem and transportation. Any other travel cost related to an order fulfillment e.g. installation, shall be negotiated on a per order basis
2) CREDIT-Z: Credit Discount
3) DELIVERY-Z: Delivery Fee

**A.1.19.2. BUNDLED LINE ITEMS**

The Contractor may propose a single line item which bundles together a number of separate products into one CLIN provided that:

1) each of the products are available as separate CLINs in the Contract prior to addition of the bundled CLIN
2) a spreadsheet listing the items and individual prices is submitted for approval to the SEWP PMO

**A.1.19.3. BUILT TO ORDER LINE ITEMS**

The Contractor may propose built to order (BTO)/configure to order (CTO) items wherein the exact configuration and pricing is dependent on end user requirements provided that:

1) the base product has been separately added to the contract
2) a spreadsheet listing the items and individual component prices is submitted to the SEWP PMO and referred to in the TR submission
3) each configuration to be quoted is separately listed and priced on the contract using unique CLINs
   a. the quoted configuration must exactly match the configuration on the contract
4) each configuration to be quoted is referenced by the manufacturer part number of the base product

(End of text)

**A.1.20. ORDER LIMITATIONS (52.216-19) (OCT 1995)**

a) Minimum order – All Groups: When the Government requires supplies or services covered by this contract in an amount of less than $25; the Contractor is not obligated to furnish those supplies or services under the contract.

b) Maximum order : The Contractor is not obligated to honor--
(1) Any order for a single item in excess of $2 million;
(2) Any order for a combination of items in excess of $10 million;
(3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above.

(c) If this is a requirements contract (i.e., includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum order limitations in paragraph (b) above.

(d) Notwithstanding paragraphs (b) and (c) above, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within seven (7) days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

(End of clause)

**A.1.21. FAIR OPPORTUNITY AND REQUESTS FOR QUOTES**

Contractors will be provided fair opportunity at the individual order level as appropriate per FAR Part 16.505(b), including the SEWP RFQ tools. No documentation for the order selection is required to be submitted with the order. All such documentation is to be maintained by the issuing procurement office.

The Contractor shall not market, quote or otherwise offer for sale, under this contract, any products not listed in Attachment F, Pricing Exhibits as defined in the SEWP database of record until the said products are included in the SEWP database, and available to all Government end-users.

If the Government issues a Request For Information (RFI) as part of market research, the Contractor may provide items not yet listed on their SEWP contract as part of a market research quote if:
1. all such items are clearly marked as not yet available on their SEWP contract;
2. the contractor submits a technology refreshment request to add those products to their contract

If the Government issues a Request For Quote (RFQ) or a Market Research Request (MRR), the Contractor may only respond with items available on their Contract. If the Contractor has insufficient items on their contract to fully respond to the Formal RFQ, the Contractor must respond with a No Bid.

Unless the RFQ specifically allows for partial quotes, the Contractor must respond fully to all requirements specified in the RFQ.

When the Contractor markets, quotes or otherwise offers for sale a product under this contract, the price of each item shall be the no greater than the price in Attachment F, Pricing Exhibits as defined in the SEWP database of record at the time the quote is issued.

When submitting a quote to a Government end-user, the contractor must clearly state the length of time the quote is valid. The contractor shall honor any order submitted within the stated time period of a quote.

When responding to an RFQ or MRR issued from the NASA SEWP on-line quoting system, the Contractor must respond as outlined in Attachment D, Section D.1. On-line Quoting.

As a result of the Small Business jobs act, the issuing Contracting Officer can set aside an order for small businesses as long as there are two or more with that designation.

(End of text)

**A.1.22. INVOICES – SUBMISSION OF**

All invoices shall be submitted to the "Designated Billing Office" and/or "Designated Payment Office" address specified in each delivery order.

(End of text)

**A.1.23. UNENFORCEABILITY OF UNAUTHORIZED OBLIGATIONS (52.232-39) (JUN 2013)**

(a) Except as stated in paragraph (b) of this clause, when any supply or service acquired under this contract is subject to any End User License Agreement (EULA), Terms of Service (TOS), or similar legal instrument or agreement, that includes any clause requiring the Government to indemnify the Contractor or any person or entity for damages, costs, fees, or any other loss or liability that would create an Anti-Deficiency Act violation (31 U.S.C. 1341), the following shall govern:

(1) Any such clause is unenforceable against the Government.

(2) Neither the Government nor any Government authorized end user shall be deemed to have agreed to such clause by virtue of it appearing in the EULA, TOS, or similar legal instrument or agreement. If the EULA, TOS, or similar legal instrument or agreement is invoked through an “I agree” click box or other comparable mechanism (*e.g.*, “click-wrap” or “browse-wrap” agreements), execution does not bind the Government or any Government authorized end user to such clause.

(3) Any such clause is deemed to be stricken from the EULA, TOS, or similar legal instrument or agreement.

(b) Paragraph (a) of this clause does not apply to indemnification by the Government that is expressly authorized by statute and specifically authorized under applicable agency regulations and procedures.

(End of clause)

**A.1.24. F.O.B. DESTINATION (52.247-34) (NOV 1991)**

(a) The term "f.o.b. destination," as used in this clause, means--

(1) Free of expense to the Government, on board the carrier's conveyance, at a specified delivery point where the consignee's facility (plant, warehouse, store, lot, or other location to which shipment can be made) is located, and

(2) Supplies shall be delivered to the destination consignee's wharf (if destination is a port city and supplies are for export), warehouse unloading platform, or receiving dock, at the expense of the Contractor. The Government shall not be liable for any delivery, storage, demurrage, accessorial, or other charges involved before the actual delivery (or "constructive placement" as defined in carrier tariffs) of the supplies to the destination, unless such charges are caused by an act or order of the Government acting in its contractual capacity. If rail carrier is used, supplies shall be delivered to the specified unloading platform of the consignee. If motor carrier (including "piggyback") is used, supplies shall be delivered to truck tailgate at the unloading platform of the consignee, except when the supplies delivered meet the requirements of Item 568 of the National Motor Freight Classification for "heavy or bulky freight". When supplies meeting the requirements of the referenced Item 568 are delivered, unloading (including movement to the tailgate) shall be performed by the consignee, with assistance from the truck driver, if requested. If the Contractor uses rail carrier or freight forwarder for less than carload shipments, the Contractor shall ensure that the carrier will furnish tailgate delivery, when required, if transfer to truck is required to complete delivery to consignee.

(b) The Contractor shall--

(1) (i) Pack and mark the shipment to comply with contract specifications; or

(ii) In the absence of specifications, prepare the shipment in conformance with carrier requirements;

(2) Prepare and distribute commercial bills of lading;

(3) Deliver the shipment in good order and condition to the point of delivery specified in the contract;

(4) Be responsible for any loss of and/or damage to the goods occurring before receipt of the shipment by the consignee at the delivery point specified in the contract;

(5) Furnish a delivery schedule and designate the mode of delivering carrier; and

(6) Pay and bear all charges to the specified point of delivery.

(End of clause)

**A.1.25. DELIVERY AND OTHER CHARGES**

All deliverable line item prices shall be inclusive of all charges that are included in the line item's commercial list pricing. If the delivery order includes specialized delivery requirements such as OCONUS delivery; expedited delivery; specialized handling; etc, an additional fee using the Contract's Delivery-Z CLIN may be quoted.

Items returned prior to the Government's acceptance are not subject to restocking fees or other charges unless the return is due to a Government initiated change.

(End of text)

**A.1.26. EXPORT LICENSES (1852.225-70) (FEB 2000)**

(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 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, 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.

(End of clause)

**A.1.27. CONTRACTOR COLLECTION OF AGENCY ADMINISTRATIVE HANDLING FEE**

An Agency Administrative Handling Fee, not to exceed 3/4 % of the total price of the delivery order, shall be applied to all orders under the SEWP V contracts. The SEWP V website will post the Agency Administrative Handling Fee percentage, and the Contractor shall be notified via email by the SEWP PMO. The handling fee's collection shall be done in accordance with the procedures outlined below.

**Contractor Responsibilities:**

(a) In providing quotations to agencies, the Contractor shall be responsible for including the SEWP fee within the total amount of the quote inclusive of all costs including handling, and travel costs. The fee may be rounded to the nearest whole dollar.

(b) The fee shall NOT be listed separately on quotes or orders. The fee must be included within the price of the quoted offerings.

(c) The fee will apply to all such orders. These include, but are not limited to, original orders, modifications to orders, etc. On modifications that reduce the original price of an order, a credit for the handling fee may be included in the new total amount.

- If a fee cap exists, the cap applies to each order and each separate modification to the original order. This includes any modification that exercises an option or provides additional funding. The fee cap is applied on an individual invoice basis

(d) The Contractor shall invoice the ordering agency for the entire amount of the order (including the handling fee).

(e) Quarterly, the Contractor shall be responsible for sending a payment to NASA/Goddard Space Flight Center, SEWP, Code 700, reflecting the total administrative handling fee collected during that period. The Contractor will be only responsible for forwarding payment on handling fees actually invoiced and collected. The Contractor shall determine the timing of the initial quarterly payment. The payment is to be made via electronic methods payable to NASA/Goddard Space Flight Center, at the following website:
https://www.nssc.nasa.gov/portal/site/customerservice/menuitem.bb29c518138071c056969daf4dd72749/

(f) Coinciding with the payment, the Contractor must send an "Agency Administrative Handling Fees Collected" report electronically to the SEWP Program Office. The report must be an Excel Spreadsheet and include the SEWP Control Number and/or Agency Order number, the Total Order Amount, and the administrative handling fee collected for each order reflected in the total payment. The report must be sorted by SEWP Control Number or by Agency Order number. The report must have totals for the Total Order Amount and the Agency Administrative Handling Fee Collected. This report must be submitted electronically. Reports should be submitted as described in Attachment D, Contractor /Government Communications Requirements, Section D.6.

(End of text)

**A.1.28. OMBUDSMAN (1852.215-84) (NOV 2011)--ALTERNATE I (JUNE 2000)**

(a) An ombudsman has been appointed to hear and facilitate the resolution of concerns from Offerors, potential Offerors, and contractors during the pre-award and post-award phases of this acquisition. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The existence of the ombudsman is not to diminish the authority of the contracting officer, the Source Evaluation Board, or the selection official. Further, the ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Therefore, before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the contracting officer for resolution.

(b) If resolution cannot be made by the contracting officer, interested parties may contact the installation ombudsman, whose name, address, telephone number, facsimile number, and e-mail address may be found at: http://prod.nais.nasa.gov/pub/pub_library/Omb.html.

Concerns, issues, disagreements, and recommendations which cannot be resolved at the installation may be referred to the Agency ombudsman identified at the above URL. Please do not contact the ombudsman to request copies of the solicitation, verify offer due date, or clarify technical requirements. Such inquiries shall be directed to the Contracting Officer or as specified elsewhere in this document.

(c) If this is a task or delivery order contract, the ombudsman shall review complaints from contractors and ensure they are afforded a fair opportunity to be considered, consistent with the procedures of the contract.

(End of clause)

**A.1.29. SAFETY AND HEALTH (SHORT FORM) (1852.223-72) (APR 2002)**

(a) Safety is the freedom from those conditions that can cause death, injury, occupational illness; damage to or loss of equipment or property, or damage to the environment. NASA's safety priority is to protect: (1) the public, (2) astronauts and pilots, (3) the NASA workforce (including contractor employees working on NASA contracts), and (4) high-value equipment and property.

(b) The Contractor shall take all reasonable safety and occupational health measures consistent with standard industry practice in performing this contract. The Contractor shall comply with all Federal, State, and local laws applicable to safety and occupational health and with the safety and occupational health standards, specifications, reporting requirements, and any other relevant requirements of this contract.

(c) The Contractor shall take, or cause to be taken, any other safety, and occupational health measures the Contracting Officer may reasonably direct. To the extent that the Contractor may be entitled to an equitable adjustment for those measures under the terms and conditions of this contract, the equitable adjustment shall be determined pursuant to the procedures of the Changes clause of this contract; provided, that no adjustment shall be made under this Safety and Health clause for any change for which an equitable adjustment is expressly provided under any other clause of the contract.

(d) The Contracting Officer may notify the Contractor in writing of any noncompliance with this clause and specify corrective actions to be taken. In situations where the Contracting Officer becomes aware of noncompliance that may pose a serious or imminent danger to safety and health of the public, astronauts and pilots, the NASA workforce (including Contractor employees working on NASA contracts), or high value mission critical equipment or property, the Contracting Officer shall notify the Contractor orally, with written confirmation. The Contractor shall promptly take and report any necessary corrective action. The Government may pursue appropriate remedies in the event the contractor fails to promptly take the necessary corrective action.

(e) The Contractor (or subcontractor or supplier) shall insert the substance of this clause, including this paragraph (e) and any applicable Schedule provisions, with appropriate changes of designations of the parties, in subcontracts of every tier that exceed the micro-purchase threshold.

(End of clause)

**A.1.30. MAJOR BREACH OF SAFETY OR SECURITY (1852.223-75) (FEB 2002)**

(a) Safety is the freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment. Safety is essential to NASA and is a material part of this contract. NASA's safety priority is to protect: (1) the public; (2) astronauts and pilots; (3) the NASA workforce (including contractor employees working on NASA contracts); and (4) high-value equipment and property. A major breach of safety may constitute a breach of contract that entitles the Government to exercise any of its rights and remedies applicable to material parts of this contract, including termination for default. A major breach of safety must be related directly to the work on the contract. A major breach of safety is an act or omission of the Contractor that consists of an accident, incident, or exposure resulting in a fatality or mission failure; or in damage to equipment or property equal to or greater than $1 million; or in any "willful" or "repeat" violation cited by the Occupational Safety and Health Administration (OSHA) or by a state agency operating under an OSHA approved plan.

(b) Security is the condition of safeguarding against espionage, sabotage, crime (including computer crime), or attack. A major breach of security may constitute a breach of contract that entitles the Government to exercise any of its rights and remedies applicable to material parts of this contract, including termination for default. A major breach of security may occur on or off Government installations, but must be related directly to the work on the contract. A major breach of security is an act or omission by the Contractor that results in compromise of classified information; illegal technology transfer; workplace violence resulting in criminal conviction; sabotage; compromise or denial of information technology services; equipment or property damage from vandalism greater than $250,000 or theft greater than $250,000.

(c) In the event of a major breach of safety or security, the Contractor shall report the breach to the Contracting Officer. If directed by the Contracting Officer, the Contractor shall conduct its own investigation and report the results to the Government. The Contractor shall cooperate with the Government investigation, if conducted.

(End of clause)

**A.1.31. CONTRACTOR PERFORMANCE**

The Contractor's performance under this contract shall be assessed annually in accordance with the requirements of FAR subpart 42.15, and the policy and procedures specified in the NFS subparts 1842.1502 and 1842.1503. End users of products and services shall be periodically contacted to provide input for the annual Contractor Performance Assessment Reporting System (CPARS) evaluation.

In addition, the Contractor will be rated on a continuous basis on their program performance. The ratings will include but not be limited to: Delivery; Customer Satisfaction; Contract Adherence; Information Distribution; and Reporting.

The Government reserves the right to utilize other methodologies to provide performance ratings such as surveys, crowdsourcing, etc.

(End of text)

**A.1.32. RELEASE OF SENSITIVE INFORMATION (1852.237-73) (JUNE 2005)**

(a) As used in this clause, “sensitive information” refers to information, not currently in the public domain, that the Contractor has developed at private expense, that may embody trade secrets or commercial or financial information, and that may be sensitive or privileged.

(b) In accomplishing management activities and administrative functions, NASA relies heavily on the support of various service providers. To support NASA activities and functions, these service providers, as well as their subcontractors and their individual employees, may need access to sensitive information submitted by the Contractor under this contract. By submitting this proposal or performing this contract, the Contractor agrees that NASA may release to its service providers, their subcontractors, and their individual employees, sensitive information submitted during the course of this procurement, subject to the enumerated protections mandated by the clause at 1852.237-72, Access to Sensitive Information.

(c)(1) The Contractor shall identify any sensitive information submitted in support of this proposal or in performing this contract. For purposes of identifying sensitive information, the Contractor may, in addition to any other notice or legend otherwise required, use a notice similar to the following:

Mark the title page with the following legend:

*This proposal or document includes sensitive information that NASA shall not disclose outside the Agency and its service providers that support management activities and administrative functions. To gain access to this sensitive information, a service provider's contract must contain the clause at NFS 1852.237-72, Access to Sensitive Information. Consistent with this clause, the service provider shall not duplicate, use, or disclose the information in whole or in part for any purpose other than to perform the services specified in its contract. This restriction does not limit the Government's right to use this information if it is obtained from another source without restriction. The information subject to this restriction is contained in pages [insert page numbers or other identification of pages].*

Mark each page of sensitive information the Contractor wishes to restrict with the following legend:

*Use or disclosure of sensitive information contained on this page is subject to the restriction on the title page of this proposal or document.*

(2) The Contracting Officer shall evaluate the facts supporting any claim that particular information is "sensitive." This evaluation shall evaluate the time and resources necessary to protect the information in accordance with the detailed safeguards mandated by the clause at 1852.237-72, Access to Sensitive Information. However, unless the Contracting Officer decides, with the advice of Center counsel, that reasonable grounds exist to challenge the Contractor's claim that particular information is sensitive, NASA and its service providers and their employees shall comply with all of the safeguards contained in paragraph (d) of this clause.

(d) To receive access to sensitive information needed to assist NASA in accomplishing management activities and administrative functions, the service provider must be operating under a contract that contains the clause at 1852.237-72, Access to Sensitive Information. This clause obligates the service provider to do the following:

(1) Comply with all specified procedures and obligations, including the Organizational Conflicts of Interest Avoidance Plan, which the contract has incorporated as a compliance document.

(2) Utilize any sensitive information coming into its possession only for the purpose of performing the services specified in its contract.

(3) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

(4) Allow access to sensitive information only to those employees that need it to perform services under its contract.

(5) Preclude access and disclosure of sensitive information to persons and entities outside of the service provider's organization.

(6) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in its contract and to safeguard it from unauthorized use and disclosure.

(7) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

(8) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(e) When the service provider will have primary responsibility for operating an information technology system for NASA that contains sensitive information, the service provider's contract shall include the clause at 1852.204-76, Security Requirements for Unclassified Information Technology Resources. The Security Requirements clause requires the service provider to implement an Information Technology Security Plan to protect information processed, stored, or transmitted from unauthorized access, alteration, disclosure, or use. Service provider personnel requiring privileged access or limited privileged access to these information technology systems are subject to screening using the standard National Agency Check (NAC) forms appropriate to the level of risk for adverse impact to NASA missions. The Contracting Officer may allow the service provider to conduct its own screening, provided the service provider employs substantially equivalent screening procedures.

(f) This clause does not affect NASA's responsibilities under the Freedom of Information Act.

(g) The Contractor shall insert this clause, including this paragraph (g), suitably modified to reflect the relationship of the parties, in all subcontracts that may require the furnishing of sensitive information.

(End of clause)

**A.1.33. USE OF RURAL AREA SMALL BUSINESSES (1852.219-74) (SEP 1990)**

(a) Definitions.

"Rural area" means any county with a population of fewer than twenty thousand individuals.

"Small business concern," as used in this clause, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding under this contract, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) NASA prime and subcontractors are encouraged to use their best efforts to award subcontracts to small business concerns located in rural areas.

(c) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as small business concerns located in rural areas.

(d) The Contractor agrees to insert the provisions of this clause, including this paragraph (d), in all subcontracts hereunder that offer subcontracting possibilities.

(End of clause)

**A.1.34. NASA 8 PERCENT GOAL (1852.219-76) (JUL 1997)**

(a) Definitions.
"Historically Black Colleges or University", as used in this clause means an institution determined by the Secretary of Education to meet the requirements of 34 CFR Section 608.2. The term also includes any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.
"Minority institutions", as used in this clause, means an institution of higher education meeting the requirements of section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1135d-5(3)) which for the purposes of this clause includes a Hispanic-serving institution of higher education as defined in section 316(b)(1) of the Act (20 U.S.C. 1059c(b)(1)).
"Small disadvantaged business concern", as used in this clause, means a small business concern that (1) is at least 51 percent unconditionally owned by one or more individuals who are both socially and economically disadvantaged, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more socially and economically disadvantaged individuals, and (2) has its management and daily business controlled by one or more such individuals. This term also means a small business concern that is at least 51 percent unconditionally owned by an economically disadvantaged Indian tribe or Native Hawaiian Organization, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more of these entities, which has its management and daily business controlled by members of an economically disadvantaged Indian tribe or Native Hawaiian Organization, and which meets the requirements of 13 CFR 124.
"Women-owned small business concern", as used in this clause, means a small business concern (1) which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women, and (2) whose management and daily business operations are controlled by one or more women.
(b) The NASA Administrator is required by statute to establish annually a goal to make available to small disadvantaged business concerns, Historically Black Colleges and Universities, minority institutions, and women-owned small business concerns, at least 8 percent of NASA's procurement dollars under prime contracts or subcontracts awarded in support of authorized programs, including the space station by the time operational status is obtained.
(c) The contractor hereby agrees to assist NASA in achieving this goal by using its best efforts to award subcontracts to such entities to the fullest extent consistent with efficient contract performance.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as small disadvantaged business concerns, Historically Black Colleges and Universities, minority institutions, and women-owned small business concerns.

(End of clause)

**A.1.35. RESERVED**

**A.1.36. RESERVED**

**A.1.37. RESERVED**

**A.1.38. RESERVED**

**A.1.39. RESERVED**

**A.1.40. RESERVED**

**A.1.41. RESERVED**

**A.1.42. RESERVED**

**A.1.43. Small Business Subcontracting Plan (Deviation) (52.219-9) (JAN 2014)**

(a) This clause does not apply to small business concerns.

(b) *Definitions*. As used in this clause—

"Alaska Native Corporation (ANC)" means any Regional Corporation, Village Corporation, Urban Corporation, or Group Corporation organized under the laws of the State of Alaska in accordance with the Alaska Native Claims Settlement Act, as amended (43 U.S.C. 1601, *et seq.*) and which is considered a minority and economically disadvantaged concern under the criteria at 43 U.S.C. 1626(e)(1). This definition also includes ANC direct and indirect subsidiary corporations, joint ventures, and partnerships that meet the requirements of 43 U.S.C. 1626 (e)(2).

"Commercial item" means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

"Commercial plan" means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (*e.g.*, division, plant, or product line).

"Electronic Subcontracting Reporting System (eSRS)" means the Governmentwide, electronic, web-based system for small business subcontracting program reporting. The eSRS is located at http://www.esrs.gov.

"Indian tribe" means any Indian tribe, band, group, pueblo, or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act (43 U.S.C.A. 1601 *et seq.*), that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs in accordance with 25 U.S.C. 1452(c). This definition also includes Indian-owned economic enterprises that meet the requirements of 25 U.S.C. 1452(e).

"Individual contract plan" means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in support of the specific contract except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

"Master plan" means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

"Subcontract" means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The offeror, upon request by the Contracting Officer, shall submit and negotiate a subcontracting plan, where applicable, that separately addresses subcontracting with small business concerns, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business concerns, small disadvantaged business, and with women-owned small business concerns. If the offeror is submitting an individual contract plan, the plan must separately address subcontracting with small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be negotiated within the time specified by the Contracting Officer. Failure to submit and negotiate the subcontracting plan shall make the offeror ineligible for award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs. In accordance with 43 U.S.C. 1626:

(i) Subcontracts awarded to an ANC or Indian tribe shall be counted towards the subcontracting goals for small business and small disadvantages business (SDB) concerns, regardless of the size or Small Business Administration certification status of the ANC or Indian tribe.

(ii) Where one or more subcontractors are in the subcontract tier between the prime contractor and the ANC or Indian tribe, the ANC or Indian tribe shall designate the appropriate contractor(s) to count the subcontract towards its small business and small disadvantaged business subcontracting goals.

(A) In most cases, the appropriate Contractor is the Contractor that awarded the subcontract to the ANC or Indian tribe.

(B) If the ANC or Indian tribe designates more than one Contractor to count the subcontract toward its goals, the ANC or Indian tribe shall designate only a portion of the total subcontract award to each Contractor. The sum of the amounts designated to various Contractors cannot exceed the total value of the subcontract.

(C) The ANC or Indian tribe shall give a copy of the written designation to the Contracting Officer, the prime Contractor, and the subcontractors in between the prime Contractor and the ANC or Indian tribe within 30 days of the date of the subcontract award.

(D) If the Contracting Officer does not receive a copy of the ANC's or the Indian tribe's written designation within 30 days of the subcontract award, the Contractor that awarded the subcontract to the ANC or Indian tribe will be considered the designated Contractor.

(2) A statement of—

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns (including ANC and Indian tribes);

(iii) Total dollars planned to be subcontracted to veteran-owned small business concerns;

(iv) Total dollars planned to be subcontracted to service-disabled veteran-owned small business;

(v) Total dollars planned to be subcontracted to HUBZone small business concerns;

(vi) Total dollars planned to be subcontracted to small disadvantaged business concerns (including ANCs and Indian tribes); and

(vii) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to --

(i) Small business concerns,

(ii) Veteran-owned small business concerns;

(iii) Service-disabled veteran-owned small business concerns;

(iv) HUBZone small business concerns;
(v) Small disadvantaged business concerns, and
(vi) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (*e.g.*, existing company source lists, the Central Contractor Registration database (CCR), veterans service organizations, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone, small disadvantaged, and women-owned small business trade associations). A firm may rely on the information contained in CCR as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small, veteran-owned small, service-disabled veteran-owned small, HUBZone small, small disadvantaged, and women-owned small business source list. Use of CCR as its source list does not relieve a firm of its responsibilities (*e.g.*, outreach, assistance, counseling, or publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with --

(i) Small business concerns (including ANC and Indian tribes);

(ii) Veteran-owned small business concerns;

(iii) Service-disabled veteran-owned small business concerns;

(iv) HUBZone small business concerns;

(v) Small disadvantaged business concerns (including ANC and Indian tribes); and

(vi) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) that receive subcontracts in excess of $650,000 ($1.5 million for construction of any public facility with further subcontracting possibilities) to adopt a plan similar to the plan that complies with the requirements of this clause.

(10) Assurances that the offeror will --

(i) Cooperate in any studies or surveys as may be required;

(ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;

(iii) Submit the Individual Subcontracting Report (ISR) and/or the Summary Subcontract Report (SSR), in accordance with the paragraph (l) of this clause using the Electronic Subcontracting Reporting System (eSRS) at http://www.esrs.gov . The reports shall provide information on subcontract awards to small business concerns (including ANCs and Indian tribes that are not small businesses), veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns (including ANCs and Indian tribes that have not been certified by the Small Business Administration as small disadvantaged businesses), women-owned small business concerns, and Historically Black Colleges and Universities and Minority Institutions. Reporting shall be in accordance with this clause, or as provided in agency regulations;

(iv) Ensure that its subcontractors with subcontracting plans agree to submit the ISR and/or the SSR using eSRS;

(v) Provide its prime contract number, its DUNS number, and the e-mail address of the offeror's official responsible for acknowledging receipt of or rejecting the ISRs, to all first-tier subcontractors with subcontracting plans so they can enter this information into the eSRS when submitting their ISRs; and

(vi) Require that each subcontractor with a subcontracting plan provide the prime contract number, its own DUNS number, and the e-mail address of the subcontractor's official responsible for acknowledging receipt of or rejecting the ISRs, to its subcontractors with subcontracting plans.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated):

(i) Source lists (*e.g.*, CCR), guides, and other data that identify small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than $150,000, indicating --

(A) Whether small business concerns were solicited and if not, why not;

(B) Whether veteran-owned small business concerns were solicited and, if not, why not;

(C) Whether service-disabled veteran-owned small business concerns were solicited and, if not, why not;

(D) Whether HUBZone small business concerns were solicited and, if not, why not;

(E) Whether small disadvantaged business concerns were solicited and if not, why not;

(F) Whether women-owned small business concerns were solicited and if not, why not; and

(G) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact --

(A) Trade associations;

(B) Business development organizations;

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources; and

(D) Veterans service organizations.

(v) Records of internal guidance and encouragement provided to buyers through --

(A) Workshops, seminars, training, etc., and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representatives of small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Confirm that a subcontractor representing itself as a HUBZone small business concern is identified as a certified HUBZone small business concern by accessing the Central Contractor Registration (CCR) database or by contacting SBA.

(5) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, veteran-owned small business, HUBZone small, small disadvantaged or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(6) For all competitive subcontracts over the simplified acquisition threshold in which a small business concern received a small business preference, upon determination of the successful subcontract offeror, the Contractor must inform each unsuccessful small business subcontract offeror in writing of the name and location of the apparent successful offeror prior to award of the contract.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided --

(1) The master plan has been approved;

(2) The offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer; and

(3) Goals and any deviations from the master plan deemed necessary by the Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial plan shall relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Once the Contractor's commercial plan has been approved, the Government will not require another subcontracting plan from the same Contractor while the plan remains in effect, as long as the product or service being provided by the Contractor continues to meet the definition of a commercial item. A contractor with a commercial plan shall comply with the reporting requirements stated in paragraph (d)(10) of this clause by submitting one SSR in eSRS for all contracts covered by its commercial plan. This report shall be acknowledged or rejected in eSRS by the Contracting Officer who approved the plan. This report shall be submitted within 30 days after the end of the Government's fiscal year.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) A contract may have no more than one plan. When a modification meets the criteria in 19.702 for a plan, or an option is exercised, the goals associated with the modification or option shall be added to those in the existing subcontract plan.

(j) Subcontracting plans are not required from subcontractors when the prime contract contains the clause at 52.212-5, Contract Terms and Conditions Required to Implement Statutes or Executive Orders—Commercial Items, or when the subcontractor provides a commercial item subject to the clause at 52.244-6, Subcontracts for Commercial Items, under a prime contract.

(k) The failure of the Contractor or subcontractor to comply in good faith with—

(1) The clause of this contract entitled "Utilization Of Small Business Concerns;" or

(2) An approved plan required by this clause, shall be a material breach of the contract.

(l) The Contractor shall submit ISRs and SSRs using the web-based eSRS at http://www.esrs.gov. Purchases from a corporation, company, or subdivision that is an affiliate of the prime Contractor or subcontractor are not included in these reports. Subcontract award data reported by prime Contractors and subcontractors shall be limited to awards made to their immediate next-tier subcontractors. Credit cannot be taken for awards made to lower tier subcontractors unless the Contractor or subcontractor has been designated to receive a small business or small disadvantaged business credit from an ANC or Indian tribe. Only subcontracts involving performance in the United States or its outlying areas should be included in these reports with the exception of subcontracts under a contract awarded by the State Department or any other agency that has statutory or regulatory authority to require subcontracting plans for subcontracts performed outside the United States and its outlying areas.

(1) *ISR*. This report is not required for commercial plans. The report is required for each contract containing an individual subcontract plan.

(i) The report shall be submitted semi-annually during contract performance for the periods ending March 31 and September 30. A report is also required for each contract within 30 days of contract completion. Reports are due 30 days after the close of each reporting period, unless otherwise directed by the Contracting Officer. Reports are required when due, regardless of whether there has been any subcontracting activity since the inception of the contract or the previous reporting period.

(ii) When a subcontracting plan contains separate goals for the basic contract and each option, as prescribed by FAR 19.704(c), the dollar goal inserted on this report shall be the sum of the base period through the current option; for example, for a report submitted after the second option is exercised, the dollar goal would be the sum of the goals for the basic contract, the first option, and the second option.

(iii) The authority to acknowledge receipt or reject the ISR resides—

(A) In the case of the prime Contractor, with the Contracting Officer; and

(B) In the case of a subcontract with a subcontracting plan, with the entity that awarded the subcontract.

(2) *SSR*.

(i) Reports submitted under individual contract plans—

(A) This report encompasses all subcontracting under prime contracts and subcontracts with the awarding agency, regardless of the dollar value of the subcontracts.

(B) The report may be submitted on a corporate, company or subdivision (*e.g.* plant or division operating as a separate profit center) basis, unless otherwise directed by the agency.

(C) If a prime Contractor and/or subcontractor is performing work for more than one executive agency, a separate report shall be submitted to each executive agency covering only that agency's contracts, provided at least one of that agency's contracts is over $650,000 (over $1.5 million for construction of a public facility) and contains a subcontracting plan. For DoD, a consolidated report shall be submitted for all contracts

awarded by military departments/agencies and/or subcontracts awarded by DoD prime Contractors. However, for construction and related maintenance and repair, a separate report shall be submitted for each DoD component.

(D) Except for DoD, the report shall be submitted annually for the twelve month period ending September 30. Reports are due 30 days after the close of each reporting period. For DoD the report shall be submitted semi-annually for the six months ending March 31 and the twelve months ending September 30.

(E) Subcontract awards that are related to work for more than one executive agency shall be appropriately allocated.

(F) The authority to acknowledge or reject SSRs in eSRS, including SSRs submitted by subcontractors with subcontracting plans, resides with the Government agency awarding the prime contracts unless stated otherwise in the contract.

(ii) Reports submitted under a commercial plan—

(A) The report shall include all subcontract awards under the commercial plan in effect during the Government's fiscal year.

(B) The report shall be submitted annually, within thirty days after the end of the Government's fiscal year.

(C) If a Contractor has a commercial plan and is performing work for more than one executive agency, the Contractor shall specify the percentage of dollars attributable to each agency from which contracts for commercial items were received.

(D) The authority to acknowledge or reject SSRs for commercial plans resides with the Contracting Officer who approved the commercial plan.

(iii) All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a Year-End Supplementary Report for Small Disadvantaged Businesses. The report shall include subcontract awards, in whole dollars, to small disadvantaged business concerns by North American Industry Classification System (NAICS) Industry Subsector. If the data are not available when the year-end SSR is submitted, the prime Contractor and/or subcontractor shall submit the Year-End Supplementary Report for Small Disadvantaged Businesses within 90 days of submitting the year-end SSR. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant NAICS Industry Subsector and report all awards to that subcontractor under its predominant NAICS Industry Subsector.

(End of Clause)

**A.1.44. SMALL BUSINESS SUBCONTRACTING PLAN AND REPORTS (GSFC 52.219-90) ( FEB 2014)**

a. Subcontracting Plan (Contractor)

FAR clause 52.219-9, "Small Business Subcontracting Plan (Deviation)" is included in this contract. The agreed to Subcontracting Plan required by the clause is included as an attachment to the contract.

b. Subcontracting Plan (Subcontractors)

In accordance with FAR clause 52.219-9 Small Business Subcontracting Plan (Deviation), the Contractor must require that certain subcontractors adopt a plan similar to the Plan agreed to between the Contractor and the Government.

c. Individual Subcontract Reports (ISRs)

The Contractor shall prepare and submit their Individual Subcontract Reports (ISRs) (formerly known as the Standard Form 294), in accordance with the instructions listed in the Electronic Subcontract Reporting System (eSRS), available at http://esrs.gov.

ISRs must be submitted electronically in eSRS on a semi-annual basis. This report must be received no later than April 30 and October 30 each year for the reporting periods ending March 31 and September 30, respectively. Reports are required when due, regardless of whether there has been any subcontracting activity since the inception of the contract or since the last reporting period.

A final Individual Subcontract Report (ISR) must be submitted after contract completion. The final ISR submittal must be received no later than the due date for what would have been the next semi-annual report.

d. Summary Subcontract Reports (SSRs)

The Contractor shall prepare and submit Summary Subcontract Reports (SSRs)(formerly known as the Standard Form 295), in accordance with the instructions listed in the Electronic Subcontract Reporting System (eSRS), available at http://esrs.gov and in accordance with FAR clause 52.219-9 Small Business Subcontracting Plan (Deviation) of this contract.

The SSRs must be submitted electronically in eSRS on an annual basis. This report must be submitted no later than October 30 each year for the twelve month period ending September 30.

e. Subcontractor Reporting

FAR clause 52.219-9 Small Business Subcontracting Plan (Deviation) requires that the Contractor ensure that ISR and SSR reports are submitted by those subcontractors that have been required to adopt a Subcontracting Plan under the terms of the clause. These subcontractor reports must be submitted as required by paragraphs (c) and (d) above. The reports may be submitted through the Contractor or submitted directly. Regardless, the Contractor is responsible for ensuring proper and timely submittal of the required reports.

(End of clause)

**A.1.45 SMALL BUSINESS SUBCONTRACTING REPORTING (1852.219-75)(MAY 1999)**

(a) The Contractor shall submit the Summary Subcontract Report (Standard Form (SF) 295) semiannually for the reporting periods specified in block 4 of the form. All other instructions for SF 295 remain in effect.

(b) The Contractor shall include this clause in all subcontracts that include the clause at FAR 52.219-9.

(End of clause)

**A.1.46. TRADE AGREEMENTS CERTIFICATE 52.225-6 (MAY 2014)**

(a) The offeror certifies that each end product, except those listed in paragraph (b) of this provision, is a U.S.-made or designated country end product, as defined in the clause of this solicitation entitled "Trade Agreements."

(b) The offeror shall list as other end products those supplies that are not U.S.-made or designated country end products.

Other End Products
Line Item No.:

Country of Origin:_____
(List as necessary),

(c) The Government will evaluate offers in accordance with the policies and procedures of Part 25 of the Federal Acquisition Regulation. For line items covered by the WTO GPA, the Government will evaluate offers of U.S.-made or designated country end products without regard to the restrictions of the Buy American statute. The Government will consider for award only offers of U.S.-made or designated country end products unless the Contracting Officer determines that there are no offers for such products or that the offers for those products are insufficient to fulfill the requirements of this solicitation.

(End of provision)

**A.1.47. SUPPLY CHAIN RISK**

(a) *Definition.* "Supply chain risk" means the risk that an adversary may sabotage, maliciously introduce unwanted function, or otherwise subvert the design, integrity, manufacturing, production, distribution, installation, operation, or maintenance of a national security system (as that term is defined at 44 U.S.C. 3542(b)) so as to survey, deny, disrupt, or otherwise degrade the function, use, or operation of such system.
(b) The Contractor shall implement appropriate safeguards and countermeasures in the provision of supplies and services to the Government to minimize supply chain risk.
(c) In order to manage supply chain risk, the Government may use the appropriate authorities (such as those provided by section 806 of Pub. L. 111-383 for Department of Defense orders). In exercising these authorities, the Government may consider information, public and non-public, including all-source intelligence, relating to a Contractor's supply chain.
(d) If the Government exercises the appropriate authority such as that provided in section 806 of Pub. L. 111-383 (for Department of Defense orders) to limit disclosure of information, no action undertaken by the Government under such authority shall be subject to review in a bid protest before the Government Accountability Office or in any Federal court.
(e) The Contractor shall include the substance of this clause, including this paragraph (e), in all subcontracts involving the development or delivery of any information technology whether acquired as a service or as a supply.

(End of Text)

**A.1.48. SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (1852.204-76) (JAN 2011)**

(The following requirements do not apply to this contract; however, these requirements apply to applicable NASA Delivery Orders that involve contractor access to federal information or federal information systems)

(a) The contractor shall protect the confidentiality, integrity, and availability of NASA Electronic Information and IT resources and protect NASA Electronic Information from unauthorized disclosure.

(b) This clause is applicable to all NASA contractors and sub-contractors that process, manage, access, or store unclassified electronic information, to include Sensitive But Unclassified (SBU) information, for NASA in support of NASA's missions, programs, projects and/or institutional requirements. Applicable requirements, regulations, policies, and guidelines are identified in the Applicable Documents List (ADL) provided as an attachment to the contract. The documents listed in the ADL can be found at: http://www.nasa.gov/offices/ocio/itsecurity/index.html. For policy information considered sensitive, the documents will be identified as such in the ADL and made available through the Contracting Officer.

(c) Definitions.

(1) IT resources means any hardware or software or interconnected system or subsystem of equipment, that is used to process, manage, access, or store electronic information.

(2) NASA Electronic Information is any data (as defined in the Rights in Data clause of this contract) or information (including information incidental to contract administration, such as financial, administrative, cost or pricing, or management information) that is processed, managed, accessed or stored on an IT system(s) in the performance of a NASA contract.

(3) IT Security Management Plan--This plan shall describe the processes and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contract. Unlike the IT security plan, which addresses the IT system, the IT Security Management Plan addresses how the contractor will manage personnel and processes associated with IT Security on the instant contract.

(4) IT Security Plan--this is a FISMA requirement; see the ADL for applicable requirements. The IT Security Plan is specific to the IT System and not the contract. Within 30 days after award, the contractor shall develop and deliver an IT Security Management Plan to the Contracting Officer; the approval authority will be included in the ADL. All contractor personnel requiring physical or logical access to NASA IT resources must complete NASA's annual IT Security Awareness training. Refer to the IT Training policy located in the IT Security Web site at https://itsecurity.nasa.gov/policies/index.html.

(d) The contractor shall afford Government access to the Contractor's and subcontractors' facilities, installations, operations, documentation, databases, and personnel used in performance of the contract. Access shall be provided to the extent required to carry out a program of IT inspection (to include vulnerability testing), investigation and audit to safeguard against threats and hazards to the integrity, availability, and confidentiality of NASA Electronic Information or to the function of IT systems operated on behalf of NASA, and to preserve evidence of computer crime.

(e) At the completion of the contract, the contractor shall return all NASA information and IT resources provided to the contractor during the performance of the contract in accordance with retention documentation available in the ADL. The contractor shall provide a listing of all NASA Electronic information and IT resources generated in performance of the contract. At that time, the contractor shall request disposition instructions from the Contracting Officer. The Contracting Officer will provide disposition instructions within 30 calendar days of the contractor's request. Parts of the clause and referenced ADL may be waived by the contracting officer, if the contractor's ongoing IT security program meets or exceeds the requirements of NASA Procedural Requirements (NPR) 2810.1 in effect at time of award. The current version of NPR 2810.1 is referenced in the ADL. The contractor shall submit a written waiver request to the Contracting Officer within 30 days of award. The waiver request will be reviewed by the Center IT Security Manager. If approved, the Contractor Officer will notify the contractor, by contract modification, which parts of the clause or provisions of the ADL are waived.

(f) The contractor shall insert this clause, including this paragraph in all subcontracts that process, manage, access or store NASA Electronic Information in support of the mission of the Agency.

(End of clause)

**A.1.49. NOTIFICATION PRIOR TO ACQUIRING INFORMATION TECHNOLOGY SYSTEMS FROM ENTITIES OWNED, DIRECTED OR SUBSIDIZED BY THE PEOPLE'S REPUBLIC OF CHINA (1852.225-74) (JUN 2013) (DEVIATION)(APPLIES TO NASA DELIVERY ORDERS ONLY)**

(a) Definitions –

**"Acquire"** means procure with appropriated funds by and for the use of NASA through purchase or lease.

**"Entity owned, directed or subsidized by the People's Republic of China"** means any organization incorporated under the laws of the People's Republic of China.

**"Information Technology (IT) System"** means the combination of hardware components, software, and other equipment to make a system whose core purpose is to accomplish a data processing need such as the automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data. IT systems include ground systems in support of flight hardware. IT systems do not include—

(i)Systems acquired by a contractor incidental to a contract;

(ii) Imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology systems;

(iii) Services in support of IT systems, such as help desk services; or

(iv) Flight hardware, which includes aircraft, spacecraft, artificial satellites, launch vehicles, balloon systems, sounding rockets, on-board instrument and technology demonstration systems, and equipment operated on the International Space Station; as well as prototypes, and engineering or brass boards created and used to test, troubleshoot, and refine air- and spacecraft hardware, software and procedures.

(b) Section 516 of the Consolidated and Further Continuing Appropriation Act, 2013 (Pub. L.113-6), requires NASA's Office of the Chief Information Officer (OCIO) to assess the risk of cyber-espionage or sabotage of an information technology (IT) system that is produced, manufactured, or assembled by an entity owned, directed or subsidized by the People's Republic of China (PRC). The Government retains the right to reject any IT system tendered for acceptance under this Contract, without any further recourse by, or explanation to, the Contractor, if the Government determines the IT system, in whole or in part, presents an unacceptable risk to national security.

(c) The Contractor shall obtain the approval of the Contracting Officer before acquiring any IT system(s) from entities owned, directed or subsidized by the People's Republic of China under this contract. Any Contractor request to use such items shall include adequate information for Government evaluation of the request, including—

(1) A brief description of the item(s); and

(2) Vendor/manufacturer's company name and address;

(d) The Contracting Officer will provide the information referenced in paragraph (c) to the NASA Office of the Chief Information Officer (OCIO) which will assess the risk of cyber-espionage or sabotage and make a determination if the acquisition of such system is in the national interest. Only items so approved shall be provided under the contract.

(End of clause)

**A.1.50. OPTION TO EXTEND THE TERM OF THE CONTRACT (52.217-9)(MAR 2000)**

(a) The Government may extend the term of this contract by written notice to the Contractor within 30 days; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 10 years.

(End of clause)

**A.1.51. PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (52.232-99) (AUG 2012)**

(a) Upon receipt of accelerated payments from the Government, the contractor is required to make accelerated payments to small business subcontractors to the maximum extent practicable after receipt of a proper invoice and all proper documentation from the small business subcontractor.

(b) Include the substance of this clause, including this paragraph (b), in all subcontracts with small business concerns.

(c) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

(End of clause)

**A.1.52 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (52.232-40)(DEC 2013)**

(a) Upon receipt of accelerated payments from the Government, the Contractor shall make accelerated payments to its small business subcontractors under this contract, to the maximum extent practicable and prior to when such payment is otherwise required under the applicable contract or subcontract, after receipt of a proper invoice and all other required documentation from the small business subcontractor.

(b) The acceleration of payments under this clause does not provide any new rights under the Prompt Payment Act.

(c) Include the substance of this clause, including this paragraph (c), in all subcontracts with small business concerns, including subcontracts with small business concerns for the acquisition of commercial items.

(End of clause)

**A.1.53 OFF-RAMP**

To ensure success of the SEWP Program, each SEWP V Contractor is required to participate in the SEWP Ordering process, in accordance with Section D.1. On-Line Quoting, by submitting quotes in response to Requests for Quotes (RFQs) for which the SEWP V Contractor has a reasonable chance for award and to promptly improve performance when it does not meet the terms of the contract or orders issued thereunder. If a SEWP Contractor does not meet these expectations, the Government, at its discretion, may "off-ramp" the Contractor by one of the following means:

(a) Permitting such Contractor's SEWP V Contract to expire instead of exercising the Option; or
(b) Implementing a Termination for Convenience (if applicable and only if such action is in the Government's best interest); or
(c) Implementing a Termination for Default, if applicable.

If at any point during the period of performance the contractor decides that it no longer will submit RFQs or to participate on the SEWP V contract, the contractor may submit a request to the Contracting Officer ("CO"). If the CO accepts the contractor's request, the CO may at his or her discretion, permit the Contractor to off-ramp by allowing its SEWP V contract to expire rather than exercising the Option or use the provision under FAR 52.249-2, Termination for the Convenience of the Government. If an "off-ramped" contractor is currently under contract to perform under any Order, the contractor will be required to continue to perform under the terms of the specific Order.

This provision is independent of any other action permitted under the contract terms and conditions.

(End of Provision)

**A.1.54 REQUIREMENT TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS (1852.203-71)(AUG 2014)**

(a) The Contractor shall inform its employees in writing, in the predominant native language of the workforce, of contractor employee whistleblower rights and protections under 10 U.S.C. 2409, as described in subpart 1803.09 of the NASA FAR Supplement.

(b) The Contractor shall include the substance of this clause, including this paragraph (b), in all subcontracts.

(End of clause)

**A.1.55 SERVICE OF PROTEST**

Agency protests, described in FAR 33.103, that arise from an order under SEWP V shall be served upon the ordering agency.

(End of Text)

**A.1.56 COMMERCIAL AND GOVERNMENT ENTITY CODE MAINTENANCE (52.204-18) (NOV 2014)**

(a) Definition. As used in this clause–

"Commercial and Government Entity (CAGE) code" means–

(1) An identifier assigned to entities located in the United States or its outlying areas by the Defense Logistics Agency (DLA) Contractor and Government Entity (CAGE) Branch to identify a commercial or government entity, or

(2) An identifier assigned by a member of the North Atlantic Treaty Organization (NATO) or by the NATO Support Agency (NSPA) to entities located outside the United States and its outlying areas that the DLA Contractor and Government Entity (CAGE) Branch records and maintains in the CAGE master file. This type of code is known as an NCAGE code.

(b) Contractors shall ensure that the CAGE code is maintained throughout the life of the contract. For contractors registered in the System for Award Management (SAM), the DLA Contractor and Government Entity (CAGE) Branch shall only modify data received from SAM in the CAGE master file if the contractor initiates those changes via update of its SAM registration. Contractors undergoing a novation or change-of-name agreement shall notify the contracting officer in accordance with subpart 42.12. The contractor shall communicate any change to the CAGE code to the contracting officer within 30 days after the change, so that a modification can be issued to update the CAGE code on the contract.

(c) Contractors located in the United States or its outlying areas that are not registered in SAM shall submit written change requests to the DLA Contractor and Government Entity (CAGE) Branch. Requests for changes shall be provided on a DD Form 2051, Request for Assignment of a Commercial and Government Entity (CAGE) Code, to the address shown on the back of the DD Form 2051. Change requests to the CAGE master file are accepted from the entity identified by the code.

(d) Contractors located outside the United States and its outlying areas that are not registered in SAM shall contact the appropriate National Codification Bureau or NSPA to request CAGE changes. Points of contact for National Codification Bureaus and NSPA, as well as additional information on obtaining NCAGE codes, are available at http://www.dlis.dla.mil/Forms/Form_AC135.asp.

(e) Additional guidance for maintaining CAGE codes is available at http://www.dlis.dla.mil/cage_welcome.asp.

(End of clause)

**II. CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS--COMMERCIAL ITEMS (52.212-5) (MAR 2015)**

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses, which are incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

(1) 52.209-10, Prohibition on Contracting with Inverted Domestic Corporations (Dec 2014)
(2) 52.233-3, Protest After Award (AUG 1996) (31 U.S.C. 3553).
(3) 52.233-4, Applicable Law for Breach of Contract Claim (OCT 2004)(Public Laws 108-77 and 108-78 (19 U.S.C. 3805 note)).

(b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

_x_ (1) 52.203-6, Restrictions on Subcontractor Sales to the Government (Sept 2006), with Alternate I (Oct 1995) (41 U.S.C. 4704 and 10 U.S.C. 2402).

_x_ (2) 52.203-13, Contractor Code of Business Ethics and Conduct (Apr 2010) (41 U.S.C. 3509)).

__ (3) 52.203-15, Whistleblower Protections under the American Recovery and Reinvestment Act of 2009 (June 2010) (Section 1553 of Pub. L. 111-5). (Applies to contracts funded by the American Recovery and Reinvestment Act of 2009.)

_x_ (4) 52.204-10, Reporting Executive Compensation and First-Tier Subcontract Awards (Jul 2013) (Pub. L. 109-282) (31 U.S.C. 6101 note).

__ (5) [Reserved].

__ (6) 52.204-14, Service Contract Reporting Requirements (Jan 2014) (Pub. L. 111-117, section 743 of Div. C).

__ (7) 52.204-15, Service Contract Reporting Requirements for Indefinite-Delivery Contracts (Jan 2014) (Pub. L. 111-117, section 743 of Div. C).

__ (8) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment. (Aug 2013) (31 U.S.C. 6101 note).

__ (9) 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters (Jul 2013) (41 U.S.C. 2313).

__ (10) [Reserved].

__ (11)(i) 52.219-3, Notice of HUBZone Set-Aside or Sole-Source Award (Nov 2011) (15 U.S.C. 657a).

__ (ii) Alternate I (Nov 2011) of 52.219-3.

__ (12)(i) 52.219-4, Notice of Price Evaluation Preference for HUBZone Small Business Concerns (OCT 2014) (if the offeror elects to waive the preference, it shall so indicate in its offer) (15 U.S.C. 657a).
__ (ii) Alternate I (JAN 2011) of 52.219-4.

__ (13) [Reserved]

__ (14)(i) 52.219-6, Notice of Total Small Business Set-Aside (Nov 2011) (15 U.S.C. 644).
__ (ii) Alternate I (Nov 2011).

__ (15)(i) 52.219-7, Notice of Partial Small Business Set-Aside (June 2003) (15 U.S.C. 644).
__ (ii) Alternate I (Oct 1995) of 52.219-7.
__ (iii) Alternate II (Mar 2004) of 52.219-7.

_X_ (16) 52.219-8, Utilization of Small Business Concerns (Oct 2014) (15 U.S.C. 637(d)(2) and (3)).

_X_ (17)(i) 52.219-9, Small Business Subcontracting Plan (Oct 2014) (15 U.S.C. 637(d)(4)).
__ (ii) Alternate I (Oct 2001) of 52.219-9.
__ (iii) Alternate II (Oct 2001) of 52.219-9.
__ (iv) Alternate III (Oct 2014) of 52.219-9.

__ (18) 52.219-13, Notice of Set-Aside of Orders (Nov 2011)(15 U.S.C. 644(r)).

__ (19) 52.219-14, Limitations on Subcontracting (Nov 2011) (15 U.S.C. 637(a)(14)).

__ (20) 52.219-16, Liquidated Damages—Subcon-tracting Plan (Jan 1999) (15 U.S.C. 637(d)(4)(F)(i)).

__ (21) 52.219-27, Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (Nov 2011) (15 U.S.C. 657 f).

x _ (22) 52.219-28, Post Award Small Business Program Rerepresentation (Jul 2013) (15 U.S.C. 632(a)(2)).

__ (23) 52.219-29, Notice of Set-Aside for Economically Disadvantaged Women-Owned Small Business (EDWOSB) Concerns (Jul 2013) (15 U.S.C. 637(m)).

__ (24) 52.219-30, Notice of Set-Aside for Women-Owned Small Business (WOSB) Concerns Eligible Under the WOSB Program (Jul 2013) (15 U.S.C. 637(m)).

__ (25) 52.222-3, Convict Labor (June 2003) (E.O. 11755).

x _ (26) 52.222-19, Child Labor—Cooperation with Authorities and Remedies (Jan 2014) (E.O. 13126).

x _ (27) 52.222-21, Prohibition of Segregated Facilities (Feb 1999).

x _ (28) 52.222-26, Equal Opportunity (Mar 2007) (E.O. 11246).

x _ (29) 52.222-35, Equal Opportunity for Veterans (Jul 2014)(38 U.S.C. 4212).

x _ (30) 52.222-36, Equal Opportunity for Workers with Disabilities (Jul 2014) (29 U.S.C. 793).

x _ (31) 52.222-37, Employment Reports on Veterans (JUL 2014) (38 U.S.C. 4212).

x _ (32) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496).

_X_ (33)(i) 52.222-50, Combating Trafficking in Persons (Mar 2015) (22 U.S.C. chapter 78 and E.O. 13627).
__ (ii) Alternate I (Mar 2015) of 52.222-50 (22 U.S.C. chapter 78 and E.O. 13627).

__ (34) 52.222-54, Employment Eligibility Verification (AUG 2013). (Executive Order 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial items as prescribed in 22.1803.)

__ (35)(i) 52.223-9, Estimate of Percentage of Recovered Material Content for EPA–Designated Items (May 2008) (42 U.S.C. 6962(c)(3)(A)(ii)). (Not applicable to the acquisition of commercially available off-the-shelf items.)
__ (ii) Alternate I (May 2008) of 52.223-9 (42 U.S.C. 6962(i)(2)(C)). (Not applicable to the acquisition of commercially available off-the-shelf items.)

__ (36)(i) 52.223-13, Acquisition of EPEAT®-Registered Imaging Equipment (JUN 2014) (E.O.s 13423 and 13514).
__ (ii) Alternate I (Jun 2014) of 52.223-13.

__ (37)(i) 52.223-14, Acquisition of EPEAT®-Registered Televisions (JUN 2014) (E.O.s 13423 and 13514).
__ (ii) Alternate I (Jun 2014) of 52.223-14.

x _ (38) 52.223-15, Energy Efficiency in Energy-Consuming Products (DEC 2007) (42 U.S.C. 8259b).

x _ (39)(i) 52.223-16, Acquisition of EPEAT®-Registered Personal Computer Products (JUN 2014) (E.O.s 13423 and 13514).
__ (ii) Alternate I (Jun 2014) of 52.223-16.

x _ (40) 52.223-18, Encouraging Contractor Policies to Ban Text Messaging While Driving (AUG 2011) (E.O. 13513).

__ (41) 52.225-1, Buy American—Supplies (May 2014) (41 U.S.C. chapter 83).

__ (42)(i) 52.225-3, Buy American—Free Trade Agreements—Israeli Trade Act (May 2014) (41 U.S.C. chapter 83, 19 U.S.C. 3301 note, 19 U.S.C. 2112 note, 19 U.S.C. 3805 note, 19 U.S.C. 4001 note, Pub. L. 103-182, 108-77, 108-78, 108-286, 108-302, 109-53, 109-169, 109-283, 110-138, 112-41, 112-42, and 112-43.
__ (ii) Alternate I (May 2014) of 52.225-3.
__ (iii) Alternate II (May 2014) of 52.225-3.
__ (iv) Alternate III (May 2014) of 52.225-3.

x _ (43) 52.225-5, Trade Agreements (NOV 2013) (19 U.S.C. 2501, *et seq*., 19 U.S.C. 3301 note).

x _ (44) 52.225-13, Restrictions on Certain Foreign Purchases (June 2008) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

__ (45) 52.225-26, Contractors Performing Private Security Functions Outside the United States (Jul 2013) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. 2302 Note).

__ (46) 52.226-4, Notice of Disaster or Emergency Area Set-Aside (Nov 2007) (42 U.S.C. 5150).

__ (47) 52.226-5, Restrictions on Subcontracting Outside Disaster or Emergency Area (Nov 2007) (42 U.S.C. 5150).

__ (48) 52.232-29, Terms for Financing of Purchases of Commercial Items (Feb 2002) (41 U.S.C. 4505, 10 U.S.C. 2307(f)).

__ (49) 52.232-30, Installment Payments for Commercial Items (Oct 1995) (41 U.S.C. 4505, 10 U.S.C. 2307(f)).

x _ (50) 52.232-33, Payment by Electronic Funds Transfer—System for Award Management (Jul 2013) (31 U.S.C. 3332).

__ (51) 52.232-34, Payment by Electronic Funds Transfer—Other than System for Award Management (Jul 2013) (31 U.S.C. 3332).

__ (52) 52.232-36, Payment by Third Party (May 2014) (31 U.S.C. 3332).

__ (53) 52.239-1, Privacy or Security Safeguards (Aug 1996) (5 U.S.C. 552a).

__ (54)(i) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (Feb 2006) (46 U.S.C. Appx. 1241(b) and 10 U.S.C. 2631).

__ (ii) Alternate I (Apr 2003) of 52.247-64.

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

x _ (1) 52.222-41, Service Contract Labor Standards (May 2014) (41 U.S.C. chapter 67).

__ (2) 52.222-42, Statement of Equivalent Rates for Federal Hires (May 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

__ (3) 52.222-43, Fair Labor Standards Act and Service Contract Labor Standards-Price Adjustment (Multiple Year and Option Contracts) (May 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

__ (4) 52.222-44, Fair Labor Standards Act and Service Contract Labor Standards—Price Adjustment (May 2014) (29 U.S.C. 206 and 41 U.S.C. chapter 67).

__ (5) 52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment—Requirements (May 2014) (41 U.S.C. chapter 67).

__ (6) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services—Requirements (May 2014) (41 U.S.C. chapter 67).

__ (7) 52.222-17, Nondisplacement of Qualified Workers (May 2014) (E.O.13495).

__ (8) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations (May 2014) (42 U.S.C. 1792).

__ (9) 52.237-11, Accepting and Dispensing of $1 Coin (Sept 2008) (31 U.S.C. 5112(p)(1)).

__ (10) 52.222-55, Minimum Wages Under Executive Order 13658 (Dec 2014) (Executive Order 13658).

(d) *Comptroller General Examination of Record*. The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, and does not contain the clause at 52.215-2, Audit and Records—Negotiation.

(1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.

(2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR Subpart 4.7, Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.

(3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e)(1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in this paragraph (e)(1) in a subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause—

(i) 52.203-13, Contractor Code of Business Ethics and Conduct (Apr 2010) (41 U.S.C. 3509).

(ii) 52.219-8, Utilization of Small Business Concerns (Oct 2014) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds $650,000 ($1.5 million for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(iii) 52.222-17, Nondisplacement of Qualified Workers (May 2014) (E.O. 13495). Flow down required in accordance with paragraph (l) of FAR clause 52.222-17.

(iv) 52.222-26, Equal Opportunity (Mar 2007) (E.O. 11246).

(v) 52.222-35, Equal Opportunity for Veterans (Jul 2014) (38 U.S.C. 4212).

(vi) 52.222-36, Equal Opportunity for Workers with Disabilities (Jul 2014) (29 U.S.C. 793).

(vii) 52.222-37, Employment Reports on Veterans (Jul 2014) (38 U.S.C. 4212)

(viii) 52.222-40, Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496). Flow down required in accordance with paragraph (f) of FAR clause 52.222-40.

(ix) 52.222-41, Service Contract Labor Standards (May 2014) (41 U.S.C. chapter 67).

(x)

__(A) 52.222-50, Combating Trafficking in Persons (Mar 2015) (22 U.S.C. chapter 78 and E.O 13627).

__(B) Alternate I (Mar 2015) of 52.222-50 (22 U.S.C. chapter 78 and E.O 13627).

(xi) 52.222-51, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment-Requirements (May 2014) (41 U.S.C. chapter 67).

(xii) 52.222-53, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Requirements (May 2014) (41 U.S.C. chapter 67).

(xiii) 52.222-54, Employment Eligibility Verification (AUG 2013).

(xiv) 52.225-26, Contractors Performing Private Security Functions Outside the United States (Jul 2013) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; 10 U.S.C. 2302 Note).

(xv) 52.226-6, Promoting Excess Food Donation to Nonprofit Organizations (May 2014) (42 U.S.C. 1792). Flow down required in accordance with paragraph (e) of FAR clause 52.226-6.

(xvi) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (Feb 2006) (46 U.S.C. Appx. 1241(b) and 10 U.S.C. 2631). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(xvii) 52.222-55, Minimum Wages Under Executive Order 13658 (Dec 2014) (Executive Order 13658).

(2) While not required, the contractor may include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End of clause)

## ADDENDUM 1 - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

### A.2.1. LIST OF ATTACHMENTS

The following attachments constitute part of this contract:

| Attachment | Description | Date |
|---|---|---|
| A | TECHNICAL SPECIFICATIONS | Nov 2013 |
| B | LIST OF DELIVERABLES | Nov 2013 |
| C | STATEMENT OF WORK | Sept 2014 |
| D | CONTRACTOR/GOVERNMENT COMMUNICATIONS REQUIREMENTS | Nov 2013 |
| E | COMMERCIAL SUBCONTRACTING PLAN | Dec 2013 |
| F | PRICING EXHIBITS | Dec 2013 |
| G | IT SECURITY MANAGEMENT PLAN | (To be submitted upon request) |
| H | IT SECURITY APPLICABLE DOCUMENTS LIST<br>(The attached requirements do not apply to this contract; however, these requirements apply to applicable NASA Delivery Orders) | Jun 2014 |

PCMG's Product Classification and Class Database Worksheets in its proposal dated 12/16/13 are herein attached by reference.

[END OF CONTRACT]

# SEWP V

# CONTRACT

# ATTACHMENTS

**Attachment A Technical Specifications**

**List of Abbreviations**

AC Alternating Current
AD Active Directory
AES Advanced Encryption Standard
ANSI American National Standards Institute
API Application Programming Interface
ASN Abstract Syntax Notation
BIOS Basic Input/Output System
BGP Border Gateway Protocol
BMC Baseboard Management Console
BNC Bayonet Neill–Concelman
CCD Charge Coupled Device
CCMP Counter Cipher Mode with Block Chaining Message Authentication Code Protocol or CCMP (CCM mode Protocol)
CIF Common Image Format
CIFS Common Internet file system
COTS Commercial Off-the-Shelf
CPU Central Processing Unit
CRT Cathode Ray Tube
CWDM Coarse Wavelength Division Multi-plexing
DAT Digital Audio Tape
DBMS DataBase Management System (rdbms for Relational)
DPI Dots per Inch
DS3 Digital Signal (level) 3
DVI Digital Visual Interface
DVR Digital Video Recorder
DWDM Dense Wavelength Division Multi-plexing
EAP Extensible Authentication Protocol
EIA Electronic Industries Association
EPEAT Electronic Product Environmental Assessment Tool
EPO Emergency Power Off
FCoE Fibre Channel over Ethernet
FDR Fourteen Data Rate
FIPS Federal Information Processing Standards
FIT Frame Interline Transfer
FT Frame Transfer
GByte Gigabyte
GbE Gigabit Ethernet (GbE or 1 GigE)
GHz – Gigahertz, $10^9$ Hz
GIS Geographic Information System
GPFS General Parallel File System
GPS Global Positioning System
GPU Graphics Processing Unit
GTC Generic Token Card
GUI Graphical User Interface
HDMI High Definition Multi-Media Interface
HDTV High Definition Television
HPGL Hewlett Packard Graphics Language
HSM Hierarchical Storage Management
HTML HyperText Markup Language
HTTP HyperText Transfer Protocol
Hz Hertz (cycles per second)
ICMP Internet Control Message Protocol

IEC International Electrotechnical Commission
IEEE Institute of Electrical and Electronics Engineers
IETF Internet Engineering Task Force
I/O Input/ Output
IP Internet Protocol
IPMI Intelligent Platform Management Interface
IPX Internetwork Packet Exchange
iSCSI Internet Small Computer System Interface
ISO International Standards Organization
ITU International Telecommunications Union
JPEG Joint Photographic Experts Group
KVM (keyboard, video and mouse switch), a hardware device that allows a user to control multiple computers
LAN Local Area Network
LCD Liquid Crystal Display
LDAP Lightweight Directory Access Protocol
LED Light Emitting Diode
LTO Linear Tape Open
MAC Medium Access Control
MByte Megabyte
Mbps Megabits per Second
MIB Management Information Base
MIC Message Integrity Check
MFD Multi-functional device
MFP Multi-functional printer
MMF Multi-Mode Fiber
MOSPF Multicast Open Shortest Path First
msec Milliseconds
MPLS Multi-Protocol Label Switching
NASA National Aeronautics and Space Administration
NEPA National Environmental Policy Act
NFS Network File System
NI Network Interface
NIC Network Interface Card
NIST National Institute of Standards
NTP Network Time Protocol
NTSC National Television Standards Committee
OCR Optical Character Recognition
OEM Original Equipment Manufacturer
OODBMS Object-Oriented Database Management System
OS Operating System
OSI Open System Interconnect
OSPF Open Shortest Path First
Pbyte Petabyte
PC Personal Computer
PCI Peripheral Component Interconnect
PCL Printer Command Language
PDF Portable Document Format
PDU Power Distribution Unit
PEAP Protected Extensible Authentication Protocol
PHY Physical Layer Protocol
PIM Protocol Independent Multi-cast
PIV Personal Identity Verification
PMD Physical Media Device
PNNI Private Network to Network Interface
POP Post Office Protocol

PUE Power Usage Effectiveness
QDR Quad Data Rate
RAID Redundant Array of Independent Disks
RAM Random Access Memory
RDBMS Relational Data Base Management System
RFC Request For Comments
RFP Request For Proposal
RIP Routing Information Protocol
RMON Remote Monitor/Monitoring
RMS Root Mean Squared
RMU Rack Mount Unit
ROM Read-Only Memory
SAC Single Attached Concentrator
SAM-FS Storage Archive Manager File System
SAN Storage Area Network
SAP Service Advertisement Protocol
SAS Single Attached Station
SATA Serial ATA
SCSI Small Computer System Interface
SMP Symmetric Multi-Processing
SNMP Simple Network Management Protocol
SONET Synchronous Optical NETwork
SQL Structured Query Language
SSD Solid State Drive
SSH Secure SHell
TBD To Be Designed/Determined
TByte Terabyte
TCP Transmission Control Protocol
TIFF Tagged Image File Format
TKIP Temporal Key Integrity Protocol
TLS Transport Layer Security
UDP User Datagram Protocol
UPS Uninterruptible Power Supply
USB Universal Serial Bus
VC Virtual Circuit
VGA Video Graphics Array
VHS Video Home System (VCR)
VLAN Virtual Local Area Network
VP View Processor
WAIS Wide Area Information Server
WAN Wide Area Network
WDM Wavelength Division Multi-plexing
WEP Wired Equivalent Privacy
WPA Wi-Fi Protected Access
XNS Xerox Network Systems Protocol

# 1. Introduction

Section 1 provides a general overview of the structure of these technical specifications.

## 1.1. Background

The computer facilities at NASA are being systematically enhanced by incorporating the latest in state-of-the-art computer system technologies. These improvements will enable NASA to remain at the leading edge in scientific and engineering processing performance and capabilities and to provide the user community of researchers and engineers with the most advanced and powerful computer tools available. In support of this activity NASA is establishing Indefinite Delivery/Indefinite Quantity contracts of scientific and engineering computer systems and supporting equipment. The computer systems will provide computational and graphics capability to the scientific engineering and other technical disciplines supporting NASA's core missions. The specifications presented in this document represent a comprehensive set of requirements intended to provide a complete environment for computational analysis by NASA engineers and scientists.

## 1.2. Requirements Structure

The very broad range of NASA's functions in space, earth science, aeronautics, manned flight, mission operations and other activities, results in an equally broad range of computational requirements and consequently a requirement for a broad range of computer systems and support equipment. The requirements are structured in a way that clarifies NASA's needs and categorizes the requirements on the basis of application functions. This structure is defined through two categories: Category A consists of a group of functional computer systems; Category B consists of complementary products and services that enhance and support the computer system functions.
This procurement is for 5 competition areas consisting of one Category A computer system competitions composed of one Group, and 4 Category B supporting equipment competitions composed of 3 Groups. Each of the groups has specific requirements and functional tasks that must be met by the offerings in that group. However, the potential usage of any group is broad and may be based on a variety of applications beyond the specific group definition. The groupings are devised to ensure that the Government has a sufficient set of the best available tools for given tasks. The groupings do not imply either exclusive product offerings by the contractor nor, do they restrict the Government from making best value judgments as to which group to use to meet their specific requirements.

### 1.2.1. Category A Structure

The prelude to the requirements includes the definitions of the computer system group used to identify the general set of applications or environments that distinguish this group. Group definitions are given in Section 2 of this document.

The computer system group is broad and represents a variety of applications beyond the specific group definition, yet this grouping produces enough commonality of requirements that applications in a group can share the same hardware platform.

This group represents not a single specific computer system, but instead represents a family of systems with a range of capabilities. In order to simplify requirements, the group is represented by three types of base systems. These base systems are generally distinguished by performance, upgradability and growth potential and define the minimum range of family of systems that should be provided on the contract. It is anticipated that systems will be made available on the contract through the Available Components list which are compatible with the base systems but which also both fill in and expand upon the requirements fulfilled through the base systems.
In general, application software such as CAD packages, databases, visualization software, etc. must be supported on the computer systems, but need not be provided (i.e. are not mandatory deliverables) unless specifically noted in the mandatory deliverables list in Attachment B. These are referred to as non-mandatory software.
A set of mandatory add-on equipment and upgrades is identified to allow for system enhancements. An available components list consisting of desirable items and other software and hardware which provides depth and breadth to the vendor's offerings, such as computer systems in ranges of sizing and functions that complement the basic systems and non-mandatory software is also included.

### 1.2.2. Category B Structure

The Category B groups consist of a set of capabilities that span across all computer systems via three areas: B) Mass Storage Devices, C) Server Support and Multi-Functional Devices, D) Network Devices, Computer Security Tools and Advanced Video and Conference Tools. Each group has a set of mandatory specifications. In addition, each group includes an available components list consisting of desirable items and other software and hardware that provide depth and breadth to the contract.

## 1.3. Structure of This Document

This section describes the section layouts of the technical specifications.

### 1.3.1. Category A Computer System Group

The specific requirements associated with Group A and derived from the applications to be supported are presented in Section 3.

### 1.3.2. Category B Groups

Requirements for this category are described in separate sections. Category A requirements do not apply to these groups. Mass Storage Devices requirements are described in Section 4. Server Support and Multi-Functional Devices requirements are described in Section 5. Network Devices, Computer Security Tools and Advanced Video and Conference Tools requirements are described in Section 6.

## 1.4. Terminology

Key terms are described in this section.

### 1.4.1. Provide / Support

Two key terms in the technical specifications are: provide and support. Use of the term “provide” indicates a product, service, or capability that is either a mandatory or, if modified by the term “desirable”, a desirable deliverable item. All mandatory deliverable products, services and capabilities are identified in the Delivery Lists in Attachment B. A mandatory deliverable is either part of the base system, a separate add-on line item, or a separate upgrade line item. If an item is identified in the technical section as needing to be provided and is not listed in Attachment B as a separate add-on or upgrade line item, it is included as part of the Base system.
Note that the term “provide” implies an item is either a part of every delivered base system or is a separately orderable line item. This distinction is made in the Delivery Lists in Attachment B. For example, a C++ compiler must be provided (as indicated in Section 3.1.4.2.). But the Delivery Lists indicate that the C++ compiler is a separately orderable line item and it is estimated that only a certain percentage of the base systems will be purchased with a C++ compiler over the life of the contract.
Use of the term “support” indicates a product, service, or capability that the systems must be capable of fully utilizing, but which are not part of either the mandatory or desirable deliverable list. When support is used in reference to a software product, a version of the product that can execute on the system must be available in the commercial and/or public domain arena. Supported products, services, or capabilities can be part of the available components list.

### 1.4.2. Deliverables

The delivery lists use abbreviated terminology for clarity in enumerating delivery items. The complete specifications for these delivery items are fully described in Sections 3 through 6. As an example, the delivery list identifies the operating system as a deliverable and the full set of specifications for that operating system is given in Section 3. This includes items such as file system, system administration, shells, etc.
Deliverables are divided into mandatory and non-mandatory categories:

#### 1.4.2.1. Mandatory Deliverables

Each of the separate group specifications produces a separate set of mandatory deliverables for each group. These delivery requirements are specified in Attachment B of this contract. The deliverables are divided into a Base Deliverable, and Add-on / Upgrade Deliverables. The Base Deliverables represent the minimum system configuration to be delivered for each equipment category. Add-on deliverables are mandatory line items that may be added to the Base deliverable at the discretion of the end-user. Upgrade deliverables are mandatory line items that upgrade; the Base deliverables at the discretion of the end-user, e.g. additional disk and/or memory.

#### 1.4.2.2. Non-mandatory Deliverables

Non-mandatory deliverables are items that go beyond the mandatory deliverables. Non-mandatory deliverables are identified through the available components list and include desirable features, additional technology and other software and hardware that provide depth and breadth to the offering.

### 1.4.3. Minimums / Desirables / Advanced Technology / Additional Technology

All technical specifications fit into one of four categories: minimum mandatory; desirable feature; advanced technology, or additional technology.
If a technical specification is not explicitly identified as advanced technology, additional technology or a desirable feature, it identifies a minimum mandatory that must be met. Alternatively, if a technical specification is identified as advanced technology, additional technology or a desirable feature, it is not a minimum mandatory but a technology, item or feature that the Government deems to have value if available.
If a technical section contains the term “desirable”, then the section identifies a feature that the Government desires but which the vendor is not required to provide or support.
If a technical section contains the term “advanced technology”, then the section identifies advanced capabilities that provide the Government with significant added benefit. These are typically features that are either at the cutting edge of technology or for which standards (industry or de-facto) are still forming.
A technical requirements section may contain the term “additional technology”. This designation identifies a basic capability that is intended to provide the Government with added value if the additional technology is provided in the Available Components list. Typically, “additional technology” indicates broad grouping of technology that, if included in the Contractor’s offerings, will provide the opportunity for one-stop solution shopping. For example, network technology is an additional technology in the Mass Storage Devices group as network products are an integral feature of many mass storage systems.

### 1.4.4. Authorized Reseller

At the beginning of the mandatory requirements for each Group, a listing is provided of those items for which the offeror must be authorized by the original equipment manufacturer (OEM) to sell as part of their SEWP V proposal. For the purpose of this proposal only, an authorized reseller is defined at a minimum as a company who is known by the OEM and for whom the OEM has approved the proposed mandatory offering(s). For each such identified item, the offeror must provide an OEM point of contact who can verify that information.
If the offeror is the OEM, then that is equivalent to the offeror being an authorized reseller and the POC information should note a POC within that offeror’s company.

## 1.5. Assistive Technology

All computer systems available and procured through this Contract must be technically capable of supporting commercially available and appropriate technology to ensure that Federal employees with disabilities will have access to and use of that technology unless a department or agency exception to this requirement exists.

### 1.5.1. Section 508 Information

All IT equipment available through this contract that fit the criteria as electronic and information technology (EIT) as defined in Section 508 of the Rehabilitation Act of 1973 as amended by the Workforce Investment Act of 1999 shall have information available to the Federal Government regarding how that technology meets the applicable Section 508 standards. This will preferably be provided through the applicable Voluntary Product Accessibility Templates (VPATs) or preferably the Government Product Accessibility Template (GPAT) as described on the Section 508 website (www.section508.gov and related sites). The VPATs or similar information may either be provided on the contractor's website, on demand based on request for quotes and/or through link on the SEWP Website. Section C.1.8. outlines the compliance and information requirements associated with the Section 508 standards.

All proposed mandatory products must indicate how applicable 508 requirements are met by either providing a filled-in VPAT, GPAT or other supporting documentation.

## 1.6. Environmentally Preferable Purchasing Program

All federal procurement officials are required by Executive Order 13101 and Federal Acquisition Regulation (FAR) to assess and give preference to those products and services that are environmentally preferable. Therefore all institutional purchasers who evaluate and select computer desktops, laptops, and monitors available and procured through this Contract should to the greatest extent possible meet the evolving standards associated with the Environmentally Preferable Purchasing Program (EPP) and the IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products as described on the website (http://www.epeat.net)). The Contractor shall have the ability to respond to specific requests and requirements centered on the EPP such as requests based on the Electronic Product Environment Assessment Tool (EPEAT) and identifying EPEAT registered products on their contract.

All proposed mandatory products must meet applicable EPEAT and Energy Star requirements where applicable. For purposes of proposing mandatory products only, these standards will be considered to apply if there are 5 or more products that both meet the associated standard and all other minimum mandatory requirements.

## 1.7. Minimum Mandatory Product Condition

All products proposed to meet the minimum mandatory requirements must be new products; i.e. refurbished and/or used technology cannot be proposed in response to a minimum mandatory requirement. Used and refurbished equipment may be proposed as part of the available components as defined in Section C.1.6. Used Equipment and Materials.

## 1.8. Definitions

To clarify meaning of some terms used in this specification, some definitions are given here.

| | |
|---|---|
| 508 (Compliance) | Federal agencies are required to make their electronic and information technology accessible to people with disabilities. Section 508 is an amendment to the Rehabilitation Act. |
| | |
| Add-ons: | Add-ons are mandatory line items which may be added to the Base deliverable at the discretion of the end-user. |
| | |
| Additional Technology | A basic capability that is intended to provide the Government with added value if the additional technology is provided in the Available Components list. |
| | |
| Advanced Technology | Advanced capabilities that provide the Government with significant added benefit. |
| | |
| Available Bus Slots: | The number of unused bus slots available for expansion after satisfying the requirements of the minimum mandatory deliverables and the maximum disk storage requirements for the base computer system. |
| | |
| Available Components | Non-mandatory deliverables including desirable features, additional technology and other software and hardware that provide depth and breadth to the offering. |
| | |
| Base Systems | The systems which must meet the minimum mandatory specifications and be provided for on the Contract |
| | |
| Category: | A set of technology based on similar objectives and/or overall structure |
| | |
| Computer Room Environment: | Facilities in which special environmental factors are maintained, such as controlled temperature and humidity, where noise is not limited by office requirements, and in which reliable power systems are available and/or are at levels other than the standard 110 volt, 60 Hz. |
| | |
| Computer System: | A computer workstation or server |
| | |
| Core Specifications | Set of technical specifications that are included in all requirements within the specified category or group |
| | |
| Desirable Feature | A feature that the Government desires but which the vendor is not required to provide or support |
| | |
| Energy Star (Compliant) | Energy Star (TM) is an international standard for energy efficient consumer products originated in the United States of America. |
| | |
| FIPS 140 | Federal Information Processing Standards (FIPS) are U.S. government computer security standards that specify requirements for cryptography modules. http://en.wikipedia.org/wiki/FIPS_140 |
| | |

| | |
|---|---|
| Group: | A grouping of technological requirements based on common functionality |
| | |
| Group Specific Specifications | Set of technical specifications that are specific to the given Group |
| | |
| Infiniband | **InfiniBand** is a switched fabric communications link used in high-performance computing and enterprise data centers. http://en.wikipedia.org/wiki/Infiniband |
| | |
| Mandatory Deliverables | Products that must be included in the Contract in order to meet the mandatory requirements of the group |
| | |
| Mandatory Specifications | Set of technical specifications that must be meet by the mandatory offerings |
| | |
| Non-Mandatory Deliverables | Products that go beyond the mandatory deliverables are identified through the available components list and include desirable features, additional technology and other software and hardware that provide depth and breadth to the offering. |
| | |
| Non-Mandatory Desirable Feature: | A capability that is desired by the Government but not required. |
| | |
| Office Environment: | A human work area providing moderate environmental conditioning but with limited capacity to support or provide unusual power or temperature/humidity requirements, and one that may be easily upset by equipment emitting excessive heat and/or noise. |
| | |
| Open Bus Architecture: | A bus with multivendor support. This means that there is an industry published specification to enable third party connectivity. |
| | |
| Open Systems Environment: | The comprehensive set of interfaces, services, and supporting formats, plus user aspects, for interoperability or for portability of applications, data, or people, as specified by information technology standards and profiles. Source: IEEE P1003.0 POSIX Committee. |
| | |
| Provide: | Indicates a product, service, or capability that is either a mandatory or, if modified by the term "desired", a desirable deliverable item. |
| | |
| such as: | The term "such as" is used to list example products that are known to meet the stated capability, and for which products that also meet the stated capability may be substituted. |
| | |
| Support | Indicates a product, service, or capability that the systems must be capable of fully utilizing, but which are not part of either the mandatory or desirable deliverable list. |
| | |
| TAA (compliant) | TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products. This act requires that contractors must certify that each end product meets the applicable requirements. End products are 'those articles, materials and supplies to be acquired for public use'." This includes items which have been "substantially transformed" in the United States. |

| | |
|---|---|
| TWAIN | A standard software protocol and applications programming interface (API) that regulates communication between software applications and imaging devices such as scanners and digital cameras. http://en.wikipedia.org/wiki/TWAIN |
| | |
| Upgrades: | Upgrades are mandatory line items that upgrade the Base deliverables at the discretion of the end-user; e.g. additional disk and/or memory. |
| | |
| Virtual File System | A virtual file system is an abstraction of a physical file system implementation. It provides a consistent interface to multiple file systems, both local and remote. This consistent interface allows the user to view the directory tree on the running system as a single entity even when the tree is made up of a number of diverse file system types. The interface also allows the logical file system code in the kernel to operate without regard to the type of file system being accessed |
| | |
| Waterless Fire Suppression | E.g. Dupont FM-200 used as a gaseous fire suppression agent. http://en.wikipedia.org/wiki/Heptafluoropropane |

## 2. Contract Definitions

Section 2 provides general paragraph descriptions of the various SEWP Groups.

## 2.A. Category A: Scalable Computer System Group

This Section provides general paragraph descriptions of the SEWP Group in Category A.
The Computer Systems/Server group of systems and services will be used to provide systems that shall be scalable and applied to meet a wide range of computer and data-intensive requirements. The requirements include compute-intensive traditional optimized applications such as modeling, and mathematical analysis. Applications include, but are not limited to, atmospheric and oceanographic modeling, ocean color or crustal dynamics studies, ozone and sea-ice mapping, radio astronomy, high-energy astrophysics applications, flight dynamics computations, and fluid flow dynamic process modeling. These systems may need Infiniband network interconnects to achieve the very highest performance. These systems may be used in the configuration of highly virtualized arrays of servers, connected together in a super-computer configuration or managed selectively.
These computer systems may also be configured for high performance visual rendering, image analysis and the acceleration of general-purpose scientific and engineering applications. This work is often combined with the highest quality in the visual representation of data to the user.
Typical applications from the Earth and Space science communities are modeling, data assimilation and analysis. Earth and space scientists require the ability to transform volumetric data at high rates to view different perspectives quickly. Additionally, photo realistic representations of data such as the planet Earth with full texture maps are needed to accommodate the overlay of geophysical parameters obtained from spacecraft observations. Three dimensional simulations of the Earth system that generate terabytes of data are performed on high performance systems. Applications from the engineering community include modeling the spacecraft and sensor design. NASA has a critical need to support the real-time modeling of these spacecraft using high speed animation of these vehicles and their antennas (or arms), where the antennas (or arms) move independently of each other. Computer systems must be able to display large numbers of polygons per second to meet the animation needs of the robotics community as well as provide a high degree of graphical representation of the objects displayed.
This Group of computer systems may also be configured to be used to manage large repositories of data ranging up to high-end hierarchical mass storage systems, storing and retrieving hundreds of gigabytes to tens of terabytes of data each day with total archive capacity of Petabytes. Fast networking such as 10-Gigabit Ethernet will be required to access the data from other hosts. Data will be stored initially on high-performing RAIDed disk subsystems and then copied to lower levels in the storage hierarchy. These lower levels must also be high performing and could include solid state disks (SSD) lower-cost disk arrays, massive arrays of idle disks (MAID), tapes or other removable media within robotic libraries. Data is staged back to primary RAIDed disk automatically upon retrieval. Users expect stores and retrieves to be accomplished within seconds. These systems are anticipated to be used in conjunction with mass storage devices as defined in Group B.
Alternatively, these computer systems will be used to house large data volumes and large databases. Applications are typically based on commercial DBMS packages. In addition, these systems would typically provide capability for archival and digital libraries. The critical features of such systems include: high rate of transactions per second, high performance, low latency networks, high volume of network traffic, fast disk access, large amounts of memory (RAM), high volume of memory to disk transfers, and large amounts of secondary storage.
The critical features of this Group are high compute capability, scalability (potentially from a single rack to multiple racks to a series of containers) fast primary storage and network communications, and large data storage capability. 128-bit arithmetic may be needed to support these requirements. This group of system will most likely reside away from the user's work area and be accessed primarily over the network.
This Group will include hardware systems and peripherals, software and software licenses, and hardware and software maintenance services including analyst support.

## 2.B. Category B: Complementary Products Categories

This Section provides general paragraph descriptions of the SEWP Groups in Category B
Category B (Complementary Products)
Group B – Mass Storage Devices
Group C – Server Support and Multi-Functional Device
Group D –Network Devices, Computer Security Tools and Advanced Video and Conference Tools

### 2.B.1. Group B – Mass Storage Devices

This group consists of storage devices; e.g. Hard disks and removable media systems which can be used by any of the computer systems in Category A along with virtual storage systems (i.e. cloud computing). While it is anticipated that products in this group will be purchased for use with any of the Category A systems, this group is particularly concerned with providing mass storage I/O devices for use with the systems managing large RAID storage, large archives, and other "big data" systems.

### 2.B.2. Group C – Server Support and Multi-Functional Device

This group includes Input and Output peripherals and other equipment that support and complement the full implementation of computer systems. These items may be purchased by the Government separately from the computer systems but rely on standards and standard interfaces to ensure interoperability with existing computer systems. Included in this group are display terminals and systems and other low-end client systems to allow user connectivity to a full range of computer systems; scanners to allow inputting of information from hard-copy forms; input devices such as sensors directly connected to computer monitoring systems; mobile systems and smart phones to allow mobile access to individual's computing needs.
This group also includes Multi-functional devices (MFD) which are single devices that serve several functions, including printing, scanning, faxing and photocopying.

### 2.B.3. Group D –Network Devices, Computer Security Tools and Advanced Video and Conference Tool

This group consists of a range of network equipment in support of the full implementation of computer systems in the NASA network environment. These items may be purchased by the Government separately from the computer systems but rely on standards and standard interfaces to ensure interoperability with those systems. Hardware, including hubs, switches, routers, NFS routers, concentrators and diagnostic tools, and software including network management are included in this group. Networking systems also include network communication devices relying on WIFI, radio and related technology.
This group consists of security oriented hardware and software needed to securely support a full implementation of computer systems and infrastructure in the NASA information technology environment. These items may be purchased by the Government separately from the computer, but rely on standards and standard interfaces to ensure interoperability with the computer systems and the supporting networks. Items in this group will include virus and spyware detection tools, two and three factor authentication tools, firewalls, auditing tools, intrusion detection systems, encryption capabilities, monitoring tools, and secure remote access tools. Security hardware products include biometric devices and security related sensors and data input devices.
This group consists of a range of equipment in support of digital television image production and related imaging and display tools. The Government may purchase these items separately from computer systems, but rely on standards and standard interfaces to ensure interoperability with those systems. The hardware in this group includes High Definition (HD) and Standard Definition (SD) Digital TV (DTV) equipment for video acquisition, production, post-production, distribution, and display. Additionally, the increasing complexity and volume of scientific data benefit from paradigms for interaction and visualization that are much closer to normal human interaction in the physical world. These paradigms require immersion and stereoscopic viewing for three-dimensional data, tracked and/or haptic devices with high degrees of freedom, and audio processing systems for data sonification. Where appropriate, these devices may act as input/output peripherals to developmental computer systems.

Elements of the main categories of AV, security and networking can be combined to provide all-in-one solutions. The combination of security and AV technology, for example, allows for security and command and control systems such as video security systems. Networking, communication and AV combine for Videoconferencing solutions.

# 3. Category A: Group A: Computer System Specifications

Section 3 provides the mandatory technical specifications for Group A: Computer System Class Equipment.

## 3.1. Core Specifications Introduction

This section provides a general overview of the core specifications.

All proposed mandatory products must meet the following (where applicable):

a. EPEAT certified
b. Energy Star compliance
c. 508 compliance
d. Trade Act (TAA) compliance
e. New Equipment
f. Authorized reseller for the following mandatory products:

- Mid-range cluster
- High-end cluster
- Container based systems

### 3.1.1. Purpose

The purpose of this section is to define the Core Specification requirements for the mandatory computer systems in Group A

### 3.1.2. Background

The Core Specifications apply to the base and mandatory products for the mandatory computer systems, unless a deviation to the Core Specifications is noted in the Specific Sections.

### 3.1.3. Hardware

This section describes the core hardware specifications. The goal of the core system specifications is to ensure system compatibility from low to high end systems where applicable.

#### 3.1.3.1. Data Storage Components

a. Hard disk storage shall be provided with each system. The storage requirements are class specific.
b. All storage devices shall be field installable.
c. All storage devices shall provide hard error detection (resulting in a non-recoverable failure) and all such errors shall be reported to the system logs.
    1. All storage devices shall provide detection of all errors (recoverable and non-recoverable)

#### 3.1.3.2. Communication / Network Interfaces

a. Native support of Internet Protocols (IP) is required for compatibility with existing network and computing platforms.
b. Each computer system shall provide an IEEE 802.3, ISO 8802/3 1000Base-T Ethernet interface in the base systems.
    1. Options for additional physical Ethernet interfaces (desirable)

### 3.1.4. System Software

This section describes required functions and features that normally are performed by the system software. The operating system software shall support the hardware. The system software shall support a set of development tools and utilities to augment the capabilities of the operating system and the required language processors.

These software tools shall provide fast, efficient mechanisms to develop application programs, backup and restore files, debug programs, and supply other useful system functions.

#### 3.1.4.1. Operating System

The operating system (OS) shall be identified in terms of type (e.g. UNIX, Linux, etc), version and any branding certification or other standards covered by the OS

#### 3.1.4.2. Programming Environment

The class 1 and 2 systems shall provide:

a. A C++ compiler which shall include:
   1. run-time libraries.
   2. a C++ source language compatible symbolic debugger with capability to read core dumps. Shall display source code, program variables (including register contents), debugger commands, and debugger output. Display of original names of source code variables.
   3. a single (1) user license
      a. an optional site license (desirable)
   4. compliant C++ compiler (ISO/IEC 14882:2011) (desirable)
b. a Fortran 2008 compiler which shall include:
   1. run-time libraries.
   2. a Fortran source language compatible symbolic debugger with capability to read core dumps. Shall display source code, program variables (including register contents), debugger commands, and debugger output. Display of original names of source code variables.
   3. a single (1) user license
      a. an optional site license (desirable)
   4. compliant Fortran 2008 standard compiler (ISO/IEC 1539-1:2010) (desirable)

#### 3.1.4.3. System Software License

Each computer system in class 1 and 2 shall be a multiuser system. The operating system license shall be available in at least 1 licensing level for all systems:

a. an unlimited license defined as allowing an unlimited number of users to be logged in simultaneously, where 1 or more may be logged in through the console and the rest are connected through a network connection

### 3.1.5. Documentation

The contractor shall provide access to complete sets of commercially available system and user manuals. All provided documentation shall be available on line.

## 3.2. Group A: Computer System Class Specific Specifications

For each of the three classes in Group A, contractors are required to meet both the core requirements defined in the "Computer System Core Specification" (Section 3.1) and the additional mandatory requirements defined for that class, provided in each of the subsections that follow, unless otherwise noted.

If there is a conflict in requirements between the Class Specific Specification and the Core Specification, the Class Specific Specification shall always take precedence.

Each class is differentiated by performance and capacity and is intended for use by highly intensive computational and related (mass storage, database, rendering, etc.) operations. Each class is intended to be highly scalable and configurable for redundant and fault-tolerant operation.

### 3.2.1. Class 1: Mid-Range Cluster

The purpose of this section is to define the specific requirements for a mid-range Cluster System. The following specifications are required of these Class 1 computer systems over and above, or in place of the core specifications defined in Section 3.1.

#### 3.2.1.1. Hardware Configuration

The Mid-Range cluster architecture requires a total of thirty-six (36) nodes. Management nodes shall be connected to two different internal networks: 1GbE for management and a 10GbE for data. Each data node shall be connected to the 1GbE management network. All Class 1 Mid-Range Cluster systems shall provide the following minimum capabilities, unless noted as a desirable:

a. Operate in a computer room environment with raised floors;

b. Either SATA or Near-Line SAS Disk Controllers shall be provided with each node;

c. SmartPDU:

(1) Sufficient to connect the power supplies of all Nodes, Switches and KVM;

(2) Cables to fully connect all Nodes, Switches and KVM;

d. Provide 2 Management Nodes, where each Node shall be provided with the following configuration:

(1) Dual Socket Motherboards;

i. Oct-Core Intel "SandyBridge" 2.3GHz processors
1. Oct-Core Intel "SandyBridge" 2.5GHz processor (desirable)
ii. 32 GB of RAM

(2) Management Network: Minimum of one (1) GbE on-board Network Interface Card (NIC) with Baseboard Management Console (BMC);
(a) Must be compatible with IPMI Version 2;

(3) Local Area Network: 10GbE NIC with optics and 25-meter fibre cables;
(a) 40GbE NIC with optics and 25-meter fibre cables (desirable);

(4) Data Storage:
(a) minimum of 36Terabytes of storage for data;
(b) hard drives shall be hot-swappable;

(5) Operating System Drives:
(a) Dual operating system hard drives with a minimum of RAID0 and RAID1 support;
(b) 500GB capacity minimum;
(c) Hot-swappable (desirable);

(6) Management Nodes shall have redundant power supplies;

(7) Full cabling shall be provided for all network and power connections;

(8) Rack rails for all nodes shall be provided.

e. Provide 34 Data Nodes, where each node shall be provided with the following configuration:
1. Dual socket motherboards:
i. Oct-Core Intel "SandyBridge" 2.3GHz processors

            1. Oct-Core Intel "SandyBridge" 2.5GHz processor (desirable)
        ii. 32 GB of RAM
    2. Management Network: Minimum of one (1) GbE on-board Network Interface Card (NIC) with Baseboard Management Console (BMC);
        i. Must be compatible with IPMI Version 2;
    3. Data Storage:
        i. minimum of 36Terabytes of storage for data;
        ii. hard drives shall be hot-swappable;
    4. Operating System Drives:
        i. Dual operating system hard drives with a minimum of RAID0 and RAID1 support;
        ii. 500GB capacity minimum;
        iii. Hot-swappable (desirable);
    5. Data Nodes shall have redundant power supplies;
    6. Full cabling shall be provided for all network and power connections;
    7. Rack rails for the switch shall be provided.

f. Provide one (1) Management Network GbE Switch with the following configuration:
    1. 48-port GbE switch;
    2. Hot-swap power supplies and fans;
    3. Switch shall be Layer 2 with support for multiple VLAN and bonding;
    4. Switch shall be provided with all cabling and adapters for console access;
    5. Switch shall be provided with redundant power supplies and power cables to allow the switch to be connected to two different PDUs fed from different circuits within the same rack.

g. Provide racks:
    1. Racks shall be provided to support all nodes, KVM and switches and shall be configured with redundant PDUs;
    2. Power tails shall be IEC60309.

h. Provide a KVM to support all nodes:
    1. All nodes shall have a dedicated KVM network or connection;
    2. Cables and dongles shall be provided to manage all nodes.

i. The following software shall be supported and the names of a sample software package provided:
    1. Software utility that performs remote BIOS updates and modifications across all nodes from a central location:
        i. The utility shall operate under Linux;
        ii. The utility shall enable management of the following for each node:
            1. Power management settings;
            2. C-state settings;
            3. P-state settings;
            4. CPU and Memory performance;
            5. Hyperthreading;
            6. Turboboost;
            7. Serial port settings for console redirection.
    2. Cluster Management software:
        i. Cluster Management shall perform "node provisioning";
        ii. Cluster Management shall support "versioning" of the software being provisioned to the nodes (Advanced Technology).
    3. Shared File System (Desirable).
    4. Scheduler software (Desirable).

**3.2.1.2. Data archive**

In some instances, this Class will be configured to host large digital archives or as large file servers. To meet this requirement, storage management systems must be supported. All Class 1 systems shall provide a Hierarchical Mass Storage System that shall support the following minimum capabilities, unless noted as a desirable:

a. This class must provide one of the following storage systems with an initial configuration of at least 10 PB of storage:
    1. IBM TS3500;
    2. SpectraLogic T-finity;
    3. Oracle SL8500;
    4. Or equivalent.
b. The storage library must scale to a minimum of 50 Petabytes;
c. One or more of the following media types must be provided to store 10 Petabytes of uncompressed data:
    1. T10K (or better);
    2. LTO-6 (or better);
    3. IBM 3592 (or better);
    4. Or equivalent.
d. Tape drives to support the provided media:
    1. Fifty tape drives;
    2. Tape SAN switches and cabling (e.g. Brocade) to support the 50 tape drives.
e. Disk cache of 5 Petabytes;
    1. Disk SAN switches and cabling (e.g. Brocade) to support the disk cache.
f. The file management storage system must be hierarchical, such as SAM-FS or Data Migration Facility. The hierarchical storage management system should be scalable up to at least 100 Petabytes, providing the user a way to build up to full use of the archive storage system.
g. Dual (or multiple) tape copies of a file; multiple server capabilities (server functions spread over multiple machines) as described in the IEEE Mass Storage Reference Model; support for higher scalability (e.g. storage capacity up to 50 or more Pbytes) and other advanced functions / capabilities for the hierarchical storage management system (advanced technology).
h. The Hierarchical Mass Storage System Software shall have the ability to at least:
    1. locate, mount, read and write storage media;
    2. support Linux/UNIX native file system user calls and commands, e.g. “ls”, “touch”, etc.;
    3. support access at hard disk storage speed to the most frequently/recently accessed files;
    4. ‘vault’ media and provide a means of notifying the operator to retrieve a ‘vaulted’ (i.e. off-line) media when an ‘old’ file is requested;
    5. employ a ‘nameserver’ and ‘tapeserver’ or similar means for locating files on storage media;
    6. provide utilities for backup and recovery of critical files including the Hierarchical Mass Storage System software;
    7. provide a repack function (repack tapes to remove deleted files);
    8. log major activities of software components for system monitoring;
    9. write multiple media (disk, tape, etc.) copies of a file;
    10. scalable up to at least 50 Pbyte, providing the user a way to build up to full use of the mass storage system.
i. Architectural description of a fully configured HSM system, using the required components listed above with 100 Petabyte capacity, writing 150 Terabytes of new data per day, I/O balance of 75% writes and 25% reads, using a Disk SAN (e.g., Brocade) for the disk cache and a Tape SAN (e.g., Brocade) for the Tape drives (Advanced Technology).

**3.2.1.3. Application Software**

In some instances, this Class will be configured to host large databases and/or serve as a render farm, host digital archives, perform as large file servers or serve a combination of these functions. To meet this requirement, the Class 1 computer system shall provide the following software:

a. computer graphic design and rendering software including, but not limited to one user license for:
    1. AutoDesk Maya or equivalent
        (i) Include one year Cloud Subscription;
    2. RenderMan Studio 4 or equivalent.
    3. Pixar RenderMan Pro Server 17 or equivalent
b. database libraries including, but not limited to:

1. Oracle Database 11g R2 Standard Edition or equivalent
   (i) One new Unlimited use (processor based) Oracle license. The license should be for one data node in the proposed mid-range cluster

### 3.2.2. Class 2: High-End Cluster

The purpose of this section is to define the specific requirements for High-End Cluster System. The following specifications are required of these Class 2 computer systems over and above, or in place of the core specifications defined in Section 3.1.

#### 3.2.2.1. Hardware Configuration

This class of system is characterized by system, performance, connectivity, expansion and storage (in-memory and attached) requirements.

The High-End cluster architecture requires two management nodes, two service nodes, sixteen compute nodes with graphical processing units (GPUs) and a total of four hundred and sixty four (464) compute nodes. The two management nodes and two services nodes shall be connected to three different internal networks: 1GbE for management, the 10GbE and the Infiniband network. Each of the 480 compute nodes shall be connected to two different internal networks: 1GbE for management and the Infiniband network for data. All Class 2 High-End Cluster systems shall provide the following minimum capabilities, unless noted as a desirable:

a. Operate in a computer room environment with raised floors;

b. Either SATA or Near-Line SAS Disk Controllers shall be provided with each node;

c. SmartPDU:

   1) Connectivity shall be provided to connect all redundant power connections of all nodes, switches and the KVM;

   2) Cables to connect all nodes, switches and KVM;

d. Provide 2 Management Nodes, where each Node shall be provided with the following configuration:

   1) Dual Socket Motherboards;

   2) Oct-Core Intel "SandyBridge" 2.3GHz processors;

      (a) Next Generation Socket Compatible (Desirable);

      (b) Oct-Core Intel "SandyBridge" 2.5GHz processor (desirable)

   3) 32 GB of RAM;

   4) QDR Infiniband Host Card Adapter (HCA);

      (a) FDR Infiniband (desirable)

   5) Management Network: Minimum of one (1) GbE on-board Network Interface Card (NIC) with Baseboard Management Console (BMC);

      (a) Must be compatible with IPMI Version 2;

   6) Local Area Network: 10GbE NIC with optics and 25-meter fibre cables;

      (a) 40GbE NIC with optics and 25-meter fibre cables (desirable);

   7) Dual 1.0 TB (or greater) capacity 7,200 RPM (or faster) SATA disk drives:

      (a) RAID 0 support;

      (b) RAID 1 support;

      (c) Hot-swappable (desirable);

   8) Management Nodes shall have redundant power supplies;

9) Full cabling enabling all redundant connectivity shall be provided for all network and power connections;

10) Rack rails for all nodes shall be provided;

e. Provide 2 Service Nodes, where each Node shall be completely redundant and may not be contained within a single chassis or share a planar. Each Service Node shall be provided with the following configuration:

1) Dual Socket Motherboards;

2) Oct-Core Intel "SandyBridge" 2.3GHz processors;

(a) Next Generation Socket Compatible (Desirable);

(b) Oct-Core Intel "SandyBridge" 2.5GHz processor (desirable)

3) 32 GB of RAM;

4) QDR Infiniband Host Card Adapter (HCA);

(a) FDR Infiniband (desirable)

5) Management Network: Minimum of one (1) GbE on-board Network Interface Card (NIC) with Baseboard Management Console (BMC);

(a) Must be compatible with IPMI Version 2;

6) Local Area Network: 10GbE NIC with optics and 25-meter fibre cables;

7) Dual 1.0 TB (or greater) capacity 7,200 RPM (or faster) SATA disk drives:

(a) RAID 0 support;

(b) RAID 1 support;

(c) Hot-swappable (desirable);

8) Nodes shall have redundant power supplies;

9) Full cabling enabling all redundant connectivity shall be provided for all network and all power connections;

10) Rack rails for all nodes shall be provided;

f. Provide 464 Compute Nodes and 16 Compute Nodes with GPUs, where each node shall be provided with the following configuration:

1) All Compute nodes shall be interconnected via Infiniband (QDR);

(a) FDR Infiniband Host Card Adapter (HCA) (desirable);

(b) Infiniband switch topology shall be provided that introduces no more than 16 to 1 blocking between any two nodes

(i) Switch topology that introduces no more than 8 to 1 blocking (desirable);

2) All Compute nodes shall be provided with all necessary cables, rack rails, racks, power supplies, power cables, and cable management;

3) All Compute nodes shall have sufficient cooling for full utilization of the entire cluster at maximum sustained processor performance with either:

(a) Rear door heat exchangers with water connections at the bottom of the door; or

(b) Alternate cooling method that provides sufficient cooling capacity for full utilization of the cluster at maximum processor performance.

4) Dual socket motherboards:

(a) Oct-Core Intel "SandyBridge" 2.3GHz processors;

(i) Next-Generation Socket Compatible (desirable);

(ii) Oct-Core Intel "SandyBridge" 2.5GHz processor (desirable)

(b) 32 Gigabytes of RAM.

5) Option for Many Integrated Core (MIC) (aka Intel Knights Corner) (the GPU nodes are excluded from this requirement):

(a) Option for one MIC per Compute Node;

(b) Two MICs per Compute Node (Desirable):

(i) Full PCI bi-section bandwidth to both MICs (desirable).

6) Management Network:

(a) Minimum of one (1) GbE on-board Network Interface Card (NIC) with Baseboard Management Console (BMC);

i. Must be compatible with IPMI Version 2;

7) Data Storage (this is not a requirement for the GPU nodes):

(a) Minimum of 14 Terabytes of storage for data;

i. Minimum of 36 Terabytes of storage for data (desirable)

(b) Hard drives shall be hot-swappable.

8) Operating System Drives:

(a) Dual operating system hard drives with a minimum of RAID0 and RAID1 support;

(b) 7200 RPM (or faster) SATA hard drive;

(c) 500 Gigabytes capacity minimum;

(d) Hot-swappable (desirable).

9) Compute Nodes redundant power supplies (Desirable);

10) Each of the 16 Compute Nodes with GPUs shall be provided with the following configuration:

(a) Sufficient PCI slots and bandwidth to allow for full bandwidth access to all the GPUs attached to the node and the QDR (FDR desirable) Infiniband card. At a minimum, this would require a 1 by 16x PCI-e slot for each GPU and a 1 by 8x PCI-e slot for the QDR (FDR) Infiniband card.

(b) NVidia Tesla K10 or later equivalent version

(c) The GPUs may be housed internal to the node or external to the node as long as the requirement for full bandwidth access between the GPU and the socket is met.

g. Provide a Management Network GbE Switch with the following configuration:

1) Switches shall be provided with sufficient capacity to connect all management, service, and compute nodes, KVM and a minimum of 2 uplinks;
2) Hot-swap power supplies and fans;
3) Switches shall be Layer 2 with support for multiple VLAN and bonding;
4) Switches shall be provided with all cabling and adapters for console access;
5) Switches shall be provided with redundant power supplies and power cables to allow the switch to be connected to two different PDUs fed from different circuits within the same rack.

h. Provide a Local Area Network 10 GbE Switch with the following configuration:

1) Switch shall be provided with sufficient capacity to connect all Management and Service nodes and a minimum of 2 uplinks;

2) Hot-swap power supplies and fans;
3) Switch shall be Layer 2 with support for multiple VLAN and bonding;
4) Switch shall be provided with all cabling and adapters for console access;
5) Switch shall be provided with redundant power supplies and power cables to allow the switch to be connected to two different PDUs fed from different circuits within the same rack.

i. Provide Infiniband Network QDR Switch with the following configuration:

1) Switch(es) shall be provided with sufficient capacity to connect all management, service, and compute nodes and an appropriate number of uplinks in accordance with the blocking factor;
2) Switch(es) shall be fully populated with leaf modules (as necessary);
3) Switch(es) shall have redundant management cards (as necessary);
4) Switch(es) shall have hot-swap power supplies and fans;
5) All IB switch(es) must have redundant power supplies and power cords to allow them to be connected to two different PDUs fed from different circuits within the same rack or nearby racks;
6) Switch(es) shall be provided with all cabling and adapters for console access;
7) FDR Infiniband Switch (desirable);

j. Racks:

1) Racks shall be provided to contain and support all Management, Service and Compute nodes, switches and KVM and shall be configured with redundant PDUs;

2) Power tails shall be IEC309.

k. Cable management for all nodes, switches and KVM:

1) All cables for all nodes, switches and KVM must run either within the rack housing the node or overhead;

2) Overhead cable trays must support and protect the cables;

3) All uplink cables run between the Compute nodes and either the Management network switch or the Infiniband network switch may be run overhead in the cable tray or under raised floor.

l. Provide a KVM capability to support all 484 Management/Service/Compute nodes:

1) Ethernet based (desirable);

2) All nodes shall have a dedicated KVM network or connection;

3) Cables and dongles shall be provided to manage all nodes.

m. Architectural description of a fully configured system, using the required components listed above configured for optimal performance showing both management and IB network topologies and uplinks and including a complete mechanical and electrical description with diagrams (Advanced Technology)

n. The following software shall be supported and the names of a sample software package provided :

1. Software utility performs remote BIOS updates and modifications across all nodes from a central location;

i. The utility shall operate under Linux;

ii. The utility shall enable management of the following for each node:

1. Power management settings;

2. C-state settings;

3. P-state settings;

4. CPU and Memory performance;

5. Hyperthreading;

6. Turboboost;

7. Serial port settings for console redirection.

2. Cluster Management software:
   i. Cluster Management shall perform "node provisioning";
   ii. Cluster Management shall support "versioning" of the software being provisioned to the nodes (Advanced Technology).
3. Shared File System (Desirable).
4. Scheduler software (Desirable).

### 3.2.3. Class 3: Container-based Servers

The purpose of this section is to define the specific requirements for the Container-Based Servers. The requirements stated in this section shall be proposed as a completely integrated solution that would be delivered in a container. The following hardware and software specifications are required of these Class 3 computer systems over and above, or in place of the core specifications defined in Section 3.1.

#### 3.2.3.1. Hardware Configurations

This section describes the container system hardware configurations required for Class 3. Two basic configurations are required: a 3/a container and a 3/b container. For this base system, the configuration is for 3 phase power, an input voltage of 220 V and the environment should be considered ideal; i.e. there are no extreme environmental conditions to be considered.

All Class 3 containers (Class 3/a and 3/b) shall provide the following minimum capabilities, unless noted as desirable:

a. Adiabatic/Ambient cooling (i.e., chiller-free);
b. 25kW/rack power consumption (desirable);
c. Uninterruptible Power Supply (UPS) capacity shall be sufficient to handle transient (10 seconds or less) power fluctuations and short-term interruptions without disruptions to the equipment in the container;
d. UPS capacity shall support orderly shutdown of IT equipment and cooling in case of complete (long-term) power disruption. UPS capacity shall support a run-time of a minimum of 6 minutes;
   a. Support a run-time of a minimum of 30 minutes (desirable)
e. Highly energy efficient solution with a PUE of 1.3 or better;
   a. PUE of 1.1 (desirable);
f. Emergency Power Off (EPO);
g. Redundant PDUs;
h. Cooling shall provide "N+1" redundancy with no single points of failure;
i. Security shall provide support for electronic entry with logging;
j. Fire suppression:
   a. Comply with NFPA 2001;
   b. Provide manual activation at each egress door;
      i. Provide abort switches at each egress door (desirable)
k. Air Aspirating Smoke Detection System:
   a. Provide a minimum of four alarm levels with the first three alarm levels providing advance warning of a fire condition;
   b. Provide automatic shutdown of all equipment upon a configurable alarm level (e.g., automatic shutdown activated by a level 2 to level 3 alarm transition);
   c. Activation of the fire suppression system upon a level 4 alarm;
   d. Contain dry contacts to interface with external fire alarm network.
l. Manual "pull station" by each door with weatherproof fire alarm horn and strobe light on the container exterior;
m. Monitoring shall be provided for all container alarms, power, temperature, and humidity and shall be accessible remotely and support alerting/paging functions such as via a Nagios server;
n. Built-in facility and environmental monitoring and controls with programmable interfaces (advanced technology);
o. Remote management capabilities (desirable);

p. Converged networks (desirable);
q. Single point utility connection;
r. Internal lighting shall provide normal and emergency lighting with exit lighting above all egress doors;
    a. In-floor path lighting (desirable);
s. Internal emergency alarms shall provide both sound and light notifications;
t. External lighting with photocell activation above each exterior door (desirable);
u. Exterior painted with rust-inhibiting epoxy paint.

*3.2.3.1.1. Class 3/a Container-based Computer Systems*

The Class 3/a container shall provide the following minimum capabilities, unless noted as desirable:

a. Capacity for 20 42U racks
b. 10Gbps Ethernet (per port speed);
c. 40Gbps Ethernet (per port speed); (desirable);
d. 100Gbps Ethernet (per port speed); (advanced technology);
e. Compute Requirements:
    1. Intel-based, 64-bit architecture, 2.0+ GHz, 2 to 4 processors, 6 to 10 cores per processor;
    2. 128 GB physical memory
        i. Upgradable to 256 GB;
    3. 500 GB internal storage;
        i. Upgradable to 1 TB
    4. Dual or Quad Ethernet;
    5. QDR Infiniband (for internal interconnect backbone);
    6. 32 nodes
f. Storage Requirements:
    1. Dual Controllers for High Availability;
    2. 1.8 PB raw storage capacity
        i. Upgradable to 3.6 PB raw storage capacity;
    3. Provide SAS, SATA or SSD drives;
    4. Support iSCSI, FCoE, NFS, CIFS.

*3.2.3.1.2. Class 3/b Container-based Computer Systems*

The Class 3/b container shall provide the following minimum capabilities, unless noted as desirable:

a. Capacity for 10 42U racks;
b. 10Gbps Ethernet;
c. Compute Requirements:
    1. Intel-based, 64-bit architecture, 2.0+ GHz, 2 to 4 processors, 6 to 10 cores per processor;
    2. 64 GB physical memory;
        i. Upgradable to 128GB
    3. 250 GB internal storage;
        i. Upgradable to 500 GB
    4. Dual or Quad Ethernet;
    5. QDR Infiniband (for internal interconnect backbone);
    6. 16 nodes
d. Storage Requirements:
    1. Dual Controllers for High Availability;
    2. 0.9 PB raw storage capacity
        i. Upgradable to 1.8 PB;
    3. Provide SAS, SATA or SSD drives;
    4. Support iSCSI, FCoE, NFS, CIFS.

## 3.3. Product Based Services Support

To assist in product recommendations, installation, and support of computer systems products the following specialists shall be supported:

a. Operations Systems Security Specialist
   1. Provides technical knowledge and analysis of information assurance, to include applications; operating systems; Internet and Intranet; physical security; networks; risk assessment; critical infrastructure continuity and contingency planning; emergency preparedness; security awareness and training. Provides analysis of existing system's vulnerability to possible intrusions, resource manipulation, resource denial and destruction of resources. Provides technical support and analysis to document organizational information protection framework, and supports policy and procedures preparation and implementation.
   2. Experience Requirements: Seven years of substantial experience in systems operations.

b. Computer Systems Engineer
   1. Tests and analyzes all elements of the computer systems facilities including power, software, mass storage devices, communications devices, computer systems and terminals and for the overall integration of the enterprise network. Responsible for the planning, design, installation, maintenance, management and coordination of the storage systems. Monitors and controls the performance and status of the storage resources. Utilizes software and hardware tools, identifies and diagnoses complex problems and factors affecting storage performance. Maintains technical currency and studies vendor products to determine those which best meet client needs. Provides guidance and direction for less experienced storage support technicians.
   2. Experience Requirements: Seven years of increasingly complex and progressive experience in computer system/network engineering. Includes two years of specialized experience related to the task.

c. Applications Systems Analyst/Programmer
   1. Formulates and defines system scope and objectives. Prepares detailed specifications for programs. Designs, codes, tests, debugs and documents programs. Works at the highest technical level of all phases of applications, systems analysis and programming activities. Provides guidance and training to less experienced analysts/programmers.
   2. Experience Requirements: Seven years of increasingly complex and progressive experience in performing systems analysis, development, and implementation of business, mathematical, or scientific setting using a variety of information technology resources. Has experience with current technologies and, where required for the task, emerging technologies.

## 4. Category B: Group B: Computer System Storage Devices

This section describes the technical requirements for Storage Devices which complement and support the Computer Systems in Category A.

All proposed mandatory products must meet the following (where applicable):

a. EPEAT certified
b. Energy Star compliant
c. 508 compliant
d. Trade Act (TAA) compliant.
e. New Equipment
f. Authorized reseller for the following mandatory products:
    a. LTO Desktop Library tape system
    b. Large Robotic Device (desirable)
    c. Server UPS

### 4.1. Single Storage Devices

The following devices must be provided:

a. Blu-ray Disc Player (desirable)
b. Digital Video Recorder (DVR)
    1. Multiple inputs
    2. 1 USB port
        a. 2 USB ports (desirable)
    3. Compression (analog): H.264
    4. Support at least 1 internal SATA HDD
    5. Video format (Analog): NTSC: 352x240 (CIF), 704x240 (Half-D1), 704x480 (D1)
    6. Networking: 10/100 Base-T Ethernet, RJ-45
c. the following single tape devices:
    1. DAT 72;
        a. External Drive
        b. 36GB capacity (native)
        c. Data transfer rate 3 MB/sec native
    2. <Requirement removed>
    3. STK T10000C
        a. Read compatible with STK 10000B and 10000A
        b. 5TB capacity (native)
        c. Data transfer rate 240 MB/sec (uncompressed)
        d. Drive level encryption (desirable)
    4. LTO Ultrium;
        a. External Drive (desirable)
        b. 1.5 TB capacity (native)
        c. Data transfer rate 140 MBps native with Ultrium 5 media
        d. Data transfer rate 160 MBps native with Ultrium 6 media
        e. Drive level encryption (desirable)

### 4.2. Multiple Storage Devices

This section describes several mandatory storage devices including a core specification that must be met by all proposed mandatory devices in this section

**4.2.1. Storage Devices Core Specification**

Proposed storage devices shall provide:

a. be attachable to USB, Ultra-SCSI, Fibre Channel, SATA, eSATA, PCI Express, FireWire, InfiniBand, 10GBe, iSCSI or Thunderbolt
b. devices which are upgradeable and flexible in hardware configuration; e.g. standard housings/sleds which can accommodate different drive capacities/types, (advanced technology)
c. shall be field installable including all necessary cabling and documentation for installation.
d. shall provide error detection.
e. shall provide FIPS 140-2 encryption (desirable)

Proposed storage devices shall support:

f. IBM GPFS file system (desirable)
g. at least one of the following UNIX/Linux/Apple OS X computer system platforms: SGI, IBM, HP, Apple, Linux Kernel 2.4.
    1. attachable to other OS's such as Windows 7/8 (desirable)
    2. compatible with VMware ESX (desirable)
h. Support for:
    1. hardware performance enhancements such as controller caching and in-line compression, (advanced technology)

**4.2.2. Multiple Storage Device Requirements**

a. desktop library systems/Autoloaders which handle the following media and capacity and include all drives and controllers to support the stated capacity:
    1. LTO Ultrium
        a. 40 tape slots
        b. Tape drive
        c. 60 TB capacity (native)
        d. Data transfer rate 140 MBps native with Ultrium 5 media
        e. Library managed encryption (desirable)
b. Enterprise library systems which handle the following media and capacity. The proposed products must include the tape drives, controllers, etc that meet the required capacity:
    1. LTO Ultrium
        a. 200 tape slots
        b. 8 drive bays including drives
        c. 300 TB capacity for Ultrium 5 media(native)
        d. 500 TB capacity for Ultrium 6 media (native)
        e. Aggregate data transfer rate 4.0 TB/hr (native) with 8 Ultrium 5 drives
c. Large robotic device which handle the following media and capacity (uncompressed values). Note: "expandable to" means that a single computer server platform has direct access to the storage device(s) providing the required amount of storage. The expansion can be done through single or multiple enclosures with connections as defined in Section 4.2.1. and must only be supported:
    1. basic configuration of at least 2 PB (native) and 64 drives
    2. expandable to 500 PB (native)
    3. Audit time of under 60 minutes
        a. Audit time of under 40 minutes (desirable)
    4. Average cell to drive time of less than 20 sec
        a. Average cell to drive time of less than 11 sec
    5. Expandable to 640 drives
    6. Non-disruptive serviceability
    7. Configurable to support LTO Ultrium 6/5 drives
        a. Support for STK T10000C/B/A (desirable)
d. at least 2 RAID devices:
    1. Blade array (RAID level 0, 1, 5 and 6):
        a. at least 7 TB (native),

b. Up to 320 MB/s read and 190 MB/s write (RAID 5)
c. Continual event monitoring
d. Major components must be hot-pluggable
    1. Major components are hot-swappable (desirable)

2. Scalable RAID (RAID level 5):
    a. at least 6 TB (usable),
    b. expandable to 30 TB (usable)
    c. able to include up to 12 FC interfaces
    d. transfer rate of 200 MB/sec per FC interface
    e. Other RAID levels (desirable)

## 4.3. Storage Devices Software

The following Storage related software must be provided:

a. Hierarchical Mass Storage Software:
    1. A commercially available software product that provides:
        a. Initial license for up to 1 PB of data
        b. locate, mount, read and write tapes or disks in the jukeboxes.
        c. support UNIX native file system user calls and commands, e.g. “ls”, “touch”, etc.
        d. support access at hard disk storage speed to the most frequently/recently accessed files.
        e. ‘vault’ media and provide a means of notifying the operator to retrieve a ‘vaulted’ media when an ‘old’ file is requested.
        f. employ a ‘nameserver’ and ‘tapeserver’ or similar means for locating files on media.
        g. provide utilities for backup and recovery of critical databases
        h. repack function (repack tapes to remove deleted files)
        i. log major activities of software components for system monitoring.
        j. write multiple tape copies of a file
        k. scale up to at least 500 Pbyte, providing the user a way to build up to full use of the mass storage system
        l. allow for multiple hierarchies based on various file attributes
b. Other software to assist in the storage and retrieval of data (desirable)
c. Other software in support of RAID and DASD technology (advanced technology)

## 4.4. Virtual Storage Technology

Enterprise-level cloud data storage.

a. Cloud storage services accessible through a web service application programming interface (API), cloud storage gateway or web-based user interface.
b. 10 TB storage
    1. Actual cost based on monthly storage usage
c. Include options for both off-premise and on-premise solutions, or a mixture of the two options (desirable)
d. Highly fault tolerant through redundancy and distribution of data (desirable)
e. Allows creation of versioned copies of files (desirable)
f. Encryption of data during transfer: FIPS 140-2 compliant
g. Encryption of data at rest with encryption keys kept by service user and escrow key available
h. Sharable folders for groups of users (desirable)
i. Integration with active directory (desirable)

## 4.5. Uninterruptible Power Supply

Two Uninterruptible Power Supply (UPS) units must be provided for small office environment and small computer server room server environments

### 4.5.1. Small Office Environment

The Small Office Environment Uninterruptible Power Supply (UPS) units must provide:

a. Output power capacity of up to 1000 VA and 600 Watts
b. Nominal output voltage of 120 VAC On line voltage range of +/-20% for nominal voltage at full load
c. Frequency of 60 Hz
d. Runtime at 600 W of 5 minutes
e. Recharge time of <6 hours (to 90% after full discharge)
f. Startup with UPS batteries

### 4.5.2. Small Server Room Environment

The Small Server Room Environment Uninterruptible Power Supply (UPS) units must provide:

a. Output power capacity of up to 4500 VA and 3500 Watts
b. Nominal output voltage of 120 VAC
c. Frequency of 60 Hz
d. Runtime at 1400 W of 30 minutes
e. Recharge time of <6 hours (to 90% after full discharge)
f. Startup with UPS batteries
g. Hot-swappable batteries

## 4.6. Data Destruction Services

As part of cradle to grave options, the following data destruction services must be provided and priced per drive / tape:

a. certified e-waste recycler
b. on-site hard drive shredding
c. on-site tape degaussing

## 4.7. Additional Storage Technology

Basic network equipment in support of SAN and other network storage configurations (additional technology)

Devices running client-oriented OSs to allow direct monitoring of storage configurations (additional technology)

Supporting technology such as printers, audio/visual IT equipment, etc. in support of storage configurations (additional technology)

Systems/storage security technology (additional technology)

Image and display tools in support of storage configurations (additional technology)

## 4.8. Storage Specialists

To assist in product recommendations, installation, and support of computer systems products the following specialists shall be supported:

a. Information Assurance Storage Specialist

1. Analyzes general information assurance-related technical problems and provides basic engineering and technical support in solving these problems. Supports the integration of information assurance solutions and technologies into storage equipment and any connected networks with particular attention to protocols, interfaces, and system design. Analyzes and defines security requirements for storage area networks. Designs, develops, engineers, and implements solutions that meet network and storage security requirements. Responsible for integration and implementation of the storage security solution. Performs vulnerability/risk analyses of computer systems and applications during all phases of the system development life cycle. Configures test beds and conducts testing, records and analyzes results, and provides recommendations for improvements for the products/systems under test. Analyzes and defines security requirement for computer systems which may include mainframes, workstations, and personal computers. Designs, develops, engineers, and implements solutions that meet security requirements. Responsible for integration and implementation of the computer system security solution. Gathers and organizes technical information about an organization's mission goals and needs, existing security products, and ongoing programs in computer security. Performs risk analyses of computer systems and applications during all phases of the system development life cycle. Applies principles, methods, and knowledge of security to specific areas task order requirements. Test developed systems at each point of entry for ease of unregulated entry; systems resources denial; system information corruption; unlawful use of system resources; vulnerability to electronic disruption.
2. Experience Requirements: This position requires a minimum of seven years of substantial experience in system security analysis and implementation; design assurance or testing for information assurance products and systems; integration or testing for information assurance products and systems. Experience in heterogeneous computer networking technology and work in protocol and/or interface standards specification is recommended.

b. Storage/Hardware Engineer
   1. Tests and analyzes all elements of the storage facilities including power, software, mass storage devices, communications devices, computer systems and terminals and for the overall integration of the enterprise network. Responsible for the planning, design, installation, maintenance, management and coordination of the storage systems. Monitors and controls the performance and status of the storage resources. Utilizes software and hardware tools, identifies and diagnoses complex problems and factors affecting storage performance. Maintains technical currency and studies vendor products to determine those which best meet client needs. Provides guidance and direction for less experienced storage support technicians.
   2. Experience Requirements: Seven years of increasingly complex and progressive experience in computer system/network engineering. Includes two years of specialized experience related to the task.

# 5. Category B: Group C: Server Support and Multi-Functional Devices

This section specifies equipment needed to support a full implementation of computer systems in the NASA network environment. These items may be purchased by the Government separately from the computer systems but rely on standards and standard interfaces to ensure interoperability with the computer systems.

All proposed mandatory products must meet the following (where applicable):

a. EPEAT certified
b. Energy Star compliant
c. 508 compliant
d. Trade Act (TAA) compliant.
e. New Equipment
f. Authorized reseller for the following mandatory products:

- Tablet
- High speed scanner
- Hi Volume Mono MFP
- Medium Volume Color MFP

## 5.1. Display Devices

Computer display devices are computer peripheral devices capable of showing still or moving images generated by a computer. These devices include but are not limited to desktop LCD monitors, wall-mounted displays, and projector systems onto passive screens and interactive whiteboards.

### 5.1.1. LCD Display Monitor

A desktop 21 inch LCD monitor shall be provided and must include the following minimum capabilities:

a. Color device supporting 16 million colors
b. 21 inch viewable screen (diagonal)
c. Flat-panel display
d. Anti-glare panel (desirable)
e. Native resolution at least 1920x1080
f. Typical brightness of 250 cd/m$^2$
g. Image contrast ratio of 450:1
h. VGA video input signal
i. Intel PC and Apple Macintosh compatibility

### 5.1.2. Portable Projector

A portable projector shall be provided and must include the following minimum capabilities:

a. 1280x800 native resolution
b. DLP or LCD technology
c. Brightness of 2000 lumens (ANSI)
d. Speakers (either internal or included as external)
e. PC and Macintosh compatible (adaptor included, if needed)
f. Aspect Ratio of 16:10 (WXGA)

### 5.1.3. Manual screen

A manual wall screen shall be provided with the following specifications:

a. 50inches X 50inches screen size
b. Matte white fabric
c. Wall and ceiling mountable

### 5.1.4. Interactive Whiteboard

An Interactive Whiteboard (a dry-erase whiteboard writing surface which can capture writing electronically and allows interaction with a projected computer image) shall be provided with the following minimum requirements:
The touch-sensitive display connects to your computer and digital projector to show your computer image. You can then control computer applications directly from the display, write notes in digital ink and save your work to share later.

a. 77 inch diagonal active screen area
b. Touch resolution of 4000X4000
c. multiple pen colors (may be electronic selection)
    1. automatic detection of pen in use
d. eraser
e. Software to support:
    1. computer display
    2. note taking
    3. capture and save of all notes / images
f. MS Windows and Macintosh compatible
g. Mobile floor stand (desirable)

## 5.2. Printers

Three printers shall be offered. Capabilities shall be as specified in the following sections. Each printer shall meet the Core Printer Specification and the unique requirements in the printer specific section.

### 5.2.1. Core Printer Requirement

Each of the 3 printers shall provide the following capabilities:

a. Adobe Postscript Level 3.0 (emulation and/or equivalent is acceptable) formatted print files.
b. Metric A4-size paper with a usable image area of at least 200mm x 271mm and a usable image area of at least 8” x 10” for American Letter-size (8.5” x 11”).
c. two interfaces: USB 2.0, and 10/100Base-TX Ethernet
    1. simultaneous availability of the two interfaces; e.g. automatic port sensing/switching
d. Simple Network Management Protocol (SNMP) agent [RFC 1157; RFC 1213] for remote monitoring.
e. PCL5 and PCL6 support
f. Duplex by default

#### 5.2.1.1. Monochrome Laser Printer

In addition to the Core Printer Specification, the Monochrome Laser Printer shall also provide:

a. print speed shall be at least 35 pages per minute.
b. resolution of at least 1200x1200 dpi.
c. minimum memory of 32 MBytes,
    1. memory shall be expandable to at least 256 MBytes.
d. a duty cycle of at least 75,000 pages per month.
    1. duty cycle of at least 100,000 pages per month (desirable)
e. at least 130 fonts.
f. support paper sizes from 3”x5” to 8.5”x14” (legal)
g. Standard input capacity of 850 sheets
h. Standard output capacity of 250 sheets
i. Image processing of 400Mhz
j. Automatic duplex printing
k. Clearing/overwriting an image after completion of each job (Compliance with NIST SP800-88 and NIST SP 800-36)

#### 5.2.1.2. High Speed Monochrome Laser Printer

In addition to the Core Printer Specification, the High Speed Monochrome Laser Printer shall also provide:

a. print speed shall be at least 45 pages per minute.
b. resolution of at least 1200x1200 dpi.
c. minimum memory of 500 MB
    1. memory shall be expandable.
d. a duty cycle of at least 200,000 pages per month.
e. at least 130 fonts.
f. support paper sizes from 3”x5” to 8.5”x14” (legal).
g. Standard input capacity of 1000 sheets
h. Standard output capacity of 250 sheets
i. Image processing of 500Mhz
j. optional “B” size (11” x 17”) paper (desirable)
k. UNIX and LINUX OS support (desirable)
l. Enabled card reader for PIV-compliant Smartcards (meets NIST SP 800-96) (desirable)

#### 5.2.1.3. Color Printer

In addition to the Core Printer Specification, the Color Printer shall also provide:

a. print speed shall be at least 30 pages per minute (color)
b. color resolution of at least 600x600 dpi.
c. minimum memory of 1GB,
    1. memory shall be expandable.
d. a duty cycle of at least 150,000 pages per month.
e. at least 130 fonts.
f. support paper sizes from 3.5”x5” to 8.5”x14” (legal)
g. Standard input capacity of 1000 sheets
h. Standard output capacity of 400 sheets
i. optional “B” size (11” x 17”) paper (desirable)
j. UNIX and LINUX OS support (desirable)
k. enabled card reader for PIV-compliant Smartcards (meet NIST SP 800-96) (desirable)

## 5.3. Plotters

One large-format color plotter shall be offered.

### 5.3.1. Color Large-Format Plotter

The Color Large-Format Plotter shall provide:

a. 42 inch wide paper
    1. Media rolls up to 300 ft.
    2. manual sheet feed supporting sizes starting from B/A3-size
    3. standard bin holding at least up to 50 E/A0-size prints (desirable)
b. HP-GL/2, HP-RTL and Adobe Postscript Level 3 language support
c. Fast Ethernet (10/100Mbps) connectivity
d. 2400x1200 optimized dpi color
    1. 1200x1200 dpi color on glossy media
e. minimum total memory (including main and imaging or for dynamic assignment) of 512MB
    1. main memory expandable to 1024 Mbytes (desirable).
f. Maximum print length of at least 295 ft.
g. Hard disk drive of at least 40 GB
h. in fast quality mode, the printer should have the ability to run at least 100 D/A1-size prints per hour
i. Automatic cutter

j. Handle the following media types: plain, inkjet, heavyweight coated, super heavyweight coated, semi-gloss, glossy, translucent bond and photo
k. operation in a Windows or Macintosh environment

## 5.4. Scanners

Two scanners shall be offered. Capabilities shall be as specified in the following sections.

### 5.4.1. High Speed/High Performance Scanner

The High Speed/High Performance Scanner shall provide:

a. USB 2.0 connectivity
b. scanner speed of 57 pages per minute simplex at 200 dpi resolution for 8.5x11 inch monochrome document in portrait mode
c. at least 600 dpi resolution (color and monochrome)
d. Automatic document feeder
    - 150 page capacity
e. duplex (two sided) scanning
f. monochrome and color mode
    1. 24 bit color
    2. 256 level grey scale
g. document size up to at least 11X17 inches
h. OCR functionality

### 5.4.2. Large Format Scanner

The Large Format Scanner shall provide:

a. handle up to 42” wide originals
b. up to 1200 dpi resolution (enhanced)
c. ability to scan up to 2mm thick originals (desirable)
d. 24 bit color scan mode
    1. 48 bit color scan mode (desirable)
e. Color scan speed at 400 dpi (turbo) or 200dpi true optical of 3 inches per sec
f. Automated color calibration
g. USB 2.0 connectivity
    1. FireWire (IEEE-1394a) connectivity (desirable)

## 5.5. Tablet Computing

A tablet computer, or simply tablet, is a one-piece mobile computer, primarily operated by touch screen (the user's finger essentially functions as the mouse and cursor, removing the need for the physical (i.e., mouse and keyboard) hardware components necessary for a desktop or laptop computer; and, an onscreen, hideable virtual keyboard is integrated into the display).

### 5.5.1. Small format Tablet

a. Color device supporting 16 million colors
b. Optional keyboard (desirable)
c. 7 inch or less viewable screen (desirable)
d. Flat-panel display
e. Anti-glare panel
f. Native resolution at least 1024X600
g. Wireless
    1. 802.11n
    2. Bluetooth
    3. 4G (desirable)

## 5.6. Computer Peripherals

Peripheral computer component providers are expected to provide fully "Plug & Play solutions". All hardware, connector cables, power cords, software, and enablement cards to make the system fully functional are to be provided.

### 5.6.1. Mouse

Mouse device will include:

a. designed to fit natural hand position and movements, to reduce discomfort (desirable)
b. Detachable wrist rest (desirable)
c. Options for left or right hand users (desirable)
d. Windows
    a. Macintosh option (desirable)
e. Up to 1000 dpi cursor control
f. USB compatible
g. Cordless option (desirable0

### 5.6.2. Keyboards

Fully functional keyboard.

a. Contoured split key design (desirable)
b. Integrated trackball and mouse buttons (alternate integrated tracking devices such as touchpad or joystick are acceptable) (desirable)
c. Spill resistant
d. Dual ALT, SHIFT and CONTROL keys
e. Windows
    1. Macintosh option (desirable)
f. Wireless infrared or Bluetooth (desirable)

### 5.6.3. Data Input Devices

This section provides a mandatory product falling within the general category of sensors and detectors that provide data input into a computer system, tablet, and/or handheld ITC (information technology/communication) device. A complete motion detector solution including sensor and IP communication module must be provided that includes:

a. IP communication module
    1. Send alarm messages and system data to the monitoring center through LAN/WAN network.
    2. Use encryption technology for communication (desirable)
b. Indoor Infrared Motion detector
    1. Low noise, high sensitivity, dual element, rectangular beam
    2. Fire resistant case (desirable)

## 5.7. Office Video Conferencing

Office video conferencing to include:

a. Inclusive video conferencing system
b. 20 inch LCD Monitor minimum
c. Camera
    1. 50 degree horizontal field of view
d. Microphone
e. All necessary cabling
f. Speakers
g. IP connection with calls up to 2 Mbps
    1. Option for ISDN connection (desirable)
h. CD quality sound

i. Embedded encryption using Advanced Encryption Standard software
j. SNMP support

## 5.8. Point of Sale All in One System

Point of Sale (POS) to include:

a. Splashproof and/or waterproof All-in-one: Touchscreen / CPU / Card Reader
b. Omnidirectional Barcode Scanner
c. Thermal Receipt Printer
d. Cash Drawer
e. Pole Display
f. POS Software (desirable)

## 5.9. Multi-functional Devices

This section specifies equipment commonly referred to as multi-functional printers (MFP) or multi-functional devices (MFD) which are single devices that serve several functions, including printing, scanning, faxing and photocopying. This class provides for both purchases of the devices, either singly or in bulk, as well as a servicing structure wherein the devices remain the property of the Contractor with Government payment for the usage, servicing and provisioning of those devices.

The mandatory requirements in this class can be categorized as the following:

- Purchased High volume monochrome MFD with warranty; consumables purchased separately
- Contractor supplied and maintained High volume monochrome MFD with warranty and consumables included (desirable)
- Purchased Medium volume color MFD with warranty; consumables purchased separately
- Contractor supplied and maintained Medium volume color MFD with warranty and consumables included (desirable)
- Consumables such as paper, toner, staplers, etc.

## 5.9.1. High Volume Monochrome MFD Requirements

The high volume MFD device must meet the following requirements:

a. Fully Automatic Duplexing (1-2, 2-2, and 2-1)
b. Auto Document Feeder (capable of handling up to 11 x 17 paper)
c. Full offset stacking capability (with no sorter bins required) (desirable)
d. Minimum of 1 GB RAM
e. Minimum of two (2) adjustable paper trays with capacity up to 500 sheets each and for various paper sizes (letter, ledger, & 11 x 17)
f. Duty cycle of at least 200,000 sheets per month
g. Recommended print volume of 15,000 sheets per month
    i. Recommended print volume of 30,000 sheets per month (desirable)
h. Finishing - automatic stapling capabilities, that can staple a minimum of 25 sheets of 20 lb. paper
i. Reduction and Enlargement in pre-set and in zoom
j. Image overwrite security features that completely delete all files after printing (desirable)
k. Network Authentication that validates network user names and passwords
l. Standard network connectivity: 10/100/1000BaseTX Ethernet, IPv6

Each MFD must be capable of scanning, copying, faxing and printing as described in the following sections.

### 5.9.1.1. MFD Monochrome Scanner Functionality

The scanner functionality of the MFD must provide:
a. Resolution –600 X 600 ppi (pixels per inch)

b. Optical Character Recognition (OCR) functionality
c. Scan to desktop, e-mail, or to network folders to formats including but not limited to: TIFF/TIFF-F/Multi-page TIFF/PDF/ JPEG
d. Ability to scan single-sided or duplex originals without intervention.
e. Solution for encrypted point-to-point scanning (printer to desktop).
f. Scans max paper size 11 x 17 at 600 dpi with 256 grayscale increments
g. SMTP
h. TWAIN scanning to provide alternative scanning options for networked users

**5.9.1.2. MFD Monochrome Fax Functionality**

The fax functionality of the MFD must provide:

a. Fax to Fax
b. Internet faxing (desirable)
c. Group dialing
d. Quick dialing
e. Page by page job status at the machine
f. Transmission confirmation
g. Full Dual Access allows simultaneous document scanning and fax reception
h. Automatically stores incoming faxes in memory in the event paper or toner runs out

**5.9.1.3. MFD Monochrome Print Functionality**

The print functionality of the MFD must provide:

a. Resolution minimum 1200 X 1200 dpi
b. 136 Postscript fonts
c. 80 PCL fonts
d. Secure print function, which permits the user to print using an identification code/name.
e. Printer language – Adobe PostScript® 3™, PCL® 5c emulation, PCL® 6 emulation
f. Minimum of 55 pages per minute

## 5.9.2. Medium Volume Color MFD Requirements

The medium volume MFD device must meet the following requirements:

a. Fully Automatic Duplexing (1-2, 2-2, and 2-1)
b. Auto Document Feeder (capable of handling up to 11 x 17 paper)
c. Full offset stacking capability (with no sorter bins required) (desirable)
d. Minimum of 1 GB RAM
e. Minimum of two (2) adjustable paper trays with capacity up to 500 sheets each and for various paper sizes (letter, ledger, & 11 x 17)
f. Duty cycle of at least 30,000 sheets per month
g. Recommended print volume of 5,000 sheets per month
h. Finishing - automatic stapling capabilities, that can staple a minimum of 25 sheets of 20 lb. paper
i. Reduction and Enlargement in pre-set and in zoom
j. Image overwrite security features that completely delete all files after printing (desirable)
k. Network Authentication that validates network user names and passwords
l. Standard network connectivity: 10/100/1000BaseTX Ethernet, IPv6

Each MFD must be capable of scanning, copying, faxing and printing as described in the following sections.

**5.9.2.1. MFD Color Scanner Functionality**

The scanner functionality of the MFD must provide:

a. Resolution –600 X 600 ppi (pixels per inch)
b. Optical Character Recognition (OCR) functionality
c. Color scan speed: 50 sides per minute

d. Scan to desktop, e-mail, or to network folders to formats including but not limited to: TIFF/TIFF-F/Multi-page TIFF/PDF/ JPEG
e. Ability to scan single-sided or duplex originals without intervention.
f. Solution for encrypted point-to-point scanning (printer to desktop).
g. Scans max paper size 11 x 17 at 600 dpi with 256 grayscale increments
h. SMTP
i. TWAIN scanning to provide alternative scanning options for networked users

#### 5.9.2.2. MFD Color Fax Functionality

The fax functionality of the MFD must provide:

a. Fax to Fax
b. Internet faxing (desirable)
c. Group dialing
d. Quick dialing
e. Page by page job status at the machine
f. Transmission confirmation
g. Full Dual Access allows simultaneous document scanning and fax reception
h. Automatically stores incoming faxes in memory in the event paper or toner runs out

#### 5.9.2.3. MFD Color Print Functionality

The print functionality of the MFD must provide:

a. Resolution minimum 1200 X 1200 dpi
b. 136 Postscript fonts
c. 80 PCL fonts
d. Secure print function, which permits the user to print using an identification code/name.
e. Printer language – Adobe PostScript® 3™, PCL® 5c emulation, PCL® 6 emulation
f. Minimum of 55 pages per minute (Monochrome / letter)
g. Minimum of 45 pages per minute (Color / letter)

### 5.9.3. MFD Consumables

At a minimum, the following consumables must be provided:

a. Staples – supply for high volume monochrome printer (minimum of 5000)
b. Toner – supply for high volume monochrome printer (minimum replacement of toner initially supplied with system)
c. Paper:
    1. 8.5" x 11" White; 5,000 sheets per case
    2. 11" x 17" White; 2,500 sheets per case

## 5.10. Additional Support Devices Technology

Basic network equipment in support of supporting systems technology (additional technology)

Basic storage equipment in support of supporting systems technology (additional technology)

Devices running client-oriented OS's such as Windows, Macintosh, etc. to allow direct monitoring of supporting technology (additional technology)

Systems security technology (additional technology)

Image and display tools in support of supporting technology considerations and configurations (additional technology)

## 5.11. Support Devices Specialists

To assist in product recommendations, installation, and support of computer systems products the following specialists shall be supported:

a. Information Assurance Specialist

1. Analyzes general information assurance-related technical problems and provides basic engineering and technical support in solving these problems. Supports the integration of information assurance solutions and technologies into supporting IT equipment with particular attention to protocols, interfaces, and system design. Analyzes and defines security requirements for supporting IT systems. Designs, develops, engineers, and implements solutions that meet systems security requirements. Responsible for integration and implementation of the security solution. Performs vulnerability/risk analyses of computer systems and applications during all phases of the system development life cycle. Configures test beds and conducts testing, records and analyzes results, and provides recommendations for improvements for the products/systems under test. Analyzes and defines security requirement for computer systems which may include mainframes, workstations, and personal computers. Designs, develops, engineers, and implements solutions that meet security requirements. Responsible for integration and implementation of the computer system security solution. Gathers and organizes technical information about an organization's mission goals and needs, existing security products, and ongoing programs in computer security. Performs risk analyses of computer systems and applications during all phases of the system development life cycle. Applies principles, methods, and knowledge of security to specific areas task order requirements. Test developed systems at each point of entry for ease of unregulated entry; systems resources denial; system information corruption; unlawful use of system resources; vulnerability to electronic disruption.
2. Experience Requirements: This position requires a minimum of seven years of substantial experience in system security analysis and implementation; design assurance or testing for information assurance products and systems; integration or testing for information assurance products and systems. Experience in heterogeneous computer networking technology and work in protocol and/or interface standards specification is recommended.

b. Hardware Engineer
   1. Provides functional and empirical analysis related to the design, development, and implementation of hardware for products including, but not limited to, the circuit design of components, development of structure specifications of a personal computer, and the design of a computer display unit. Participates in the development of test strategies, devices, and systems. Possesses and applies a comprehensive knowledge of a particular field of specialization to the completion of significant assignments. Plans and conducts assignments, generally involving the larger and more important projects or more than one project. Evaluates progress and results and recommends major changes in procedures. May lead or direct projects.
   2. Experience Requirements: Ten years of intensive and progressive experience in a computer related field including development and design of complex hardware and communications systems.

# 6. Category B: Group D: Network Devices, Computer Security Tools and Advanced Video and Conference Tools

This section specifies equipment needed to support a full implementation of computer systems in the NASA network environment in terms of networking and computer security along with support of audio-visual related requirements. These items may be purchased by the Government separately from the computer systems but rely on standards and standard interfaces to ensure interoperability with the computer systems.

All proposed mandatory products must meet the following (where applicable):

a. EPEAT certified
b. Energy Star compliant
c. 508 compliant
d. Trade Act (TAA) compliant.
e. New Equipment
f. Authorized reseller for the following mandatory products:
   Wireless Access Point
   High End LAN switch chassis (OEM1)
   High End LAN switch chassis (OEM2)
   Large Network Router
   VPN Appliance

## 6.1. Network and Communication Devices

This section describes the mandatory requirements for the base network technology including network hardware, software and communication devices. While comprehensive and specific functional and performance specifications do not exist for each supporting network equipment, all equipment must meet the Network Core Specification, unless noted otherwise.

### 6.1.1. Network Technology Core Specification

All mandatory network equipment must meet or comply with the Network Core Specification in this section. That means that the requirements of this section are additive to (or a clarification of) the requirements stated for each specification of the Supporting Network Equipment.

a. Advanced networking techniques (both hardware and software) to allow connectivity unassociated with physical location; such as wireless technology and applications which allow roaming client computers to connect to networks and people, (advanced technology)
b. The capabilities of the routers, switches, and NIC's in terms of high performance interfaces and high bandwidth implementations (advanced technology).

#### 6.1.1.1. Core Network Technology

The base technologies for building Local Area Networks in NASA are Ethernet and Wireless. Throughout the sections on Network Supporting Equipment, the terms "Ethernet", "Wireless" are used to define the requirements. Unless otherwise specified, the specific meaning of these terms is given here and shall apply throughout Section 6.1.

##### *6.1.1.1.1. Ethernet*

Ethernet interfaces shall comply with both Ethernet Specification 2 and IEEE standards [IEEE 802.3; ISO 8802/3].

a. "Ethernet" in this document requires a 10/100/1000 UTP **or** 10/40/100 Gig **or** Fiber port base capability. Additional capability spelled out as required.

*6.1.1.1.2. 802.2 Data Link Layer*

Ethernet shall include the Data Link Layer protocol providing Logical Link Control [ISO 8802/2; IEEE 802.2].

*6.1.1.1.3. Wireless*

Wireless interfaces shall comply with the following standards:

a. IEEE 802.11E (desirable)
b. IEEE 802.1x
c. Authentication: 802.1x support, including PEAP-Microsoft Challenge Authentication Protocol Version 2 (PEAP-MSCHAPv2), EAP-Transport Layer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS) and EAP-Subscriber Identity Module (EAP-SIM) to yield mutual authentication and dynamic, per-user, per-session encryption keys (WPA and WPA2), MAC address and standard IEEE 802.11 authentication mechanisms.
d. Encryption: AES-CCMP encryption (WPA2), TKIP encryption enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation via Cisco TKIP or WPA TKIP, support for dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits.
e. Remote configuration support: BOOTP, DHCP, HTTPS, FTP, TFTP, SNMP and ssh (desirable)
f. Support IEEE Standards a//g/n

*6.1.1.1.4. Multiprotocol Label Switching (MPLS)*

Multiprotocol Label Switching (MPLS) interfaces shall support the following features:

a. MPLS Architecture
    1. RFC 6790 and 6178 (desirable)
b. MPLS Signaling: Label Distribution Protocol (RFC 5036) or RSVP
c. MPLS Traffic Engineering (RFC 2702)
d. MPLS Layer 2 and Layer 3 Virtual Private Networks (VPNs)

**6.1.1.2. Network Management**

All mandatory network equipment in this solicitation shall provide the management functions in this section.

*6.1.1.2.1. Simple Network Management Protocol (SNMP)*

Provide an SNMP agent [RFC 1157] for remote network management and monitoring.

a. vendor specific private extensions shall conform with RFC 1155.
b. vendor specific private extensions shall be made available to the Government in ASN format.
c. remote management and control of all unit, card, and port level SNMP configurable parameters.
d. SNMP Version 2c
e. full RMON or RMON II capability (RFC 1757) (desirable)

*6.1.1.2.2. Console Management Access*

a. Out-of-band management through a console port shall be available for all networking equipment.
b. Multiple levels of management access. Preferably, this includes a minimum of three levels:
    - full read/write,
    - read only of all possible fields except passwords, and
    - limited read only.

*6.1.1.2.3. Configuration Recovery*

Non-volatile storage shall be provided on all networking equipment for the purposes of maintaining configuration and fault/diagnostic information. Non-volatile storage shall:

a. enable a network device which has lost power to recover fully on power up by restarting and accessing all configuration data required for proper operation in the network.
b. be accessible from the network and from the out-of-band management console port.

*6.1.1.2.4. Network Management Software*

Network management software, which may consist of multiple applications, for multivendor networks shall be provided with the following characteristics:

a. a consistent user interface and an integrated environment for monitoring, troubleshooting, controlling and measuring performance of network components.
b. be able to discover and display graphically the network components and their relationship.
c. allow a network administrator to make configuration changes, and run diagnostic and performance statistics gathering applications.
d. at least adhere to SNMP and provide MIB and RMON support for various networking technologies (e.g. Ethernet, WDM, etc.).
e. include analysis software which presents the performance and monitoring data in easily comprehensible graphics (viewable on a terminal or a printer).
f. include configuration management software to track changes, modifications and current configuration of network devices
g. Downline loading via the network of software upgrades to all networking equipment (desirable)

**6.1.1.3. Equipment Characteristics**

This section describes general equipment characteristics

*6.1.1.3.1. Physical Configuration*

Where appropriate, all equipment shall be mountable in a standard EIA 19" rack. All mounting hardware shall be included with the equipment.

*6.1.1.3.2. Operating Environment*

a. Where appropriate, all equipment except large network routers shall be capable of operating on line voltage of 108 to 125 volts single-phase at 60 Hz (+/-1%).
b. Large network routers shall be capable of operating on line voltage of either 108 to 125 volts or 216 to 240 volts single-phase at 60 Hz (+/-1%).

**6.1.1.4. Documentation**

*The contractor shall provide access to complete sets of commercially available system and user manuals. All provided documentation shall be available on line.*

**6.1.1.5. Auto Configuration**

In general, no management intervention or software down line loading should be required to become operational (other than the potential manual installation of an IP address). The network equipment shall auto-configure and self initialize at installation (connection and power up) and during operation. That is, it shall be possible to simply connect the network interfaces and apply power for the network equipment to become operational without detrimental impact to the network. Auto-configuration does not apply to routers or ATM switches.

**6.1.1.6. Bridging**

Bridging is required in all routers and all bridging shall provide the capability for:

a. disabling of any Spanning Tree Algorithm [ISO 8802/1; IEEE 802.1] incorporated within the bridge.
b. Protocol filtering which is based upon user defined filtering masks.
c. interface line speed filtering and 80% of interface line speed forwarding, with minimum data packet sizes applicable to the interface type

**6.1.2. Wireless Networking Equipment**

The following wireless networking equipment is required.

**6.1.2.1. Wireless Access Points**

Wireless Access Points such as Cisco Aironet 1600 shall meet the following:

a. Capable of supporting multiple VLANs.
b. Capable of supporting Wireless encryption methods
c. Capable of utilizing external authentication service (RADIUS) in addition to supporting Wireless authentication methods
d. Support 802.11/a/n/g interfaces
e. Powered using Power-over-Ethernet (or 802.3af)
f. Remotely configurable

**6.1.2.2. Wireless LAN Manager**

Wireless LAN Manager such as the Cisco Prime Infrastructure wired/wireless LAN management solution shall meet the following:

a. Device can monitor, configure and report the status of access points
b. Capable of performing management functions autonomously, based on network conditions or on a scheduled basis
c. Capable of centrally managing at least 250 access points per management device

**6.1.2.3. Wireless Bridge**

Wireless Bridge such as Cisco Aironet 1552 Wireless Bridge shall meet the following:

a. Capable of bridging two wired LANs using a wireless link.
b. external antenna ports that are compliant with 802.11b/g standards (2.4 GHz)
    1. 802.11n (desirable)

**6.1.3. LAN Switches**

At least 2 solutions, each from a different OEM, for the High End LAN switch is required. Each interface port shall

a. be an independently switched port capable of supporting a LAN segment or single user connection.
b. support the Spanning Tree Algorithm [ISO 8802/1; IEEE 802.1d].
c. all Ethernet uplink ports and uplink port modules shall be capable of supporting trunking (Spanning Tree disabling and aggregate bandwidth utilization over multiple physical uplink ports).

**6.1.3.1. High End LAN Switches**

High End LAN switch chassis such as Cisco 6509 shall provide the ability to equip any one of the following configurations:

a. 10/100/1000 UTP Autosensing Ethernet interfaces, at least 18 ports (the proposed mandatory chassis must be fully configured with the appropriate cards, powers, etc. for this configuration).
b. 1000BaseSX capability , at least 4 ports
c. 1000BaseLX capability, at least 4 ports
d. 10 Gigabit (802.3ae) uplink port (desirable)
e. Support for MPLS Interfaces (desirable)

The following is required for installed configurations from the previous list

f. Ability for concurrent configuration of installed interfaces

### 6.1.4. Network Router

At least 2 solutions, each from a different OEM for Medium Network Router are required. One solution for the Large Network Router from any OEM meeting the mandatory requirements is required. Each size router may but do not have to have different OEMs.

Two network routers are required; a medium format router with an average number of interfaces and expansion capability and a large format router with substantial expansion capability and larger variety of interfaces. The next two subsections describe the overall features of the small, medium and large routers, while the third subsection describes specific requirements that shall apply to all routers.

#### 6.1.4.1. Medium Network Router

A Medium Network Router (single chassis) such as Juniper M10 shall provide the following configuration options; i.e. the chassis shall have the option to be configured in any one of the following ways):

a. 8 or more Ethernet interfaces.
b. 1 or more Gigabit Ethernet interfaces (configured as SX and/or LX) (desirable).
c. Serial interfaces (desirable)

#### 6.1.4.2. Large Network Router

A Large Network Router (single chassis) such as Juniper M20 shall provide the following configuration options; i.e. the chassis shall have the option to be configured in any one of the following ways):

a. 24 or more Ethernet interfaces.
b. 6 or more Gigabit Ethernet interfaces
c. Serial interfaces (desirable)
d. Gigabit Ethernet, LX or SX
e. 10 Gigabit (802.3ae) (desirable)

#### 6.1.4.3. All Network Routers

All network Routers shall provide the following specifications

*6.1.4.3.1. General Protocol Requirements*

Routers shall provide the following capabilities:

a. simultaneous routing and bridging, selectable by protocol and by port.
b. the Spanning Tree Protocol [ISO 8802/1; IEEE 802.1d] (desirable).
c. Point-to-Point (PPP) Protocol [RFC 1661; 2153; and/or 5342]
    1. PPP RFC 1332 or subsequent version (desirable).
d. Frame Relay Protocols (desirable)

*6.1.4.3.2. Routing Protocols*

Routers shall provide the following routing protocols and their sub-elements:

a. TCP/IP Internet Protocol
   1. Routing Information Protocol (RIP) [RFC 1058 or subsequent version].
   2. Routing Information Protocol 2 (RIP2) [RFC 2453]
   3. variable length subnet masking.
   4. manual configuration of the broadcast address (i.e. support for all 1's or all 0's).
   5. Border Gateway Protocol (BGP) [RFC 4271]
   6. OSPF version 2 [RFC 2328].
   7. Intermediate System-to-Intermediate System (IS-IS) Protocol [RFC 1195]
   8. IP Multicast
      a. PIM [RFC 4601 and RFC 5059]
      b. MOSPF [RFC 1584] (desirable)

*6.1.4.3.3. Network Management*

In addition to the Core Network Management requirement (Section 6.1.1.2.), each Network Router shall include the following:

a. NTP version 3 or later, at least in client mode [RFC 5905]
b. Response to ICMP echo request (ping) [RFC 792]
c. Secure Shell (SSH) in server mode for both logins and file transfers
d. SSH in client mode to support logins
e. Support RADIUS [RFC 2865] or TACACS+ for authentication
f. Support SYSLOG [RFC 5424] for remote logging
g. Capability to disable unused or unneeded services
h. Capability to restrict access for enabled services
i. ISIS MIB[RFC 1195]
j. Connectionless Network Protocol MIB [RFC 1238] (desirable)
k. OSPF MIB [RFC 4750] (desirable)
l. MIB extensions for DS1 [RFC 2495; RFC 1239] and DS3 [RFC 3896; RFC 1239] (desirable)

*6.1.4.3.4. Ethernet Connectivity*

In addition to the Ethernet requirement (Section 6.1.1.1.1.), all network router shall support connectivity with the following:

a. 10/100/1000 BaseT Autosensing
b. 100BaseFX (desirable)
c. Gigabit Ethernet (desirable)

**6.1.5. Radio Equipment**

Radio equipment shall be provided which at a minimum:

a. 2-way radio with display;
b. Battery offering 14 hrs of Operation; <= 2.5 hours to full charge;
c. 6 channels minimum;
d. Time Out timer;
e. Scan function;
f. Tone Alert; Low Battery Alert; Key Lock and Battery Save;
g. VOX Ready;
h. STD 810 C,D,E & F MIL Standards

**6.1.6. Internet Protocol (IP) Telephony System**

IP Telephony System. This system in its entirety is desirable. If a system that meets the following functions is included in the available components, the desirable feature will be met:

a. Security: Secure RTP (SRTP)
b. QoS: Traffic classifications (tagging the packets) – both Layer 2 and Layer 3
c. Transport: RTP/UDP
e. Scalable to support at least 25,000 simultaneous users
f. Support for a 5 Digit Dial Plan
g. Features
   - Voice Mail
   - Meet Me
   - Call Detail Record (CDR)
   - Analog Devices
   - Call Groups
   - Call Transfer
   - Call Forwarding
   - Hold
   - Caller ID
   - Call Waiting
   - Park
   - Call Pick Up
   - Able to program features of IP Phones and IP Softphones from a central location
   - Programmable keys

**<u>6.1.6.1. VOIP SoftPhones / Software</u>**

1. SoftPhones and related Unified Communication technology (advanced technology)

**6.1.7. Cell Phone**

A cell phone including annual service shall be provided with a minimum:

a. 2GB / month data plan
b. Unlimited talk / text
c. 50 state coverage
d. Phone
   1. Minimum 4 inch screen
   2. Minimum 8 megapixel camera
   3. GPS navigation
   4. Touch screen keypad
   5. Minimum screen resolution: 1130x640
   6. Ambient light sensor
   7. Wireless Connectivity: 3G; 4G; Bluetooth; Wi-Fi
   8. Minimum of 16 GB storage
e. One year service plan;

**6.1.8. Network Diagnostic Tools**

The following network diagnostic tools are required.

a. Portable Hardware based network protocol analyzer:
   1. Six layer protocol analysis
   2. Active discovery
   3. SNMP device analysis
   4. Traffic analysis

5. optional WAN and wireless monitoring

b. The following tools are desirable:
   1. Network sniffer tool
   2. Layer 1 test equipment

### 6.1.9. Network Optimization Support for Core Routing & Switching

This section provides requirements for a product based engineering service to be supported. While this requirement uses generic term of "Network Product", the proposed services shall be tied to a specific brand name product; e.g. Cisco, Juniper, etc.

a. The primary purpose of this "Network Product" service is to provide technical assistance to aid with routing and switching products and technology. The skill set or capabilities of the personnel providing assistance under this service include:
   1. "Network Product" Certified Expert;
   2. In-depth knowledge and experience designing and configuring complex routing and switching networks;
   3. Working knowledge of advanced technologies such as security, voice, and content/data center fields;
   4. Ability to conduct training and one to one mentoring concerning routing and switching technology.

b. Network Optimization Support for Core Routing & Switching shall include but is not limited to the following:
   1. Combination of On-Site and Remote Support
      a. Onsite support available 4 days a week
   2. Operations Management
      a. Analysis of critical issues / trends
      b. Quarterly reviews
   3. Network Improvement Plan Support
      a. Scheduled change network analysis
      b. Review of implementation plans
      c. Assistance with scheduled and unscheduled network hardware, software and configuration issues as necessary
   4. Software Strategy and Reporting
      a. Software recommendations
      b. Critical bug analysis
      c. Quarterly reports
   5. Performance Engineering and Optimization
      a. Network health checks
      b. "Best practices" comparisons/recommendations
   6. Annual Operational Assessment

### 6.1.10. Advanced Network Technology

Some advanced networking technologies include Satellite Network Communications, Fiber Optic Broadband and Telemetry (remote sensors). Satellite Network Communications provides support for utilization of satellite links for supporting both LANs and WANs. Fiber Optic Broadband provides for fiber optic broadband service as part of a remote access solution. Telemetry supports the transmission of data captured by instrumentation and measuring devices to a remote station, for recording and analysis.

## 6.2. Computer Security Tools

This section specifies software and equipment needed to support a full implementation of computer systems and infrastructure in the NASA network environment. These items may be purchased by the Government separately from computer systems but rely on standards and standard interfaces to ensure interoperability with the computer systems and the supporting networks.

### 6.2.1. Security Tools Core Specification

All mandatory security tools must meet the following specifications:

a. Compliance with NIST Federal Information Processing Standards (FIPS) requirements including FIPS 140-2 and FIPS 201, where applicable
b. User extensible features in each software package, such as the ability for a user to add intrusion detection signatures, file signatures and similar features to network monitors (advanced technology)
c. Information technology products which have been evaluated and certified/validated in accordance with the provisions of the NIAP Common Criteria Evaluation and Validation Scheme and the Common Criteria Mutual Recognition Arrangement (CCMRA) and conform to the Common Criteria for IT Security Evaluation (ISO Standard 15408) (advanced technology).

### 6.2.2. Anti-spam Appliance

At least 2 solutions, each from a different OEM, for the following anti-spam appliance is required. Anti-spam appliance, such as Barracuda Spam Firewall, shall be provided which at a minimum:

a. Self-contained hardware appliance
b. Support at least 10,000 active e-mail users
c. Capacity of 10 million e-mails / day
d. Handle up to 5,000 domains
e. 72 GB of quarantine storage
f. Compatible with Microsoft Exchange, and Lotus e-mail servers
g. Gigabit Ethernet connectivity
h. Web-based interface
i. Variety of protections supported:
   - Spam filter
   - Virus Filter
   - Anti-spoofing
   - Anti-phishing
   - Anti-spyware
   - Denial of Service
   - Outbound e-mail filtering
j. Spam filter functionality including:
   - Content-based
   - Intent analysis
   - Keyword Blocking
   - Multi-national
   - Rate control
   - Rule-based scoring
   - SPF and Sender-ID
k. E-mail tagging, quarantine and blocking
l. Whitelists and blacklists (both global and user configurable)

### 6.2.3. Anti-spyware Software

Anti-spyware software which detects and removes Spyware from systems running Windows shall be provided with the following minimum specifications:

a. Protection against DLL injection
b. Protection against 3rd party uninstall
c. Automated definitions file update
d. Automated operation
e. Automated scanning
f. Quarantine support
g. Real-time monitor

h. Registry protection
i. Executable file extension protection
j. Printable reports
k. Centrally managed Enterprise-based version
    1. 25 client seats
    2. Help desk support

**6.2.4. Server Level Intrusion Protection and Detection Software**

Server level intrusion protection and detection software for Windows servers such as ISS's RealSecure Server, shall be provided with the following minimum specifications:

a. Automatically detect and block malicious activities
    1. monitor all inbound and outbound traffic
b. Multi-level protection
c. Automatic, instantaneous user alerts of threats
d. Intruder data collection including IP address and
    1. data collection including hardware address in at least 1 solution (desirable)
e. System logging of all illicit activity
f. Automatic notification of updates
g. 25 server license

**6.2.5. Vulnerability Assessment Software**

Vulnerability assessment software, such as ISS Internet Scanner, that scans networked devices for vulnerabilities shall be provided which at a minimum:

a. scan an entire domain, subnetwork or system to detect security vulnerabilities
b. scan a minimum of 2500 seats
c. Details of specific scanning capabilities is Advanced Technology

**6.2.6. Virtual Private Networking Appliance**

Remote access Secure Sockets Layer (SSL) Virtual private network (VPN) appliance shall be provided which at a minimum:

a. provide a secure end-to-end private data network over a public network infrastructure
b. license for at least 1,000 concurrent HTTP clients and 100 non-HTTP clients
c. support connections using Internet Explorer and Apple's Safari and Mozilla Firefox browsers
d. support for web applications including:
    - ActiveX
    - Java applets
    - JavaScript
    - Flash
    - HTML
    - JavaScript
    - VBScript
    - Web e-mail via Lotus Notes and Outlook Web Access
e. Terminal Services including:
    - Citrix Metaframe
    - Microsoft Terminal Server
    - X11
f. Client support non-HTTP applications including:
    - ActiveX
    - Java applet
g. SSL tunneling
    a. support TCP/UDP

h. support SMB/CIFS file sharing;
i. support the following authentication methods: local user ID/password, LDAP, Active Directory, ActivCard ActivPack, RADIUS, Windows NT Domain and RSA SecurID, X.509 digital certificates
j. granular access control and authorization:
    a. user- and group-based memberships,
    b. role-based access,
    c. LDAP/AD attributes,
k. Three 10/100/1000 Base-T Ethernet ports
l. support for Apple, Linux and Microsoft Windows client OS
m. FIPS 140-2 compliance
n. Central administration, monitoring and reporting
o. Load balancing options

### 6.2.8. Biometric Scanning Devices

Biometric scanning devices to provide fingerprint-based secure access to computer systems shall be provided which at a minimum:

a. Compliant with SP 800-73 (data APIs) and SP 800-76 (biometric data specification) (desirable)
b. USB connectivity
c. portable
d. integrated finger guide
e. optical or capacitive sensor
f. latent print image removal
g. encryption of fingerprint templates
h. 500 dpi resolution
i. Verification time of less than 1 sec
j. Software to allow fingerprint based logon and file encryption
k. Windows support
    1. Linux support (desirable)
    2. Apple Mac OS X support (desirable)
l. Fingerprint-based scanner for access to facilities, computer rooms, etc (desirable)
m. Retina and iris scanning devices and other forms of biometric scanning devices (advanced technology)

### 6.2.9. Smart Card Readers

Smart card reader devices to provide smart card secure access to computer systems shall be provided which at a minimum:

a. Compliant with SP 800-73 (data APIs) and SP 800-78 (card specification) (desirable)
b. USB connectivity
c. portable
d. T=0, T=1 Protocol support
e. 344,000 bps speed
f. Support ISO 7816 Class A and AB smart card
g. Windows, MAC OS, and Linux OS support
h. Readers for access to facilities, computer rooms, etc (desirable)

## 6.3. Advanced Video and Conference Tools

This section describes the requirements for a set of mandatory products related to audio-visual technology.

### 6.3.1. Video Acquisition Devices

The following video acquisition devices shall be provided:

a. HDTV Studio Camera Systems including:
   1. Three 2/3-inch type 16:9 FT or FIT CMOS or CCD imagers
   2. 34 or 38-bit digital signal processing resolution
   3. HD images in both 1080i and 720p formats
   4. 1920 x 1080 effective pixels
   5. Signal-to-noise ratio of 54dB (typical)
   6. F10 Sensitivity
   7. HDTV viewfinder.

b. Professional Digital Single Lens Reflex (SLR) Camera such as the Canon Eos 7D with the following minimum specifications:
   1. High-sensitivity, High-resolution, Single-plate CMOS Sensor
   2. 17.9 megapixels
   3. 3:2 (Horizontal:Vertical) Aspect Ratio
   4. support for the following optional file types / sizes
      - Large: 17.9 Megapixels
      - Medium: 8.0 Megapixels
      - Small: 4.5 Megapixels
      - RAW: 10.1 Megapixels
   5. Combination of preset and user-defined picture style function with individual adjustments for sharpness, contrast, saturation and color tone
   6. Video mode with sound: 1920X1080 file size in full HD mode
   7. USB 2.0 interface
   8. Focusing modes of: Autofocus, and Manual Focus
   9. Exposure Control Systems
   10. ISO Speed ranges: Equivalent to ISO 100-6400 (in 1/3-stop increments)
   11. Shutter Speeds of 1/8000 to 30 sec. (1/3-stop increments)
   12. Self timer shutter release with option of 2 sec. or 10 sec timing delay
   13. Focusing options: Quick mode, Face detection, Manual
   14. Built in autoflash
   15. Camera bag
   16. Lens

c. Conference room double bay multimedia lectern with semi-recessed (up to 18 inch) LCD flat panel display
   1. height adjustable monitor support
   2. storage area with locking doors
   3. remote-switched, surge-protected 6-outlet power strip
   4. Pullout platform for keyboard / mouse
   5. Approximate size of 54X26X42 inches **(**Width **x** Depth **x** Height**)**

d. 750 Watt Studio light bulb with Medium Bi-Pin (G9.5)

f. High-output dynamic vocal microphone:
   1. frequency response: 50 to 15,000 Hz
   2. Rated low impedance of 50-1,000 ohms
   3. Dynamic range: 120 dB
   4. adjustable slip stand adaptor
   5. supercardioid or hypercardoid

**6.3.2. Audio Video Monitor and Display Devices**

The following Audio Video Monitor and Display Devices must be provided:

a. Stereo speakers
   1. 2 speakers including tweeter and woofer
   2. Impedance : at least 6 ohms nominal
   3. Sensitivity: in the range of 85-90 db at 1 meter
   4. Frequency response: at least a range of 50 Hz - 20 kHz (desirable)
b. Wall mountable 46” Wide LED TV
   1. 46 inch diagonal screen size
   2. Native resolution at least 1920X1080p
   3. Multiple aspect ratios including at least 16:**9** and 4:3
   4. Wall mount hardware
c. 42 inch digital signage monitor
   1. 1080p panel
   2. <requirement removed>
   3. 7 day on/off scheduling
   4. Speakers (built-in or separately attachable)
   5. Remote and panel control lockout (desirable)
   6. RS-232 daisy-chain capable
   7. Screen saver/image sticking protection (desirable)
   8. VGA and DVI inputs for connectivity and control
      a. VGA and DVI outputs (desirable)
   9. Stand-alone license for a signage software package that provides display management including scheduling and distribution of pre-scheduled information
d. Document Kiosk
   1. 19" LCD Monitor
   2. Full Metal sealed keyboard
   3. Printer with Paper Tray.
   4. Computer: minimum of 1.6 GHz Dual Core Processor; 2 GB RAM; 64.0 Gig SS HD
   5. Surge protection for all electronics
   6. Kiosk Software/interface:
      a. Touch Screen Keyboard
      b. Basic Lock Down Software
      c. Remote Access Software
   7. Heavy duty Metal Enclosure
   8. 2 External USB Ports
   9. Internal cooling system

**6.3.3 Virtual Environment Devices**

The following Virtual Environment Devices must be provided:

a. Tactile glove haptic device such as the CyberGlove Systems CyberGlove II with minimum specifications of:
   1. Number of sensors: 5
   2. Sensor Resolution: < 1 degree
   3. Sensor Repeatability: 3 degrees
   4. Sensor Linearity: 0.6% maximum nonlinearity over full joint range
   5. Sensor Data Rate: 90 records/sec (typical)
   6. Wireless Technology: 2.4 GHz
   7. Operating Range: 30 ft radius from USB port

## 6.4. Racks / Enclosures / Carts

The following Racks and related products must be provided:

a. Medical Exam Station
   1. Lightweight and Transportable Medical Exam Station
   2. Wireless Tablet Computer Enterprise Router with Mobile3G, Ethernet Port and VPN
   3. IP Stethoscope
   4. USB Video Otoscope w/5 Specula
   5. Rolling Travel Case with Extendable Handles
   6. Video examination camera
      i. HD video examination camera (desirable)

b. Medical grade computer carts:
   1. Antimicrobial Contact Surfaces
   2. Smart Control Panel
   3. Work Light with Auto Shut-off
   4. Negative-tilt Keyboard System
   5. Mousing Surface: Left/Right Mouse Tray
   6. Ergonomic Grip Front Handle
   7. Ergonomic Grip Height Adjustment Lever
   8. 3 port USB Hub
   9. Internal Cable Management
   10. Ethernet Ready
   11. 4 durable precision casters (2 locking)
   12. Hospital Grade Spiral Power Cord
   13. Keyed Lock Security
   14. Software
      a. Battery Alert
      b. Remote PC Reboot Button
   15. LCD Height Adjustment: simple landscape to portrait adjustment
   16. Integrated Power Conditioning System

c. Cable trays and related items:
   1. Cable Tray straight sections
      a. grid pattern of 2 inches x 2 inches
      b. width/length/height = 4 inches X 2 feet X 2inches
   2. Hardware for installation
      a. Ratchet
      b. Cable Tray Cutter

d. Computer Rack Enclosure:
   1. Enclosure frame with two pair of coated, universal M6 mounting rails and package of M6 hardware
   2. Top Panel fan(s)
   3. Front Door with locking handle
   4. Rear Contour Mesh Door with locking handle
   5. Pair of solid side panels
   6. Minimum size of 84"H x 24"W x 48"D

## 6.5. Additional Technology

Devices running client-oriented OSs to allow running of security, network, image and display related tools (additional technology)

Basic storage equipment in support of security, network, image and display related tools (additional technology)

Supporting technology such as printers, scanners, etc. in support of security, network, image and display related tools (additional technology)

Security certification and accreditation services (additional technology)

## 6.6. Specialists

To assist in product recommendations, installation, and support of computer systems products the following specialists shall be supported:

a. Information Assurance Network Specialist
   1. Analyzes general information assurance-related technical problems and provides basic engineering and technical support in solving these problems. Supports the integration of information assurance solutions and technologies into networks with particular attention to protocols, interfaces, and system design. Analyzes and defines security requirements for local and wide area networks. Designs, develops, engineers, and implements solutions that meet network security requirements. Responsible for integration and implementation of the network security solution. Performs vulnerability/risk analyses of computer systems and applications during all phases of the system development life cycle. Configures test beds and conducts testing, records and analyzes results, and provides recommendations for improvements for the products/systems under test. Analyzes and defines security requirement for computer systems which may include mainframes, workstations, and personal computers. Designs, develops, engineers, and implements solutions that meet security requirements. Responsible for integration and implementation of the computer system security solution. Gathers and organizes technical information about an organization's mission goals and needs, existing security products, and ongoing programs in computer security. Performs risk analyses of computer systems and applications during all phases of the system development life cycle. Applies principles, methods, and knowledge of security to specific areas task order requirements. Test developed systems at each point of entry for ease of unregulated entry; systems resources denial; system information corruption; unlawful use of system resources; vulnerability to electronic disruption.
   2. Experience Requirements: This position requires a minimum of seven years of substantial experience in system security analysis and implementation; design assurance or testing for information assurance products and systems; integration or testing for information assurance products and systems. Experience in heterogeneous computer networking technology and work in protocol and/or interface standards specification is recommended.

b. Network Engineer
   1. Tests and analyzes all elements of the network facilities including power, software, communications devices, lines, modems and terminals and for the overall integration of the enterprise network. Responsible for the planning, design, installation, maintenance, management and coordination of the network. Monitors and controls the performance and status of the network resources. Utilizes software and hardware tools, identifies and diagnoses complex problems and factors affecting network performance. Maintains technical currency and studies vendor products to determine those which best meet client needs. Provides guidance and direction for less experienced network support technicians
   2. Experience Requirements: Seven years of increasingly complex and progressive experience in computer system/network engineering. Includes two years of specialized experience related to the task.

## 7. References

ANSI INCITS 362-2002 SCSI Parallel Interface-4 (SPI-4)
ANSI X3.64-1979/R1990 Keyboard encoding standard
ANSI T1.606 Frame Relay Protocols with LMI Extensions
ANSI T1.601-1992 ISDN U Interface
ANSI T1.605.1992 ISDN ST Interface
ANSI X3.253:1998 SCSI-3 Parallel Interface (SPI)

EIA RS-232-C Interface between Data Terminal Equipment and Data Communication Equipment

IEEE 754 Floating Point Format (32 and 64 bit)
IEEE 754-1985(R1990) IEEE Standard for Binary Floating-Point Arithmetic
IEEE 802.11 Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY)
IEEE 802.11b Higher speed Physical Layer (PHY) extension in the 2.4 GHz band
IEEE 802.1c LAN/MAN Management (15802-2-1995)
IEEE 802.11p Wireless Access for the Vehicular Environment (WAVE)
IEEE 802.1x Port Based Network Access Control
IEEE 802.3 Ethernet Specification
IEEE 1394 and IEEE 1394a Firewire interface
IEEE 1284 Standard Signaling Method for Bi-directional Parallel Peripheral Interface for Personal Computers
IEEE 1003.1-1990 Portable Operating System Interface Exchange (POSIX) Full Use Interface Definition

ISO/IEC 14882:1998 C++ compiler
ISO/IEC 1539-1:1997 Fortran 95 compiler
ISO 7816 Contact smart card
ISO 8802/1 LAN/MAN Management
ISO 8802/2 Logical Link Control Type 1 (LLC1)
ISO 8802/3 Ethernet Specification
ISO 15408 Common Criteria for IT Security Evaluation

RFC 768 User Datagram Protocol (UDP)
RFC 791 Internet Protocol (IP)
RFC 792 Internet Control Message Protocol
RFC 793 Transmission Control Protocol (TCP)
RFC 821 Simple Mail Transport Protocol (SMTP)
RFC 826 Address Resolution Protocol (ARP)
RFC 854 TELNET Virtual Terminal Protocol
RFC 904 Exterior Gateway Protocol (EGP) (Historic)
RFC 950 Internet Control Message Protocol (ICMP)
RFC 959 File Transfer Protocol (FTP) (Updated by RFC2228, RFC2640)
RFC 1058 Routing Information Protocol (RIP)
RFC 1075 Distance Vector Multicast Routing Protocol
RFC 1112 IP multicasting (Updated by RFC2236)
RFC 1155 Structure and identification of Management Information for TCP/IP-based internets (MIB)
RFC 1157 Simple Network Management Protocol (SNMP)
RFC 1195 Integrated IS-IS: Use of OSI IS-IS for routing in TCP/IP and dual environments
RFC 1213 Management Information Base for network management of TCP-IP-based Internets: MIB II
RFC 1238 Connectionless Network Protocol MIB
RFC 1239 Reassignment of experimental MIB's to standard MIB's
RFC 1271 Remote Network Monitoring Management Information Base
RFC 1305 Network Time Protocol (Version 3) Specification, Implementation
RFC 1323 TCP extensions for high performance \
RFC 1332 Point-to-Point Protocol (PPP) Initial Configuration Options
RFC 1406 Definitions of Managed Objects for the DS1 and E1 Interface Types
RFC 1584 Multicast Extensions to OSPF

RFC 1661/1662 PPP
RFC 1663 PPP Reliable Transmission
RFC 1723 RIP Version 2 - Carrying Additional Information
RFC 1742 AppleTalk Management Information Base II
RFC 1771-1774 Border Gateway Protocol (BGP)
RFC 1813 Network File System (NFS) Version 3
RFC 1850 OSPF Version 2 Management Information Base
RFC 2046 Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types
RFC 2328 OSPF version 2
RFC 2362 Protocol Independent Multicast-Sparse Mode (PIM-SM): Protocol Specification
RFC 2496 Definitions of Managed Object for the DS3/E3 Interface Type
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2865 Remote Authentication Dial In User Service (RADIUS)
RFC 3164 The BSD Syslog Protocol
RFC 3031 Multiprotocol Label Switching Architecture
RFC 3036 LDP Specification
RFC 3569 Source-Specific Multicast (SSM)
RFC 3530 Network File System (NFS) version 4 Protocol

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## Attachment B Mandatory Deliverables

The following list of deliverables provides a description of each Mandatory Deliverable line item as identified in Attachment A: Technical Specifications.

Items which are listed under Mandatory Add-ons are mandatory deliverable items which the technical specifications indicate must be provided on the contract, but which may be separately orderable from the required base systems.

## Group A (Computer Servers) deliverable items

Note: pricing shall be inclusive of all necessary cabling, trays, enclosures, racks, cooling, etc. to provide for a fully operational system. The container based systems must include all required items listed in 3.2.3. as part of a fully enclosed system.

36 node mid-range cluster: 2 Head Nodes; 34 Data Nodes with all necessary cables and racks, OS Drives, Storage, etc.
C++ compiler - mid-range cluster
Fortran 2008 compiler - mid-range cluster
Unlimited OS license - - mid-range cluster
Smart PDU- mid-range cluster
Management Network GbE switch- mid-range cluster
KVM implementation capable of supporting 36 nodes - mid-range cluster
Storage system / media for 10 PB
HMS software
AutoDesk Maya (or equivalent)
RenderMan Studio 4 (or equivalent)
RenderMan Pro Server (or equivalent)
Oracle database server (or equivalent)
484 node high end cluster - 2 Management Nodes, 2 Service Nodes, 480 Compute Nodes with all necessary cables and racks, NIC, motherboards, processors, RAM, cooling, disk controller, HCA, OS drives, disk storage, etc
C++ compiler - hi end cluster
Fortran 2008 compiler - hi end cluster
Unlimited OS license - hi end cluster
Smart PDU - hi end cluster
Management Network GbE - hi end cluster
LAN 10 GbE switch - hi end cluster
Infiniband Network QDR GbE switch - hi end cluster
KVM implementation capable of supporting 484 nodes - hi end cluster
Class 3a container system – 32 nodes
Class 3b container system – 16 nodes

Class 3a: – upgrade to 256 GB memory
Class 3a: – upgrade to 1 TB internal storage
Class 3a: – upgrade to 3.6 PB storage
Class 3b: – upgrade to 128 GB memory
Class 3b: – upgrade to 500 GB internal storage
Class 3b: – upgrade to 1.8 PB storage

## Group B (Mass Storage Devices) deliverable items

DVR
DAT 72 external drive
STK T10000C external drive
LTO Ultrium drive
40 slot / tape drive LTO Ultrium desktop library system
200 slot / 8 drive LTO Ultrium enterprise library system
2 PB Large robotic device (64 drives)
7 TB RAID Blade array
6 TB Scalable RAID
HSM Software – 1 PB
10 TB Virtual Storage (monthly rate)
Small Office UPS
Small Server Room UPS
On-site disk drive destruction
On-site tape degaussing

**Group C (Server Support and Multi-Functional Devices) deliverable items**

21 inch LCD Monitor
Portable Projector
Manual Screen
Interactive Whiteboard
Monochrome Laser Printer
High Speed Monochrome Printer
Color Printer
Color Large-Format Plotter
High Speed/High Performance Scanner
Large Format Scanner
Small format tablet
Mouse
Keyboard
Motion detector solution
All-inclusive Office Video Conferencing
Point of Sale System
High volume monochrome MFD
Medium volume color MFD
5,000 Staples
Toner – supply for medium volume monochrome printer
Case of 5,000 sheets - 8x11" White
Case of 2,500 sheets - 11x17" White

**Group D (Network Devices, Computer Security Tools and Advanced Video and Conference Tools) deliverable items**

NOTE: where OEM 1, OEM 2 are noted the equipment must be from 2 different OEMs; but the same OEM may have proposed equipment in other groupings. Groupings are separated by '***'

Network management software
Wireless Access Point
Wireless LAN Manager
Wireless Bridge
***
High End LAN switch chassis (OEM 1)
High End LAN switch chassis (OEM 2)
***
Medium Network Router (OEM 1)
Medium Network Router (OEM 2)
***
Large Network Router
2- Way Radio
IP Telephony System
Cell Phone
Portable Hardware based network protocol analyzer
***
Anti-spam appliance (OEM 1)
Anti-spam appliance (OEM 2)
***
Anti-spyware software (Windows PC) – enterprise based, 25 clients
Server level intrusion protection and detection software – 25 servers
Vulnerability assessment software – 2500 seats
VPN Appliance – unlimited client
Fingerprint based biometric scanning device
Smart card reader
HD Studio Camera System
Digital Single Lens Reflex (SLR) Camera with bag
Conference room double bay multimedia lectern
Studio lighting - 750 watts of high impact strobe
High-output dynamic vocal microphone
Stereo Speakers
Wall mountable 46” Wide LED Display
42” digital signage monitor
Document Kiosk
Tactile glove haptic device
Medical Exam Station
Medical grade computer carts
Cable Tray straight sections
Ratchet
Cable Tray Cutter
Computer Rack Enclosure

# ATTACHMENT C STATEMENT OF WORK

## C.1. STATEMENT OF WORK

### C.1.1. OBJECTIVES

#### C.1.1.1. BACKGROUND

This procurement is open to all of NASA including its Contractors as authorized by their Contracting Officer. This includes the NASA centers: NASA Headquarters, Ames Research Center, Dryden Flight Research Center, Goddard Space Flight Center, Johnson Space Center, Kennedy Space Center, Langley Research Center, Glenn Research Center, Marshall Space Flight Center, Stennis Space Center, Jet Propulsion Lab and related facilities (e.g. Goddard Institute for Space Studies, Wallops Flight Facility, White Sands Test Facility, Independent Verification and Validation Facility, etc.) and the NASA Shared Services Center. These contracts will also be available for use by other Federal Agencies and their Contractors as authorized by their Contracting Officer.

Information technology and information processing resources management permeates almost every element of NASA. Data rates from NASA missions are significant and increasing rapidly along with the complexity of data relationships and information extraction. Accessibility, presentation quality and data formatting are increasingly important in a world of more and more intensive computation, analysis and sophisticated graphics. The need for efficient and powerful software and hardware geared towards the various information processing tasks extends from end users' tools to high end compute, storage, archive and analysis servers.

NASA's mission and analysis requirements in all areas of science and engineering are becoming increasingly complex and more demanding in terms of their computational and data requirements. Some applications generate data volumes reaching hundreds of terabytes and even petabytes. Many of NASA's scientific applications are data intensive and present significant challenges in the management of data resources and dataflow between the storage and compute resources. NASA's data intensive computing requirements are particularly acute in the areas of analysis, visualization and accessibility.

One of NASA's goals is to optimize the productivity of the individual through the utilization of consistently more powerful computers utilizing the latest in supporting peripherals combined with higher level and more user friendly software on standardized but customizable systems.

Computer facilities throughout NASA are being continuously enhanced by incorporating evolving improvements in state-of-the-art computer system technologies to maintain NASA at the forefront of scientific and engineering processing performance and capabilities and to provide the user community of researchers and engineers with the most sophisticated and powerful computer tools available. The original SEWP contracts helped establish UNIX as the unifying computer system within NASA's scientific and engineering environment. In continuing support of the activities that utilize these computer systems NASA is implementing Indefinite Delivery/Indefinite Quantity (IDIQ) contracts of the latest computer system technologies. These standard based computer systems will continue to enhance and unify computational and graphics capabilities to the scientific and engineering community supporting NASA missions.

#### C.1.1.2. APPLICATION AND COMPUTATIONAL ENVIRONMENT

In the accomplishment of its mission, NASA utilizes a wide diversity of general and special purpose digital computers ranging from Compute Clusters, High Speed Specialized Processors, Scalable Parallel Processors and High End Storage systems to wide array of desktop and portable tools. These systems, while diverse in capability, are functionally interoperable through their support of IP networking and interoperability standards. These systems provide interoperability and portability through their implementation of IT standards. They

allow users to move between machines in a heterogeneous networked environment while maintaining an interoperable user environment.

NASA's mission, for example, in the Geodynamics, Geophysics, Earth Resources, and Hydrological Sciences areas of investigation, is based on programs of basic and applied research as well as data analysis and interpretation and is conducted to span virtually the entire breadth of terrestrial utilization of space-acquired data. These include investigative studies of the Earth's gravitational and magnetic fields, crustal differentiation, surveying and mapping of crustal magnetic anomalies, computing general ocean circulation and major currents, determination of tectonic plate motion, and monitoring and predicting atmospheric circulation. In the resource observation areas, specific topics being investigated include mapping of geobotanical anomalies; crop, forest, and rangeland mensuration and classification; and determination of soil moisture - vegetation relationships. Ice and snow pack properties and surface imperviousness - water runoff relationships are also studied. These investigations include the study of future systems involving advanced higher resolution multi-element sensors.

NASA's requirements for computing resources will continue to increase dramatically for all types of systems and tools, and for a wide range of power and capacity. A family of scientific and engineering computer systems along with alternate, standards-based operating systems and supporting equipment and software will provide a wide diversity of interoperable functions within NASA and ensure the availability of the best tools for all of the core competencies at NASA.

Computer networking is a key element of the computer system environment. NASA maintains an extensive network environment with tens of thousands of active network nodes in dozens of domains. The NASA environment is primarily Ethernet based, and NASA is continually researching emerging technologies to supplement the existing infrastructures where needed. Computer systems will need to support the current highest performance network technologies. NASA aggressively deploys network technology that capitalizes on its existing investment while promising long-range viability. This includes extending the reach of NASA's services both internally and to external service providers including those that are Cloud based.

Cloud computing and the related X As A Service (e.g. Software As A Service) are increasingly important to NASA and the Federal Government. Private Clouds (e.g., containers); Public Cloud Services (used, for example, to offload data, storage and/or respond to computational capacity), Community Clouds (used, for example, to consolidate similar requirements throughout a Center or Agency) along with the many variations of Cloud Services are prevalent in new and emerging requirements and therefore are an important aspect of the SEWP V offerings.

### C.1.1.3. ACQUISITION OBJECTIVES

This acquisition's first objective is to have hardware and software available to address an increasingly difficult, complex, and changing set of NASA-specific scientific and engineering problems while also providing IT product-based solutions to assist all Federal Agencies in meeting their IT needs. For example, problems such as the design and development of complex instrumentation, correlative data analysis between multiple data sources and high-resolution display and animation of complex three-dimensional objects stress the resources of today's most powerful scientific and engineering computer systems and high-speed networks**.** Yet each of these problems requires computational platforms that are highly extensible in different key areas of computer system technology. In addition increased requirements for distributed computing and sharing of resources and data have created a data and network-intensive computational environment while the need for efficiency and cost savings has resulted in a need for consolidation and cloud-based services. Ideally this first objective would be met with hardware and software that provide flexibility, functionality, high-speed connectivity and a performance growth path that can address NASA's technical and interoperability requirements as our science and engineering requirements continue to expand. Additionally the need for facility consolidation and cloud-first solutions necessitates an acquisition strategy inclusive of hardware, software and services that can leverage virtualization, public and private cloud services and facilities and software-as-a-service along with related cloud-based products and services.

This acquisition's second objective is to assist the Government in minimizing incompatibilities and maximizing strategic decision making across the IT infrastructure. This objective is met firstly by focusing on commercial and standards based technology and acquisition practices. Secondly, information flow between industry and the

Government end-user is paramount in providing the Government with the knowledge to make informed decisions. It is therefore a goal of this contract to not only provide basic technical information but to also facilitate information related to a variety of topics including but not limited to supply chain management, energy savings and accessibility features, and program and past performance. With a full suite of standardized products and ready access to key data, it is anticipated that NASA and other Federal Agencies will have the ability to use these contracts for strategic IT purchases.

A third objective is to provide NASA with a wide range of IT, communications, audio-visual and related hardware, software and product based services to support, interconnect, and enhance NASA's scientific and engineering capabilities. To support the variety of systems and computing related needs and continue to promote and stimulate vendor competitiveness, contractors associated must include access and/or support to the widest possible variety of appropriate companies. In addition, these systems must include enhancements that provide leading edge technology to the computer system group. This objective is met in part through the technology refreshment process to add new companies and technology to make enhanced new technical capabilities available.

Finally, it is imperative that SEWP embraces innovative procurement transactions and processes. This objective is to facilitate processes that will place a minimal administrative burden on the customer, contractor, and the Government. The Government believes that this can only be accomplished through electronic and automated means. Hence every effort will be made to utilize automated processes for order processing, tracking, delivery, invoicing, and payment. The Government envisions a virtual system in which the customer is empowered to choose what goods and services they need to accomplish their mission, order them (if within their authority) receive them directly, and authorize payment. This empowerment of the customer necessitates the continued enhancement and automation of today's conventional procurement processes. At a minimum this will require standardized electronic communication processes for order processing, pricing exhibits, and management reporting. Further, this system will continue to evolve as standards mature and enabling technologies become available. It is expected that the Government and industry will partner together in this effort.

While the goal of this SEWP RFP is to provide the widest range of IT product solutions through a competed set of contract awards, a post-award plan is to determine if a small group of non-competed set-aside contracts would be beneficial to the Government to fill in any additional related capabilities.

Overall, this consolidated effort will provide the Government with hardware, software, Audio-Visual products and related services that represent the best overall value to the Government in fulfilling its mission. Further, this effort will minimize the Government's administrative costs, and provide the ability to fulfill our users' needs in a timely manner.

Because the scientific and engineering requirements depend on interoperability and standards, combined with the broad base of commonality among requirements, functions, and available COTS solutions, it is assumed that overlap will exist between contracts and across groups. Additionally, any overlap will ensure that end-users will have access to appropriate and complete solutions to meet their varied requirements. Therefore, no single contract will have exclusive rights to provide any given technology nor will end-users be confined in their choice of contracts they utilize. The end-user's decisions will be based on a Best Value and Fair Opportunity determination as required in FAR 16.505(b).

<u>Scope</u>

NASA implements many different missions and projects to meet a wide range of requirements. In addition, other Government agencies will utilize any resultant contract if they determine the available hardware, software, and related products and services meets their technical requirements and represent a Best Value to that organization. As such it is intended that deliverables under this contract may be utilized by: Government civil servants, Government on-site (or near-site) contractors, Government off-site contractors, Principal investigators, or Universities through grants or cooperative agreements and Government-Owner Contractor-Operated (GOCO) organizations. Therefore, deliverables under the contract are not limited to NASA-specific requirements, although any such deliverable will be available for NASA's usage. While SEWP Contractors are required to provide CONUS delivery, Federal Agencies with OCONUS locations may utilize the SEWP contracts based on mutually agreed upon delivery arrangements.

Regardless of the mandatory items defined, proposed and provided by each class, the scope of all contracts is the same – Information and Communications Technology (ICT) and Audio Visual (AV) products including hardware; software; maintenance; warranty; product based engineering, installation and implementation services; and product training.

### C.1.2. GOVERNMENT'S OPERATING PLAN

There will be a SEWP Program Management Office (PMO) staffed by Government, and NASA support service contract personnel. The PMO will be located at NASA Goddard Space Flight Center (GSFC) and will serve four main functions: contract management, technical oversight, administrative support, and customer support. The full NASA SEWP Team will consist of the SEWP Executive Committee, SEWP Contracting Officer(s), the SEWP Contracting Officer's Representative (COR), SEWP Technical Specialists, and NASA SEWP Program Manager and Deputy Program Manager.

The SEWP PMO will be the focal point for SEWP Contractors and customers by serving as a clearinghouse of information and services relevant to the SEWP contracts. The SEWP PMO is not responsible for promoting the Contractor's products or for conducting market research for the Contractor's products.

#### C.1.2.1. Executive Committee, CO(s), COR, Technical Specialists

The SEWP Executive Committee will oversee and direct the management of the SEWP contracts. The SEWP Contracting Officer(s) will perform functions normally associated with such position(s). The SEWP COR will conduct post award implementation and administration. Technical Specialists may be appointed by the Executive Committee to assist the COR in reviewing and approving all Technology Refreshment proposals from the Contractor to ensure appropriate scope and conformance with SEWP objectives. The COR will maintain a close working relationship with the Contractor regarding current and future technology and the technical breadth and depth of the contract. The Executive Committee, Contracting Officer(s) and COR will be located at GSFC. The Technical Specialists may be located at various NASA Centers and other agencies.

#### C.1.2.2. SEWP POCs

SEWP Point of Contact (POC) serves two main functions within their respective agencies:

1. Contact person within their agency to answer questions and provide guidance to Government and Contractor employees interested in using SEWP;
2. Person to serve as a liaison between the NASA SEWP Office and their agency, providing feedback and receiving updates to/from the NASA SEWP office on current issues and future goals of SEWP

Agencies may have multiple POCs. A POC can be identified as a Contracting POC, a Technical POC, or both. Agencies are not required to identify a POC in order to utilize the SEWP contracts.

#### C.1.2.3. SEWP PMO Management Services

The SEWP PMO will maintain a database containing all information relevant to order and contract monitoring. The SEWP database will be the official repository for pricing exhibits, electronic reports, summaries of purchase orders, and other contract related information. The SEWP PMO will validate orders to ensure orders are from a federal agency or authorized federal contractor and that the orders include a valid contract number, a signature and date, and a total dollar amount. As detailed in Attachment D, all orders, except for direct credit card orders, will be routed through the SEWP PMO office prior to issuance to the Contractor to ensure that appropriate scope, pricing, authorization limits, and other contract and program requirements are monitored at all times. Pricing information will be remotely accessible by Contractors and customers in order to facilitate the generation of contractually correct orders. The database will be populated via electronic processes as defined in Attachment D.

Contractor information systems for order processing and quote generation must be populated with pricing data synchronized with the SEWP database. This will ensure consistency between the Contractor information systems and the SEWP database of record. The data relevant to each Contractor's SEWP contract will be available for access and downloadable by the Contractor on a 24 hours a day, 7 days a week basis. Each time a change is made in the SEWP database relative to a Contractor's offerings, the new data must be updated in the Contractor's order processing and quote generation systems by the Contractor.

The SEWP PMO will be responsible for supporting Points of Contacts (POCs) and customers at NASA field centers and other federal agencies.

The SEWP PMO will monitor and facilitate the processing of SEWP orders. These services include problem determination, escalation and resolution, and other front line support services for SEWP customers, Contractors and POCs.

#### C.1.2.4. SEWP PMO Automation Services

The SEWP PMO will maintain a Web home page containing pricing, order status, promotional and technical support information and other information deemed relevant to the support of the SEWP contracts. The SEWP home page will be accessible to all SEWP customers, POCs and Contractors. It will include product and manufacturer search capability along with on-line Request for Quote tools that may be used by SEWP customers to request and verify quotes from the Contractor.

The SEWP PMO will implement electronic services to facilitate the paperless processing of SEWP orders, reports, pricing exhibits and other relevant business documents. The implementation will be in accordance with the SEWP e-reporting architecture, as described in Attachment D.

#### C.1.2.5. PMO Technical Services

The SEWP COR and/or the Technical Specialists, assisted by the SEWP PMO, will research emerging technologies and assess their applicability to the SEWP contracts regarding price, performance, interoperability, standards, and comprehensive functional capabilities. The SEWP PMO will refer customers requesting requirements analysis information and services to assist in determining the optimal use of products offered on the SEWP contracts to the Contractors most appropriate for resolving the customer's needs.

The SEWP home page will maintain links, documents and software relevant to the technical support needs of SEWP customers. A link to the Contractors SEWP Web site will be provided through SEWP's Website.

### C.1.3. CONTRACTOR RESPONSIBILITIES

#### C.1.3.1. TECHNICAL SERVICES

*C.1.3.1.1. World Wide Web Services*

The Contractor shall maintain a public website for publishing a full complement of contract related resources to the SEWP PMO, SEWP POCs, and SEWP customers. These resources shall include but not be limited to:

1) A soft copy ordering guide (see section C.1.3.3 for ordering guide specifications) suitable for downloading and printing by SEWP customers.
2) Identification of the Contract as part of a multi-award Government-Wide Acquisition Contract (GWAC) with accurate and clearly stated posting of the Fair Opportunity Clause found within the body of the Contract
3) On line program support information including:

a) How to obtain a quote for hardware, software, or services, including names, telephone numbers and email addresses of appropriate sales representatives.

b) Policy and procedural information regarding installation, basic warranty, extended warranty, technical support, software support, and other post delivery issues. This will include the names, telephone numbers and email addresses of appropriate support staff.

c) How to troubleshoot a problematic order including names, telephone numbers and email addresses of appropriate support staff.

4) Links to related Web resources such as corporate home pages and the SEWP home page

The Contractor shall provide these SEWP-specific Web capabilities within one month of contract award.

The Contractor's SEWP related Web pages shall comply with all applicable Government Access Standards for Electronic and Information Technology including such standards based on Section 508 of the Rehabilitation Act Amendments.

*C.1.3.1.2. Systems for Operational Capability Demonstration*

If the Government determines a need to verify the technical capabilities or otherwise demonstrate required functionality of mandatory products, the contractor shall provide proof of the indicated functionalities for those products prior to placement of the first delivery order after contract award. The method for providing that proof will be negotiated between the Government and the contractor. Similarly, if the contractor submits a technology refreshment proposal for a mandatory item, the Contractor shall, upon Government request, provide proof of the ability for the updated item to meet or exceed the mandatory requirements..

If the Government determines a need to verify the technical capabilities or otherwise demonstrate required functionality of items to be purchased via credit card or delivery order, the contractor and Government shall negotiate an appropriate methodology including but not limited to an operational capability demonstration (OCD).

*C.1.3.1.3. SEWP Technical Support*

The contractor shall provide to the SEWP, at no additional expense, a full complement of technical support services including:

1) Timely nondisclosure briefings on emerging technologies relevant to SEWP.

2) Commercially available technical specifications, either on-line or in hard-copy form, for all base system components, with such documents for all products available on the Contractor's SEWP contract available by request.

3) Continuous adherence to any relevant Government, NASA, and Goddard security requirements.

## C.1.3.2. PROGRAM OFFICE SUPPORT

The Contractor shall staff a program office that will facilitate communications, electronic reports, order processing and troubleshooting, customer support services, contract modifications, process improvements, technical support services, and any other services deemed necessary to the success of the Contractor's SEWP contract.

The Contractor Program Office will consist of at least a designated Program Manager. The Contractor Program Manager will serve as the main Point of Contact between the Contractor and the SEWP PMO and is responsible for ensuring all contractual and program requirements are fulfilled. The Contractor's Program Manager's full contact information must be provided and maintained on the SEWP Home website and at the SEWP PMO.

The Contractor Program Manger must be dedicated solely to a single Contractor.

Other Contractor staff, such as Deputy Program Manager, sales lead, technical support, contract support, etc. providing support for the SEWP Contract must be identified to the SEWP PMO.

*C.1.3.2.1. Communication Services*

The Contractor shall have the ability to communicate with the SEWP PMO and Government customers via telephone, facsimile, and e- mail. Communication will include technical, administrative, contract management, and customer support issues.

*C.1.3.2.2. Customer Support Services*

The Contractor shall provide, free of charge to SEWP customers, the following customer support services:

1) Timely and accurate sales quotes based on current SEWP offerings and prices.
2) Timely dispatch of up-to-date hard and soft copy ordering guides.
3) Commercially available technical specifications, either on-line or in hard-copy form, for any product available on the Contractor's SEWP contract, per a customer's request.
4) Configuration analysis to determine the suitability, correctness and availability of a Contractor's offerings to the customer's requirements.

*C.1.3.2.3. Program Manager Meetings*

The Contractor shall meet regularly with the SEWP PMO to review the state of the Contractor's SEWP contract, to discuss improvements to technical and administrative processes, and to incorporate customer feedback into the SEWP processes. There will be 2 to 4 mandatory Program Manager Meetings annually inclusive of the SEWP Annual Meeting. Except for the Annual Meeting, the meetings will be held at or near GSFC.

Each Contractor Program Manager will meet annually on a one-on-one basis with a SEWP Contract Holder Relationship Manager

*C.1.3.2.4. Sales and Program Training*

The SEWP PMO shall provide, free of charge to the contractor, the following training services:

1) Within 6 months of contract award, the contractor will arrange for at least 1 SEWP Contract and Program training session. The training will be provided either at the contractor's facility or a mutually agreed upon site. The training will be free of charge and presented by the SEWP PMO and is a 2-hour session. Through this initial required session and any necessary follow-ons, it is expected that all sales agents and other contractor staff associated with this contract will attend at least one such session.
2) Periodically, throughout the contract period of performance, courses for new employees and/or refresher courses for current employees will be arranged with the SEWP PMO. If major changes or issues arise either directly with the contractor or with the SEWP Program as a whole, follow-up training sessions may be made mandatory at NASA SEWP Program Manager's discretion.

**C.1.3.3. ORDERING GUIDES**

The Contractor shall publish an electronic ordering guide suitable for downloading and printing by SEWP customers. The guide shall be available prior to placement of the first delivery order after contract award. Updated versions shall be available no later than 10 business days following each contract modification. The ordering guides should contain the following components:

1) Program support information including:
    a) How to obtain a quote for hardware, software, or services, including names, telephone numbers and email addresses of appropriate sales representatives.
    b) Policy and procedural information regarding installation, basic warranty, extended warranty, technical support, software support, and other post delivery issues. This will include the names, telephone numbers and email addresses of appropriate support staff.
    c) How to troubleshoot a problematic order including names, telephone numbers and email addresses of appropriate support staff.
2) Overview information about the Contractor and the SEWP contracts.

**C.1.3.4. ELECTRONIC PROCESSES**

The Contractor must be able to automatically transmit, receive and process information to and from the SEWP PMO via electronic means as identified in Attachment D. General policies and procedures shall be established and published (Attachment D) by the SEWP PMO to be followed by the Contractor when using electronic methods for transmitting, receiving, and processing business documents. The Contractor must comply with these policies and procedures.

It is the goal of this procurement to utilize the Internet for the exchange of all relevant business documents. It is also desirable to accommodate a broad and diverse customer base. Where a customer is not yet able to transmit electronic documents, it may be necessary for the Contractor to process traditional paper documents. It is not the policy of this procurement to encourage paper orders, merely to accommodate them where electronic ordering is not yet possible.

For order processing, at a minimum, the Contractor shall be able to process the following electronic documents:

1) Delivery Order
2) Order Status Reports
3) Post Order Reports
4) Administrative Handling Fee Reports

For technology refreshment and contract modifications, at a minimum, the Contractor shall be able to process the following electronic documents:

1. Technology Refreshment Requests

**C.1.3.5. TECHNOLOGY REFRESHMENT PROPOSALS**

The SEWP Technology Refreshment (TR) process is the method by which contractors shall update offerings on their SEWP contracts. TRs shall be initiated by the Contractors, evaluated by a SEWP Technical Specialist or COR to ensure price and scope compliance, if approved added to the SEWP database of record, and then forwarded to the SEWP Contracting Officer for contract modification.

Approved TRs shall be reviewed by the SEWP Technical Specialist or COR on a timely basis. TRs including only price decreases and/or administrative changes will be automatically approved and may be submitted as

often as necessary. While there is no limit to TR submittals per contractor, contractors are expected to keep their TR submittals at a reasonable level

All pricing exhibits and pricing information relevant to the TR will be submitted to the SEWP PMO as described in Attachment D.

## C.1.3.6. MANUFACTURER / RESELLER REQUIREMENTS

These Contracts require the establishment of Manufacturer / Reseller relationships with as large and as inclusive as possible a set of major manufacturers. This is to provide adequate coverage of the breadth of the requirements for NASA, and fosters a competitive environment for the various types of equipment.

Due to the large dependency on manufacturers for providing the required products in these categories, the contractor must continuously demonstrate the ability to negotiate with the wide range of contractors to obtain the appropriate product based solution services, support, materials, and pricing structure.

## C.1.3.7. SUPPLY CHAIN MANAGEMENT

To assist the Government in assessing the security and risks associated with supply chain management, the contractor must supply the following information:

1) Prior to requesting the addition of an item, the contractor must indicate the relationship between the contractor and manufacturer as one of the following:
    a. The contractor is the manufacturer
    b. The contractor is an authorized reseller (i.e. the manufacturer has a direct relationship with the contractor and is officially identified as a reseller for that manufacturer) for all items produced by that manufacturer
    c. The contractor is an authorized reseller (i.e. the manufacturer has a direct relationship with the contractor and is officially identified as a reseller for that manufacturer) for a subset of items produced by that manufacturer. The product lines the contractor is an authorized reseller for must be identified
    d. The contractor obtains the manufacturer's items through either an authorized partner or distributor. The authorized partner/distributor must be identified
    e. The contractor obtains the items through an unknown/unidentified source
2) When submitting an item to be reviewed for addition to their contract, the contractor must provide one of the following
    a. If the contractor is the manufacturer or has previously identified themselves as an authorized reseller, then nothing further is needed at the item level
    b. If the contractor is not the manufacturer and/or has not identified themselves as an authorized reseller, they can either leave the item identified as coming from a third party or unknown source or provide item level information on the provenance or product level authorization that mitigates supply chain risk

When the contractor states that they are an authorized reseller for a manufacturer, they:

1) Must provide a point of contact (POC) at that manufacturer who will verify that statement
2) May identify standards/certifications held by the manufacturer that mitigate, reduce or eliminate supply chain and related security issues. Example standards / certifications include the Open Trusted Technology Provider Standard (O-TTPS) and Common Criteria (CC)

## C.1.4. GENERAL CONTRACT REQUIREMENTS

### C.1.4.1 SOFTWARE LICENSING

The contractor shall, wherever possible, provide software licensing and/or maintenance arrangements with either site-wide, contract-wide, bulk purchase discounts or credits, or other structures to provide competitive software pricing and availability.

### C.1.4.2. MANUALS AND PUBLICATIONS

The contractor shall furnish the most current version of ordered documentation to the end user.

### C.1.4.3. COMPLIANCE WITH FIP STANDARDS

All equipment and software acquired under this acquisition must conform to specified applicable Federal Information Processing Standards Publications (FIPS PUBS).

### C.1.4.4. CABLING

The contractor shall provide all cables, cable connectors and termination needed for installation and operation of the equipment, as a standalone system unless otherwise stated by the Government.

## C.1.5. WARRANTY

At anytime during the standard commercial warranty period, the Government shall have the option of purchasing extended warranty. The Government shall additionally have the option to purchase mission critical warranty uplift to provide greater coverage than provided by the extended warranty where such mission critical warranty is commercially available. This section describes the terms for coverage under basic warranty, extended warranty and, where noted, the enhanced coverage for mission critical warranty uplift.

### C.1.5.1. RESPONSIBILITIES OF THE GOVERNMENT

Government personnel will not perform maintenance or attempt repairs to equipment while such equipment is under warranty unless agreed to by the parties via modification to a Delivery Order.

Subject to security regulations, the Government will permit access to the equipment that is to be under warranty.

The Government will provide time for contractor-sponsored modifications within a reasonable time after being notified by the contractor that the modification is ready to be made. The modification will be made outside the normal principal period of service unless another mutually agreeable time is decided upon.

The Government will maintain site requirements in accordance with the equipment environmental specifications furnished by the manufacturer and agreed to at time of award.

### C.1.5.2. RESPONSIBILITIES OF THE CONTRACTOR

When on-site warranty service is purchased, the contractor shall provide on-site warranty service, labor and parts. Warranty service does not include electrical work external to the equipment, the furnishing of supplies, and adding or removing accessories, attachments, or other devices. It does not include repair of damage

resulting from accident; transportation between Government sites; neglect; misuse; failure of electrical power, air conditioning, humidity control; or causes other than ordinary use.

All products purchased from this contractor must be fully warrantable by the original equipment manufacturer (OEM) unless the contractor has clearly identified on their quote an alternative method (e.g. third party) is available or else that no warranty is available for this product. If the Government requires OEM warranty, it is fully the contractor's responsibility to work with the OEM to provide that warranty.

While the contractor's personnel are at the Government facility, the contractor is responsible for compliance with all laws, rules and regulations governing conduct with respect to health and safety - not only as they relate (i) to its employees and agents, but (ii) also to other personnel and to property at the site regardless of ownership. While on Government premises and in possession of Government property, the contractor is responsible for such property and any damages thereto.

Should the Government make alterations or install attachments that affect the service of this system, the continuation of warranty service on the system shall be subject to mutual agreement. Should the alterations or attachments increase or decrease the service costs to the contractor, adjustment to service charges shall be made on an individual installation basis. If such alterations or attachments create a safety hazard, the contractor may discontinue warranty service on the hazardous equipment.

Contractor-sponsored alterations or attachments to the system shall be made only with the consent of the Government.

The Contractor shall take full responsibility for providing all diagnostic software programs that are utilized during service of the applicable systems. The Contractor shall maintain the diagnostic routines so that they are compatible with the revision levels of the computer components.

## C.1.5.3. COMMERCIAL WARRANTY

The Contractor shall provide the Government with warranty equivalent to their commercial warranty offerings in terms of response time, principal period of service. In lieu of a commercial warranty, at a minimum, warranty shall be offered in one year increments with the following coverage: five days a week (Monday through Friday) and for eight (8) hours a day during business hours, with a next day response time.

## C.1.5.4. Preventive Maintenance

For large computer systems and other products that require periodic preventive maintenance, the contractor shall specify in writing the frequency, duration, and quality of preventive maintenance provided to purchasers of basic and extended warranty. The quality of the preventive maintenance shall be equivalent to that provided by the contractor for leased equipment. Preventive maintenance shall be performed during 8 a.m. to 5 p.m. local time, or outside that time period upon mutual agreement between the contractor and Government. The Government has the right to defer scheduled PM at its own discretion.

## C.1.5.5. QUALITY OF REPAIR SERVICE

The following sections describe the quality of repair services.

### *C.1.5.5.1. Level of Parts Replacement*

The level of replacement of worn or defective parts shall be consistent with the original manufacturer's design of the equipment. Field maintenance technicians shall not try to repair faulty modules on-site if the equipment was designed for the replacement of modules. The Contractor has responsibility for repair or replacement of all

faulty equipment of the system including cables, cabinets, power supplies, or other items necessary to return the system to operational status.

*C.1.5.5.2. Quality of Parts*

Only new standard parts or parts equivalent to new parts in performance shall be used in effecting repairs. Parts that have been replaced shall become the property of the Contractor. Any parts that are not new must be identified during the quoting period.

*C.1.5.5.3. Field Engineering Changes*

The Contractor shall install all required field engineering changes within 30 days (based on reasonable access to the place of performance) after Original Equipment Manufacturer (OEM) availability of the change. Concurrence of the Government shall be required prior to the installation of the field engineering changes and they shall be installed at no additional cost to the Government during the basic or extended warranty period.

*C.1.5.5.4. Spare Parts Inventories*

The Government does not require that the contractor keep spare parts needed to complete repairs in the local area. If the contractor chooses to keep spare parts locally in order to expedite repairs then title to such spare parts, unless installed in Government owned equipment, shall remain with the Contractor.

*C.1.5.5.5. Pre-maintenance Inspection*

If extended warranty is purchased for equipment for which basic warranty has previously expired, the Contractor is entitled to perform, at no charge to the Government, within 15 days from the receipt of the Delivery Order requesting extended warranty, a pre-maintenance inspection in order to certify that at the time the contractor commences extended warranty coverage the equipment meets current OEM specifications. If any equipment is not up to current OEM Revision levels by OEM standards, the Contractor shall submit an estimate, within the 15 day period. The estimate shall detail the price of labor and parts to be performed to bring that equipment up to the OEM maintenance level. The Government may choose to accept the Contractor's estimate or to have the OEM, a third party, or previous contractor, perform the upgrade. If the Government chooses not to have the piece of equipment or a system brought up to OEM maintenance level, the Contractor is not obligated to maintain that piece of equipment or that system.

**C.1.5.6. TEMPORARY OFF-SITE REMOVAL OF EQUIPMENT FOR SERVICING**

Prior to the removal of any equipment the Contractor shall comply with all local Government property management policies.

**C.1.6. USED EQUIPMENT AND MATERIALS**

Used and refurbished equipment may be added to the non-mandatory (available component) list.

Equipment and materials must be identified at the time of inclusion in the SEWP database of record and at the quote level as used and/or reconditioned/refurbished and must be warranted with the same terms as new materials and with the warranty length as per current commercial practice of the original equipment manufacturer.

**C.1.6.1 Manufacturer and Product Parts**

All delivered products must match the manufacturers and product part numbers as quoted and ordered, unless the Government has been notified and agreed to an equal or better substitution. All components in a customized or built to order system must be supplied to the Government as originally configured and installed by the original manufacturer unless the Government has been notified and agreed to an equal or better substitution.

### C.1.7. INSTALLATION

The Government may order computer systems, software, components and other equipment with no installation. However, the contractor shall offer installation of all system hardware, system software, and cabling. This does not need to include attachment to a network or configuration of network parameters.

#### C.1.7.1. Site Preparation

Where required, the Government will provide the Contractor access to sites for the purpose of evaluating environment, power, and safety requirements prior to a scheduled installation date. The Government must authorize all new electrical and LAN installations. If power changes or alterations are required for installation, all such alterations will be performed by the Government. The Contractor should make every effort to place equipment that requires the standard 115-120V capacities for CONUS installations unless otherwise requested by the Government.

### C.1.8. REHABILITATION ACT AMENDMENTS OF 1998 – SECTION 508 APPLICABILITY

All items which are identified as EIT in terms of Section 508 (Accessibility) requirements must be noted by the contractor as compliant, non-compliant, or requiring Agency Review based on how the equipment meets or does not meet the applicable standards for that technology.

EIT is information technology (IT), as defined at FAR 2.101, and any equipment or interconnected system or subsystem of equipment, which is used in the creation, conversion, or duplication of data or information. EIT includes:

- telecommunication products, such as telephones;
- information kiosks;
- transaction machines;
- World Wide Web sites;
- Software and Operating Systems
- Computers
- multimedia (including recordable media); and
- office equipment, such as copiers and fax machines.

EIT is defined by the Access Board at 36 CFR 1194.4 and in the FAR at 2.101.

#### C.1.8.1. Applicable Standards

One or more of the following 508 standards apply to all SEWP EIT line items

- Software Applications and Operating Systems (1194.21)
- Web-based Intranet and Internet Information and Applications(1194.22)
- Telecommunications Products (1194.23)
- Video and Multimedia Products (1194.24)
- Self Contained, Closed Products (1194.25)
- Desktop and Portable Computers (1194.26)
- *Subpart C -- Functional Performance Criteria*
  *§ 1194.31 Functional performance criteria (If none of the technical standards of Subpart B applies, then Subpart C applies)*

The contractor must comply with these technical standards at 36 CFR 1194. The contractor must provide a completed Government Product Assessment Template (GPAT) and/or document how each product was tested for Section 508 conformance. All Section 508 standards will be complied with in performing this contract.

**C.1.8.2. Manufacturer's 508 Compliance**

Whenever the contractor requests a new manufacturer to be added to the available SEWP manufacturer's list per Section D.3.1. Manufacturer Request, one or more of the following must be provided concerning the applicability, compliance and available information with regard to 508 compliance:

- indicate that the manufacturer has no EIT applicable products; or
- provide a link to the manufacturer's 508 VPAT/GPAT information for applicable EIT equipment; or
- provide a link to other documentation on how each product from the manufacturer was tested for 508 compliance; or
- provide the SEWP PMO with all applicable GPAT's and/or other documentation on how each product from the manufacturer was tested for 508 compliance; or
- indicate that 508 applicable information is available on a per item basis by contacting the contractor

## C.2. STATEMENT OF WORK FOR CONTRACTOR SUPPLIED PRODUCTS

While the SEWP contracts are primarily used as a purchase vehicle for the Federal Government, the Government may utilize the contracts as a basis for contractor-supplied products and services that include but are not limited to contractor-supplied Multi-functional devices (MFDs), managed services, cloud services, etc.

An example of this type of arrangement would be a set of multi-functional printers located at Goddard Space Flight Center which will remain the Contractor's property, but fully accessible by Goddard employees.

Note that the requirements in this section are only in effect if specifically stated at the delivery order level. Additional terms and conditions may be added by the Government on a given delivery order.

### C.2.1. Supplies for On-Site Contractor-supplied Products

The Contractor shall supply all consumable supplies required for full operations of the supplied products. For example this would include toner, paper and all other printer related consumables for an MFP solution.

### C.2.2. Payment for Contractor-supplied Products

Unless otherwise stated at the delivery order level, payment will be based on a firm fixed unit price (e.g. cost per number of copies for an MFP) that is metered, invoiced and paid on a monthly basis.

## Attachment D Contractor / Government Communication Requirements

One of the Acquisition Objectives of SEWP is to promote and utilize electronic based methods and practices. While commonly placed under the e-Commerce umbrella, SEWP recognizes the need to provide for a variety of electronic-based procedures some of which do not traditionally fall within the e-Commerce realm; e.g. Fax image files, e-mail text files, etc. There are also many legacy systems and unplanned occurrences which require a flexible system capable of handling both electronic and paper processes. Neither Industry nor Government has concurred on a single solution that is capable of covering all Industry and Government needs. It is, therefore, the Government's intention to work with Contractors and Government Agencies to accept and deliver information such as orders, status reports, contract refreshments, etc. in mutually agreed upon formats. This addenda, therefore, provides only a basic outline of the types of electronic reports, including required data, which must be accepted and/or provided by the Contractor to the SEWP PMO. Actual implementations of the reports will be finalized and tested prior to placement of the first delivery order after the signing of the Contract. Where encryption is indicated, the Contractor and SEWP PMO will mutually agree upon the methodology.

## D.1. On-Line Quoting

When a Market Research Request (MRR) or Request for Quote (RFQ) is issued using the NASA SEWP on-line Quote Request system, the Contractor must respond either
- by sending the following files to the SEWP PMO via the Contract Holder Only Page (CHOP) website:
    1) the Contractor-generated quote in an image file, MS Word or Excel document or a mutually agreed upon format.
    2) a verification file listing the CLINs included in the quote either as a text file, MS Word or Excel document or a mutually agreed upon format.

- Or by sending a “No Bid” response.

The SEWP PMO will ensure all responses are immediately forwarded to the original MRR/RFQ requestor. Note that the contractor may not send a quote directly to the requestor when the NASA on-line Quote Request tool has been utilized. All quotes must be routed through the SEWP PMO.

## D.2. Ordering

As described below, all SEWP orders must be assigned a SEWP Order tracking number in order to be considered a valid order. All Delivery Orders regardless of order value and credit card orders over the micro-purchase limit must be sent, processed, and assigned an Order tracking number prior to being processed by the contractor. If the SEWP COR has authorized the contractor to accept micro purchase credit card orders directly, then credit card orders under the micro purchase limit may be processed immediately upon receipt by the Contractor as described in Section D.2.2. Credit Card Order Processing.

### D.2.1. Delivery Order Processing

The following methods / paths will be available to Government entities for transferring Delivery Orders to the SEWP PMO:

1) Fax
2) E-mail Attachment in one of the following formats
    a) Plain text
    b) PDF
    c) HTML
    d) JPEG
    e) TIFF
    g) Gif
    h) Microsoft Excel
    i) Microsoft Word
    j) Other mutually agreed upon format
3) Paper copy sent via US Mail or private courier

4) Other Electronic format mutually agreed upon by the Government entity and the SEWP PMO

Regardless of the method and format which the Delivery Order is sent to the SEWP PMO, all Delivery Orders will be transferred to the contractor as an attachment to an e-mail. The attachment will be in one of the following formats:

1) Plain text
2) PDF
3) HTML
4) JPEG
5) TIFF
6) Gif
7) Microsoft Excel
8) Microsoft Word
9) Other mutually agreed upon format

The SEWP contractor must demonstrate their ability to accept at least the formats listed above prior to the issuance of the first Delivery Order against their contract.

**D.2.1.1. Delivery Order Information**

Regardless of the path used by the Government entity to create a SEWP delivery order and the method by which the Contractor accepts the order, the following information must be present in each delivery order:

1. Date of order
2. Signature (direct, electronic, or implied through pre-approved method) of authorized Government Ordering Official;
    a. Contracting Officer for Purchase/Delivery Order
    b. Credit Card Holder Name for credit card orders
3. Name and phone number of authorized Government Ordering Official
4. Name of Issuing Agency
5. Name of Ordering Agency (if different from Issuing Agency)
6. Order Number
    a. Unique order number for the Ordering Government entity - Ordering Agency determines the Order Number
7. Contractor Name and SEWP Contract Number
8. Appropriation and accounting data
9. Billing and Invoice Address
10. Shipping Address
11. SEWP CLINs (Contract Line Item Numbers) and product descriptions to be delivered
12. Total order amount
13. Additional mutually agreed upon Terms and Conditions, Statement of Work, etc.
14. Period of performance for any associated services

Additionally, after an order is processed at the SEWP PMO, either electronically or manually, a unique tracking number, referred to as the SEWP Tracking Number (STN), will be assigned by the SEWP PMO.

**D.2.2. Credit Card Orders**

Contractors may be authorized to directly accept credit card orders over the telephone and/or through a Website or other electronic means from a Government entity without first passing the order through the SEWP PMO based on the following requirements:

1) For orders under the micro-purchase limit, the requirements are:
    a. within one business week of receipt of the order, the contractor must send to the SEWP PMO either by fax or e-mail a credit card order report in a mutually agreed upon format containing at least the following information:
        i. Date of order
        ii. Name and phone number of card holder
        iii. Agency name and site address including zip code of card holder
        iv. Unique tracking number
        v. Contractor name and SEWP contract number
        vi. SEWP CLINs (Contract Line Item numbers) and/or manufacturer part numbers of items on the order
        vii. CLIN Descriptions
        viii. Total dollar amount of order
    b. Upon receipt of a credit card order report, the SEWP PMO will review and process the order and assign an STN tracking number and report the information to the Contractor

2) For orders over the micro-purchase limit, the requirements are:
    a. prior to processing the order, within one business day of receipt of the order, the contractor must send to the SEWP PMO either by fax or e-mail a credit card order form in a mutually agreed upon format containing at least the following information:
        i. Date of order
        ii. Name and phone number of card holder
        iii. Agency name and site address including zip code of card holder
        iv. Unique tracking number
        v. Contractor name and SEWP contract number
        vi. SEWP CLINs (Contract Line Item numbers) and/or manufacturer part numbers of items on the order
        vii. CLIN Descriptions
        viii. CLIN prices and quantity
        ix. Total dollar amount of order
        x. Additional Terms and Conditions associated with the order
    b. Upon receipt of a credit card order form, the SEWP PMO will review and process the order and assign an STN tracking number and report the information to the Contractor
    c. After the Contractor receives the assigned STN tracking number, the Contractor may process the order

3) the contractor must demonstrate to the SEWP COR the process used to ensure that all credit card orders accepted directly by the contractor will be reported to the SEWP PMO per the above requirements

Note that Delivery Orders paid with a Government credit card are considered to be Delivery Orders and not credit card orders and, must, therefore be sent to the SEWP PMO per Section D.2.1. Delivery Order Processing

## D.3. CLIN Verification Reports

Prior to the assignment of an STN and therefore prior to the contractor processing an order, Contractors are required to supply to the SEWP PMO a CLIN Verification file that matches the product and price information on the order and/or mod. The following information is required in the verification file:

a. Unique identifier (if the verification file is associated with a quote provided in the SEWP Quote Request Tool, this will be the SEWP RFQ Number)

b. For each item ordered: CLIN; quantity; unit price

The total of the items listed in the verification file must equal the total amount of the order.

For order mods/updates, a new verification file must be provided that includes all information associated with the original order and all subsequent mods to date.

To avoid delays, contractors can submit verification files at the time of a quote, even if the quote is provided outside the SEWP on-line Quote Request Tool.

If a contractor has not provided a verification file or the total in the verification file does not equal the order amount, the order will not be assigned an STN and cannot be processed until a verification file that matches the order is provided. Any resultant delay will count against the contractor's delivery performance if the reason for the delay is caused by the contractor.

## D.4. Technology Refreshment Requests

The manufacturer request and technology refreshment (TR) reports may be utilized by the contractor to request addition of new technology and either price and/or informational changes to existing technology.

### D.4.1 Manufacturer Request

Prior to requesting the addition of a technology to a contract, the original manufacturer of that technology must first be authorized by the SEWP COR or his/her Technical Specialist.

1) if the manufacturer is not on the currently approved SEWP manufacturer list, the contractor must request approval of the manufacturer using the SEWP provided Manufacturer Request tool available at the SEWP Contractor-only website. At a minimum, the manufacturer request will include:
    a. Manufacturer name
    b. Manufacturer description
    c. Manufacturer business size
    d. URL of Manufacturer's website (if it exists)
    e. Product category(ies); e.g. Servers; Input Devices; etc.
    f. Flag indicating if contractor is an authorized reseller. If the contractor is an authorized reseller, the following Manufacturer contact information will also need to be included:
        i. Contact name
        ii. Contact phone number
        iii. Contact e-mail address
    g. If the manufacturer has any EIT products, one or more of the following must be flagged:
        i. indicate that the manufacturer has no EIT applicable products; or
        ii. provide a link to the manufacturer's 508 VPAT information for applicable EIT equipment; or
        iii. provide a link to other documentation on how each product from the manufacturer was tested for 508 compliance; or
        iv. provide the SEWP Program Office with all applicable VPAT's and/or other documentation on how each product from the manufacturer was tested for 508 compliance; or
        v. indicate that 508 applicable information is available on a per item basis by contacting the contractor

h. the following information may be included:
    i. Alias for the manufacturer name

2) if the manufacturer is on the currently approved SEWP manufacturer list, then the contractor may provide the following information:
    a. Flag indicating if contractor is an authorized reseller. If the contractor is an authorized reseller, the following Manufacturer contact information will also need to be included:
        i. Contact name
        ii. Contact phone number
        iii. Contact e-mail address
    b. Optionally, the following information may be included:
        i. URL for 508-related information for this manufacturer's products
        ii. Alias for the manufacturer name

Upon receipt of a manufacturer request, the SEWP COR or his/her designated Technical Specialist will review the submitted information for accuracy and to ensure the company is the originator of technology within the contract's scope.

**D.4.2. Technology Refreshment Request**

In order to provide technology refreshments to the Contract, the Contractor must be able to provide a technology refreshment report. The technology refreshment report will be provided via:

1) An email with the technology refreshment request in textual format. The text must follow a keyword - value format with predefined keywords. The keywords and values must be separated by an agreed upon delimiter;

2) Other mutually agreed upon electronic format

All TR requests shall include the information defined in A.1.19. TECHNOLOGY REFRESHMENT

Upon receipt of a valid TR, the SEWP COR or his/her Technical Specialist will review the TR for scope and verify pricing information. At that time, either the TR may be accepted in its entirety, rejected in its entirety, or accepted with some CLINs disallowed. A detailed report indicating the outcome of each TR will be forwarded to the contractor.

## D.5. Order Status Report

Contractors are required to supply to the SEWP PMO an order status report within two business days of a status change to an order. Status changes include, at least, the following changes:

a. Update to expected delivery date

b. Ship date

The order status report must contain at least the following information in a format mutually agreed upon by the Contractor and the SEWP PMO:

a. Date of order

b. Issuing Agency Order Number or unique credit card tracking number and/or SEWP Tracking Number (STN)

c. Status

d. Status date

The order status report may be provided either via:

a. an email with the order status report in textual format. The text must follow a keyword - value format with predefined keywords. The keywords and values must be separated by an agreed upon delimiter;

b. Other mutually agreed upon electronic format

## D.6. Administrative Handling Fee Report

Contractors are required to supply to the SEWP PMO an Administrative Handling Fee report when submitting their Quarterly Administrative Handling Fee check. The report must be in electronic format mutually agreed upon by the Contractor and the SEWP PMO and contain at least the following information for all orders for which an Administrative Handling Fee was paid in the associated check:

a. Issuing Agency Order Number or unique credit card tracking number and/or SEWP Tracking Number (STN)

b. Total dollar amount of Agency's Invoice

c. Administrative Handling Fee amount paid

If the Administrative Handling Fee payment for a delivery order is spread over several payments, the Administrative Handling Fee report shall either collapse the payment information into a single entry, or provide a mechanism to identify each of the payments as partial.

## D.7. Order modifications

Order modification requests are handled the same as the original Delivery Order as described in Section D.2. Ordering and Section D.3. CLIN Verification Reports.