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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1203182F / <i>Spacelift Range System (SPACE)</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	20.128	0.000	0.000	0.000	0.000	-	-	-	-	-	-
674137: <i>Launch and Test Range System (LTRS) Modernization</i>	-	20.128	0.000	0.000	0.000	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

In FY2021, PE 1203182F, Spacelift Range System,(Space) efforts were transferred to Appropriations 3620, Research, Development, Test & Evaluation, Space Force, PE 1203182SF Spacelift Range System (Space) from Appropriation 3600, Budget Activity 07 due to the creation of a new Appropriations for Space Force.

FY 2020 received a Congressional mark that increases by 10M for space launch services. That increase and enacted request was not accounted for correctly in the database and reflected a -15M overall reduction. The correct total for LTRS in FY 2020 is 20.837M, not 5.837M.

The Spacelift Range System (SLRS), also known as the Launch and Test Range System (LTRS), provides public safety and assured access to space. LTRS operates at the Eastern Range (ER) at Patrick AFB/Cape Canaveral AFS, FL and the Western Range (WR) at Vandenberg AFB, CA. LTRS provides tracking, telemetry, communications, flight safety, and other capabilities to support launch of national security space (NSS), civil and commercial space payloads, Intercontinental and Sea Launched ballistic missile and missile defense evaluations, and aeronautical and guided weapon tests. LTRS enables national security, civil, and commercial spacelift operations to be conducted safely; together with national security space launch capability, LTRS provides assured access to space for the nation. The ER and WR are designated as Department of Defense Major Range and Test Facility Bases (MRTFB).

LTRS is comprised of twelve subsystems that together provide this capability to the ranges. The Range Safety and Command Destruct subsystems provide the capability to destroy an errant rocket, if necessary to protect public safety. These subsystems rely on the Telemetry, Radar, and Optics subsystems to provide tracking data. The Weather and Surveillance subsystems allow range operators and customers to determine if conditions are safe for launch. The Communications, Data Handling, and Timing & Sequencing subsystems ensure critical data is expeditiously routed from remote sensors (e.g. radars, optics) to range operators and customers. Finally, the Planning and Scheduling subsystem ensures all assets are available when needed for a launch or test operation.

The Air Force requires RDT&E funds to conduct digital data processing and transport prototype and proof of concept projects supporting Range of the Future (ROTF) launch operations. Funds will provide engineering and analysis to develop promising technology and validate LTRS architecture ability to meet the accelerating National launch requirement and introduce advanced data transport formats. These include demonstration of virtualized and remote data processing as well as dispersed and disaggregated flight tracking. Funds can be used to support sustainment of Major Range and Test Facility Base (MRTFB) activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver LTRS weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 1206392F and 1206398F.

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Funding in this exhibit was previously budgeted in PE 0305182F, Space Lift Range System.

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

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	5.837	0.000	0.000	0.000	0.000
Current President's Budget	20.128	0.000	0.000	0.000	0.000
Total Adjustments	14.291	0.000	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	10.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.709	0.000			
• Other Adjustments	5.000	0.000	0.000	0.000	0.000

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 674137: *Launch and Test Range System (LTRS) Modernization*

Congressional Add: *Launch Range Services and Capability*

	FY 2020	FY 2021
Congressional Add Subtotals for Project: 674137	10.000	-
Congressional Add Totals for all Projects	10.000	-

Change Summary Explanation

FY2020: +\$10M Congressional addition for space launch services and capability
Also +\$5M correction of topline funding level.

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
Title: LTRS Range Technology Integration Description: Provides Advisory and Assistance Services (A&AS) support of the operational baseline (all twelve subsystems) to include configuration management of all range assets, requirements analyses, and special studies. Provides support for Systems Program Office operations, Systems Engineering and Technical Assistance (SETA), and Federally Funded Research and Development Centers (FFRDC). Strategically executes experimentation, prototyping, risk reduction, and other efforts to develop new or repurpose capabilities. FY 2021 Plans: N/A FY 2022 Plans: N/A		6.965	0.000	0.000
Title: Enterprise Systems Engineering and Integration to Support Government-Controlled Baseline Description: SE&I manages the government controlled system and subsystem level baseline requirements including analysis of future changes to the fielded baseline. SE&I provides "government as the integrator" engineering support to ensure multiple separate modernizations and the sustainment baseline are synchronized. SE&I will develop and recommend investment strategies to keep the Eastern and Western Ranges operating well beyond the FYDP. FY 2021 Plans: N/A FY 2022 Plans: N/A		3.163	0.000	0.000
Accomplishments/Planned Programs Subtotals		10.128	0.000	0.000
		FY 2020	FY 2021	
Congressional Add: Launch Range Services and Capability FY 2020 Accomplishments: N/A		10.000	-	
Congressional Adds Subtotals		10.000	-	

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• SPAF 01 Line Item SPRNGE: <i>Spacelift Range System Space</i>	116.654	-	-	-	-	-	-	-	-	-	-
• RDTE 07 1203110F: <i>Satellite Control Network (SPACE)</i>	54.850	-	-	-	-	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

Due to fielded LTRS age and obsolescence issues, many systems need to be replaced (e.g. communications systems at ER and WR). These major modifications will be competed, typically among small business contractors, and selected through best value source selections. The competitively-selected SE&I contractor manages government controlled requirements and processes as well as provide support to the "government as the integrator" between LTRS Integrated Support Contract (LISC) and separately competed modernization projects. FFRDC provides mission assurance oversight to ensure capabilities meet operational need.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Enterprise Systems Engineering and Integration	C/FPIF	ENSCO INC : Falls Church, VA	-	3.600	Oct 2019	-		-		-		-	-	-	-
LTRS Range of the Future (ROTF) Technology Integration	C/Various	Various : TBD	-	6.338	May 2020	-		-		-		-	-	-	-
Launch Range Services and Capability	MIPR	NASA : Wallops, VA	-	9.600	Mar 2020	-		-		-		-	-	-	-
Subtotal			-	19.538		-		-		-		-	-	-	N/A

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
FFRDC	RO	Aerospace : El Segundo, CA	-	0.406	Nov 2019	-		-		-		-	-	-	-
OTHER SUPPORT	PO	Various : El Segundo, CA	-	0.184	Nov 2019	-		-		-		-	-	-	-
Subtotal			-	0.590		-		-		-		-	-	-	N/A

			Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	20.128	0.000	-	-	-	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
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FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
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

LTRS	
Range Technology Integration	██████████
Enterprise SE&I	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
LTRS				
Range Technology Integration	1	2020	4	2020
Enterprise SE&I	1	2020	4	2020