| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | | | | | | | | | | | Date: March 2024 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>3620F: *Research, Development, Test & Evaluation, Space Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | | | R-1 Program Element (Number/Name)<br>PE 1206855SF / *Evolved Strategic SATCOM (ESS)* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2023** | **FY 2024** | **FY 2025 Base** | **FY 2025 OCO** | **FY 2025 Total** | **FY 2026** | **FY 2027** | **FY 2028** | **FY 2029** | **Cost To Complete** | **Total Cost** |
| Total Program Element | - | 491.530 | 632.833 | 1,046.161 | 0.000 | 1,046.161 | 1,283.922 | 1,061.416 | 970.789 | 745.132 | Continuing | Continuing |
| 643725: *Evolved Strategic SATCOM (ESS)* | - | 491.530 | 632.833 | 1,046.161 | 0.000 | 1,046.161 | 1,283.922 | 1,061.416 | 970.789 | 745.132 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

ESS is the backbone for Joint All Domain Nuclear Command, Control and Communications (NC3). The system will replace Advanced Extremely High Frequency (AEHF) Strategic Satellite Communications (SATCOM) services to provide global, integrated, survivable, resilient, and dynamic ground and satellite communications for assured strategic endurance across the conflict continuum. The ESS program underwent a resiliency architecture shift to address emerging sophisticated threats and to ensure strategic SATCOM capabilities are available to the National Command Authority (NCA), Combatant Commanders, and joint warfighters in any potential future conflict. It will provide the only arctic DoD strategic communication capability across the joint enterprise, and will provide worldwide secure, jam-resistant communications for strategic ground, sea, and air assets. ESS will support existing strategic user terminals in all operational environments.

ESS is acquired and developed in several parallel efforts to accelerate delivery of capability to warfighters by the strategic need date in FY 2032. The ESS System includes a Space Segment (ACAT-I), Ground, User, and Integration Segment (ACAT-I equiv), and a Crypto Segment (ACAT-III). The Space Segment is leveraging a Middle-Tier Acquisition (MTA) for rapid prototyping, technology maturation, and resilient strategic capability risk reduction. The Ground Segment, also known as GRIFFON - Ground Resilient Integration & Framework for Operational NC3, is comprised of the Ground Integration and Framework (GIF), System of Systems Integration (SoSI), and Mission Software Applications. This enables a resilient and modular cybersecure architecture that bridges the gap between modern software best practices and legacy user terminal capability. The GIF/SoSI is leveraging Software Acquisition Pathway Other Transactional Authority for rapid prototyping of ground software. The ESS Ground Framework creates the cybersecure software development, integration, and operational environments utilizing agile Modular Open Systems Approach (MOSA) principles and onboards hosted external mission applications and services. The SoSI ensures all ESS segments that are acquired in parallel, in addition to external entities, work together to accomplish the mission. Additional mission-unique capabilities, like In-Band C2, Out-of-Band C2, Strategic Mission Planning, Test, Evaluation, Training, and other similar mission capabilities will be acquired modularly as applications that will be hosted on the ESS Ground Framework. The Crypto Segment is focused on the development, integration and testing of National Security Agency (NSA)-certified End-Cryptographic Units (ECUs) that are required for secure strategic communications encryption in the ESS payloads, bus, test terminals, and user terminals.

The modular acquisition approach allows the program to avoid "vendor lock" in all segments and creates opportunities for industry competition and teaming with small innovative non-traditional partners for the Ground Segment on the Space Enterprise Consortium (SpEC) Other Transactional Authority (OTA). SpEC requires ESS Ground Segment Prime vendors (currently Lockheed Martin & Raytheon) to utilize small businesses for no less than 46% of prototyping work, allowing the program to integrate innovative best practices, increase agility, reduce costs and development lifecycles, while also expanding the resilient and strategic SATCOM ecosystem.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | Date: March 2024 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206855SF *I Evolved Strategic SATCOM (ESS)* |

The ESS system adheres to NC3 classification requirements. ESS will meet the requirements for strategic communications and capability gaps identified in the Protected Satellite Communications Services (PSCS) Analysis of Alternatives (AoA), the Protected Follow-on for Resiliency (PAFR) Study and the Strategic Tiger Team. The ESS architecture and functionality will be designed in accordance with the United States Strategic Command's signed ESS Concept of Operations and the Joint Requirements Oversight Council's validated Capability Development Document (CDD) satisfying the legacy Advanced Extremely High Frequency (AEHF) strategic requirements and mission performance with enhancements for increased resiliency and cybersecurity. The ESS system will satisfy emerging requirements using modular open system approaches to support incremental enhancements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver ESS weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392SF, 1206398SF.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

| B. Program Change Summary ($ in Millions) | FY 2023 | FY 2024 | FY 2025 Base | FY 2025 OCO | FY 2025 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 519.047 | 632.833 | 1,272.983 | 0.000 | 1,272.983 |
| Current President's Budget | 491.530 | 632.833 | 1,046.161 | 0.000 | 1,046.161 |
| Total Adjustments | -27.517 | 0.000 | -226.822 | 0.000 | -226.822 |
| • Congressional General Reductions | 0.000 | 0.000 | | | |
| • Congressional Directed Reductions | 0.000 | 0.000 | | | |
| • Congressional Rescissions | 0.000 | 0.000 | | | |
| • Congressional Adds | 0.000 | 0.000 | | | |
| • Congressional Directed Transfers | 0.000 | 0.000 | | | |
| • Reprogrammings | -9.648 | 0.000 | | | |
| • SBIR/STTR Transfer | -17.869 | 0.000 | | | |
| • Other Adjustments | 0.000 | 0.000 | -226.822 | 0.000 | -226.822 |

**Change Summary Explanation**

FY 2023: -3.623M MGUE INC2 BTR
FY 2023: -6.025M SSPT BTR

FY 2025: -228.600M; Reduced based on FY 2025 Non-Advocate Cost Assessment (NACA) estimate to reflect Threshold Survivability requirements and to meet higher headquarter priorities.
FY 2025: +2.096 inflation adjustment
FY 2025: -0.318M realignment to higher priorities

| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | Date: March 2024 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206855SF *I Evolved Strategic SATCOM (ESS)* |

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2023 | FY 2024 | FY 2025 |
|---|---|---|---|
| ***Title:*** Space Segment Prototyping | 342.360 | 357.666 | 0.000 |
| ***Description:*** Invest in technology and demonstrations that enable continued development of a modernized, strategic payload and other key technology prototypes, risk reduction, and space segment design utilizing competitive rapid-prototyping contracts. Enables long-term return on investment through an energized Strategic SATCOM industrial base, increased competition, promotion of innovation by driving diverse designs, and increased resiliency. Actively manage contractors through prototyping, demonstration and requirements/criteria needed for contractors to competitively bid on the ESS space segment Build, Integration and Test (I&T) and Delivery follow-on.<br><br>***FY 2024 Plans:***<br>Continue execution of two rapid prototyping contracts through payload technology development and demonstrations that best align to the new ESS proliferated and resilient architecture. The existing contracts for the rapid prototyping phase will be funded to perform additional nonrecurring engineering activities to further increase the technology readiness levels (TRL) of various space components prior to the Critical Design Review (CDR), mitigate overarching program schedule risk, and reduce development durations to respond to threats from adversaries. Purchase long lead items identified on the critical path or at high risk due to supply chain shortages to meet the system strategic need date. Build upon the System Functional Review (SFR) technical baselines and artifacts, complete system engineering trade studies, and finalize requirements traces and allocations to conduct Preliminary Design Reviews (PDR). Continue to demonstrate and validate system capabilities, with a focus on integration of the previously completed efforts leading to end-to-end Capstone demonstrations, which will show the capability for each contractors' ESS payload to execute the strategic satellite communications mission. Ensure payload cybersecurity designs are aligned with ESS program cybersecurity strategy. Execute post-PDR activities and begin preparations for CDR. Additional efforts beyond the existing rapid prototyping firm fixed price contracts may be utilized to maximize the technical capability delivered to the warfighter and support Nuclear Command, Control, and Communication (NC3) modernization efforts. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Other activities may include, but are not limited to program office support, studies, technical analysis, experimentation, and prototyping.<br><br>***FY 2025 Plans:***<br>N/A<br><br>***FY 2024 to FY 2025 Increase/Decrease Statement:***<br>FY 2025 decreased due to contract closeout for both rapid prototyping contracts as all rapid prototyping work ends with the award of the Space Development and Production Contract in FY 2025. | | | |
| ***Title:*** Space Development and Production | - | - | 724.350 |
| ***Description:*** This activity is not a new start as it continues space development activity that was initiated in the Space Segment Prototyping major thrust. Space Development and Production builds upon the 4+ Years of Space Segment Prototyping and | | | |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | Date: March 2024 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206855SF *I Evolved Strategic SATCOM (ESS)* |

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2023 | FY 2024 | FY 2025 |
|---|---|---|---|
| delivers the next generation of NC3 Strategic SATCOM to the warfighter. The ESS Space Development and Production contract will design, develop, build, test, and deliver resilient, cybersecure, Extended Data Rate (XDR) space vehicles that ensure communications through all warfighting environments. This effort will initiate with the development and production of Space Vehicles 1- 4 in order to achieve IOC by 2032 and continuing through FOC.<br><br>***FY 2025 Plans:***<br>ESS will finalize source selection, award the Space Development and Production contract, conduct a delta Preliminary Design Review (PDR), and establish a program baseline through an Integrated Baseline Review (IBR). Simultaneously, numerous Non-Recurring Engineering (NRE) activities will begin, covering essential engineering and process documents. Long lead procurement of hardware and software for SV01-SV02, including design documents and non-deliverables, will also commence.<br><br>The program will execute initial NRE for developing and integrating threat-driven resiliency payloads and building the ESS Payload Emulator. The Space Development and Production contract winner will initiate In-Band-C2 application development on the GIF Framework, originally planned as a standalone application on the SpEC OTA. Additionally, the program will support NRE for the System of Systems Integration between ESS system segments (Ground and ECU), all with the goal of setting conditions for a successful CDR in the following year.<br><br>Ancillary activities will involve starting or continuing special studies for survivability, resiliency, risk reduction, and architectural trades.<br><br>Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, and activities that may leverage commercial and international opportunities.<br>***FY 2024 to FY 2025 Increase/Decrease Statement:***<br>FY 2025 increased due to the award of the space development and production contract and the associated rapid increase of personnel and material required to execute the contract on both the government and contractor teams. To meet the strategic Need Date, and combat the evolving threats faced in space, the program will conduct non-recurring engineering activities associated with the bus, payload, and resiliency measures, purchase long lead items for the first two satellites, and increase government program management and engineering support. | | | |
| ***Title:*** Ground Resilient Integration & Framework for Operational NC3 (GRIFFON) | 125.563 | 216.486 | 290.643 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | Date: March 2024 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206855SF *I Evolved Strategic SATCOM (ESS)* |

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2023 | FY 2024 | FY 2025 |
|---|---|---|---|
| ***Description:*** The previous thrust entitled "ESS Ground Segment and Space-to-Ground Integration" has changed to "Ground Resilient Integration and Framework for Operational NC3 (GRIFFON)" to recognize program of record establishment. Develop and field the ESS Ground Segment and System Integrator (SoSI). GRIFFON is the Ground Segment solution for ESS. It includes ESS Ground Integration and Framework (GIF), SoSI, and software application development efforts. GRIFFON software applications include mission planning, command and control (both in-band and out-of-band) along with other architecture activities required to support the ESS Space Segment, system operators, strategic users, and joint Combatant Commands (COCOMs).<br><br>***FY 2024 Plans:***<br>Release full-competition RFP for Mission Planning applications and Command and Control applications. Execute multiple GRIFFON prototype demonstration contracts, and down select to one GIF and SoSI contract. Develop and release follow-on RFP for further agile software and modular framework prototype development. Conduct studies and source selection activities to award multiple contracts for command and control, and other software applications. Fund program office, Federally Funded Research and Development Centers (FFRDC), and University Affiliated Research Center (UARC) support to execute a competition which acquires a secure software development framework/pipeline and mission planning applications. Develop a development, security, and operations (DevSecOps) pipeline for software vendors to test their applications on the ground framework mission partners to conduct end-to-end integration testing. Procure ground system specific applications for satellite control, mission planning, and satellite integration and test. Conduct early integration testing with users and legacy systems. Continue software catalogue creation and functionally decompose software into a delivery roadmap aligned with strategic framework. Develop end user agreements with operational sites outlining deliveries and key milestones. Solidify integration testing and connectivity with PKMA and cryptographic modernization efforts with the NSA. Modify legacy terminal programs to ensure entire integrated system functions within modernized cyber architecture. Invest in Command Post Terminal modernization (cryptographic and cybersecurity needs, etc.) necessary to support ESS and meet critical ground segment, space segment, and systems integration need dates. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, and activities that may leverage commercial and international opportunities.<br><br>***FY 2025 Plans:***<br>Down-select to one ESS ground framework and integration prototype vendor (GIF/SoSI). Execute multiple GRIFFON prototype demonstration contracts, with multiple prototypes being selected for maturation towards Ground Advanced Integration and Technology (AI&T) in FY 2027 and System AI&T in FY 2029. Conduct studies and source selection activities for endurance capability, command and control, mission control, and user terminal interface. Fund program office, FFRDC, and UARC support to execute competitions that acquire and integrate a secure software development framework and cyber secure software delivery pipeline, software applications, user interfaces, and ensures ESS alignment with enterprise community. Further mature a development, security, and operations (DevSecOps) pipeline for software vendors to test their applications on the ground | | | |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | Date: March 2024 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206855SF *I Evolved Strategic SATCOM (ESS)* |

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2023 | FY 2024 | FY 2025 |
|---|---|---|---|
| framework to conduct end-to-end integration testing. Conduct early integration testing at government sites. Develop user agreements with operational sites outlining deliveries and key milestones to ensure system functionality by FY 2029, prior to the first ESS space launch. Solidify integration testing and connectivity with Protected SATCOM Key Management Architecture (PKMA) and cryptographic modernization efforts with the NSA. Identify any necessary modifications to legacy terminal programs to ensure entire integrated system functions within modernized cyber architecture. Invest in command and control terminal modernization and acquisition (cryptographic and cybersecurity needs) necessary to support ESS and meet critical ground segment, space segment, and systems integration need dates. Continue development activities in support of the ground segment and system/mission integration schedules. Rapidly respond to implement system resiliency and situational awareness necessary to operate in the contested space domain. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, and activities that may leverage commercial and international opportunities.<br>***FY 2024 to FY 2025 Increase/Decrease Statement:***<br>FY 2025 increased to execute multiple development contracts and support increased space and ground integration activities. | | | |
| ***Title:*** End-Cryptographic Unit (ECU) | 23.607 | 58.681 | 31.168 |
| ***Description:*** Develop and deliver the NSA-certified ECUs required for secure strategic communications encryption in the ESS payloads, bus, and payload test terminals in accordance with the approved ECU acquisition strategy and schedule. Upon development completion, production ECU units will be delivered as government-furnished equipment (GFE) for integration and testing with the ESS payloads and payload test terminals.<br>***FY 2024 Plans:***<br>Continue to execute ECU contract through the Engineering and Manufacturing Development (EMD) phase. Fund Cryptologic and Cyber Systems Division (CCSD), UARC, and FFRDC to provide program office support, planning, GFE, studies, technical analyses and information or resources in support of prototyping activities. Support ESS ECU requirements for the payload, bus, and test terminal. Provide NSA-certified crypto solutions to support Telemetry, Tracking, and Command (TT&C), Mission Data (MD), Transmission Security (TRANSEC), and Communications Security (COMSEC); includes all required cyber, resiliency, and security activities required, as well as Government support for contractor management and oversight. Studies and technical support will assist with requirements trades, technical approaches, threat assessment and mitigation approaches, and ESS testing assets to include the Strategic Test Terminal (ST2). Continue to coordinate with the NSA on the development and certification of ECU requirements and the delivery of cryptographic keying material to support the development effort.<br>***FY 2025 Plans:***<br>Upon successful System Requirements Review (SRR), System Functional Review (SFR), and Preliminary Design Review (PDR) continue to execute ECU contract through the Engineering and Manufacturing Development (EMD) phase and mature payload and test terminal ECU designs to CDR- level maturity. Fund CCSD, UARC, and FFRDC to provide program office | | | |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | Date: March 2024 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206855SF *I Evolved Strategic SATCOM (ESS)* |

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2023 | FY 2024 | FY 2025 |
|---|---|---|---|
| support, planning, GFE, studies, technical analyses and information or resources in conjunction with newly awarded ESS Space Development and Production Contract. Provide NSA-certified crypto solutions to support Telemetry, Tracking, and Command (TT&C), Mission Data, Transmission Security (TRANSEC), and Communications Security (COMSEC); includes all required cyber, resiliency, and security activities required, as well as Government support for contractor management and oversight. Assist with requirements trades, technical design approaches, threat assessment and mitigation approaches, and ESS testing assets to include the test terminal. Continue coordination with NSA through the ECU Certification process and cryptographic key material delivery. Start work to modify PKMA and Key Management Infrastructure (KMI) to be interoperable to support the ESS constellation.<br>***FY 2024 to FY 2025 Increase/Decrease Statement:***<br>FY 2025 decreased to align activity with newly awarded ESS Space Development and Production contract. | | | |
| **Accomplishments/Planned Programs Subtotals** | 491.530 | 632.833 | 1,046.161 |

**D. Other Program Funding Summary ($ in Millions)**

N/A

**Remarks**

**E. Acquisition Strategy**

The Milestone Decision Authority (MDA) designated the ESS Space Segment as an FY 2016 National Defense Authorization Act MTA (Rapid Prototyping) activity and approved the ESS acquisition strategy on 14 December 2018. A rapid prototyping phase effectively replaces the Technology Maturation and Risk Reduction phase from a traditional acquisition under Department of Defense 5000 series Directives and Instructions. The ESS Program Office used this approach to award three space segment contracts in late FY 2020 and early FY 2021 that focus on reducing space segment risks with the objective of maximizing ESS demonstrated capability for the payload and other key technologies.

In FY 2022 the Program Office executed the ESS Prime Pivot Study to provide a more robust and resilient capability to the Joint Warfighter. As a result of the ESS Prime Pivot Study, only the two most promising and lowest risk vendors to reaching the strategic need date had their options executed. The vendor's schedule was further accelerated by executing contract option 3, one year earlier as well as starting contract option 2 three months earlier. The ESS vendor termination was risk informed and required to mature technology readiness levels within available funding. The remaining vendors are being awarded Engineer Change Proposals (ECP) of option 3 focused on vendor specific risk reduction, threat-resilient crosslink technical maturation, satellite processor upgrades, resiliency hosted payload development, and information technology cybersecurity enhancements.

In June 2023, the ESS Space Production Acquisition Source Panel (ASP) was approved by the Space Force Service Acquisition Executive. This ASP finalized key design trades, contract types, and the comprehensive approach to procuring ESS Space vehicles. The ASP highlighted the transition from MTA to MCA, declaring the

| Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force | Date: March 2024 |
|---|---|
| **Appropriation/Budget Activity**<br>3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 1206855SF *I Evolved Strategic SATCOM (ESS)* |

ESS Space Segment as an ACAT IB entering in Pre-Milestone B. The RFP and source selection will determine which space prototyping contractor is positioned for the space segment Build, I&T, and Delivery follow-on contract.

Competition during space prototyping is energizing the industrial base in strategic SATCOM; injecting diverse technical processes and integration approaches; burning down risks early and identifying/correcting issues as early as possible; and decreasing traditional fielding timelines to support a more resilient, responsive architecture against emerging threats. Success during competitive rapid-prototyping determines and informs follow-on Build, I&T, and Delivery.

In June 2022, the Space Force Service Acquisition Executive (SAE) approved the use of Department of Defense Instruction (DoDI) 5000.87 Software Acquisition Pathway for the GRIFFON Ground Segment. This pathway will be used to design and develop a software-intensive ground system to promote agile software development, control program timelines, cost, and foster innovation that is needed for resilient NC3 systems. In November 2023, the SAE approved the acquisition strategy for the In-Band C2 software application.

GRIFFON is the ground segment solution for ESS, and it includes ESS GIF, SoSI, and Software Application development efforts. The GIF will scope and provide advisory services on the ground system infrastructure to provide a software architecture and support the corresponding software factory. The GIF contractor will provide continual test and delivery services of the DevSecOps pipeline and software from different development and pre-production environments. It will also ensure NC3 compliance. The System Integrator (SoSI) will ensure all ESS segments operate cohesively to deliver interoperable capability. The SoSI will facilitate requirement verification, validation, and sell-off to maintain an authoritative source of truth throughout the system integration process. Mission unique capability will be provided by software applications. The ESS Ground Segment awarded two 18-month competitive contracts in FY23 for the GIF and SoSI prototypes. There will be a down-select to one Framework and Integration prototype vendor in 1st Quarter FY 2025. The Strategic Mission Planning Applications will be competitively awarded, with projected demonstration contracts beginning in FY 2024, and a down-select to two prototypes in 1st Quarter FY 2025. The In-Band C2 application will be competed with the space RFP, for prototype start in FY 2025. The remaining application acquisition strategies will go through Space Force SAE approval prior to the GRIFFON program transitioning from the Planning Phase to the Execution Phase of the Software Acquisition Pathway.

An ECU acquisition strategy was approved as an ACAT III program by the PEO in FY 2021. The ESS program office partnered with the Air Force Life Cycle Management Center CCSD for ECU crypto development, both on the space vehicle for payload and bus cryptographic devices and in the test terminal. Using a CCSD-led competitive RFP, a contract for payload and payload test terminal ECU development was awarded in 1st Quarter FY 2024.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force | | | Date: March 2024 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206855SF / *Evolved Strategic SATC OM (ESS)* | **Project (Number/Name)**<br>643725 / *Evolved Strategic SATCOM (ESS)* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2023 Cost | FY 2023 Award Date | FY 2024 Cost | FY 2024 Award Date | FY 2025 Base Cost | FY 2025 Base Award Date | FY 2025 OCO Cost | FY 2025 OCO Award Date | FY 2025 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ESS Space Segment Build, I&T and Delivery Follow-on | C/Various | TBD : TBD | - | - | | - | | 614.180 | Dec 2024 | - | | 614.180 | Continuing | Continuing | - |
| ESS Space Segment Prototyping | SS/FFP | Various : Various | - | 332.727 | Oct 2022 | - | | - | | - | | - | 0.000 | 332.727 | - |
| ESS Space Segment Prototyping Northrup Grumman | SS/FFP | Northrup Grumman : Redondo Beach, CA | - | - | | 146.000 | Dec 2023 | - | | - | | - | 0.000 | 146.000 | - |
| ESS Space Segment Prototyping Boeing | SS/FFP | Boeing : El Segundo, CA | - | - | | 142.340 | Dec 2023 | - | | - | | - | 0.000 | 142.340 | - |
| ESS Ground Segment and Space-to-Ground Integration | Various | Various : Various | - | 74.187 | Jan 2023 | - | | - | | - | | - | 0.000 | 74.187 | - |
| ESS GRIFFON: GIF and SOSI Demo Ctr 1 | C/FFP | Lockheed Martin : El Segundo, CA | - | - | | 15.378 | Jan 2024 | - | | - | | - | 0.000 | 15.378 | - |
| ESS GRIFFON: GIF and SOSI Demo Ctr 2 | C/FFP | Raytheon : El Segundo, CA | - | - | | 15.378 | Jan 2024 | - | | - | | - | 0.000 | 15.378 | - |
| ESS GRIFFON: GIF and SOSI Follow-on | C/FFP | TBD : TBD | - | - | | 23.600 | Jul 2024 | 62.600 | Nov 2024 | - | | 62.600 | Continuing | Continuing | - |
| ESS GRIFFON: Software Applications MP Demo Ctr 1 | C/FFP | TBD : TBD | - | - | | 23.100 | Mar 2024 | 23.400 | Mar 2025 | - | | 23.400 | 0.000 | 46.500 | - |
| ESS GRIFFON: Software Applications MP Demo Ctr 2 | C/FFP | TBD : TBD | - | - | | 23.100 | Mar 2024 | 23.400 | Mar 2025 | - | | 23.400 | 0.000 | 46.500 | - |
| ESS GRIFFON: In-Band Study | SS/FFP | TBD : TBD | - | - | | 13.100 | Jun 2024 | - | | - | | - | Continuing | Continuing | - |
| ESS GRIFFON: In-Band | C/CPIF | Not specified. : TBD | - | - | | - | | 32.900 | Dec 2024 | - | | 32.900 | Continuing | Continuing | - |
| ESS GRIFFON: Out-of-Band | TBD | TBD : TBD | - | - | | 11.100 | May 2024 | 22.900 | Mar 2025 | - | | 22.900 | Continuing | Continuing | - |
| ESS Terminal C2 Compatibility Study | TBD | TBD : TBD | - | - | | 17.940 | Dec 2023 | 17.944 | Dec 2024 | - | | 17.944 | Continuing | Continuing | - |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force | | | Date: March 2024 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206855SF / *Evolved Strategic SATC OM (ESS)* | **Project (Number/Name)**<br>643725 / *Evolved Strategic SATCOM (ESS)* | |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2023 Cost | FY 2023 Award Date | FY 2024 Cost | FY 2024 Award Date | FY 2025 Base Cost | FY 2025 Base Award Date | FY 2025 OCO Cost | FY 2025 OCO Award Date | FY 2025 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ESS Command and Control (C-2) Terminal Acquisition | TBD | TBD : TBD | - | - | | - | | 37.580 | Jan 2025 | - | | 37.580 | Continuing | Continuing | - |
| ESS User Terminal Studies | SS/FFP | Raytheon Collins : Marlborough, MA | - | - | | 12.040 | Apr 2024 | 8.900 | Feb 2025 | - | | 8.900 | 0.000 | 20.940 | - |
| ESS GRIFFON Software Independent Framework Tester (SWIFT) | SS/CPFF | JHU/APL : Laurel, MD | - | - | | 13.040 | Mar 2024 | 10.000 | May 2025 | - | | 10.000 | Continuing | Continuing | - |
| ESS IT Upgrades to NC3 cybersecurity Follow-On | C/FFP | GDIT : Falls Church, VA | - | - | | 7.030 | Mar 2024 | 6.900 | Mar 2025 | - | | 6.900 | Continuing | Continuing | - |
| ESS Test Terminal Development and Support | SS/CPFF | MIT/LL : Lexington, MA | - | - | | 17.490 | Nov 2023 | 11.000 | Nov 2024 | - | | 11.000 | Continuing | Continuing | - |
| ESS Acquisition and Mission Planning Support | SS/CPFF | JHU/APL : Laurel, MD | - | - | | - | | 5.000 | Dec 2024 | - | | 5.000 | Continuing | Continuing | - |
| ESS Engineering Support | MIPR | BAH : San Antonio, TX | - | - | | - | | 8.755 | Dec 2024 | - | | 8.755 | Continuing | Continuing | - |
| ESS End-Cryptographic Unit (ECU) | C/Various | Viasat : Carlsbad, CA | - | 11.221 | Jun 2023 | 50.415 | Dec 2023 | 14.700 | Dec 2024 | - | | 14.700 | Continuing | Continuing | - |
| ESS Crypto PKMA /KMI Modifications | TBD | Not specified. : TBD | - | - | | - | | 9.948 | Dec 2024 | - | | 9.948 | Continuing | Continuing | - |
| ESS Technical Mission Analysis | RO | Various : Various | - | 15.256 | Nov 2022 | 22.099 | Nov 2023 | 15.636 | Nov 2024 | - | | 15.636 | Continuing | Continuing | - |
| ESS Enterprise SE&I | C/CPIF | Linquest : Los Angeles, CA | - | 22.636 | Feb 2023 | 19.653 | Feb 2024 | 31.513 | Feb 2025 | - | | 31.513 | Continuing | Continuing | - |
| ESS SBIR/STTR | Allot | Not specified. : TBD | - | - | | 22.149 | Mar 2024 | 37.662 | Mar 2025 | - | | 37.662 | Continuing | Continuing | - |
| | | **Subtotal** | - | 456.027 | | 594.952 | | 994.918 | | - | | 994.918 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force | | | Date: March 2024 |
|---|---|---|---|
| Appropriation/Budget Activity<br>3620F / 4 | R-1 Program Element (Number/Name)<br>PE 1206855SF / *Evolved Strategic SATC OM (ESS)* | Project (Number/Name)<br>643725 / *Evolved Strategic SATCOM (ESS)* | |

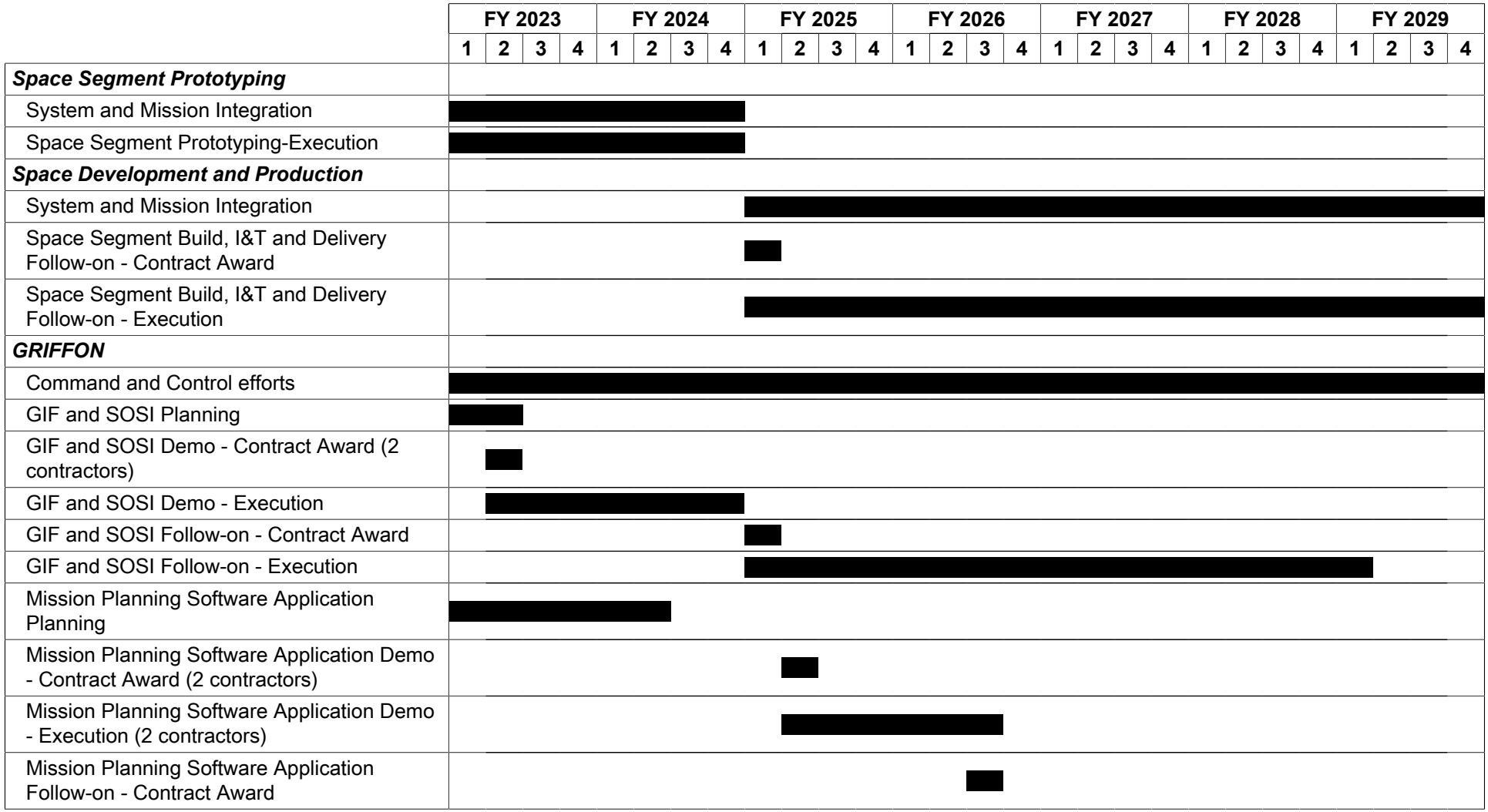
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2023 Cost | FY 2023 Award Date | FY 2024 Cost | FY 2024 Award Date | FY 2025 Base Cost | FY 2025 Base Award Date | FY 2025 OCO Cost | FY 2025 OCO Award Date | FY 2025 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FFRDC | RO | Aerospace : El Segundo, CA | - | 1.442 | Nov 2022 | 3.766 | Nov 2023 | 1.835 | Nov 2024 | - | | 1.835 | Continuing | Continuing | - |
| A&AS | Various | Various : Various | - | 33.561 | Nov 2022 | 33.615 | Nov 2023 | 48.658 | Nov 2024 | - | | 48.658 | Continuing | Continuing | - |
| Other Support | Various | Various : Various | - | 0.500 | Oct 2022 | 0.500 | Oct 2023 | 0.750 | Oct 2024 | - | | 0.750 | Continuing | Continuing | - |
| | | **Subtotal** | - | 35.503 | | 37.881 | | 51.243 | | - | | 51.243 | Continuing | Continuing | N/A |

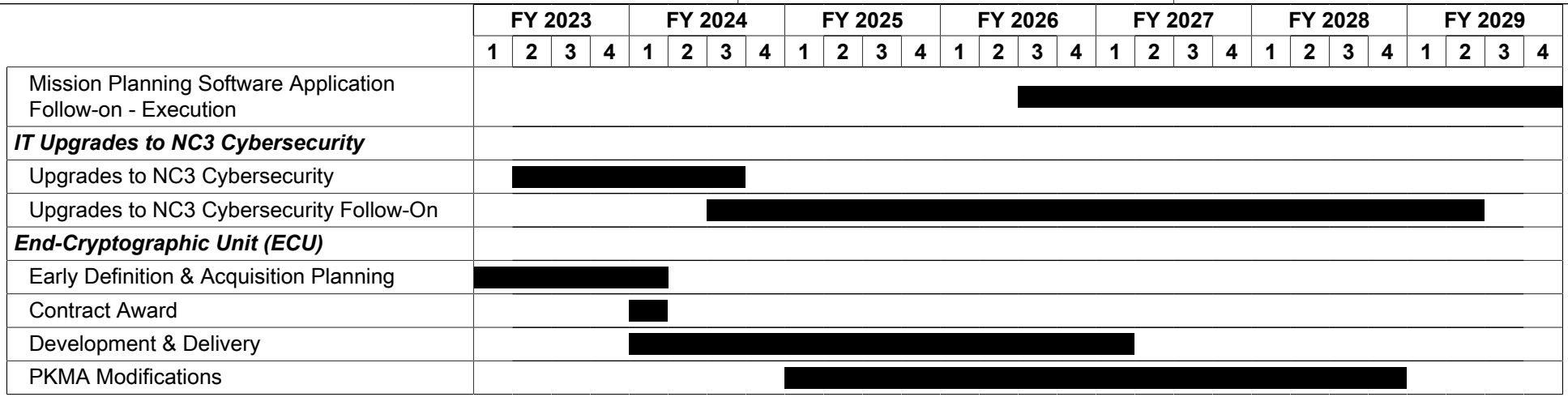
| | Prior Years | FY 2023 | | FY 2024 | | FY 2025 Base | | FY 2025 OCO | | FY 2025 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | - | 491.530 | | 632.833 | | 1,046.161 | | - | | 1,046.161 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force | | Date: March 2024 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206855SF / *Evolved Strategic SATC OM (ESS)* | **Project (Number/Name)**<br>643725 / *Evolved Strategic SATCOM (ESS)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force | | Date: March 2024 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206855SF / *Evolved Strategic SATC OM (ESS)* | **Project (Number/Name)**<br>643725 / *Evolved Strategic SATCOM (ESS)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force | | Date: March 2024 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206855SF / *Evolved Strategic SATC OM (ESS)* | **Project (Number/Name)**<br>643725 / *Evolved Strategic SATCOM (ESS)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Space Segment Prototyping*** | | | | |
| System and Mission Integration | 1 | 2023 | 4 | 2024 |
| Space Segment Prototyping-Execution | 1 | 2023 | 4 | 2024 |
| ***Space Development and Production*** | | | | |
| System and Mission Integration | 1 | 2025 | 4 | 2029 |
| Space Segment Build, I&T and Delivery Follow-on - Contract Award | 1 | 2025 | 1 | 2025 |
| Space Segment Build, I&T and Delivery Follow-on - Execution | 1 | 2025 | 4 | 2029 |
| ***GRIFFON*** | | | | |
| Command and Control efforts | 1 | 2023 | 4 | 2029 |
| GIF and SOSI Planning | 1 | 2023 | 2 | 2023 |
| GIF and SOSI Demo - Contract Award (2 contractors) | 2 | 2023 | 2 | 2023 |
| GIF and SOSI Demo - Execution | 2 | 2023 | 4 | 2024 |
| GIF and SOSI Follow-on - Contract Award | 1 | 2025 | 1 | 2025 |
| GIF and SOSI Follow-on - Execution | 1 | 2025 | 1 | 2029 |
| Mission Planning Software Application Planning | 1 | 2023 | 2 | 2024 |
| Mission Planning Software Application Demo - Contract Award (2 contractors) | 2 | 2025 | 2 | 2025 |
| Mission Planning Software Application Demo - Execution (2 contractors) | 2 | 2025 | 3 | 2026 |
| Mission Planning Software Application Follow-on - Contract Award | 3 | 2026 | 3 | 2026 |
| Mission Planning Software Application Follow-on - Execution | 3 | 2026 | 4 | 2029 |
| ***IT Upgrades to NC3 Cybersecurity*** | | | | |
| Upgrades to NC3 Cybersecurity | 2 | 2023 | 3 | 2024 |
| Upgrades to NC3 Cybersecurity Follow-On | 3 | 2024 | 2 | 2029 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force | | Date: March 2024 |
|---|---|---|
| **Appropriation/Budget Activity**<br>3620F / 4 | **R-1 Program Element (Number/Name)**<br>PE 1206855SF / *Evolved Strategic SATCOM (ESS)* | **Project (Number/Name)**<br>643725 / *Evolved Strategic SATCOM (ESS)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***End-Cryptographic Unit (ECU)*** | | | | |
| Early Definition & Acquisition Planning | 1 | 2023 | 1 | 2024 |
| Contract Award | 1 | 2024 | 1 | 2024 |
| Development & Delivery | 1 | 2024 | 1 | 2027 |
| PKMA Modifications | 1 | 2025 | 4 | 2028 |