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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 1203622SF / Space Warfighting Analysis
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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	-	0.000	42.300	95.541	0.000	95.541	116.317	114.323	118.167	122.282	Continuing	Continuing
646021: Space Warfighting Analysis Center (SWAC)	-	0.000	42.300	95.541	0.000	95.541	116.317	114.323	118.167	122.282	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Space Warfighting Analysis Center's (SWAC) total FY 2023 operating costs were \$56M. This includes \$11.2M of United States Space Force (USSF) O&M funding that is part of a transfer of USSF and Space Operations Command (SpOC) functions/missions under SWAC. Beginning in FY 2024, funding for SWAC's legacy and new force design efforts are fully programmed within SWAC's RDT&E baseline.

A. Mission Description and Budget Item Justification

This request funds increased scope towards capability area analyses and integration, modeling, wargaming, and experimentation to create operational concepts and force design guidance for existing and emerging USSF missions. Capability Area design analyses identify the integrated suite of operational capabilities that fulfills USSF imperatives to preserve the United States' freedom of action in space; enables Joint Force lethality and effectiveness; and provides the Service options for developing capabilities operating in, from, and to space. These analyses efforts team with relevant stakeholders across the National Security Space enterprise from an independent perspective and will provide analytic insight to the Service to inform and/or validate solutions to operational needs and provide a basis for future capability development programs. USSF force design analyses are organized into three focus areas: Multi-Domain Sensing, Spectrum Warfare, and Force Design Integration which are aligned to USSF priorities, and follow a disciplined approach to discover, analyze, and validate concepts and the associated family of systems required to satisfy current/future mission needs while including comprehensive threat analysis. The resulting force design products will help define and inform future USSF mission requirements, capabilities/architectures, priorities and funding needs, and interface standards.

This program element may include necessary emergent/unanticipated civilian pay expenses required to manage and execute the force design mission assigned to the SWAC and/or deliver products for evolving weapon system capabilities.

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.

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B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	44.791	76.217	0.000	76.217
Current President's Budget	0.000	42.300	95.541	0.000	95.541
Total Adjustments	0.000	-2.491	19.324	0.000	19.324
• 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	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-2.491	19.324	0.000	19.324

Change Summary Explanation

FY 2023: -\$2.491; reduction for FFRDC.

FY 2024: +\$15.823M; realignment to APPN 3620 from APPN 3410 to align USSF and SpOC force design funding under SWAC's RDT&E baseline.

FY 2024: -\$0.933M; reduction for higher USSF priorities.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
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Title: Space Warfighting Analysis Center (SWAC)	0.000	42.300	95.541
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Description: Space Warfighting Analysis Center is the foundational element to develop and provide authoritative Force Design recommendations for the United States Space Force (USSF).

FY 2023 Plans:

The Multi-Domain Sensing focus area continued to define options to incorporate multiple phenomenology sensing to address warfighters' needs to maintain custody of moving targets on the ground, at sea, and in the air; reduce data latencies; close kill chains; and better integrate spaced-based sensors with weapon systems. Missile Warning/Missile Tracking analysis evaluated options to further integrate tasking, ground processing, and fire control across the Missile Defense mission area to improve capability and resiliency. In the Spectrum Warfare focus area, the Navigational Warfare force design evaluated the diversity of position and timing needs, and evaluated how orbital diversity, integration of opportunistic sources, and advanced waveforms can meet the needs of DoD and civil users. The Restricted and Internet of Things (RIOT) Analysis of Alternatives focused on how to service the Department of Defense unique communication needs that cannot be serviced by commercial services and continue analysis of the SDT Force Design to identify the space-space transportation paths. The Force Design Integration focus area

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2022	FY 2023	FY 2024
<p>will continue annual wargaming assessments and outbriefs of Force Design activities to the joint and international communities. International coordination increased at the end of FY22 and is expected to become more robust.</p> <p>FY 2024 Plans: Expand research studies, system design analysis, and wargaming integration prototyping demonstrations across a variety of domains and mission areas to inform USSF force designs. The Multi-Domain Sensing focus area will continue to develop Capability Area Designs for Multi-Mission Orchestration from space to support various mission areas, to include Missile Warning, Missile Tracking, Missile Defense, Environmental Monitoring, Moving Target Indications, Target Identification and Characterization, closing kill chains, and other emerging applications, with a focus on reducing latencies, data fusion and ground integration. The Spectrum Warfare focus area will continue developing the topologies, Government Reference Architectures, and Capability Area designs for Internet of Things (IoT), Space to Space, Command and Control (C2), and cyber force designs. Spectrum Warfare will also work on a Government Reference Architecture for Position, Navigation, and Timing (PNT) as well as initiate work on logistics, classified communications, and analysis for a communications transition plan. Activities will discover, analyze, and validate technologies, systems, and architectures for the highest priority mission areas, and may expand or contract as dictated by resourcing and priorities.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: The increased funding continues to expand ground and latency assessments, support the alignment of optical standards, stand up Space-Based Environmental Monitoring force design analysis, and evaluate paths forward for DoD unique IoT devices. The funds will also enable expansion and maturing of digital engineering and validation activities by enhancing a networked data simulation capability which can evaluate combinations of government and commercial constellations through Wargaming, software-in-the-loop, and hardware-in-the-loop evaluation. The continued work on C2, cyber, PNT, logistics, and communications from the Spectrum Warfare focus area will help bring together the full strategic picture to ensure communication between senior leaders and their forces in order to protect and defend the nation's interests. These efforts are crucial to allow a better understanding of the communication deltas that need to be resolved to support the Joint fight.</p>				
Accomplishments/Planned Programs Subtotals		0.000	42.300	95.541
D. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
N/A				
E. Acquisition Strategy				
SWAC collaborates with stakeholders and mission partners to access appropriate and existing contract vehicles to focus resources on USSF mission priorities.				

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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 1203622SF / <i>Space Warfighting Analysis</i>				Project (Number/Name) 646021 / <i>Space Warfighting Analysis Center (SWAC)</i>							
Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Space Warfighting Analysis Center (SWAC)	Various	Various - TBD : TBD : TBD	-	-		42.300	Dec 2023	95.541	Dec 2024	-		95.541	Continuing	Continuing	-
Subtotal			-	-		42.300		95.541		-		95.541	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			-	-		42.300		95.541		-		95.541	Continuing	Continuing	N/A
Remarks															

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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 1203622SF / <i>Space Warfighting Analysis</i>	Project (Number/Name) 646021 / <i>Space Warfighting Analysis Center (SWAC)</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Space Warfighting Analysis Center (SWAC)	
Multi-Domain Sensing (MDS) Force Designs	
MDS-Missile Warning/Missile Tracking (MW/MT)	
MDS-Ground, Maritime, and Air Moving Target Indicators (G/M/AMTI)	
MDS-Multi-Mission Orchestration (MMO)	
MDS-Space-Based Environmental Monitoring (SBEM)	
Spectrum Warfare (SW) Force Designs	
SW-Restricted and Internet of Things (RIOT)	
SW-Navigation Warfare (NAVWAR) & Position, Navigation & Timing (PNT)	
SW-Space Logistics (may include launch and on-orbit servicing)	
Force Design Integration (FDI)	
FDI-Concepts & Wargaming	
FDI-Integrated Modeling & Simulation	
FDI-Planning, Programming & Costing	
FDI- Annual Conferences; Capability Area Design(s), and Chief of Space Operations' Force Design Guidance	

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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 1203622SF / <i>Space Warfighting Analysis</i>	Project (Number/Name) 646021 / <i>Space Warfighting Analysis Center (SWAC)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Space Warfighting Analysis Center (SWAC)</i>				
Multi-Domain Sensing (MDS) Force Designs	1	2023	4	2028
MDS-Missile Warning/Missile Tracking (MW/MT)	1	2023	4	2028
MDS-Ground, Maritime, and Air Moving Target Indicators (G/M/AMTI)	1	2023	4	2028
MDS-Multi-Mission Orchestration (MMO)	1	2023	4	2028
MDS-Space-Based Environmental Monitoring (SBEM)	1	2024	4	2028
Spectrum Warfare (SW) Force Designs	1	2023	4	2028
SW-Restricted and Internet of Things (RIOT)	1	2023	4	2028
SW-Navigation Warfare (NAVWAR) & Position, Navigation & Timing (PNT)	1	2023	4	2028
SW-Space Logistics (may include launch and on-orbit servicing)	1	2024	4	2028
Force Design Integration (FDI)	1	2023	4	2028
FDI-Concepts & Wargaming	1	2023	4	2028
FDI-Integrated Modeling & Simulation	1	2023	4	2028
FDI-Planning, Programming & Costing	1	2023	4	2028
FDI- Annual Conferences; Capability Area Design(s), and Chief of Space Operations' Force Design Guidance	1	2023	4	2028