



**AUTHORIZED FEDERAL SUPPLY SCHEDULE PRICE LIST
PROFESSIONAL SERVICES SCHEDULE (PSS)**

**GENERAL SERVICES ADMINISTRATION
FEDERAL SUPPLY SERVICE
CONTRACT NUMBER: GS-23F-0190L**

**CONTRACT PERIOD OF PERFORMANCE:
24 MAY 2001 – 23 MAY 2021
Effective through Mod PO-0019 dated 5/24/2016**

**ADMINISTERED BY:
EXELIS, INC.
12975 WORLDGATE DRIVE, SUITE 700
HERNDON, VIRGINIA 20170**

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BUSINESS SIZE: LARGE

TABLE OF CONTENTS

| | |
|---|----|
| I. CUSTOMER INFORMATION..... | 1 |
| 1a. Table of awarded Special Item Number(s) with appropriate cross-reference to page number(s)..... | 1 |
| 1b. Lowest Priced Model | 1 |
| 2. Maximum order | 1 |
| 3. Minimum order..... | 1 |
| 4. Geographic coverage (delivery area)..... | 1 |
| 5. Point(s) of production (city, county, and state or foreign country)..... | 1 |
| 6. Discount from list prices or statement of net price..... | 1 |
| 7. Quantity Discounts | 1 |
| 8. Prompt payment terms | 1 |
| 9a. Government Purchase Cards | 1 |
| 10. Foreign Items | 1 |
| 11a. Time of Delivery | 1 |
| 11b. Urgent Requirements | 1 |
| 11c. Overnight and 2-Day Delivery | 1 |
| 11d. Urgent Requirements | 1 |
| 12. FOB Point | 2 |
| 13. Ordering address | 2 |
| 15. Warranty Provision | 2 |
| 16. Export packing charges, if applicable..... | 2 |
| 17. Terms and conditions of Government purchase card acceptance | 2 |
| 18. Terms and conditions of rental, maintenance, and repair | 2 |
| 19. Terms and conditions of installation | 2 |
| 20. Terms and conditions of repair parts | 2 |
| 20a. Terms and conditions of any other service..... | 2 |
| 21. List of service and distribution points..... | 3 |
| 22. List of participating dealers | 3 |
| 23. Preventive Maintenance..... | 3 |
| 24a. Environmental attributes..... | 3 |
| 24b. Section 508 Compliance | 3 |
| 25. Data Universal Number System (DUNS) number | 3 |
| 26. Notification regarding SAM database registration | 3 |
| II. TERMS AND CONDITIONS APPLICABLE TO PROFESSIONAL ENGINEERING SERVICES..... | 4 |
| III. AGENCY ORDERING PROCEDURES FOR SERVICES | 6 |
| IV. PROFESSIONAL ENGINEERING SERVICES DESCRIPTIONS..... | 9 |
| VII. LABOR CATEGORY DESCRIPTIONS - COMMUNICATION HW/SW DEVELOPMENT AND PRODUCTS..... | 21 |
| VIII. LABOR CATEGORY DESCRIPTIONS - COMMUNICATION SYSTEMS ENGINEERING & INTEGRATION..... | 27 |
| IX. LABOR CATEGORY DESCRIPTIONS - GENERAL ENGINEERING..... | 34 |
| X. PROFESSIONAL ENGINEERING SERVICES HOURLY RATE LIST | 43 |

I. CUSTOMER INFORMATION

1a. Table of awarded Special Item Number(s) with appropriate cross-reference to page number(s)

| SIN | Title | Page |
|-------|---|------|
| 871-1 | Strategic Planning for Technology Programs/Activities | 9 |
| 871-2 | Concept Development and Requirements Analysis | 11 |
| 871-3 | System Design, Engineering and Integration | 12 |
| 871-4 | Test and Evaluation | 14 |
| 871-5 | Integrated Logistics Support | 16 |
| 871-6 | Acquisition and Life Cycle Management | 17 |

1b. Lowest Priced Model: Not applicable

1c. Hourly Rates: See pricelist pages 43-44

2. Maximum order: The maximum order for all SINs is \$1,000,000.

3. Minimum order: \$100

4. Geographic coverage (delivery area): Professional Engineering Services under this contract are available throughout the 48 contiguous states, the District of Columbia, Alaska, Hawaii, and the Commonwealth of Puerto Rico. Services in overseas locations are also available, but must be specifically negotiated outside the scope of this contract.

5. Point(s) of production (city, county, and state or foreign country): Production locations will vary within the geographic coverage of this contract according to the specific requirements of each resulting task order.

6. Discount from list prices or statement of net price: The rates shown in this pricelist are net GSA hourly labor rates. Special discounted rates, "spot discounts," may be negotiated from these rates for specific task orders where special conditions warrant such consideration.

7. Quantity Discounts: No other discounts offered.

8. Prompt payment terms: Net 30 Days.

9a. Government Purchase Cards: Government purchase cards for all orders under this Schedule are accepted both above and below the micro-purchase threshold. No additional discounts offered for the use of Government purchase cards.

10. Foreign Items: Not Applicable

11a. Time of Delivery: As negotiated with Ordering Agency

11b. Urgent Requirements: As negotiated with Ordering Agency

11c. Overnight and 2-Day Delivery: As negotiated with Ordering Agency

11d. Urgent Requirements: As negotiated with Ordering Agency

12. FOB Point: Destination

13. Ordering address: Below are the address and telephone numbers that can be used by ordering agencies to obtain technical and/or ordering assistance.

Exelis, Inc.
12975 Worldgate Drive, Suite 700
Herndon, VA 20170
Attention: Anne Hasselbrack
Telephone: 301-867-2985
Facsimile: 321-409-6940
Email: ahasselb@harris.com

14. Payment address

a. EFT: Huntington National Bank
Account Title: EXELIS, INC. CSI
Account Number: 01891782866
ABA Number: 044000024

b. Mail: EXELIS, INC. CSI
Huntington National Bank
CSI L-3070
Columbus, OH 43260

c. For FEDEX'd checks
Huntington Bank
Attn: Wholesale Lockbox L-3070
7 Easton Oval - EA2W10
Columbus, OH 43219
614-480-4005

15. Warranty Provision: Standard Commercial Warranty applies. Contact Contractor

16. Export packing charges, if applicable: Not applicable.

17. Terms and conditions of Government purchase card acceptance (any thresholds above the micro-purchase level).

Government purchase cards for all orders under this Schedule are accepted both above and below the micro-purchase threshold. No additional discounts are offered for the use of Government purchase cards.

18. Terms and conditions of rental, maintenance, and repair: Not Applicable

19. Terms and conditions of installation: Not Applicable

20. Terms and conditions of repair parts: Not Applicable

20a. Terms and conditions of any other service: Not Applicable

- 21. List of service and distribution points:** Not Applicable
- 22. List of participating dealers:** Not Applicable
- 23. Preventive Maintenance:** Not Applicable
- 24a. Environmental attributes, e.g., recycled content, energy efficiency, and/or reduced pollutants:** Not applicable.
- 24b. Section 508 Compliance:** Not Applicable
- 25. Data Universal Number System (DUNS) number:** 08-365-5498
- 26. Notification regarding SAM database registration:** Registered

II. TERMS AND CONDITIONS APPLICABLE TO PROFESSIONAL ENGINEERING SERVICES**1. Order**

Agencies may use written orders, EDI orders, blanket purchase agreements, individual purchase orders, or task orders for ordering services under this contract. All services and delivery shall be made and the contract terms and conditions shall continue in effect until the completion of the order. Orders for tasks that extend beyond the fiscal year for which funds are available shall include FAR 52.232-19, Availability of Funds for the Next Fiscal Year. The purchase order shall specify the availability of funds and the period for which funds are available.

2. Special Provisions for Task Orders

Agencies may incorporate provisions in their task orders (e.g. security clearances, hazardous substances, special handling, key personnel, etc.). These provisions, when required, will be included in individual task orders. Any cost necessary for the contractor to comply with the provision(s) will be included in the task order proposal, unless prohibited by law.

3. Indefinite Quantity Contract

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 the 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.

4. Performance Incentives

When using a performance based statement of work, performance incentives may be agreed upon between the contractor and the ordering office on individual fixed price orders or Blanket Purchase Agreements for fixed price tasks.

5. Inspection and Acceptance

The contractor will 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 re-performance of nonconforming services at no increase in contract price. 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.

6. Support To Be Provided by the Government

As determined by the ordering agency, the contractor shall have reasonable access to:

- Government publications, archival material, videotape, film, and graphic art repositories; and government employees as is necessary and appropriate to satisfy the contractor's requirements in completing project work.
- Managers and employees within agencies where work is being performed that are essential to carrying out contractual obligations; subject matter experts to advise and assist the contractor with respect to technical aspects of operating systems selected for improvement; and physical support for carrying out work, such as work space, utility services drawn from existing sources, currently available instructional equipment such as computer terminals and audiovisual display devices when such use does not conflict with the organization's operational schedule.
- Technical reference material not subject to Privacy Act restrictions.

7. Excusable Delays

The contractor will 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, actions 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 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.

8. Limitation of Liability

Except as otherwise provided by an express or implied warranty, the contractor will not be liable to the Government for consequential damages resulting from any defect or deficiencies in accepted items.

9. Invoices

The Contractor, upon completion of the work ordered, shall submit invoices for the work performed. Progress payments may be authorized by the ordering office on individual orders if appropriate. Progress payments shall be based upon completion of defined milestones or interim products. Invoices shall be submitted monthly for recurring services performed during the preceding month.

10. Payment

The office indicated on the task order will make payment directly to the contractor. The Government will make payment in accordance with the Prompt Payment Act (31 U.S.C. 3903) and the Office of Management and Budget (OMB) Circular A-125, Prompt Payment.

11. Payments Under Time and Materials Contracts

Allowable costs of direct materials shall be determined by the Contracting Officer in accordance with FAR Subpart 31.2 in effect at the time of the order. Reasonable and allocable material handling costs may be included in the charge for material to the extent that they are clearly excluded from the hourly rate.

12. Contractor Travel

Any Contractor travel required in the performance of work must comply with the Federal Travel Regulations or the Joint Travel Regulations, as applicable, in effect on the date(s) the travel is performed. Established Federal Government per diem rates will apply to all Contractor travel.

13. Incidental Support Costs

Incidental support costs are available outside the scope of this contract. The costs will be negotiated separately with the ordering agency in accordance with guidelines set forth in the FAR.

14. Purchase of Incidental, Non-Schedule Items

For administrative convenience, open market (non-contract) items may be added to a Federal Supply Schedule Blanket Purchase Agreement (BPA) or an individual order, provided that the items are clearly labeled as such on the order, all applicable regulations have been followed, and price reasonableness has been determined by the ordering agency for the open market items.

15. Blanket Purchase Agreements

Blanket Purchase Agreements (BPAs) can reduce costs and save time because individual purchase orders and invoices are not required for each procurement but can instead be documented on a consolidated basis. The BPAs effective period shall not exceed the period of the contract including option year periods. Any order placed under such agreements shall be issued in accordance with all applicable regulations and the terms and conditions of the contract.

III. AGENCY ORDERING PROCEDURES FOR SERVICES**1. Procedures for Services Priced on GSA Schedules at Hourly Rates**

FAR 8.402 contemplates that GSA may occasionally find it necessary to establish special ordering procedures for individual Federal Supply Schedules or for some Special Item Numbers (SINs) within a Schedule. GSA has established special ordering procedures for services that are priced on Schedule at hourly rates. These special ordering procedures take precedence over the procedures in FAR 8.404.

The GSA has determined that the rates for services contained in the contractor's price list applicable to this schedule are fair and reasonable. However, the ordering office using this contract is responsible for considering the level of effort and mix of labor proposed to perform specific tasks being ordered and for making a determination that the total firm-fixed price or ceiling price is fair and reasonable.

When ordering services, ordering offices shall –

a. Prepare a Request for Quotes:

1) A performance-based statement of work that outlines, at a minimum, the work to be performed, location of work, period of performance, deliverable schedule, applicable standards, acceptance criteria, and any special requirements (i.e., security clearances, travel, special knowledge, etc.) that should be prepared.

2) A request for quotes should be prepared which includes the performance-based statement of work and requests the contractors to submit either a firm-fixed price or a ceiling price to provide the services outlined in the statement of work. A firm-fixed price order shall be requested, unless the ordering office makes a determination that it is not possible at the time of placing the order to estimate accurately the extent or duration of the work or to anticipate cost with any reasonable degree of confidence. When such a determination is made, a labor hour or time-and-materials quote may be requested. The firm-fixed price shall be based on the hourly rates in the schedule contract and shall consider the mix of labor categories and level of effort required to perform the services described in the statement of work. The firm-fixed price of the order should also include any travel costs or other incidental costs related to performance of the services ordered, unless the order provides for reimbursement of travel costs at the rates provided in the Federal Travel or Joint Travel Regulations. A ceiling price must be established for labor-hour and time-and-materials orders.

3) The request for quotes may request the contractors, if necessary or appropriate, to submit a project plan for performing the task and information on the contractor's experience and/or past performance performing similar tasks.

4) The request for quotes shall notify the contractors what basis will be used for selecting the contractor to receive the order. The notice shall include the basis for determining whether the contractors are technically qualified and provide an explanation regarding the intended use of any experience and/or past performance information in determining technical acceptability of responses.

b. Transmit the Request for Quotes to Contractors:

1) Based upon an initial evaluation of catalogs and price lists, the ordering office should identify the contractors that appear to offer the best value (considering the scope of services offered, hourly rates and other factors such as contractors' locations, as appropriate).

2) The request for quotes should be provided to three (3) contractors if the proposed order is estimated to exceed the micro-purchase threshold, but not exceed the maximum order threshold. For proposed orders exceeding the maximum order threshold, the request for quotes should be provided to additional contractors that offer services that will meet the agency's needs. Ordering offices should strive to

minimize the contractors' costs associated with responding to requests for quotes for specific orders. Requests should be tailored to the minimum level necessary for adequate evaluation and selection for order placement. Oral presentations should be considered, when possible.

c. Evaluate quotes and select the contractor to receive the order:

After responses have been evaluated against the factors identified in the request for quotes, the order should be placed with the schedule contractor that represents the best value and results in the lowest overall cost alternative (considering price, special qualifications, administrative costs, etc.) to meet the Government's needs.

The establishment of Federal Supply Schedule Blanket Purchase Agreements (BPAs) for recurring services is permitted when the procedures outlined herein are followed. All BPAs for services must define the services that may be ordered under the BPA, along with delivery or performance time frames, billing procedures, etc. The potential volume of orders under BPAs, regardless of the size of individual orders, may offer the ordering office the opportunity to secure volume discounts. When establishing BPAs ordering offices shall -

Inform contractors in the request for quotes (based on the agency's requirement) if a single BPA or multiple BPAs will be established, and indicate the basis that will be used for selecting the contractors to be awarded the BPAs.

1) SINGLE BPA:

Generally, a single BPA should be established when the ordering office can define the tasks to be ordered under the BPA and establish a firm-fixed price or ceiling price for individual tasks or services to be ordered. When this occurs, authorized users may place the order directly under the established BPA when the need for service arises. The schedule contractor that represents the best value and results in the lowest overall cost alternative to meet the agency's needs should be awarded the BPA.

2) MULTIPLE BPAs:

When the ordering office determines multiple BPAs are needed to meet its requirements, the ordering office should determine which contractors can meet any technical qualifications before establishing the BPAs. When multiple BPAs are established, the authorized users must follow the procedures in II.B above, and then place the order with the Schedule contractor that represents the best value and results in the lowest overall cost alternative to meet the agency's needs.

d. Review BPAs periodically:

Such reviews shall be conducted at least annually. The purpose of the review is to determine whether the BPA still represents the best value (considering price, special qualifications, etc.) and results in the lowest overall cost alternative to meet the agency's needs.

e. Small business preference:

The ordering office should give preference to small business concerns when two or more contractors can provide the services at the same firm-fixed price or ceiling price.

f. Section based on greatest value:

When the ordering office's requirement involves both products as well as professional services, the ordering office should total the prices for the products and the firm-fixed price for the services and select the contractor that represents the greatest value in terms of meeting the agency's total needs.

g. Required documentation:

The ordering office, at a minimum, should document orders by identifying the contractor the services were purchased from, the services purchased, and the amount paid. If other than a firm-fixed price order is placed, such documentation should include the basis for the determination to use a labor-hour or time-and-materials order. For agency requirements in excess of the micro-purchase threshold, the order file should document the evaluation of Schedule contractors' quotes that formed the basis for the selection of the contractor that received the order and the rationale for any trade-offs made in making the selection.

2. Procedures for Fixed Prices on GSA Schedule

The ordering procedures set forth at FAR 8.404 should be used for those services based on fixed prices. The Contractor is advised that based on the specific task identified at the task order level, it may use Clause 552.238-76, Price Reduction to provide a proposed fixed price to the agency to more accurately reflect the actual work required.

IV. PROFESSIONAL ENGINEERING SERVICES DESCRIPTIONS

Exelis, Inc. brings to every customer a broad experience base of engineering in all disciplines and in every aspect of the life cycle of complex systems. The life-cycle-phased definitions of the Special Identifier Numbers listed under this GSA Professional Engineering Services Schedule provide an easy overview of the depth and breadth of EXELIS, INC. staff experience. Specific descriptions of Exelis, Inc. experience in each SIN are typical, but not exclusive, of the types of support we can provide.

871-1 Strategic Planning for Technology Programs/Activities

a) Exelis, Inc. analyzes chemical reactions in toxic materials production facilities at various production scales (R&D level, Pilot Scale Production level, and Full-Scale Production). This organizational performance assessment, based upon theoretical and practical Exelis, Inc. experience in material production, includes identification of raw materials, necessary equipment, construction materials, and operating conditions.

b) EXELIS, INC. develops design requirements for analysis of production of toxic materials. The design takes into account the engineering practices of the region, available equipment, and any other constraints that make production difficult to achieve. Exelis, Inc. is expert at identifying these choke points and in developing ways to remedy them.

c) EXELIS, INC. performs cost analyses of toxic chemical production processes. Many chemical production processes look reasonable and can be carried out. However, costs associated with production may be prohibitive. Exelis, Inc. conducts special studies to evaluate the fundamental costs associated with the production of these toxic materials in real terms. EXELIS, INC. provides a realistic first order estimate to costs associated with the building and production of these toxic materials. These costs include funding, personnel, environmental protection, and safety.

d) EXELIS, INC. performs safety analyses of chemical production processes. Many of the production schemes in use around the world have inherent safety concerns, each of which needs to be addressed. Therefore, Exelis, Inc. conducts requirements analyses to determine the top-level safety precautions required, including the materials of construction of the equipment, ventilation requirements, special handling equipment, medical equipment necessary on-site, and shipping requirements of all hazardous materials. These are normally compared against required U.S. standards and those of the region in which the facility is located.

e) Exelis, Inc. operates the Defense Threat Reduction Information Analysis Center (DTRIAC), formerly known as DASIAC, providing technical engineering services in the areas of special weapons effects and other technologies pertaining to the Defense Threat Reduction Agency (DTRA) mission. DTRIAC is a center of technical and analytic excellence, providing DoD affiliated users with specialized, focused, expert assistance and unbiased technical and scientific support services. EXELIS, INC. ensures that DTRIAC possesses and maintains the capability to render expert, unbiased and highly accurate engineering, technical, and scientific support services, and to accomplish, to DTRA's satisfaction, work assignments on specified mission areas, including organizational performance assessments and special studies and analyses.

f) EXELIS, INC. plans, defines, and performs organizational performance assessments to evaluate the national infrastructure capabilities of selected nations in time of national emergency. EXELIS, INC.

defines the components of infrastructure for the evaluation, develops the methodology to be used to accomplish the task, and determines criteria against which infrastructure degradation could be measured. Infrastructure elements assessed include the transportation, communications network, and energy and water supply infrastructure.

g) EXELIS, INC. planned, coordinated, and produced the Joint Services Manual *“Design and Analysis of Hardened Structures to Conventional Weapons Effects”* (DAHS CWE) in conjunction with DoD Conventional Weapons Effects (CWE) design engineers and laboratory research experts. This effort involved the identification of engineering design parameters and processes and the integration of state-of-the-art technologies leading to a better understanding of the basic science and physics governing the design and response of hardened structures (buildings, bridges, military field fortifications, and buried structures) to conventional weapons effects. EXELIS, INC. also led the conceptual development of the architecture and framework for an automated CWE design software system: the *“Protective Structures Automated Design System”* (PSADS), for the Joint Services defense/engineering community. EXELIS, INC. is developing an interactive weapon-target test database: *“The Guide to Conventional Weapons Effects Test Summaries Database”* (CWETS/DB), which provides DoD warfighters, test designers, and CWE researchers with key CWE test results, coupled with multimedia links to more expansive test documentation.

h) Exelis, Inc. operates and maintains the DoD Data and Analysis Center for Software (DACS) for the Defense Technical Information Center (DTIC) Information Analysis Center Program Office. In this capacity, Exelis, Inc. provides data analysis services in support of research, development, test, validation, evaluation, transition and use of software engineering methods and technology. The DACS website (<http://www.dacs.dtic.mil>), designed and maintained by Exelis Inc., is the primary mechanism for dissemination of DACS information. EXELIS, INC. service areas include signal processing, image processing, telecommunications, data acquisition/collection, data analysis, software measurement/metrics, database development, software engineering standards, software engineering/technology support, technical information support, software acquisition support, software quality assessment, software engineering tool development, technology transition, symposium and workshop/conference support, and software engineering/technology training. Areas of specific Exelis, Inc. expertise in software engineering include Computer Aided Software Engineering (CASE), Configuration Management, and Rapid Prototyping and Requirements Engineering.

i) Exelis, Inc. performs strategic planning for the Federal Aeronautics Administration (FAA). EXELIS, INC. developed a baseline description of the FAA's air traffic flow management (TFM) domain and defined the engineering standards to guide the development and implementation of TFM automated tools. EXELIS, INC. incorporated both business practice assessments and technology assessments into the study. We compared impacts of technology insertion options and developed a recommended architecture. In performing this task, EXELIS, INC. developed information flow diagrams and accompanying text that defined the current and evolving telecommunication requirements and service level objectives for the network LAN/MAN/WAN configurations. This effort also included the development of offered message traffic flow matrices and architecture performance estimates for this complex FAA telecommunications network. Both schedule and cost estimates were developed and compared.

j) After completing the initial TFM effort for FAA, EXELIS, INC. performed a TFM IS architecture study that summarized the FAA's requirements for air traffic management (ATM) and examined potential WAN transport mechanisms. The study assessed various WAN alternatives to implement the required

information transport services and also assessed LAN proposals for facilities hosting ATM applications. Both existing and planned business procedures were evaluated to determine appropriate evaluation criteria. Selected assessment criteria included technical, cost, and performance parameters. By analysis, EXELIS, INC. next reduced the number of viable options from five to three and developed a detailed infrastructure architecture design for each remaining option. Each architecture included a network topology, the total set of WAN terminating equipment, and all required LAN equipment, thereby permitting accurate cost estimation for each architecture. The recommended architecture was a routed network using TCP/IP and IP multicast. During the ensuing system planning process of the recommended architecture, EXELIS, INC. developed transition plans that assessed two transition strategies and recommended implementation of the more cost-effective strategy.

k) EXELIS, INC. performed two additional architecture studies for FAA: 1) The En Route Communications architecture study identified and examined areas where improvements could be made to the existing network through technology insertion or by leveraging assets being deployed as part of other programs. As part of this effort, EXELIS, INC. recommended the implementation of a domain-naming tree for the FAA's communications networks and developed various subnet proposals for the FAA's potential IP addressing plan. 2) The Chicago Terminal Airspace Project System Architecture Document defined the new architecture and provided a list of the additional equipment required to implement the architectural configurations for the Chicago Terminal Radar Approach Control (TRACON).

871-2 Concept Development and Requirements Analysis

a) EXELIS, INC. provides expert scientific and engineering services to support planning, research, development, test, and evaluation (RDT&E) activities for the Arms Control Technology (ACT) Division of the Defense Threat Reduction Agency (DTRA). The EXELIS, INC. team conducts technical assessments and technology development and assists in the development and analysis of requirements and mission needs for the ACT Division. The technical assessments may be conducted on a specific technology to document the state-of-the-art and guard against technological surprise in negotiations or implementation of agreements. Assessments are also conducted to evaluate the impact of using proposed technologies, to assess the potential of new technologies and to plan new technology development programs. Technologies are developed in response to requirements developed to ensure that capabilities in detection, monitoring, verification and implementation are available when required. Technology development covers the equipment, sensors, systems, and procedures for identification and detection of treaty-prohibited items or tests, data exchanges, on-site and aerial inspections and monitoring, remote monitoring, and other confidence building measures. The users may include other offices in the On-Site Inspection Directorate, Office of the Secretary of Defense, the Military Services, Joint and Unified commands and U.S. delegations or international staffs. Frequently, EXELIS, INC. technical advice is required on a quick turn-around basis in such areas as developing U.S. technical positions, evaluating proposed regimes for feasibility and impact on U.S. arms control and other systems, and estimating the cost of development and implementation of verification systems.

b) Exelis, Inc. performs concept development and requirements analysis for civil engineering. On a Parsons contract with the United States Department of State Foreign Building Office, EXELIS, INC. performed concept studies and analyses, preliminary planning, requirements analyses, feasibility analyses, and cost-performance trade-off studies involving non-linear structural analysis, blast infill pressures, blast effects on humans, personnel vulnerability to structural damage, knowledge of concrete constitutive and equation-of-state models, producing a quality evaluation of the facility's vulnerability to terrorist blast scenarios and recommending retrofit concepts that would perform best in the varied

areas of the facility. EXELIS, INC. studied various concepts to increase the blast resistance of the window areas in the building, including shatter resistant window films, laminated glass versus monolithic glass, hurricane rated windows, window curtains, blast resistant materials including polycarbonate and Noviflex materials, and chemically strengthened glass. We compared the vulnerability of the building structure to the vulnerability of the windows and developed strategies to zone the interior of the building. EXELIS, INC. quantified blast loads on the building structure and windows, defining requirements for the choice of a retrofit concept. EXELIS, INC. analyzed the reasonableness of the retrofit concepts and analyzed cost impacts of alternative approaches.

c) For over 30 years, EXELIS, INC. has developed concepts and requirements for the Navy Strategic Systems Program (SSP). We review and evaluate normal, abnormal, and hostile environments for current and future submarine-launched ballistic missiles (SLBMs). We assist SSP with vulnerability assessments. We assess the adequacy of DoD/DOE vulnerability test programs for reentry bodies and the effectiveness of reentry bodies in normal, abnormal, and hostile environments. We assist in design reviews and in development of system integration requirements. We review and update weapon military characteristics (MCs) and stockpile to target sequence (STS) requirements. We analyze safety, security, control, and reliability. EXELIS, INC. participates in nuclear weapon system safety study groups (NWSSGs) and performs full-scale weapon system safety assessments (WSSAs). We advise SSP on the impact of DoD, DOE, NRC, CFR, Navy, state, and local radiological regulations affecting nuclear weapons. We assess issues related to transporting, processing, handling, and maintenance procedures and monitoring techniques for hazardous materials. We ensure methods are in place for processing, resolution, and distribution of Unsatisfactory Reports (URs) and Unsatisfactory Report Responses (URRs) on generic or system-specific SWOPs.

d) EXELIS, INC. evaluated for SSP the effectiveness of conventional payloads from submarines to attack above ground and underground structures. Different weapon payloads were investigated including blast/fragment warheads, kinetic shock penetrators, and cratering and fuel air explosive (FAE) concepts. Targets span military aircraft, vehicles, radars, power plants and underground bunkers. Mechanical structural response analysis using a three-dimensional finite element analysis code (K-DYNA3D) predicted the effects on internal bunker doors. We scaled existing *Joint Munitions Effects Manual* (JMEM) data to model blast and fragment distributions for conceptual warheads and evaluated weapon performance for different bunker targets. This also involved establishing acceptable target fragmentation fragility bounds.

871-3 System Design, Engineering and Integration

a) EXELIS, INC. developed system level virtual trainers for the U.S. Army M93 Fox Nuclear-Biological-Chemical (NBC) Reconnaissance System and a Preplanned Product Improvement (P3I) for the Biological Integrated Detection System (BIDS) as well as component and procedural training tools for the detection components of the overall system, the Fox, and BIDS, including the Mobile Mass Spectrometer (MM1) and the P3I BIDS procedural trainers. Under this effort EXELIS, INC. developed prototypes in the form of several part task trainers for detector systems. Prior to EXELIS, INC. development of these systems for the MM1 training system, the U.S. Army Chemical School used the four pieces of the actual hardware with simulant materials and other consumables to train soldiers. For less than the annual maintenance cost of these systems, EXELIS, INC. developed the detailed designs and built a prototype set of 12 linked systems that replicate the look and feel of the hardware and performance of the MM1 system. EXELIS, INC. worked with the instructors and training developers to establish requirements for this system. They wanted the capability to reduce the number of instructors from one per system to one per several

systems, and they needed documented trails of the students' activities. EXELIS, INC. translated these high-level system requirements into a working prototype of the MM1 training system that includes an instructor station allowing an instructor to imultaneously track the progress and actions of 12 students and provide real time feedback on their progress. Additionally, the system publishes after action reports that the instructors can use to support remedial training.

b) The P3I BIDS procedural training system was developed in response to a request from the Program Director for Biological Defense (PD Bio). He needed to reduce use of sustainment training consumables in the field unit and ensure that the crews retained their proficiency in the operation of the system. EXELIS, INC. worked with PD Bio and the Chemical School to develop a concept and set of requirements for a PC-based tool. EXELIS, INC. again translated highlevel system requirements into a working model in the form of a tool that provides consoles for the two system operators and an instructor. Placed on ruggedized PCs, these systems “go to war” with the crew and are used day in and day out.

c) EXELIS, INC. performed a range of civil engineering computer-aided design (CAD) code development, integration, and assessment tasks dealing with counterproliferation ground targets on the Air Targets Lethality Analysis Program (ATLAP). The majority of the ground targets were heavily reinforced concrete underground facilities requiring the solid civil engineering background of EXELIS, INC. personnel. EXELIS, INC. performed risk identification/ analysis/mitigation studies on complex systems, including a nuclear power plant vulnerability assessment study. EXELIS, INC. performed vulnerability assessments of the critical components in a pressurized water reactor (PWR) and G2 nuclear power plants that could be targeted by conventional weapons. EXELIS, INC. conducted design studies and analyses by assessing the effectiveness of these weapons in inflicting the required levels of blast and fragment component damage to cause facility shutdown while minimizing the probability of collateral hazard. This work included the construction of artificial intelligence (using GO functional models) as well as the selection of threshold levels of fragment damage and/or explosive overpressure. EXELIS, INC. developed multiple CAD models (using BRL-CAD) of counterproliferation targets and other facilities of interest including the above-mentioned nuclear power plants. Preliminary design details modeled included structural members, agent containers, production components, and ground surfaces. EXELIS, INC. applied several codes to perform simulation and modeling tasks at the engineering code level as well as in using first principle finite element codes.

d) EXELIS, INC. completed end-to-end assessments of real-world foreign targets and notional targets in performing risk identification/analysis/mitigation studies. EXELIS, INC. simulated the synergistic blast and fragment loading from a BLU-109 on a reinforced concrete wall using the K-DYNA3D finite element code. Computational results compared well with the observed damage in the experiment. EXELIS, INC. also characterized the penetration effectiveness of Mk-82 and Mk-84 conventional weapons to perforate the pressure vessel of a nuclear power plant using K-DYNA3D. Both of these efforts utilized Exelis, Inc.'s concrete material model and sliding interface methodology added to DYNA3D by Exelis, Inc.

e) Exelis, Inc. served as the prime integrating contractor for the AFRL High-Altitude Balloon Experiment (HABE) program. HABE was a technology testbed for the near-space demonstration of autonomous acquisition, tracking, pointing, and fire control (ATP/FC) systems, applied against boosting tactical ballistic missiles at long ranges. EXELIS, INC. integrated the various components to produce a working prototype HABE system which flew to an altitude of 26 km (85,000 ft.) using a large helium balloon. The 5,000-pound system will be on-station for approximately eight hours. The range to the uncooperative missile targets, launched from White Sands Missile Range, was between 50 km and 200 km. After mission completion, the payload was released from the balloon, parachuted to the ground, and

recovered. In addition to directing the systems integration effort as prime contractor, EXELIS, INC. was also responsible for the design and development of the data acquisition system, the system control software, and the real-time emulator on which the software was tested. The image tracker, used to process images from the passive and active sensors and to generate error signals for the pointing control loops, was designed, built, tested, and integrated by Exelis, Inc.

f) Exelis, Inc. (then Stanford Telecom) designed an information storage and processing system to manage, from remote locations, Federal Aeronautics Administration (FAA) infrastructure throughout the United States, e.g., the system needed to be able to activate runway lights, set up communications equipment, or gather equipment status information from remote locations. EXELIS, INC. developed the system concept into a preliminary and detailed design, performed risk management and requirements traceability functions, and then integrated the various components to produce a working prototype: the Prototype National Airspace (NAS) Infrastructure Management System (PNIMS). EXELIS, INC. led the information architecture planning process, starting with a review and inventory of FAA assets and an evaluation of the monitoring and management information that could be extracted from the assets. EXELIS, INC. next performed the systems engineering analysis including: 1) Evaluating the configuration and key components and subcomponents of each system; 2) Specifying the configuration elements to be included in the local database of the assets; 3) Evaluating the network management capability and available interfaces. EXELIS, INC. developed an information architecture model with a strategy to migrate information from managed devices to PNIMS. The information model included two entities for each device, the agent element—located at the device being managed—and the manager element—part of PNIMS. A second copy of the MIB was maintained within the PNIMS network management platform. Information migration and verification were performed via a COTS protocol—the Simple Network Management Protocol, SNMP—operating between the two management entities. EXELIS, INC. developed the High Level Specification for the design and development of both the proxy entities and the manager entity. EXELIS, INC. translated the FAA concept of operations into requirements for information collection and logical display subsystems. Prototyping efforts were used to refine the operational interfaces.

871-4 Test and Evaluation

a) EXELIS, INC. designed, developed, installed, tested, and evaluated several training capabilities for nuclear, biological and chemical (NBC) reconnaissance platforms including the Fox's Simulation Suite at the Army's Chemical School and the Preplanned Product Improvement (P3I) Biological Integrated Detection System (BIDS) Procedural Trainer at Fort Polk, Louisiana. These trainers were much more reliable and provided broader training capability than the previous training capability.

b) EXELIS, INC. supported test operations in the Air Targets Lethality Analysis Program. EXELIS, INC. developed the ARM, IDV, HER, CVAR and WolfPac CP codes for simulation and modeling to test concept feasibility; we used these codes to perform pretest predictions of AFRL and DTRA sponsored tests. On the Heavy Cased Warhead Lethality Tests, K-DYNA3D finite element calculations were performed simulating the synergistic BLU-109 blast and fragment loading on a reinforced concrete wall at the close range of four feet. EXELIS, INC. generated a set of fragment loading time histories based on BLU-109 arena test data and applied these histories to the virtual test model as intense pressure spikes in the statistically proper location and at the proper time. Computational results compared well with the observed damage in the experiment.

c) In another effort, EXELIS, INC. again used K-DYNA3D with material models 16 and 37 as a part of the Defense Special Weapons Agency (DSWA) (now DTRA) precision test modeling (PTM) tunnel response effort. For this project, EXELIS, INC. modeled a BLU-109 detonation above a tunnel free surface in limestone. The volume of expected debris on the floor of the tunnel was compared to similar experimental results. In other tasks EXELIS, INC. performed independent verification of vulnerability analyses on the DSWA Dipole Jewel test scenario and also for a Nuclear Power Plant vulnerability assessment study. EXELIS, INC. performed vulnerability assessments of the critical components in each of the above mentioned counterproliferation target classes. This included classes that can be targeted by conventional weapons and the effectiveness of these weapons inflicting the required levels of blast and fragment component damage to cause facility shutdown or while minimizing the probability of collateral hazard (radioactive or chem/bio agent release). Overall, this work involved the construction of artificial intelligence (GO code) functional models; development of a BRL-CAD computerized physical target model; selection of threshold levels of fragment damage and/or explosive overpressure. This work clearly demonstrates Exelis, Inc.'s strong civil engineering test and evaluation capabilities in the areas of non-linear finite element analysis, knowledge of concrete constitutive and equation-of-state models, nuclear power plant functional modeling, CAD drawing review, and an understanding of concrete/geologic penetration resistance.

d) On the High-Altitude Balloon Experiment (HABE), Exelis, Inc. served as the prime integrating contractor. HABE is a technology testbed for the near-space demonstration of autonomous acquisition, tracking, pointing, and fire control (ATP/FC) systems, applied against boosting tactical ballistic missiles at long ranges. HABE was the first end-to-end demonstration of the passive infrared acquisition and tracking of the missile plume, accurate active (laser illumination) tracking of the missile hardbody, determination of the vulnerable aimpoint, and placement and maintenance of a surrogate high energy laser on that aimpoint. Pointing accuracies of several hundred nanoradians were demonstrated. The HABE prototype system flew to an altitude of 26 km (85,000 ft.) using a large helium balloon. The 5,000-pound system will be on-station for approximately eight hours. The range to the uncooperative missile targets, launched from White Sands Missile Range (WSMR), was between 50 km and 200 km. After mission completion, the payload separated from the balloon, parachuted to the ground, and was recovered.

Multiple flights were scheduled. EXELIS, INC. developed the test plans for all payload ground tests, directed the tests, and wrote/edited the test reports. The payload was exercised against a variety of targets at 2 km range during ground testing at Kirtland AFB, NM. One target consisting of a fixture with a heater strip and reflective tape was pulled along a cable while the payload autonomously acquired the moving target, transitioned through two IR tracking stages, illuminated the reflective tape with a laser, and continued tracking the target on the reflected laser light. In other tests, the payload passively acquired and tracked a series of small rockets launched from the ground at 10 km range. Successful passive tracking of several Hera missiles, used as targets in the THAAD interceptor tests at WSMR, at 100 - 200 km range was also demonstrated in a series of tests at Kirtland AFB, New Mexico.

e) Under the United Kingdom Trident Program Support contract, EXELIS, INC. provides engineering test and evaluation support to the Navy Strategic Systems Program (SSP) Office in the following areas: we review and evaluate normal, abnormal, and hostile environments for current and future submarine-launched ballistic missiles (SLBMs), assist SSP to coordinate and integrate vulnerability assessments, assess adequacy of DoD/DOE vulnerability test programs for reentry bodies, provide support in the areas of safety, security, control and reliability, participate in nuclear weapon system safety study groups (NWSSGs), perform full-scale weapon system safety assessments (WSSAs), and assess issues

related to transporting, processing, handling, and maintenance procedures and monitoring techniques for hazardous materials.

871-5 Integrated Logistics Support

a) Under the Distributed Interactive Simulation and Modeling for Chemical and Biological Threats contract, EXELIS, INC. designed, developed, installed, tested, and evaluated several training and logistical capabilities for nuclear, biological and chemical (NBC) reconnaissance platforms including the Fox's Simulation Suite at the Army's Chemical School and the Preplanned Product Improvement (P3I) Biological Integrated Detection System (BIDS) Procedural Trainer at Fort Polk, Louisiana.

b) In conjunction with the FAA Volpe Center, Exelis, Inc. (then Stanford Telecom) performed logistics analysis, planning, detailed design, and transition planning for the FAA's Enhanced Traffic Management System (ETMS). The ETMS is a "star" network with a single hub and connections to more than 75 air traffic control facilities throughout the United States and Puerto Rico. The effort included evaluation of nine alternative approaches and transition planning. Once the approach had been selected, EXELIS, INC. developed the Transition Plan to define how the system would evolve to full operation and the equipment to be procured for initial installation and for initial spares support. The Transition Plan included the following information: the description, manufacturer, part number, unit price, quantity, and net price for each component of the hub and each of the traffic control centers within the network; the composite list of components; a listing of the communications circuits required between the hub and the traffic control centers and their estimated cost; and an estimate of the 10-year life cycle cost, by year, for both facilities and equipment, and operations and maintenance.

c) EXELIS, INC. provides operational maintenance and repair of the Improved Collection Equipment (ICE)box system throughout its life cycle. This project provides a full range of integrated logistics support, including: software/hardware systems engineering operations and maintenance; processing system database engineering and administration; systems/signals/engineering analysis, integration, test and evaluation; hardware and software configuration management; local and wide area network installation and administration; 24-hour computer operations center and help desk support; 24-hour mission operation support; system performance quality assurance; and mission planning and tasking. Specifically, EXELIS, INC. resolves hardware, firmware, software, and database malfunctions or anomalies which affect ICEbox system performance or impact the collection of information, or influence the transmission and reception of command and control data. EXELIS, INC. provides full-time systems engineering services to support ICEbox Operations and Maintenance (O&M). These services include: coordinating with Remote Element (RE) sites; interfacing with site technical support personnel to install and maintain RE hardware; coordinating all changes to the RE baseline with Configuration Management (CM); and testing all software prior to deployment and documenting test results. EXELIS, INC. also provides full-time configuration management services to develop and maintain hardware configuration control at all sites by developing and maintaining software to perform tracking, reporting, and updating of CM databases related to Y2K and system upgrade activities. EXELIS, INC. configuration management services supporting hardware, firmware, and database maintenance include: maintaining software to perform tracking, reporting, and updating of CM databases; transitioning of CM databases from legacy codes (e.g., UNIFY, FileMaker Pro and others) to MS Access; identifying software anomalies and analyzing corrective measures; performing as System Administrator for the Document Control Center (DCC) and Consolidated Configuration Management System (CCMS); providing software maintenance support to Configuration Control Management Systems (CCMS), Exchange Proposal (ECP), Exchange Request (ECR), and Exchange Order (ECO) processes, and supporting site audits, as needed; and acting

as backup VAX System Administrator for all VAX hardware in the Support Facility and the Mission Operations Support Center (MOSC).

d) EXELIS, INC. completed the development and delivery of a testbed for the test and demonstration of both space- and ground-referenced Geographical Positioning System (GPS) augmentation systems. The delivered system was a Ground Reference Augmentation System (GRAS) that broadcasts GPS connection and integrity information at very high frequency (VHF). The system uses a wide area network to compute wide area corrections and system integrity information. The system distributes this information, by satellite and landline, to a network of terrestrial VHF transmitters for local broadcast. The correction data is used by aircraft navigation equipment to improve the solution that would normally be obtained using only GPS measurements. In developing the system, EXELIS, INC. performed analysis, planning, and detailed design of the required engineering-specific logistics support including material goods, personnel, and operational maintenance and repair over its projected life cycle. Using experience gained from similar development activities and in close coordination with the customer, EXELIS, INC. selected a hardware suite that consisted of best-of-breed commercial equipment that a) had proven highly reliable in past procurements and b) could be supported in Australia. EXELIS, INC. also provided both modified and new software for this system under a standard warranty. The system is up and running today and is fulfilling its intended functions.

871-6 Acquisition and Life Cycle Management

a) Exelis, Inc. provides technical and management support in the procurement, production, deployment, and subsequent data analysis of specialized chemical detection systems, including providing direct input to the planning, budgeting and program management of these systems. Exelis, Inc. develops the technical data package for outsourcing the acquisition. Determination of technical feasibility and commercial viability is a criterion for this activity. Commercial viability in this case tends to focus on the utilization of commercial technologies. EXELIS, INC. develops production schedules and objective milestones for acquisition of these systems and subsequent system life cycle management support (e.g., maintenance, repair, supplies, and related engineering logistics). Exelis, Inc. evaluates the progress of the equipment being built. This entails review of all technical data and production plans compared to milestones to determine both positive and negative schedule and cost impacts associated with equipment production. In addition to monitoring progress during the hardware build and compliance with design specifications, Exelis, Inc. also reviews the results of the hardware being built for potential improvements that will positively impact schedule, cost, or performance. Exelis, Inc. also verifies that the information data stream from fielded systems is valid. EXELIS, INC. reviews the data received to determine if there are any flaws in the entire system. These flaws can be from any stage of the procurement process. When flaws are found, EXELIS, INC. initiates action to change the process, remove the flaw, and improve the overall system. EXELIS, INC. also evaluates other contractors' performance against set criteria for proper operations and maintenance of fielded systems.

b) Exelis, Inc. (then Stanford Telecom) provided specialized military satellite communications (MILSATCOM) systems engineering to assist DISA in planning, budgeting, contracting, and performing systems/program management functions required to procure and/or produce, render operational, and provide life cycle support (maintenance, repair, supplies, engineering-specific logistics) to existing MILSATCOM systems, activities, subsystems, and projects. EXELIS, INC. work directly supported acquisition and life cycle management, including: assessment of commercial SATCOM technologies and performance of COTS/Non-Developmental Item (NDI) market surveys to determine how best to reduce the overall cost of current Department of Defense (DoD) SATCOM network operations and maintenance;

assessment of current MILSATCOM link budgets and network operations to improve the day-to-day operation of DISA's networks and network management infrastructure; and providing SATCOM hardware acquisition support for current operations in crisis areas, e.g., Somalia, Bosnia/Kosovo.

c) EXELIS, INC. also served as the DISA Commercial Satellite Communications Initiative (CSCI) Systems Engineer. EXELIS, INC. proposed the establishment of a DoD private network using leased commercial satellite transponders and COTS earth terminals to off-load general purpose traffic from MILSATCOM systems so they could support tactical forces. Due to the overwhelming savings in life cycle cost, DoD approved our concepts. During the first two years of full operation (1998-99), EXELIS, INC. performed CSCI user-requirements analyses, system development and design studies, network and transponder analyses, annual service-growth forecasts and network loading plans, user-service cost estimates and service cost trade-off assessments, system utilization assessments, and CSCI-related Life Cycle Cost estimates. The CSCI today provides connectivity worldwide over commercial C- and Ku-Band communications satellites for a wide range of DoD users, including the U.S. forces deployed to Bosnia and Kosovo.

d) EXELIS, INC. provides full-time life cycle management and system engineering support for Improved Collection Equipment (ICE)box Central Element (CE) operations and maintenance (O&M) support. This support resolves software anomalies and enhances system performance, fully tests all software prior to deployment, and develops and executes All Up Systems Testing (AUST) Plans. EXELIS, INC. coordinates with the Remote Element (RE) segment of ICEbox and technical staff interface with RE site technical support personnel to install and maintain RE hardware, coordinate all changes to the RE baseline with Configuration Management (CM), coordinate all communication circuit issues with appropriate entities, and identify and resolve software anomalies associated with ICEbox RE. EXELIS, INC. also resolved Y2K issues as they arose. EXELIS, INC. also supplies Infrastructure Support as a part of this effort, including providing 24-hour operations support. As a part of this 24-hour operations support, EXELIS, INC. personnel: monitor data flow and coordinate with Regional Reporting Centers in the event of a data transfer failure; complete saves of history files on a nightly basis; monitor Remote Access Capability and Initial Processing communication circuits to ensure they are operational; coordinate with Communications Center on all circuit outages; perform software component loads two to four hours per night; and transmit and receive data from all sites. EXELIS, INC. personnel also complete the 45-day cue list and 10-day cue lists to update software component worksheets, collect and process live network operations, complete SUN back-up saves for CM, monitor Help Desk during periods of noncoverage, assist with various test teams with restarts, run cue and make database saves, shut down and bring back up various SUN workstations for scheduled and unscheduled power outages, and run Real Time Monitor (RTM) disk diagnostics.

e) EXELIS, INC. provided a full range of RF communications systems engineering support to NASA/GSFC for the Tracking and Data Relay Satellite System (TDRSS) and other NASA Space and Ground Network assets. This support encompassed all aspects of procurement, development, and the provision of life cycle support to NASA's primary telecommunications link for U.S. manned flight on the Shuttle, the International Space Station, and a broad range of orbiting science missions such as the Hubble telescope and ongoing earth science missions exploring the impact of global warming and deforestation. EXELIS, INC. played a key role in NASA's \$450M TDRS H,I,J procurement by supporting the development of an acquisition package for a fixed price contract to buy three new next-generation TDRSS spacecraft. Reliability analyses of the existing spacecraft constellation were also performed to determine the earliest need dates, required launch dates, and number of required spacecraft. Based on feasibility studies and architecture studies, EXELIS, INC. then developed the spacecraft telecommunications

requirements specification and in-house cost estimate as required by the NASA acquisition regulations. EXELIS, INC. performed space-to-space and space-to-ground link analyses and space-ground allocations of key telecommunications requirements in support of the overall specification development process. Since the award of the spacecraft contract by NASA, EXELIS, INC. has continued to support NASA on the TDRS H,I,J project by providing oversight of the implementation contractor to ensure all telecommunications requirements are met. EXELIS, INC. participated in the preliminary and critical design reviews, performed analyses related to spacecraft payload and ground system contractor designs, and reviewed and commented on various TDRS H,I,J contractor deliverables. EXELIS, INC. is also providing on-site support at the contractor's facility to oversee the various stages of testing of the communications payload. In a parallel effort, EXELIS, INC. initiated an improvement program for more efficient use of bandwidth at NASA's two TDRSS ground stations - one at White Sands, New Mexico, and the other at Guam. EXELIS, INC. designed, delivered, and is currently supporting a beamforming system to replace 1980s receiving equipment at both ground stations. The new system provides greater functionality at a reduced support cost over the original equipment and ensures that NASA will be able to support an increasing customer base well into the next decade. EXELIS, INC. engineers recognized an opportunity to reduce the beamformer size and cost by at least an order of magnitude. As a result, NASA issued a task order to design and develop a proof-of-concept engineering model of a next generation beamformer that would reduce the beamformer size and cost by 90 percent. The proof-of-concept and initial installations were successful and NASA is now moving ahead with procurement of more EXELIS, INC. beamformers.

V. ENGINEERING DISCIPLINES OFFERED

| Special Item Number | | Professional Engineering Discipline | | | |
|---------------------|---|-------------------------------------|-------|------------|------------|
| | | Chemical | Civil | Electrical | Mechanical |
| 871-1 | Strategic Planning For Technology Programs/Activities | ✘ | ✘ | ✘ | ✘ |
| 871-2 | Concept Development and Requirements Analysis | ✘ | ✘ | ✘ | ✘ |
| 871-3 | System Design, Engineering and Integration | ✘ | ✘ | ✘ | ✘ |
| 871-4 | Test and Evaluation | ✘ | ✘ | ✘ | ✘ |
| 871-5 | Integrated Logistics Support | ✘ | ✘ | ✘ | ✘ |
| 871-6 | Acquisition and Life Cycle Management | ✘ | ✘ | ✘ | ✘ |

VI. EQUIVALENT QUALIFICATIONS

In all of the specific Job Qualifications described in the next three sections, Exelis, Inc. recognizes the following equivalent years of relevant experience in lieu of formal education:

- BS + 2 years experience = MS
- BS + 4 years experience = PhD

In addition, we recognize specialized credentials or experience with specialized facilities to be equivalent to additional relevant experience, as follows:

- Specialized credentials or facilities = +2 years relevant experience
- (Specialized credentials may include client-required clearances or professional certifications; specialized facilities may include SCIF or R&D/testing lab requirements)

VII. LABOR CATEGORY DESCRIPTIONS - COMMUNICATION HW/SW DEVELOPMENT AND PRODUCTS

Services provided by these labor categories are those oriented to the development of specialized/developmental equipment, particularly in the R&D technologies. Labor categories in this broad category provide for the full range of activities required to define, develop, and test complex hardware, software and products. [Code: PEL]

1. Comm. HW/SW Development Principal Engineer [Code: PEL01]**a. Minimum/General Experience:**

Minimum 15 years of technical experience conducting analysis, design, and development of complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as proven experience managing programs of increasing levels of technical and management risk.

Technical experience should include recognized expertise in the specific system, products, or field of study applicable to the assigned program/project. Recognition may include conducting research/teaching at an institute of higher learning, technical journal/publication authorship, or extensive work-related experience in field.

b. Functional Responsibility:

- Responsible for strategic planning and execution of the assigned program
- Responsible for quality performance for the assigned program
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/advises on the engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill
- Provides specialty technical consulting as necessary
- Conducts senior level customer coordination and planning

c. Minimum Education:

BS + 15 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

2. Comm. HW/SW Development Engineer 6 [Code: PEL02]**a. Minimum/General Experience:**

Minimum 10 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for providing specialized technical skills in problem solving and customer interfacing for an engineering organization
- Responsible for performing engineering activities for the assigned program
- Responsible for assisting in the monitoring and planning of task staffing, cost, and quality performance
- Responsible for supporting the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and system/component designs
- Conducts engineering analysis, design, and development for areas requiring a significant level of experience, training, and skill

- Designs/integrates complex components in accordance with specifications

c. Minimum Education:

BS + 10 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

3. Comm. HW/SW Development Engineer 5 [Code: PEL03]

a. Minimum/General Experience:

Minimum 8 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with most phases of the product development life cycle. Technical experience shall include systems, products, or fields of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing complex design and analysis tasks
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of complex technical problems
- Derives feasible product/system design to meet program requirements and specifications
- Analyzes, evaluates, and plans method of approach and organizes means to achieve solutions to problems on assigned engineering projects
- Conducts investigations and tests pertaining to the development of new designs
- Interprets, evaluates, and documents test data and results of investigations and develops appropriate recommendations
- Supports manager in project planning, scheduling, and cost estimating
- Provides task plan inputs and supports customer presentations
- Designs/integrates components in accordance with specifications

c. Minimum Education:

BS + 8 years experience; Bachelor's Degree in engineering or similar field.

4. Comm. HW/SW Development Engineer 4 [Code: PEL04]

a. Minimum/General Experience:

Minimum 6 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. Technical experience shall include systems, products, or fields of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for assisting in product development/design and analysis
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes technical reports
- Conducts investigations and tests supporting the development of new designs
- Supports the interpretation, evaluation, and documentation of test data and supports the development of recommendations
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 6 years experience; Bachelor's Degree in engineering or similar field.

5. Comm. HW/SW Development Engineer 3 [Code: PEL05]

a. Minimum/General Experience:

Minimum 4 years of technical experience conducting/assisting in the analysis, design, and development of complex or highly specialized R&D systems. Technical experience includes systems, products, or fields of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing analysis, test, and performance evaluation support
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes/provides input for technical reports
- Conducts investigations and tests supporting the project
- Supports the evaluation and documentation of test data
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 4 years experience; Bachelor's Degree in engineering field or related field.

6. Comm. HW/SW Development Engineer 2 [Code: PEL06]

a. Minimum/General Experience:

Minimum 2 years of technical experience assisting in the analysis, design, and development of R&D systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the design and testing of communication system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Analyzes systems including processing elements, logical data flows, and data processing loads
- Prepares specification materials
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 2 years experience; Bachelor's Degree in engineering or related field.

7. Comm. HW/SW Development Engineer 1 [Code: PEL07]

a. Minimum/General Experience:

Minimum 0 years of technical experience. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for supporting the development, test, integration, and documentation of specific engineering project from the designs created by senior level engineers
- Assists in the development of engineering models from the designs created by senior engineers
- Develops utility programs in support of product development
- Conducts limited analyses under the supervision of senior level engineers
- Supports senior level engineers in developing system, subsystem, and component level designs

c. Minimum Education:

Bachelor's Degree in engineering or related field.

8. Comm. HW/SW Development Engineering Program Manager 2 [Code: PEL09]

a. Minimum/General Experience:

Minimum 14 years of technical and management experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project. Recognized expertise in the specific system, products, or field of study applicable to the assigned program/project is highly desirable.

b. Functional Responsibility:

- Responsible for directing the engineering activities for the assigned program
- Responsible for staffing, cost, and quality performance for the assigned program
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs the engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill
- Conducts customer coordination and planning

c. Minimum Education:

BS + 14 years experience; Bachelor's Degree in Engineering or similar field; advanced degree preferred.

9. Comm. HW/SW Development Engineering Program Manager 1 [Code: PEL10]

a. Minimum/General Experience:

Minimum 10 years of technical and management experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing engineering activities for the assigned program
- Responsible for staffing, cost, and quality performance for the assigned project and task areas
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/conducts engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill

c. Minimum Education:

BS + 10 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

10. Comm. HW/SW Development Engineering Project Manager 1 [Code: PEL11]

a. Minimum/General Experience:

Minimum 5 years of technical and management experience conducting analysis, design, and development. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned task/project.

b. Functional Responsibility:

- Responsible for performing engineering activities for the assigned task or project
- Responsible for some or all of staffing, cost, and quality performance for the assigned project and task areas
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues

- Analyzes engineering requirements and directs/conducts engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a moderate degree of experience, training, and skill

c. Minimum Education:

BS + 5 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

11. Comm. HW/SW Development Project Administrator 1 [Code: PEL12]

a. Minimum/General Experience:

Minimum 2 years of project administration experience. General experience includes working with all phases of the procurement cycle.

b. Functional Responsibility:

- Responsible for performing contractual or financial analyses for the assigned program
- Responsible for providing contractual or financial expertise as required to internal and external clients

c. Minimum Education:

BS + 2 years experience; Bachelor's Degree in business or technical field or specialized experience in lieu thereof; advanced degree preferred.

12. Comm. HW/SW Development Technical Secretary/Graphics 2 [Code: PEL13]

a. Minimum/General Experience:

Minimum 5 years of document/graphics/ presentation experience. General experience includes working with all phases of document production and presentation.

b. Functional Responsibility:

- Responsible for all aspects of document preparation and coordination for the assigned program
- Responsible for providing guidance regarding document or graphical presentation, including web page layouts, as required, to internal and external clients

c. Minimum Education:

HS + 5 years experience; Bachelor's Degree or certificate in relevant technical skills preferred.

13. Comm. HW/SW Development Technical Secretary/Graphics 1 [Code: PEL14]

a. Minimum/General Experience:

Minimum HS diploma. General experience includes working with all phases of document production and presentation.

b. Functional Responsibility:

- Responsible for various aspects of standard document preparation and presentation for the assigned program

c. Minimum Education:

HS + 0 years experience; Associate's Degree or certificate in relevant technical skills preferred.

14. Comm. HW/SW Development Principal Technician [Code: PEL15]

a. Minimum/General Experience:

Minimum 7 years of technical experience assisting in the technical analysis and testing of R&D systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the testing of communication system architecture and subsystems with the support of design experts and senior engineers

- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Prepares specification materials within area of training
- Integrates components in accordance with specifications

c. Minimum Education:

HS + 7 years experience; specialized training or certificate in technical field highly desirable.

15. Comm. HW/SW Development Senior Technician [Code: PEL16]

a. Minimum/General Experience:

Minimum 5 years of technical experience assisting in the technical analysis and testing of R&D systems.

On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the testing of communication system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Prepares specification materials within area of training
- Integrates components in accordance with specifications

c. Minimum Education:

HS + 5 years experience; specialized training or certificate in technical field highly desirable.

VIII. LABOR CATEGORY DESCRIPTIONS - COMMUNICATION SYSTEMS ENGINEERING & INTEGRATION

Services provided by these labor categories are those oriented to the development of engineering systems. Labor categories in this broad category provide for the full range of activities required to define, develop, and test complex systems. [Code: PES]

1. Comm. Systems Engineering & Integration Principal Engineer 2 [Code: PES01]**a. Minimum/General Experience:**

Minimum 16 years of technical experience conducting analysis, design, and development of complex or highly specialized systems. General experience includes working with all phases of the product development life cycle as well as proven experience managing programs of increasing levels of technical and management risk. Technical experience should include recognized expertise in the specific system, products, or field of study applicable to the assigned program/project. Recognition may include conducting research/teaching at an institute of higher learning, technical journal/publication authorship, or extensive work-related experience in field.

b. Functional Responsibility:

- Responsible for strategic planning and execution of the assigned program
- Responsible for quality performance for the assigned program
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/advises on the engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill
- Provides specialty technical consulting as necessary
- Conducts senior level customer coordination and planning

c. Minimum Education:

BS + 16 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

2. Comm. Systems Engineering & Integration Principal Engineer 1 [Code: PES02]**a. Minimum/General Experience:**

Minimum 12 years of technical experience conducting analysis, design, and development of complex or highly specialized systems. General experience includes working with all phases of the product development life cycle as well as proven experience managing programs of increasing levels of technical and management risk. Technical experience should include recognized expertise in the specific system, products, or field of study applicable to the assigned program/project. Recognition may include conducting research/teaching at an institute of higher learning, technical journal/publication authorship, or extensive work-related experience in field.

b. Functional Responsibility:

- Responsible for strategic planning and execution of the assigned program
- Responsible for quality performance for the assigned program
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/advises on the engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill
- Provides specialty technical consulting as necessary
- Conducts senior level customer coordination and planning

c. Minimum Education:

BS + 12 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

3. Comm. Systems Engineering & Integration Engineer 6 [Code: PES03]

a. Minimum/General Experience:

Minimum 10 years of technical experience conducting analysis, design, and development for complex or highly specialized systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for providing specialized technical skills in problem solving and customer interfacing for an engineering organization
- Responsible for performing engineering activities for the assigned program
- Responsible for assisting in the monitoring and planning of task staffing, cost, and quality performance
- Responsible for supporting the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and system/component designs
- Conducts engineering analysis, design, and development for areas requiring a significant level of experience, training, and skill
- Designs/integrates complex components in accordance with specifications

c. Minimum Education:

BS + 10 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

4. Comm. Systems Engineering & Integration Engineer 5 [Code: PES04]

a. Minimum/General Experience:

Minimum 8 years of technical experience conducting analysis, design, and development for complex or highly specialized systems. General experience includes working with most phases of the product development life cycle. Technical experience shall include systems, products, or fields of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing complex design and analysis tasks
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of complex technical problems
- Derives feasible product/system design to meet program requirements and specifications
- Analyzes, evaluates, and plans method of approach and organizes means to achieve solutions to problems on assigned engineering projects
- Conducts investigations and tests pertaining to the development of new designs
- Interprets, evaluates, and documents test data and results of investigations and develops appropriate recommendations
- Supports manager in project planning, scheduling, and cost estimating
- Provides task plan inputs and supports customer presentations
- Designs/integrates components in accordance with specifications

c. Minimum Education:

BS + 8 years experience; Bachelor's Degree in engineering or similar field.

5. Comm. Systems Engineering & Integration Engineer 4 [Code: PES05]

a. Minimum/General Experience:

Minimum 6 years of technical experience conducting analysis, design, and development for complex or highly specialized systems. Technical experience shall include systems, products, or fields of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for assisting in product development/design and analysis
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes technical reports
- Conducts investigations and tests supporting the development of new designs
- Supports the interpretation, evaluation, and documentation of test data and supports the development of recommendations
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 6 years experience; Bachelor's Degree in engineering or similar field.

6. Comm. Systems Engineering & Integration Engineer 3 [Code: PES06]

a. Minimum/General Experience:

Minimum 4 years of technical experience conducting/assisting in the analysis, design, and development of complex or highly specialized systems. Technical experience includes systems, products, or fields of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing analysis, test, and performance evaluation support
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes/provides input for technical reports
- Conducts investigations and tests supporting the project
- Supports the evaluation and documentation of test data
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 4 years experience; Bachelor's Degree in engineering field or related field.

7. Comm. Systems Engineering & Integration Engineer 2 [Code: PES07]

a. Minimum/General Experience:

Minimum 2 years of technical experience conducting/assisting in the analysis, design, and development of complex or highly specialized systems. Technical experience includes systems, products, or fields of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing analysis, test, and performance evaluation support
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes/provides input for technical reports
- Conducts investigations and tests supporting the project
- Supports the evaluation and documentation of test data
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 2 years experience; Bachelor's Degree in engineering field or related field.

8. Comm. Systems Engineering & Integration Engineer 1 [Code: PES08]**a. Minimum/General Experience:**

Minimum 0 years of technical experience assisting in the analysis, design, and development of systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the design and testing of communication system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Analyzes systems including processing elements, logical data flows, and data processing loads
- Prepares specification materials
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 0 years experience; Bachelor's Degree in engineering or related field.

9. Comm. Systems Engineering & Integration Program Manager 2 [Code: PES09]**a. Minimum/General Experience:**

Minimum 14 years of technical and management experience conducting analysis, design, and development for complex or highly specialized systems. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience.

Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project. Recognized expertise in the specific system, products, or field of study applicable to the assigned program/project is highly desirable.

b. Functional Responsibility:

- Responsible for directing the engineering activities for the assigned program
- Responsible for staffing, cost, and quality performance for the assigned program
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs the engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill
- Conducts customer coordination and planning

c. Minimum Education:

BS + 14 years experience; Bachelor's Degree in Engineering or similar field; advanced degree preferred.

10. Comm. Systems Engineering & Integration Program Manager 1 [Code: PES10]**a. Minimum/General Experience:**

Minimum 10 years of technical and management experience conducting analysis, design, and development for complex or highly specialized systems. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing engineering activities for the assigned program
- Responsible for staffing, cost, and quality performance for the assigned project and task areas

- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/conducts engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill

c. Minimum Education:

BS + 10 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

11. Comm. Systems Engineering & Integration Project Manager 2 [Code: PES11]

a. Minimum/General Experience:

Minimum 7 years of technical and management experience conducting analysis, design, and development. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned task/project.

b. Functional Responsibility:

- Responsible for performing engineering activities for the assigned task or project
- Responsible for some or all of staffing, cost, and quality performance for the assigned project and task areas
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/conducts engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a moderate degree of experience, training, and skill

c. Minimum Education:

BS + 7 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

12. Comm. Systems Engineering & Integration Project Manager 1 [Code: PES12]

a. Minimum/General Experience:

Minimum 5 years of technical and management experience conducting analysis, design, and development. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned task/project.

b. Functional Responsibility:

- Responsible for performing engineering activities for the assigned task or project
- Responsible for some or all of staffing, cost, and quality performance for the assigned project and task areas
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/conducts engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a moderate degree of experience, training, and skill

c. Minimum Education:

BS + 5 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

13. Comm. Systems Engineering & Integration Project Administrator 2 [Code: PES13]

a. Minimum/General Experience:

Minimum 5 years of project administration experience. General experience includes working with all phases of the procurement cycle.

b. Functional Responsibility:

- Responsible for performing contractual or financial analyses for the assigned program
- Responsible for providing contractual or financial expertise, as required, to internal and external clients

c. Minimum Education:

BS + 5 years experience; Bachelor's Degree in business or technical field or specialized experience in lieu thereof; advanced degree preferred.

14. Comm. Systems Engineering & Integration Project Administrator 1 [Code: PES14]

a. Minimum/General Experience:

Minimum 2 years of project administration experience. General experience includes working with all phases of the procurement cycle.

b. Functional Responsibility:

- Responsible for performing contractual or financial analyses for the assigned program
- Responsible for providing contractual or financial expertise, as required, to internal and external clients

c. Minimum Education:

BS + 2 years experience; Bachelor's Degree in business or technical field or specialized experience in lieu thereof; advanced degree preferred.

15. Comm. Systems Engineering & Integration Technical Secretary/Graphics 2 [Code: PES15]

a. Minimum/General Experience:

Minimum 5 years of document/graphics/ presentation experience. General experience includes working with all phases of document production and presentation.

b. Functional Responsibility:

- Responsible for all aspects of document preparation and coordination for the assigned program
- Responsible for providing guidance regarding document or graphical presentation, including web page layouts, as required, to internal and external clients

c. Minimum Education:

HS + 5 years experience; Bachelor's Degree or certificate in relevant technical skills preferred.

16. Comm. Systems Engineering & Integration Technical Secretary/Graphics 1 [Code: PES16]

a. Minimum/General Experience:

Minimum HS diploma. General experience includes working with all phases of document production and presentation.

b. Functional Responsibility:

- Responsible for various aspects of standard document preparation and presentation for the assigned program

c. Minimum Education:

HS + 0 years experience; Associate's Degree or certificate in relevant technical skills preferred.

17. Comm. Systems Engineering & Integration Senior Technician [Code: PES17]

a. Minimum/General Experience:

Minimum 5 years of technical experience assisting in the technical analysis and testing of R&D systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the testing of communication system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Prepares specification materials within area of training
- Integrates components in accordance with specifications

c. Minimum Education:

HS + 5 years experience; specialized training or certificate in technical field highly desirable.

IX. LABOR CATEGORY DESCRIPTIONS - GENERAL ENGINEERING

Services provided by these labor categories cover all other engineering activities not explicitly provided under Codes PEL and PES. Labor categories in this broad category provide for the full range of engineering needed to define, develop, and test complex systems other than those specifically involved in advanced communications technologies. [Code: PEG]

1. General Engineering Engineering Manager [Code: PEG01]**a. Minimum/General Experience:**

Minimum 12 years of technical and management experience conducting analysis, design, and development for complex or highly specialized systems. General experience includes working with all phases of the development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project. Recognized expertise in the specific system, products, or field of study applicable to the assigned program/project is highly desirable.

b. Functional Responsibility:

- Responsible for directing the engineering activities for the assigned program
- Responsible for staffing, cost, and quality performance for the assigned program
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs the engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill
- Conducts customer coordination and planning

c. Minimum Education:

BS + 12 years experience; Bachelor's Degree in Engineering or similar field; advanced degree preferred.

2. General Engineering Principal Engineer 3 [Code: PEG02]**a. Minimum/General Experience:**

Minimum 11 years of technical experience conducting analysis, design, and development of complex or highly specialized systems. General experience includes working with all phases of the product development life cycle as well as proven experience managing programs of increasing levels of technical and management risk. Technical experience should include recognized expertise in the specific system, products, or field of study applicable to the assigned program/project. Recognition may include conducting research/teaching at an institute of higher learning, technical journal/publication authorship, or extensive work-related experience in field.

b. Functional Responsibility:

- Responsible for strategic planning and execution of the assigned program
- Responsible for quality performance for the assigned program
- Responsible for the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and directs/advises on the engineering design activities
- Conducts engineering analysis, design, and development for areas requiring a high degree of experience, training, and skill
- Provides specialty technical consulting as necessary
- Conducts senior level customer coordination and planning

c. Minimum Education:

BS + 11 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

3. General Engineering Principal Engineer 2 [Code: PEG03]

a. Minimum/General Experience:

Minimum 10 years of technical experience conducting analysis, design, and development of complex or highly specialized systems. General experience includes working with all phases of the product development life cycle as well as proven experience managing programs of increasing levels of technical and management risk. Technical experience should include recognized expertise in the specific system, products, or field of study applicable to the assigned program/project. Recognition may include conducting research/teaching at an institute of higher learning, technical journal/publication authorship, or extensive work-related experience in field.

b. Functional Responsibility:

- Responsible for providing specialized technical skills in problem solving and customer interfacing for an engineering organization
- Responsible for performing engineering activities for the assigned program
- Responsible for assisting in the monitoring and planning of task staffing, cost, and quality performance
- Responsible for supporting the development of new products, improvement of existing products, and resolution of technical issues
- Assists strategic planning and execution of the assigned program
- Analyzes engineering requirements and system/component designs
- Conducts engineering analysis, design, and development for areas requiring a significant level of experience, training, and skill
- Designs/integrates complex components in accordance with specifications

c. Minimum Education:

BS + 10 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

4. General Engineering Principal Engineer 1 [Code: PEG04]

a. Minimum/General Experience:

Minimum 9 years of technical experience conducting analysis, design, and development of complex or highly specialized systems. General experience includes working with all phases of the product development life cycle as well as proven experience managing programs of increasing levels of technical and management risk. Technical experience should include recognized expertise in the specific system, products, or field of study applicable to the assigned program/project. Recognition may include conducting research/teaching at an institute of higher learning, technical journal/publication authorship, or extensive work-related experience in field.

b. Functional Responsibility:

- Responsible for providing specialized technical skills in problem solving and customer interfacing for an engineering organization
- Responsible for performing engineering activities for the assigned program
- Responsible for assisting in the monitoring and planning of task staffing, cost, and quality performance
- Responsible for supporting the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and system/component designs
- Conducts engineering analysis, design, and development for areas requiring a significant level of experience, training, and skill
- Designs/integrates complex components in accordance with specifications

c. Minimum Education:

BS + 9 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

5. General Engineering Senior Engineer 3 [Code: PEG05]

a. Minimum/General Experience:

Minimum 8 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing complex design and analysis tasks
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of complex technical problems
- Derives feasible product/system design to meet program requirements and specifications
- Analyzes, evaluates, and plans method of approach and organizes means to achieve solutions to problems on assigned engineering projects
- Conducts investigations and tests pertaining to the development of new designs
- Interprets, evaluates, and documents test data and results of investigations and develops appropriate recommendations
- Supports manager in project planning, scheduling, and cost estimating
- Provides task plan inputs and supports customer presentations
- Designs/integrates components in accordance with specifications

c. Minimum Education:

BS + 8 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

6. General Engineering Senior Engineer 2 [Code: PEG06]

a. Minimum/General Experience:

Minimum 7 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for providing specialized technical skills in problem solving and customer interfacing for an engineering organization
- Responsible for performing engineering activities for the assigned program
- Responsible for assisting in the monitoring and planning of task staffing, cost, and quality performance
- Responsible for supporting the development of new products, improvement of existing products, and resolution of technical issues
- Analyzes engineering requirements and system/component designs
- Conducts engineering analysis, design, and development for areas requiring a significant level of experience, training, and skill
- Designs/integrates complex components in accordance with specifications

c. Minimum Education:

BS + 7 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

7. General Engineering Senior Engineer 1 [Code: PEG07]**a. Minimum/General Experience:**

Minimum 6 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for assisting in product development/design and analysis
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes technical reports
- Conducts investigations and tests supporting the development of new designs
- Supports the interpretation, evaluation, and documentation of test data and supports the development of recommendations
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 6 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

8. General Engineering Engineer 4 [Code: PEG08]**a. Minimum/General Experience:**

Minimum 5 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project. This category may also include engineering project administration personnel with equivalent experience levels.

b. Functional Responsibility:

- Responsible for assisting in product development/design and analysis
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes technical reports
- Conducts investigations and tests supporting the development of new designs
- Supports the interpretation, evaluation, and documentation of test data and supports the development of recommendations
- Integrates components in accordance with specifications
- May be responsible for performing contractual or financial analyses for the assigned program
- May be responsible for providing contractual or financial expertise as required to internal and external clients

c. Minimum Education:

BS + 5 years experience; Bachelor's Degree in engineering field or specialized education or experience in lieu thereof; advanced degree preferred.

9. General Engineering Engineer 3 [Code: PEG09]**a. Minimum/General Experience:**

Minimum 4 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical

experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing analysis, test, and performance evaluation support
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes/provides input for technical reports
- Conducts investigations and tests supporting the project
- Supports the evaluation and documentation of test data
- Integrates components in accordance with specifications

c. Minimum Education:

BS + 4 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

10. General Engineering Engineer 2 [Code: PEG10]

a. Minimum/General Experience:

Minimum 3 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for performing analysis, test, and performance evaluation support
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes/provides input for technical reports
- Conducts investigations and tests supporting the project
- Supports the evaluation and documentation of test data

Integrates components in accordance with specifications

c. Minimum Education:

BS + 3 years experience; Bachelor's Degree in engineering or similar field; advanced degree preferred.

11. General Engineering Engineer 1 [Code: PEG11]

a. Minimum/General Experience:

Minimum 2 years of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project. This category may also include engineering project administration personnel with equivalent experience levels.

b. Functional Responsibility:

- Responsible for assisting in product development/design and analysis
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes technical reports
- Conducts investigations and tests supporting the development of new designs
- Supports the interpretation, evaluation, and documentation of test data and supports the development of recommendations
- Integrates components in accordance with specifications

- May be responsible for assisting with contractual or financial analyses for the assigned program

c. Minimum Education:

BS + 2 years experience; Bachelor's Degree in engineering field or specialized education or experience in lieu thereof; advanced degree preferred.

12. General Engineering Associate Engineer 4 [Code: PEG12]

a. Minimum/General Experience:

Minimum 1 year of technical experience conducting analysis, design, and development for complex or highly specialized R&D systems. General experience includes working with all phases of the product development life cycle as well as obtaining increasing levels of management experience. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project. This category may also include engineering project administration personnel with equivalent experience levels.

b. Functional Responsibility:

- Responsible for performing analysis, test, and performance evaluation support
- Applies scientific and/or engineering theories, methods, and research techniques in the investigation and solution of technical problems
- Writes/provides input for technical reports
- May be responsible for assisting with contractual or financial analyses for the assigned program

c. Minimum Education:

BS + 1 year experience; Bachelor's Degree in engineering field or specialized education or experience in lieu thereof; advanced degree preferred.

13. General Engineering Associate Engineer 3 [Code: PEG13]

a. Minimum/General Experience:

This is a starting level for an engineer with a BS degree or equivalent. No specific technical experience is required, other than that normally acquired during academic matriculation. General experience includes familiarity with all phases of the product development life cycle. Technical experience shall include the specific system, products, or field of study applicable to the assigned program/project.

b. Functional Responsibility:

- Responsible for supporting the development, test, integration, and documentation of specific engineering project from the designs created by senior level engineers
- Assists in the development of engineering models from the designs created by senior engineers
- Develops utility programs in support of product development
- Conducts limited analyses under the supervision of senior level engineers
- Supports senior level engineers in developing system, subsystem, and component level designs

c. Minimum Education:

Bachelor's Degree in engineering field or specialized education or experience in lieu thereof; advanced degree preferred.

14. General Engineering Senior Support Staff 4 [Code: PEG16]

a. Minimum/General Experience:

Minimum 7 years of technical experience assisting in the technical analysis and testing of R&D systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support

- Develops and carries through the testing of system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Prepares specification materials within area of training
- Integrates components in accordance with specifications

c. Minimum Education:

HS + 7 years experience; specialized training or certificate in technical field highly desirable.

15. General Engineering Senior Support Staff 3 [Code: PEG17]

a. Minimum/General Experience:

Minimum 6 years of technical experience assisting in the technical analysis and testing of R&D systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the testing of system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Prepares specification materials within area of training
- Integrates components in accordance with specifications

c. Minimum Education:

HS + 6 years experience; specialized training or certificate in technical field highly desirable.

16. General Engineering Senior Support Staff 2 [Code: PEG18]

a. Minimum/General Experience:

Minimum 5 years of document/graphics/presentation experience or technical experience assisting in the technical analysis and testing of R&D systems. For technical support staff, on-the-job training in a technical field is highly desirable. For administrative support staff, general experience includes working with all phases of document production and presentation.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the testing of system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Prepares specification materials within area of training
- Integrates components in accordance with specifications
- Responsible for all aspects of document preparation and coordination for the assigned program
- Responsible for providing guidance regarding document or graphical presentation, including web page layouts, as required, to internal and external clients

c. Minimum Education:

HS + 5 years experience; Bachelor's Degree or certificate in relevant technical skills preferred.

17. General Engineering Senior Support Staff 1 [Code: PEG19]

a. Minimum/General Experience:

Minimum 4 years of document/graphics/presentation experience or technical experience assisting in the technical analysis and testing of R&D systems. For technical support staff, on-the-job training in a

technical field is highly desirable. For administrative support staff, general experience includes working with all phases of document production and presentation.

b. Representative Functional Responsibilities:

- Responsible for performing analysis, test, and performance evaluation support
- Develops and carries through the testing of system architecture and subsystems with the support of design experts and senior engineers
- Provides proper documentation of all designs assigned in the form of schematics flow diagrams, analysis, tests, procedures, and reports
- Prepares specification materials within area of training
- Integrates components in accordance with specifications
- Responsible for all aspects of document preparation and coordination for the assigned program
- Responsible for providing guidance regarding document or graphical presentation, including web page layouts, as required, to internal and external clients

c. Minimum Education:

HS + 4 years experience; Bachelor's Degree or certificate in relevant technical skills preferred.

18. General Engineering Support Staff 4 [Code: PEG20]

a. Minimum/General Experience:

Minimum HS diploma with 3 years experience. For administrative support staff, general administrative experience includes working with all phases of document production and presentation. For technical support staff, general technical experience includes assisting in the analysis, design, and development of systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Supports the development, test, integration, and documentation of specific engineering projects from the designs created by senior level engineers under close supervision of engineers
- Assists in the assembly of engineering models from the designs created by engineers
- Runs utility programs in support of product development
- Conducts limited analyses under the supervision of senior level engineers
- Responsible for various aspects of standard document preparation and presentation for the assigned program

c. Minimum Education:

HS + 3 years experience; Associate's Degree or certificate in relevant technical skills preferred.

19. General Engineering Support Staff 3 [Code: PEG21]

a. Minimum/General Experience:

Minimum HS diploma with 2 years experience. For administrative support staff, general administrative experience includes working with all phases of document production and presentation. For technical support staff, general technical experience includes assisting in the analysis, design, and development of systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Supports the development, test, integration, and documentation of specific engineering projects from the designs created by senior level engineers under close supervision of engineers
 - Assists in the assembly of engineering models from the designs created by engineers
 - Runs utility programs in support of product development
 - Conducts limited analyses under the supervision of senior level engineers
 - Responsible for various aspects of standard document preparation and presentation for the assigned program

c. Minimum Education:

HS + 2 years experience; Associate's Degree or certificate in relevant technical skills preferred.

20. General Engineering Support Staff 2 [Code: PEG22]

a. Minimum/General Experience:

Minimum HS diploma with 1 year experience. For administrative support staff, general administrative experience includes working with all phases of document production and presentation. For technical support staff, general technical experience includes assisting in the analysis, design, and development of systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Supports the development, test, integration, and documentation of specific engineering projects from the designs created by senior level engineers under close supervision of engineers
- Assists in the assembly of engineering models from the designs created by engineers
- Runs utility programs in support of product development
- Conducts limited analyses under the supervision of senior level engineers
- Responsible for various aspects of standard document preparation and presentation for the assigned program.

c. Minimum Education:

HS + 1 year experience; Associate's Degree or certificate in relevant technical skills preferred.

21. General Engineering Support Staff 1 [Code: PEG23]

a. Minimum/General Experience:

Minimum HS diploma. For administrative support staff, general administrative experience includes working with all phases of document production and presentation. For technical support staff, general technical experience includes assisting in the analysis, design, and development of systems. On-the-job training in a technical field is highly desirable.

b. Representative Functional Responsibilities:

- Supports the development, test, integration, and documentation of specific engineering projects from the designs created by senior level engineers under close supervision of engineers
- Assists in the assembly of engineering models from the designs created by engineers
- Runs utility programs in support of product development
- Conducts limited analyses under the supervision of senior level engineers

X. PROFESSIONAL ENGINEERING SERVICES HOURLY RATE LIST

All rates presented in the following list reflect prices for work performed in Exelis, Inc. facilities. Discounts may be available for services performed primarily at customer locations.

| Labor Code | Labor Category | Option Period (5/24/16-5/23/21) - Exercised | | | | |
|------------|---|---|-------------------|-------------------|-------------------|-------------------|
| | | 5/24/16 - 5/23/17 | 5/24/17 - 5/23/18 | 5/24/18 - 5/23/19 | 5/24/19 - 5/23/20 | 5/24/20 - 5/23/21 |
| PEG01 | General Engineering Engineering Manager | \$273.79 | \$278.72 | \$283.74 | \$288.84 | \$294.04 |
| PEG02 | General Engineering Principal Engineer 3 | \$260.29 | \$264.97 | \$269.74 | \$274.60 | \$279.54 |
| PEG03 | General Engineering Principal Engineer 2 | \$244.63 | \$244.63 | \$249.04 | \$253.52 | \$258.08 |
| PEG04 | General Engineering Principal Engineer 1 | \$228.73 | \$228.73 | \$232.84 | \$237.03 | \$241.30 |
| PEG05 | General Engineering Senior Engineer 3 | \$218.15 | \$222.08 | \$226.08 | \$230.15 | \$234.29 |
| PEG06 | General Engineering Senior Engineer 2 | \$196.36 | \$196.36 | \$199.89 | \$203.49 | \$207.15 |
| PEG07 | General Engineering Senior Engineer 1 | \$180.00 | \$180.00 | \$183.24 | \$186.54 | \$189.90 |
| PEG08 | General Engineering Engineer 4 | \$163.63 | \$163.63 | \$166.58 | \$169.58 | \$172.63 |
| PEG09 | General Engineering Engineer 3 | \$147.28 | \$147.28 | \$149.93 | \$152.63 | \$155.37 |
| PEG10 | General Engineering Engineer 2 | \$134.18 | \$134.18 | \$136.60 | \$139.05 | \$141.56 |
| PEG11 | General Engineering Engineer 1 | \$121.08 | \$121.08 | \$123.26 | \$125.48 | \$127.74 |
| PEG12 | General Engineering Associate Engineer 4 | \$114.55 | \$114.55 | \$116.61 | \$118.71 | \$120.85 |
| PEG13 | General Engineering Associate Engineer 3 | \$98.18 | \$98.18 | \$99.95 | \$101.75 | \$103.58 |
| PEG16 | General Engineering Senior Support Staff 4 | \$101.91 | \$103.74 | \$105.61 | \$107.51 | \$109.45 |
| PEG17 | General Engineering Senior Support Staff 3 | \$94.52 | \$96.22 | \$97.95 | \$99.71 | \$101.51 |
| PEG18 | General Engineering Senior Support Staff 2 | \$91.28 | \$92.92 | \$94.59 | \$96.30 | \$98.03 |
| PEG19 | General Engineering Senior Support Staff 1 | \$80.85 | \$82.30 | \$83.78 | \$85.29 | \$86.83 |
| PEG20 | General Engineering Support Staff 4 | \$76.91 | \$78.29 | \$79.70 | \$81.14 | \$82.60 |
| PEG21 | General Engineering Support Staff 3 | \$76.91 | \$78.29 | \$79.70 | \$81.14 | \$82.60 |
| PEG22 | General Engineering Support Staff 2 | \$73.48 | \$73.48 | \$74.80 | \$76.15 | \$77.52 |
| PEG23 | General Engineering Support Staff 1 | \$52.16 | \$52.16 | \$53.10 | \$54.06 | \$55.03 |
| PEL01 | Comm HW/SW Development Principal Engineer | \$273.79 | \$278.72 | \$283.74 | \$288.84 | \$294.04 |
| PEL02 | Comm HW/SW Development Engineer 6 | \$232.01 | \$236.18 | \$240.44 | \$244.76 | \$249.17 |
| PEL03 | Comm HW/SW Development Engineer 5 | \$191.08 | \$194.52 | \$198.02 | \$201.58 | \$205.21 |
| PEL04 | Comm HW/SW Development Engineer 4 | \$163.63 | \$166.58 | \$169.58 | \$172.63 | \$175.74 |
| PEL05 | Comm HW/SW Development Engineer 3 | \$147.28 | \$149.93 | \$152.63 | \$155.37 | \$158.17 |
| PEL06 | Comm HW/SW Development Engineer 2 | \$134.18 | \$136.60 | \$139.05 | \$141.56 | \$144.10 |
| PEL07 | Comm HW/SW Development Engineer 1 | \$100.00 | \$101.80 | \$103.63 | \$105.50 | \$107.40 |
| PEL09 | Comm HW/SW Development Engineering Program Manager 2 | \$287.29 | \$292.47 | \$297.73 | \$303.09 | \$308.54 |
| PEL10 | Comm HW/SW Development Engineering Program Manager 1 | \$246.78 | \$251.22 | \$255.75 | \$260.35 | \$265.04 |
| PEL11 | Comm HW/SW Development Engineering Project Manager 1 | \$182.05 | \$185.33 | \$188.66 | \$192.06 | \$195.52 |
| PEL12 | Comm HW/SW Development Project Administrator 1 | \$140.54 | \$143.07 | \$145.64 | \$148.27 | \$150.94 |
| PEL13 | Comm HW/SW Development Technical Secretary/Graphics 2 | \$91.28 | \$92.92 | \$94.59 | \$96.30 | \$98.03 |
| PEL14 | Comm HW/SW Development Technical Secretary/Graphics 1 | \$53.41 | \$54.38 | \$55.35 | \$56.35 | \$57.36 |

| Labor Code | Labor Category | Option Period (5/24/16-5/23/21) - Exercised | | | | |
|------------|---|---|-------------------|-------------------|-------------------|-------------------|
| | | 5/24/16 - 5/23/17 | 5/24/17 - 5/23/18 | 5/24/18 - 5/23/19 | 5/24/19 - 5/23/20 | 5/24/20 - 5/23/21 |
| PEL15 | Comm HW/SW Development Principal Technician | \$101.91 | \$103.74 | \$105.61 | \$107.51 | \$109.45 |
| PEL16 | Comm HW/SW Development Senior Technician | \$91.28 | \$92.92 | \$94.59 | \$96.30 | \$98.03 |
| PES01 | Comm Systems Engineering & Integration Principal Engineer 2 | \$314.30 | \$319.96 | \$325.72 | \$331.58 | \$337.55 |
| PES02 | Comm Systems Engineering & Integration Principal Engineer 1 | \$273.79 | \$278.72 | \$283.74 | \$288.84 | \$294.04 |
| PES03 | Comm Systems Engineering & Integration Engineer 6 | \$232.01 | \$236.18 | \$240.44 | \$244.76 | \$249.17 |
| PES04 | Comm Systems Engineering & Integration Engineer 5 | \$191.08 | \$194.52 | \$198.02 | \$201.58 | \$205.21 |
| PES05 | Comm Systems Engineering & Integration Engineer 4 | \$163.63 | \$166.58 | \$169.58 | \$172.63 | \$175.74 |
| PES06 | Comm Systems Engineering & Integration Engineer 3 | \$147.28 | \$149.93 | \$152.63 | \$155.37 | \$158.17 |
| PES07 | Comm Systems Engineering & Integration Engineer 2 | \$134.18 | \$136.60 | \$139.05 | \$141.56 | \$144.10 |
| PES08 | Comm Systems Engineering & Integration Engineer 1 | \$100.00 | \$101.80 | \$103.63 | \$105.50 | \$107.40 |
| PES09 | Comm Systems Engineering & Integration Engineering Program Manager 2 | \$287.29 | \$292.47 | \$297.73 | \$303.09 | \$308.54 |
| PES10 | Comm Systems Engineering & Integration Engineering Program Manager 1 | \$246.78 | \$251.22 | \$255.75 | \$260.35 | \$265.04 |
| PES11 | Comm Systems Engineering & Integration Engineering Project Manager 2 | \$203.03 | \$206.68 | \$210.40 | \$214.19 | \$218.04 |
| PES12 | Comm Systems Engineering & Integration Engineering Project Manager 1 | \$182.05 | \$185.33 | \$188.66 | \$192.06 | \$195.52 |
| PES13 | Comm Systems Engineering & Integration Project Administrator 2 | \$182.05 | \$185.33 | \$188.66 | \$192.06 | \$195.52 |
| PES14 | Comm Systems Engineering & Integration Project Administrator 1 | \$114.91 | \$114.91 | \$116.98 | \$119.08 | \$121.23 |
| PES15 | Comm Systems Engineering & Integration Technical Secretary/Graphics 2 | \$91.28 | \$92.92 | \$94.59 | \$96.30 | \$98.03 |
| PES16 | Comm Systems Engineering & Integration Technical Secretary/Graphics 1 | \$53.41 | \$54.38 | \$55.35 | \$56.35 | \$57.36 |
| PES17 | Comm Systems Engineering & Integration Senior Technician | \$91.28 | \$92.92 | \$94.59 | \$96.30 | \$98.03 |

"The Service Contract Act (SCA) is applicable to this contract and as it applies to the entire Professional Services Schedule and all services provided. While no specific labor categories have been identified as being subject to SCA due to exemptions for professional employees (FAR 22.1101, 22.1102 and 29CFR 5413.300), this contract still maintains the provisions and protections for SCA eligible labor categories. If and/or when the Contractor adds SCA labor categories / employees to the contract through the modification process, the Contractor must inform the Contracting Officer and establish a SCA matrix identifying the GSA labor category titles, the occupational code, SCA labor category titles and applicable wage determination (WD) number. Failure to do so may result in cancellation of the contract."