Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force											Date: March 2023	
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 1206855SF / *Evolved Strategic SATCOM (ESS)*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	166.231	519.047	632.833	0.000	632.833	1,272.983	1,349.837	1,793.505	1,719.699	Continuing	Continuing
643725: *Evolved Strategic SATCOM (ESS)*	-	166.231	519.047	632.833	0.000	632.833	1,272.983	1,349.837	1,793.505	1,719.699	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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 continues and adds to the strategic Satellite Communications (SATCOM) mission of the AEHF program by providing space and mission control segments for worldwide and arctic DoD strategic, secure, jam-resistant, communications for ground, sea, and air assets.

ESS will support strategic mission requirements to provide the National Command Authority (NCA) and Combatant Commanders with highly-reliable, secure Military Satellite Communications. ESS will support a strategic need date in FY 2032 in all operational environments and will be compatible with the existing architectures. The ESS system will satisfy emerging requirements using modular open system approaches to support incremental enhancements.

Space Segment Prototyping: For more rapid and resilient strategic capability risk reduction, the ESS Program Office is executing its approved Space Segment acquisition strategy that leverages Middle Tier Acquisition (MTA) authorities from the 2016 National Defense Authorization Act (NDAA) for rapid prototyping, while maintaining the continuity of the AEHF strategic mission.

Ground Resilient Integration & Framework for Operational NC3 (GRIFFON): GRIFFON is the Ground Segment and the System of Systems (SoS) Integration (SoSI) component of the ESS System. Ground acquisition focuses on modular program elements that decompose scope, avoid "vendor lock", and create opportunities for competition amongst industry while aligning with Enterprise capabilities. GRIFFON is comprised of three components: Ground Integration & Framework (GIF), SoSI, and Software Applications. GIF involves the development of the Framework and operational environments on Modular Open Systems Approach (MOSA) principles and is capable of on-boarding and hosting external mission applications and services. The SoSI ensures all ESS segments and external entities work together to accomplish the mission. The Software applications suite is the development of mission unique applications to be on-boarded into the software pipeline including In-Band command and control (C2), Strategic Mission Planning, Mission Control, and Test and Evaluation.

End-Cryptographic Unit (ECU): Initiatives for the ESS Cryptographic Segment are focused on the development, integration, and testing of National Security Agency (NSA)-certified End-Cryptographic Units 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206855SF *I Evolved Strategic SATCOM (ESS)*

Space acquisition must respond with speed and agility to pacing and emerging adversary threats. Space Systems Command (SSC) has transformed the organization and implementation of space acquisition to an enterprise approach, maximizing innovation and resiliency, leveraging international, commercial, and mission partnerships, and managing program/project priorities according to an integrated unclassified/classified enterprise space architecture. Expanding the appropriate acquisition authorities and contract mechanisms to deliver capability sooner, SSC will strategically execute experimentation, prototyping, risk reduction and other efforts to develop new or re-purpose existing capabilities.

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.

The total cost of the ESS Space Segment Rapid Prototype Middle Tier of Acquisition effort is $1,029.9 million. The ESS Space Segment Rapid Prototype is fully funded across the Future Years Defense Program.

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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	172.089	565.597	670.659	0.000	670.659
Current President's Budget	166.231	519.047	632.833	0.000	632.833
Total Adjustments	-5.858	-46.550	-37.826	0.000	-37.826
• Congressional General Reductions	0.000	-1.550			
• Congressional Directed Reductions	0.000	-45.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-5.858	0.000			
• Other Adjustments	0.000	0.000	-37.826	0.000	-37.826

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 643725: *Evolved Strategic SATCOM (ESS)*		
Congressional Add: *IT upgrades to NC3 Cybersecurity*	19.319	-
Congressional Add Subtotals for Project: 643725	19.319	-
Congressional Add Totals for all Projects	19.319	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206855SF *I Evolved Strategic SATCOM (ESS)*

Change Summary Explanation

FY 2022: -5.858; Small Business Innovation Research
FY 2023: -1.550; Congressional General Reduction
FY 2023: -45.000; Congressional Mark
FY 2024: -36.254M; to fund to Department of the Air Force Non-Advocate Cost Assessment
FY 2024: -4.405M; to realign funding to APPN 3410, PE 1207804SF (SAG 13C), for fiscal policy compliance as Space Systems Command (SSC) establishes Headquarters functions and a Chief Information Office (CIO) for integrated cybersecurity
FY2024: +2.833M; inflation adjustment

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Space Segment Prototyping	124.101	310.572	357.666

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.

FY 2023 Plans:
Continue execution of two rapid prototyping contracts through critical year of payload technology development. Capitalize on contractors' System Functional Review (SFR) technical baselines and artifacts to perform functional demonstrations of key technical elements within the payload using breadboards as necessary. Demonstrate and validate microelectronic designs, hardware producibility, software coding, and performance to derived system requirements. Assess contractor demonstration performance against preliminary design review (PDR) entrance criteria. Contractor demonstrations are focused on phased arrays, crosslinks, and timing management. Demonstrate that electronics solution can transmit, receive, process and route the ESS waveform and can perform the protocols, modes, and distribution as outlined in the Government-controlled ESS System Specification. Demonstrate ability to produce electronically-steered arrays that can receive and transmit in specific portions of the electromagnetic spectrum. Ensure contractors' sub-array or subset of elements can perform to requirements decomposed from the systems level for power, signal integrity, timing, noise, etc. Validate system performance requirements at the array level. Develop software simulations to verify that design for constellation time management can meet the ESS requirements for autonomous operations. Resolve open system engineering trades and populate outstanding requirements in order to progress to a space segment-level PDR in FY 2024. The Systems Engineers will show full traceability that the design satisfies the CDD and that each requirement has sufficient margin between the expected performance and associated requirement. Expand focus to spacecraft bus design, bus integration, and delivery of bus-to-payload interface control documents. Provide interface control

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206855SF *I Evolved Strategic SATCOM (ESS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
documents for modular open system architecture designs for additional capabilities. 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, etc. ***FY 2024 Plans:*** 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 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. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funds increased to support two vendors' ramp up into PDR and to mature critical spacecraft technologies to a CDR-level. Funding is aligned with the subject matter experience needed to burn down risk and support cybersecurity and hosted payload capabilities.			
Title: Ground Resilient Integration & Framework for Operational NC3 (GRIFFON) ***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 SoSI. GRIFFON is the Ground Segment solution for ESS. It includes ESS Ground Integration and Framework (GIF), SoSI, and Software Application Development efforts. GRIFFON also includes Mission Planning, Command and Control along with other architecture activities required to support the ESS Space Segment. It also includes interoperability with the existing architectures and interfaces for Enterprise Ground System (EGS) compatibility. Lastly, it provides for space-to-ground (system) and mission integration for the ESS SoS.	13.437	167.133	216.486

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206855SF *I Evolved Strategic SATCOM (ESS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2023 Plans: Competitively Award multiple Ground and SoSI contracts. Fund program office, Federally Funded Research and Development Centers (FFRDC), and University-Affiliated Research Center Laboratories (UARC) support to execute a competition which acquires a secure software development framework/pipeline and ensures ESS alignment with EGS. Build a classified development environment to support a Continuous Integration/Continuous Development (CI/CD) Software Pipeline and work with operational mission partners to acquire Authority-to-Operate (ATO) at multiple sites. Onboard mission partners into end-to-end development environment for production, test, war gaming, and cyber testing. Generate strategic framework for mission planning applications and produce a System Developer Kit. Prepare ESS to procure ground system specific applications for satellite control, mission planning, and satellite integration and test. Develop Request for Proposal (RFP) for mission planning applications. Create software catalogue and functionally decompose software into a delivery roadmap aligned with strategic framework. Develop end user agreements with operational sites outlining deliveries and key milestones. Begin integration work to establish connectivity with Public Key Management Architecture (PKMA) and cryptographic modernization efforts with the NSA. Continue ground segment Command and Control (C2) studies with legacy sustainment team and terminal program office to evolve legacy systems by investigating code reuse with AEHF and Enhanced Polar System (EPS) to capitalize on enterprise NC3 efforts. Assess necessary mechanical and cryptographic improvements to the Family of Advanced Beyond-line-of-sight Terminals (FAB-T) Command Post Terminal to support ESS. Continue development activities in support of the ground segment and system/mission integration schedules. Activities include, but are not limited to program office support, studies, technical analysis, experimentation, prototyping, etc. FFRDC, UARC, and technical support will assist with requirements trades, technical approaches, threat assessment and mitigation approaches, and ESS testing assets.			
FY 2024 Plans: 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, FFRDC, and UARC support to execute a competition which acquires a secure software development framework/pipeline, mission planning applications, and ensures ESS alignment with EGS. 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			

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206855SF *I Evolved Strategic SATCOM (ESS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Post Terminal modernization (cryptographic and cybersecurity needs, etc.) 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. Activities may include, but are not limited to program office support, studies, technical analysis, experimentation, and prototyping. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funds increased to support the award of multiple contracts to begin cyber resilient ground system acquisition and integration for the NC3 enterprise to include an integrated ground framework, modular mission application software, designing and completing classified infrastructure development, SoS engineering, and digital engineering.			
Title: End-Cryptographic Unit (ECU) ***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. ***FY 2023 Plans:*** Award the ECU development and production contract through a Cryptologic and Cyber Systems Division (CCSD)-led and ESS Program Office-supported competitive solicitation to transition to the Engineering & Manufacturing Development (EMD) phase. Fund 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 ECUs. Provide NSA-certified crypto solutions to support tracking, telemetry, and commanding (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. FFRDC and UARC 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. ***FY 2024 Plans:*** Continue to execute ECU contract through the EMD phase. Fund 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 TT&C, MD, TRANSEC, and 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 ST2. Continue to coordinate with the NSA on the	9.374	41.342	58.681

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206855SF *I Evolved Strategic SATCOM (ESS)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
development and certification of ECU requirements and the delivery of cryptographic keying material to support the development effort. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funds increased due to ECU developer preparation to mature its payload and test terminal ECUs to PDR-level. This design work will meet ESS requirements for payload and test terminal ECUs, to include Engineering Development Units (EDUs), Production Representative Article (PRA), and Flight ECUs.			
Accomplishments/Planned Programs Subtotals	146.912	519.047	632.833

	FY 2022	FY 2023
Congressional Add: IT upgrades to NC3 Cybersecurity	19.319	-
FY 2022 Accomplishments: The Congressional add supports: Improve NC3 cybersecurity practices by creating secure IT infrastructure to connect the government and industry partners to protect the critical ESS NC3 SATCOM capability for the nation. This secure IT infrastructure will allow for the full and efficient elevation of the overall ESS program's security posture necessary to enable this protection.		
Congressional Adds Subtotals	19.319	-

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. An ESS Program Office-led RFP and source selection will determine which space prototyping contractor(s) is positioned for the space segment Build, I&T, and Delivery follow-on contract. Two of the most promising space prototyping contractors will be carried through the follow-on contract source selection to continue momentum until the follow-on contract is awarded in FY 2025.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
Appropriation/Budget Activity 3620F: *Research, Development, Test & Evaluation, Space Force I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 1206855SF *I Evolved Strategic SATCOM (ESS)*

The initial Ground Segment Acquisition Strategy was approved by the Program Executive Officer (PEO) in 4th Quarter FY 2019 to begin early technology readiness studies for ESS Mission Planning in FY 2020. 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. 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. 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 EGS and NC3 compliance. The SoS Integrator will ensure all ESS segments operate cohesively in order to deliver the capability. The SoS Integrator 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 forecasts two competitively awarded prototype contracts in 2nd Quarter FY 2023, for the GIF and SoS Integrator. There will be a down select to one prototype contract in FY 2024. The Strategic Mission Planning Applications will be competitively awarded, with projected contracts beginning in FY 2024 and the remaining applications to be competitively awarded later in the program.

An ECU acquisition strategy was approved by the PEO in FY 2021. The ESS program office is partnering 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 will be awarded in the 3rd Quarter of FY 2023.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206855SF / *Evolved Strategic SATC OM (ESS)*	**Project (Number/Name)** 643725 / *Evolved Strategic SATCOM (ESS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Space Segment Prototyping	SS/FFP	Various : Various	-	101.180	Oct 2021	295.089	Oct 2022	-		-		-	Continuing	Continuing	-
Space Segment Prototyping Northrup Grumman	SS/FFP	Northrup Grumman : Redondo Beach, CA	-	-		-		146.000	Dec 2023	-		146.000	Continuing	Continuing	-
Space Segment Prototyping Boeing	SS/FFP	Boeing : El Segundo, CA	-	-		-		142.340	Dec 2023	-		142.340	Continuing	Continuing	-
Ground Segment and Space-to-Ground Integration	Various	Various : Various	-	6.384	Jan 2022	114.555	Jan 2023	-		-		-	Continuing	Continuing	-
GRIFFON: GIF and SOSI Demo Ctr 1	TBD	TBD : TBD	-	-		-		15.378	Jan 2024	-		15.378	Continuing	Continuing	-
GRIFFON: GIF and SOSI Demo Ctr 2	TBD	TBD : TBD	-	-		-		15.378	Jan 2024	-		15.378	Continuing	Continuing	-
GRIFFON: GIF and SOSI Follow-on	TBD	TBD : TBD	-	-		-		23.600	Jul 2024	-		23.600	Continuing	Continuing	-
GRIFFON: Software Applications MP Demo Ctr 1	TBD	TBD : TBD	-	-		-		23.100	Mar 2024	-		23.100	Continuing	Continuing	-
GRIFFON: Software Applications MP Demo Ctr 2	TBD	TBD : TBD	-	-		-		23.100	Mar 2024	-		23.100	Continuing	Continuing	-
GRIFFON: In-Band Study	TBD	TBD : TBD	-	-		-		13.100	Jun 2024	-		13.100	Continuing	Continuing	-
GRIFFON: Out-of-Band Study	TBD	TBD : TBD	-	-		-		11.100	May 2024	-		11.100	Continuing	Continuing	-
FAB-T Compatibility Study	TBD	TBD : TBD	-	-		-		17.940	Dec 2023	-		17.940	Continuing	Continuing	-
User Terminal ESS Studies	TBD	TBD : TBD	-	-		-		12.040	Apr 2024	-		12.040	Continuing	Continuing	-
Software Independent Framework Tester (SWIFT)	TBD	TBD : TBD	-	-		-		13.040	Mar 2024	-		13.040	Continuing	Continuing	-
IT Upgrades to NC3 cybersecurity Follow-On	TBD	TBD : TBD	-	-		-		7.030	May 2024	-		7.030	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206855SF / *Evolved Strategic SATC OM (ESS)*	**Project (Number/Name)** 643725 / *Evolved Strategic SATCOM (ESS)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Terminal Development and Support	SS/CPFF	MIT/LL : Lexington, MA	-	-		-		17.490	Nov 2023	-		17.490	Continuing	Continuing	-
IT Upgrades to NC3 cybersecurity	SS/FFP	GDIT : Falls Church, VA	-	19.319	Jan 2023	-		-		-		-	0.000	19.319	-
End-Cryptographic Unit (ECU)	TBD	TBD : TBD	-	4.085	Jan 2022	34.292	Jun 2023	50.415	Jan 2024	-		50.415	Continuing	Continuing	-
Technical Mission Analysis	RO	Various : Various	-	13.569	Nov 2021	13.556	Nov 2022	22.099	Nov 2023	-		22.099	Continuing	Continuing	-
Enterprise SE&I	C/CPIF	Linquest : Los Angeles, CA	-	14.375	Feb 2022	23.548	Feb 2023	19.653	Feb 2024	-		19.653	Continuing	Continuing	-
SBIR/STTR	Allot	Not specified. : TBD	-	-		-		22.149	Mar 2024	-		22.149	0.000	22.149	-
		Subtotal	-	158.912		481.040		594.952		-		594.952	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC	RO	Aerospace : El Segundo, CA	-	1.738	Nov 2021	1.050	Nov 2022	3.766	Nov 2023	-		3.766	Continuing	Continuing	-
A&AS	Various	Various : Various	-	5.381	Nov 2021	36.457	Nov 2022	33.615	Nov 2023	-		33.615	Continuing	Continuing	-
Other Support	Various	Various : Various	-	0.200	Oct 2021	0.500	Oct 2022	0.500	Oct 2023	-		0.500	Continuing	Continuing	-
		Subtotal	-	7.319		38.007		37.881		-		37.881	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	166.231		519.047		632.833		-		632.833	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206855SF / *Evolved Strategic SATC OM (ESS)*	**Project (Number/Name)** 643725 / *Evolved Strategic SATCOM (ESS)*

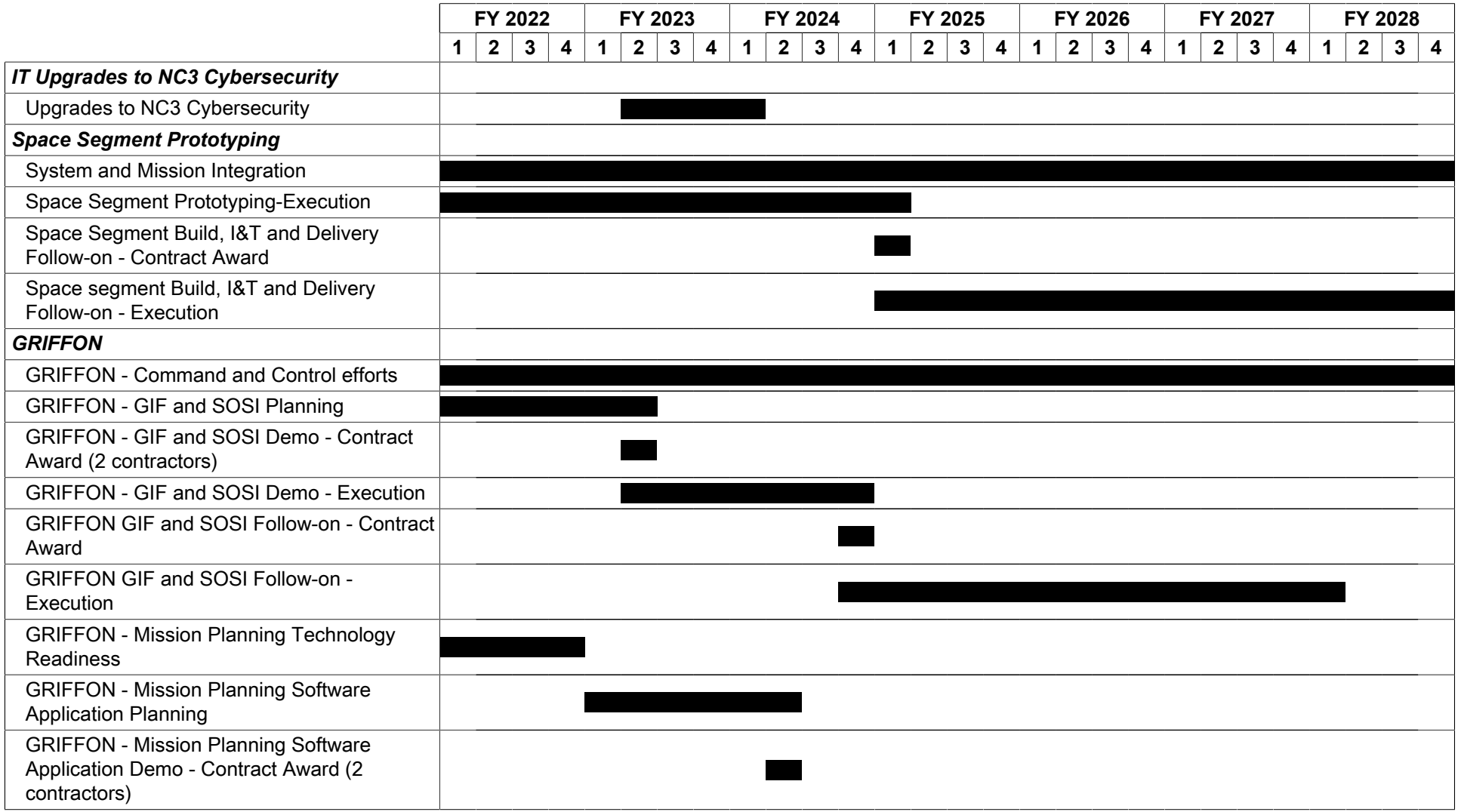

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206855SF / *Evolved Strategic SATC OM (ESS)*	**Project (Number/Name)** 643725 / *Evolved Strategic SATCOM (ESS)*

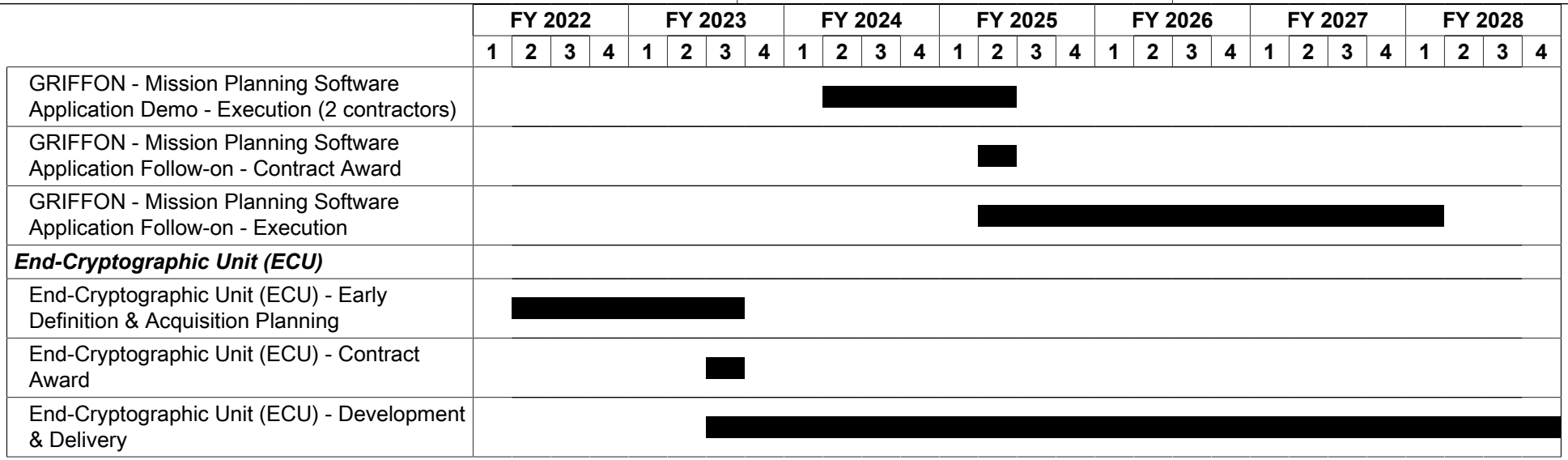

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206855SF / *Evolved Strategic SATC OM (ESS)*	**Project (Number/Name)** 643725 / *Evolved Strategic SATCOM (ESS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
IT Upgrades to NC3 Cybersecurity				
Upgrades to NC3 Cybersecurity	2	2023	1	2024
Space Segment Prototyping				
System and Mission Integration	1	2022	4	2028
Space Segment Prototyping-Execution	1	2022	1	2025
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	2028
GRIFFON				
GRIFFON - Command and Control efforts	1	2022	4	2028
GRIFFON - GIF and SOSI Planning	1	2022	2	2023
GRIFFON - GIF and SOSI Demo - Contract Award (2 contractors)	2	2023	2	2023
GRIFFON - GIF and SOSI Demo - Execution	2	2023	4	2024
GRIFFON GIF and SOSI Follow-on - Contract Award	4	2024	4	2024
GRIFFON GIF and SOSI Follow-on - Execution	4	2024	1	2028
GRIFFON - Mission Planning Technology Readiness	1	2022	4	2022
GRIFFON - Mission Planning Software Application Planning	1	2023	2	2024
GRIFFON - Mission Planning Software Application Demo - Contract Award (2 contractors)	2	2024	2	2024
GRIFFON - Mission Planning Software Application Demo - Execution (2 contractors)	2	2024	2	2025
GRIFFON - Mission Planning Software Application Follow-on - Contract Award	2	2025	2	2025
GRIFFON - Mission Planning Software Application Follow-on - Execution	2	2025	1	2028
End-Cryptographic Unit (ECU)				

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206855SF / *Evolved Strategic SATC OM (ESS)*	**Project (Number/Name)** 643725 / *Evolved Strategic SATCOM (ESS)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
End-Cryptographic Unit (ECU) - Early Definition & Acquisition Planning	2	2022	3	2023
End-Cryptographic Unit (ECU) - Contract Award	3	2023	3	2023
End-Cryptographic Unit (ECU) - Development & Delivery	3	2023	4	2028