Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force											Date: February 2020	
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 1206438SF / *Space Control Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	0.000	35.575	0.000	35.575	33.339	33.763	34.347	34.898	Continuing	Continuing
642611: *Technology Insertion Planning and Analysis*	-	0.000	0.000	35.575	0.000	35.575	33.339	33.763	34.347	34.898	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In FY 2021, PE 1206438F, Space Control Technology efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1206438SF, Space Control Technology from Appropriation 3600, Budget Activity 04 due to the creation of a new Appropriation for Space Force.

This project supports a range of activities including systems engineering, technology planning, development, demonstrations and prototyping, and testing, as well as modeling, simulations and exercises to support development and maturation of tactics and procedures for a responsive and resilient Space Control mission area. This includes technology development and prototyping for Defensive Counterspace (DCS) and Offensive Counterspace (OCS) and the necessary systems engineering for the warfighter to effectively employ such systems.

Specifically supported are DCS and Space Situational Awareness (SSA) activities which include developing threat warning payloads for monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space. Additionally, this activity supports the development of payload prototypes and space defense force packages for protecting U.S. space systems, resources, and operations from enemy attempts to negate, interfere, or destroy them.

Specific OCS activities include disruption, denial, or degradation (and associated Electronic Support) of adversary space systems which may be used for purposes hostile to U.S. national security interests. Rapid Reaction Capabilities in response to immediate warfighter needs in the Space Control mission area are developed within this program.

Space acquisition must respond with speed and agility to emerging adversary threats. Space & Missile Systems Center (SMC) is transforming 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, SMC will strategically execute experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities.

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

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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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	35.575	0.000	35.575
Total Adjustments	0.000	0.000	35.575	0.000	35.575
• 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	35.575	0.000	35.575

Change Summary Explanation

FY 2021: +$35.575M; funds starting in FY 2021 were transferred from RDT&E, Air Force to RDT&E, Space Force.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Rapid Reaction Branch	0.000	0.000	22.169

Description: Develops advanced capabilities for rapid prototyping and integration into space control programs of record and, if requested, to warfighter Urgent Operational Needs (UONs) and Joint Urgent Operational Needs (JUONs). Conducts prototype capability development, testing, training and rapid transition of technology and techniques to space control systems. Sustains deployed quick reaction capabilities until transition to program of record or mission completion.

FY 2020 Plans:

N/A

FY 2021 Plans:

Develop, test, train, field, transition and sustain advanced rapid reaction capabilities in response to emergent requirements from multiple Combatant Commands. Conduct initial technical development and integration activities against relevant threat systems and technologies in preparation for operational requirements. Develop and test advanced prototypes in support of activities within the Space Control Technology portfolio. Finalize development/testing of urgent/emergent operational needs using Increment 4 GRA technologies. Based on technological advances relevant to the mission area, develop, integrate and evaluate next generation capabilities into GRA Increment 5. Integrate information assurance constructs and controls into developmental

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
platforms to expedite fielding. Execute field development & test activities, at all locations, to verify system performance in the operational environment. Enhance fielded rapid reaction capabilities in response to evolving threats and operator feedback. Rapidly respond and implement system resiliency and situational awareness necessary to operate in the contested space domain. RDT&E funding is required to support this transformation and enable Space Superiority end-to-end integration activities such as, but not limited to, program office support, studies, technical analysis, experimentation, prototyping, architectural development, systems engineering, demonstrations, testing, command and control integration, mission partner integration, and space test/ combat range events. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** N/A			
Title: Space Control Technology Prototype Development ***Description:*** Foundational architecture and prototype development will enable the integration, interoperability and compatibility of new Space Control Technology into space systems. Funds architecture requirements sensors and programs across the space domain and within the Space Control mission area to increase resilience capacity, horizontal integration and technology maturation. ***FY 2020 Plans:*** N/A ***FY 2021 Plans:*** Create and mature systems engineering models for space control scenarios, to include but not limited to Defensive Cyber Operations for Space and On-orbit Experimentation, and consolidate separate program artifacts into an interconnected virtual representation of the enterprise. Exercise those models to determine critical paths and nodes, timing requirements, risks, and opportunities. Define and perform various systems engineering functions, tools, procedures, and best practices to accelerate acquisition of successful and affordable space systems. Conduct end-of-life, IRON JAR/Wolfsat and Army joint experiments. Perform maturation and transition of new technology, and technology needs identification, prioritization, and solution development. 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 2020 to FY 2021 Increase/Decrease Statement:*** N/A	0.000	0.000	13.406
Accomplishments/Planned Programs Subtotals	0.000	0.000	35.575

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
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D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3620F / 4	R-1 Program Element (Number/Name) PE 1206438SF / *Space Control Technology*	Project (Number/Name) 642611 / *Technology Insertion Planning and Analysis*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SCT Counterspace Technology Prototyping/ Rapid Reaction Development	Various	Various : Various	-	-		-		20.610	Oct 2020	-		20.610	Continuing	Continuing	-
SCT Prototype Development	C/FFP	TBD : El Segundo, CA	-	-		-		13.406	Dec 2020	-		13.406	Continuing	Continuing	-
		Subtotal	-	-		-		34.016		-		34.016	Continuing	Continuing	N/A

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS	Various	Various : Various, CA	-	-		-		1.559	Jan 2021	-		1.559	Continuing	Continuing	-
		Subtotal	-	-		-		1.559		-		1.559	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		0.000		35.575		-		35.575	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206438SF / *Space Control Technology*	**Project (Number/Name)** 642611 / *Technology Insertion Planning and Analysis*

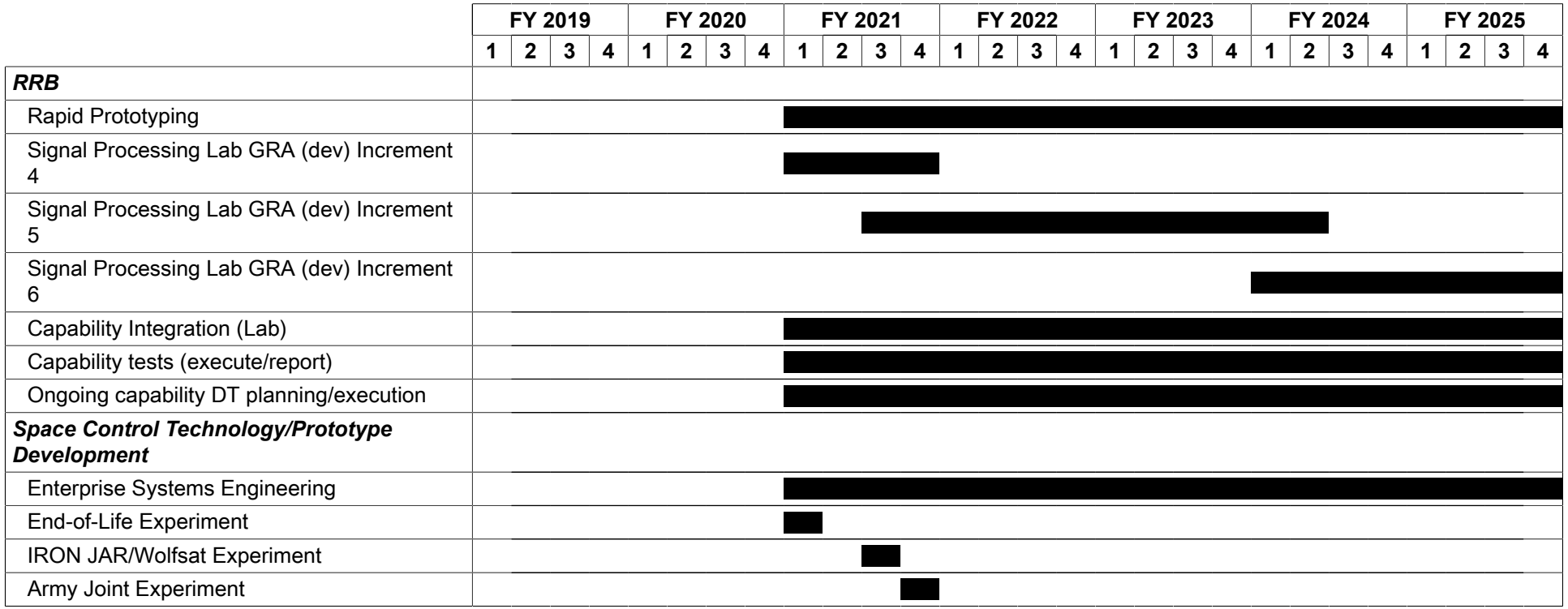

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3620F / 4	**R-1 Program Element (Number/Name)** PE 1206438SF / *Space Control Technology*	**Project (Number/Name)** 642611 / *Technology Insertion Planning and Analysis*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
RRB				
Rapid Prototyping	1	2021	4	2025
Signal Processing Lab GRA (dev) Increment 4	1	2021	4	2021
Signal Processing Lab GRA (dev) Increment 5	3	2021	2	2024
Signal Processing Lab GRA (dev) Increment 6	1	2024	4	2025
Capability Integration (Lab)	1	2021	4	2025
Capability tests (execute/report)	1	2021	4	2025
Ongoing capability DT planning/execution	1	2021	4	2025
Space Control Technology/Prototype Development				
Enterprise Systems Engineering	1	2021	4	2025
End-of-Life Experiment	1	2021	1	2021
IRON JAR/Wolfsat Experiment	3	2021	3	2021
Army Joint Experiment	4	2021	4	2021