Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force											Date: April 2022	
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 *I Space Warfighting Analysis*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	0.000	44.791	0.000	44.791	76.217	103.870	99.986	100.001	Continuing	Continuing
646021: *Space Warfighting Analysis Center (SWAC)*	-	0.000	0.000	44.791	0.000	44.791	76.217	103.870	99.986	100.001	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2023, funds were transferred from BA04 PE 1203905SF, (Space System Support, Project 646021 Space Warfighting Analysis Center Efforts) to this program-specific, BA04 PE 1203622SF, (Space Warfighting Analysis).

Continuing this program in FY2023 under the program-specific PE is not a "New Start”.

A. Mission Description and Budget Item Justification

As part of the continuing organizational development of the United States Space Force (USSF), a number of analytic functions and missions were aligned under a dedicated Service Force Design activity. To lead Force Design analysis for the Service, USSF established the Space Warfighting Analysis Center (SWAC), aligned under Space Operations Command, in mid-FY 2021, and programmed/budgeted FY 2022 funding to begin their analytic efforts, leveraging an existing USSF Program Element (PE) line tied to architecture/ capability analysis functions. Starting in FY 2023, the SWAC will continue its force design analysis efforts from a dedicated PE (PE 1203622SF Space Warfighting Analysis) and the 3620 Research, Development, Test, & Evaluation (RDT&E) appropriation.

This FY2023 request provides funding for the USSF's SWAC to conduct on-site and off-site analysis, modeling, wargaming, and experimentation to create operational concepts and force design guidance for existing and emerging USSF missions that are realistic, affordable, and resilient. Informed by strategic guidance, SWAC force design analysis identifies the integrated suite of operational capabilities that fulfills USSF imperatives to preserve the United States' freedom of action in space; enable Joint Force lethality and effectiveness; and provide the Department options for developing capabilities operating in, from, and to space. The SWAC will lead physics-based and data-driven analysis, teaming with relevant stakeholders from across the National Security Space enterprise from an independent, "clean slate” perspective, and will provide analytic insight to the Service to inform and/or validate operational requirements and provide a basis for future capability development programs. USSF force design analyses are organized in mission areas 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. The resulting force design products will help define and inform future USSF mission requirements, capabilities/architectures, funding needs and priorities, and interface standards for USSF developed systems, Allied capabilities, and leveraged commercial services. Additionally, USSF intends to rely on these analyses to inform corporate decision making processes for resourcing, policy development, and Joint operational planning. Evaluation of potential force design options includes testing through wargaming and simulation activities; such efforts also support development and maturation of rigorously tested USSF tactics, techniques and procedures (TTP).

SWAC's force design activities are organized in three specific focus areas; Multi-Domain Awareness (MDA), Spectrum Warfare (SW), and Force Design Integration (FDI). Multi-Domain Awareness includes terrestrial sensing from space. This focus area will develop concepts, perform analysis, and conduct validation activities

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involving Missile Warning/Missile Tracking (MW/MT), Multi-Spectral Sensing (MSS) (including Tactical Intelligence, Surveillance, and Reconnaissance (T-ISR)), and Space Based Environmental Monitoring (SBEM) mission areas. The Spectrum Warfare focus area will develop concepts, perform analysis, and conduct validation activities in Space Data Transport (SDT) (includes traditional Satellite Communications), Navigational Warfare (includes Position, Navigation, and Timing (PNT), and space Command and Control (C2)). The Spectrum Warfare focus area will also conduct Space Logistics force design analysis efforts (including space launch and On-orbit Servicing). The Force Design Integration focus area involves the integrated assessment of all space capabilities operating collectively. Specifically, this area creates integrated modeling and simulation environments, assesses combined operational and strategic employment, wargames force design options, provides initial cost effectiveness trades, and evaluates integration of the space and ground capabilities in a joint fight. These rigorous analyses across all three SWAC focus areas will provide detailed and physics-based force design recommendations to USSF leadership which incorporate factors of capability performance, system resilience, and program cost.

The collective force design analytic results of SWAC activities are integrated across the Services and with mission partners, and are a foundational element of the USSF's strategy for building capabilities that are technologically feasible, affordable, and resilient.

Ultimately, the SWAC supports a position of strategic stability, United States advantage in space, and a space warfighting posture that deters aggression and ensures Joint and Coalition warfighters can employ forces in the time, place, manner, and domain of their choosing; ultimately fostering a continued posture enabling the United States to fight and win in space.

It is important to note that this PE is distinctly different and intentionally separate from the Space Security and Defense Program (SSDP) PE. The SWAC's mission is aligned with Service authorities and focuses on USSF-specific priorities, while SSDP, by charter, focuses its efforts on Space Control and related mission areas on behalf of the National Security Space (NSS) enterprise (including DoD and Intelligence Community stakeholders). The SWAC leverages SSDP modeling, simulation, research, and analytic findings for counter-space threats and space control force designs and will execute the non-space control force design activities under this PE.

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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	44.791	0.000	44.791
Total Adjustments	0.000	0.000	44.791	0.000	44.791
• 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	0.000	44.791	0.000	44.791

Change Summary Explanation

In FY 2022, PE 1203905SF, Space System Support, Project 646021 was used for Space Warfighting Analysis Center (SWAC) force design analysis activities. These activities will continue in FY 2023 from a program-specific PE (PE 1203622SF, Space Warfighting Analysis), utilizing the 3620 Research, Development, Test, & Evaluation appropriation.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Space Warfighting Analysis Center (SWAC)	-	0.000	44.791
Description: Space Warfighting Analysis Center (SWAC) concepts, analysis, modeling, wargaming, and experimentation providing Force Design guidance for United States Space Force (USSF). ***FY 2022 Plans:*** N/A ***FY 2023 Plans:*** FY2023 funding will expand the USSF's capability to discover, analyze, and validate mission requirements, operational concepts, and capability development options by creating force designs for prioritized USSF missions. The SWAC will conduct research studies, system design analysis, and wargaming integration prototyping demonstrations across a variety of domains and mission areas to inform USSF force designs for Research, Development, Testing, and Evaluation (RDT&E) purposes. The Multi-Domain Awareness focus area will define options to incorporate multiple phenomenology sensing to address the tactical need to maintain custody of moving targets in the Multi-Spectral Sensing mission area including options for Airborne Moving Target Indicator (AMTI). For the MW/MT mission area, analysis will evaluate options to further integrate tasking and ground processing across the mission to improve capability and resiliency for Missile Defense. The Spectrum Warfare focus area will analyze the Space Data Transport mission area's ability to deliver Narrowband and Tactical Data Links (TDL) capabilities in addition to NAVWAR/			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
PNT resiliency options and preparation for C2 mission area analyses. 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. SWAC products will inform USSF resourcing, policy, and development decisions, as well as operational planning through SWAC's Force Design Integration and Wargaming activities. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased compared to FY 2022 (PE 1203905SF, Space System Support, Project 646021, Space Warfighting Analysis Center Efforts) by $7.791M due to the expansion of Force Design efforts to a broader spectrum of USSF mission areas. The development of expertise, concepts, modeling environments, and experimentation activities across all focus and mission areas will be built up over several years. The increase in FY22 to FY23 adds the initial M&S and assessment of the PNT and NAVWAR areas, adds capability to assess TDL in a multi-domain environment, and begins the evaluation of replacements to narrowband and wideband architectures. It will also initiate validation activities by developing a networked data simulation capability which can evaluate combinations of government and commercial constellations.			
Accomplishments/Planned Programs Subtotals	-	0.000	44.791

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force			Date: April 2022
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Space Warfighting Analysis Center (SWAC)	Various	Various - TBD : TBD : TBD	-	-		-		44.791	Dec 2022	-		44.791	Continuing	Continuing	-
		Subtotal	-	-		-		44.791		-		44.791	Continuing	Continuing	N/A

	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		44.791		-		44.791	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1203622SF / *Space Warfighting Analysis*	**Project (Number/Name)** 646021 / *Space Warfighting Analysis Center (SWAC)*

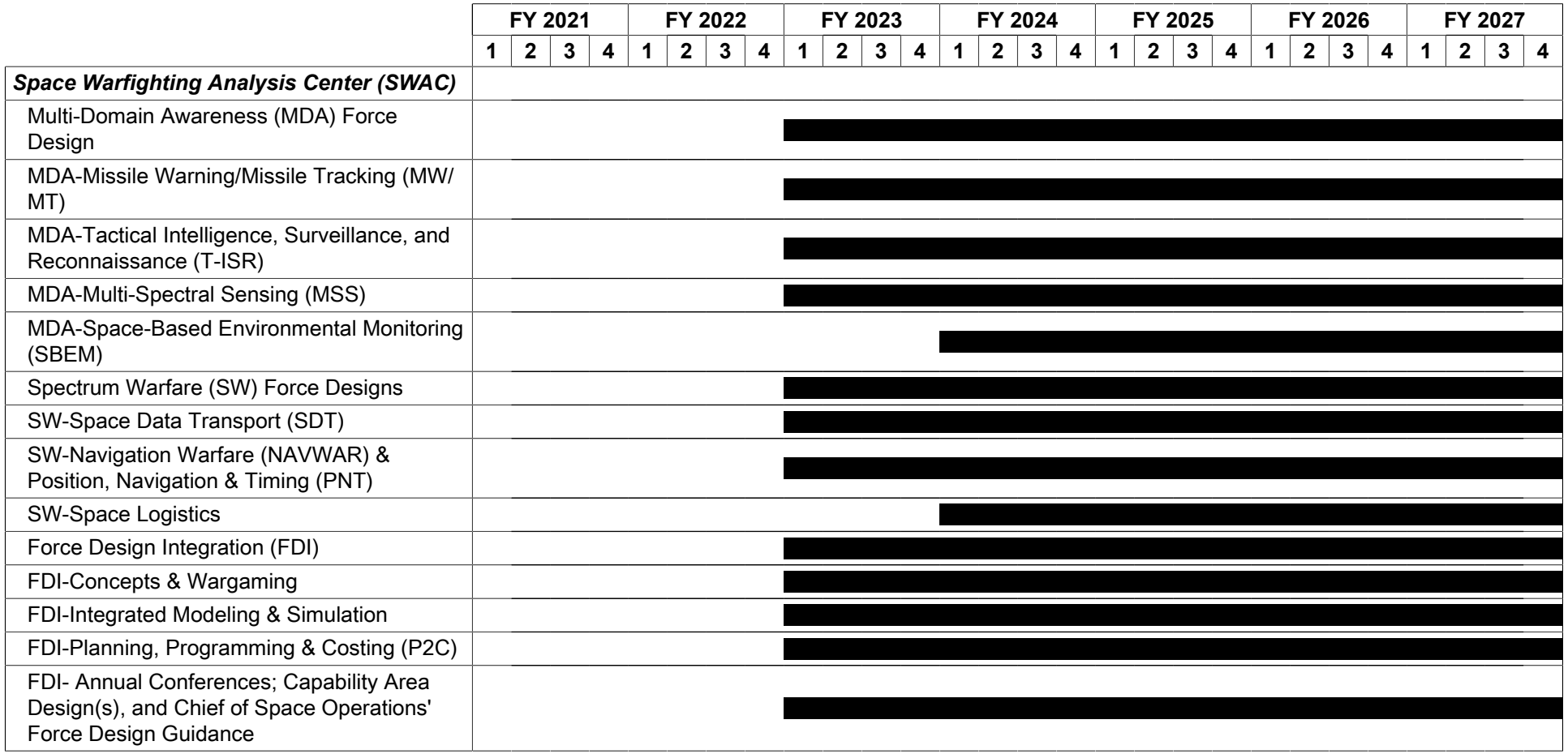

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Space Warfighting Analysis Center (SWAC)				
Multi-Domain Awareness (MDA) Force Design	1	2023	4	2027
MDA-Missile Warning/Missile Tracking (MW/MT)	1	2023	4	2027
MDA-Tactical Intelligence, Surveillance, and Reconnaissance (T-ISR)	1	2023	4	2027
MDA-Multi-Spectral Sensing (MSS)	1	2023	4	2027
MDA-Space-Based Environmental Monitoring (SBEM)	1	2024	4	2027
Spectrum Warfare (SW) Force Designs	1	2023	4	2027
SW-Space Data Transport (SDT)	1	2023	4	2027
SW-Navigation Warfare (NAVWAR) & Position, Navigation & Timing (PNT)	1	2023	4	2027
SW-Space Logistics	1	2024	4	2027
Force Design Integration (FDI)	1	2023	4	2027
FDI-Concepts & Wargaming	1	2023	4	2027
FDI-Integrated Modeling & Simulation	1	2023	4	2027
FDI-Planning, Programming & Costing (P2C)	1	2023	4	2027
FDI- Annual Conferences; Capability Area Design(s), and Chief of Space Operations' Force Design Guidance	1	2023	4	2027