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 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 1206116SF *I Space Test and Training Range Development*

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	-	50.671	21.328	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	71.999
666156: *Space Test and Training Range Development*	-	50.671	21.328	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	71.999
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2024, Project 666156, Space Test and Training Range Development efforts were transferred to PE 1206759SF, Major T&E Investment - Space, Project 664598, Air Force Test Investments, in order to consolidate and provide transparency for overall National Space Test and Training Complex (NSTTC) efforts.

A. Mission Description and Budget Item Justification

Supports the development of Space Test and Training Range (STTR) capabilities critical for developmental and operational test, training, exercises and tactics development for Space Control systems and Joint National Space Architecture. Includes development, demonstration and delivery of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Provides a safe, secure, controllable and repeatable environment for the testing of space control mission systems and training operators in both realistic and relevant environments. Additionally, using an agile incremental development approach for range capabilities, this program develops test range assets for both the fixed node Space Range Operations Center (SROC) at Schriever Space Force Base and a deployable Signal Monitoring Unit capability to support complex Joint, AF and SF exercises. The virtual range as part of the Family of Systems (FoS), called Advanced Threat Simulation Environment (ATSE) virtual range, is being developed to accomplish the STTR mission. ATSE integrates to a Distributed Mission Architecture, tying into cyber, air, and space ranges for increased realism and complexity required to prepare space operators for real-world threats. This technology will allow for the first-ever use of a realistic signal environment to increase the realism and efficiency of space control squadron training. These risk reduction activities will include on-orbit capabilities, ground components, communication between nodes, and other required infrastructure.

The National Space Test and Training Complex (NSTTC) is the overarching complex designed to encompass all space test and training range capabilities. It includes two pillars, for Electronic Warfare (NSSTC-EW) and Cyber Warfare (NSSTC-C). STTRD provides capabilities for NSTTC-EW.

Space acquisition must respond with speed and agility to emerging adversary threats. The Space Systems Command (SSC) has transformed the organization and implementation of space acquisition to an enterprise approach, to increase 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 repurpose existing capabilities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver STTR 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 program is in Budget Activity 6, RDT&E Management Support because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	69.819	21.453	21.873	0.000	21.873
Current President's Budget	50.671	21.328	0.000	0.000	0.000
Total Adjustments	-19.148	-0.125	-21.873	0.000	-21.873
• 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	-17.500	0.000			
• SBIR/STTR Transfer	-1.648	-0.125			
• Other Adjustments	0.000	0.000	-21.873	0.000	-21.873

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 666156: *Space Test and Training Range Development*		
Congressional Add: *Cyber Training Range and Advanced Threat Simulation Environment*	30.961	-
Congressional Add Subtotals for Project: 666156	30.961	-
Congressional Add Totals for all Projects	30.961	-

Change Summary Explanation

FY 2022: -17.500M; reprogrammed from PE 1206116SF to PE 0304369F, Cyber Capabilities Support Office (CCSO), to consolidate execution of funding for National Space Test and Training Complex (NSTTC) efforts.

FY 2024: -21.873M transfer of funding to PE 1206759SF, Major T&E Investment - Space, to consolidate NSTTC efforts.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Range Control	15.721	17.300	0.000
Description: Continue development of virtual range integration with cyber and air ranges hosting network emulators and other environments allowing tactics, techniques, and procedures (TTP) development, realistic operational testing, and enable more realistic exercises integrating joint air, space and cyber effects. Continue overhaul of fixed range capabilities, replacement of obsolete equipment, outdated servers, and performing software upgrades focusing on updating signal monitoring hardware with			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
visualization tools and new monitoring capabilities and cybersecurity automation. Implement system resiliency and situational awareness necessary to operate in the contested space domain. Acquire additional system capability to enable and enhance training against new and emerging adversarial assets, to integrate mission scenarios into one graphic user interface, to develop transportable range operations center to provide flexible range control capability for multiple sites, to reduce size, weight, and power, and to replace software defined radio cards. Integrate joint DoD solutions for counterspace and space superiority effects. ***FY 2023 Plans:*** Continue development of a new range future framework capability to integrate into the JSpEA, expanding the range mission to increase/enhance capabilities and operations to keep up with current and emerging space threats. Continue range development to utilize a common sustainable baseline, common user interface (UI), and common tools needed to operate under a common system architecture. Continue to integrate joint DoD solutions for counterspace and space superiority effects. Continue risk reduction/mitigation efforts for Space Orbital Engagement Range to analyze, prototype and demonstrate potential range systems to support live testing of new advanced development space systems, space operator orbital engagement maneuvers (OEM) advanced training, and future SPACE FLAG exercises using live systems. Begin development of deployable range (DRange) capability to provide flexible range control in support of operational requirements. DRange capability will include monitoring, control and status, logging, for upgraded Deployable Signal Monitoring Units (D-SMU) operations. Development of a DRange prototype to demonstrate range control capabilities from operational locations. Additionally, FY 2023 funding will allow the program to 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: studies, technical analysis, risk reduction experiments and prototyping, integration and test of command and control (C2), resiliency measures and mission partner interfaces, space test/combat range events, and office support etc. ***FY 2024 Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 decreased due to transfer of STTRD effort to PE 1206759SF, Major T&E Investment, Project 664598, Air Force Test Investments.			
Title: Management Services ***Description:*** A&AS, FFRDC, and other Program Office Support	3.989	4.028	0.000

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
FY 2023 Plans: Management Services ***FY 2024 Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 decreased due to transfer of STTRD effort to PE 1206759SF, Major T&E Investment, Project 664598, Air Force Test Investments.			
Accomplishments/Planned Programs Subtotals	19.710	21.328	0.000

	FY 2022	FY 2023
Congressional Add: Cyber Training Range and Advanced Threat Simulation Environment	30.961	-
FY 2022 Accomplishments: Support development of the National Space Test and Training Complex - Electronic Warfare (NSTTC - EW) which will provide a next-gen over-the-air and closed-loop environment to support the future EW systems and integrated warfighter training; Integrating both environments under the Joint Space Enterprise Architecture (JSpEA). Develop realistic threat-informed environments with cyber defense capabilities in partnership with Air Force Cyber Command (AFCYBER) and Defensive Cyber Ops-Space (DCO-Space) to support mission defense teams, cyber aggressors, and cyber test and evaluation units, and enable realistic exercises at Space Flag and other events with cyber operators. Seed prototype space test and evaluation lab for cyber resiliency testing of space mission systems.		
Congressional Adds Subtotals	30.961	-

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.