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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 1203182F I Spacelift Range System (SPACE)							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	5.708	11.867	10.549	0.000	10.549	10.721	10.918	11.106	11.335	Continuing	Continuing
674137: Launch and Test Range System (LTRS) Modernization	-	5.708	11.867	10.549	0.000	10.549	10.721	10.918	11.106	11.335	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY2018, PE 0305182F, Spacelift Range System efforts were transferred to PE 1203182F, Spacelift Range System due to the creation of a new Major Force Program for Space. FY2016 and FY2017 funding is now documented in the exhibits for PE 1203182F.

## A. Mission Description and Budget Item Justification

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.

As aging range systems exhibit decreasing reliability, leading to higher operations and maintenance costs and increasing the risk of launch delays, the Air Force requires RDT&E funds to conduct architecture analyses to optimize investment planning for safety of flight (such as the use of drones, high definition optics, phased-array radars etc.), commercial launch, Space Warfighter Construct, and Space Enterprise Vision implementation.

This program activity 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.

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B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	6.881	11.867	10.518	0.000	10.518
Current President's Budget	5.708	11.867	10.549	0.000	10.549
Total Adjustments	-1.173	0.000	0.031	0.000	0.031
• 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	-1.173	0.000			
• Other Adjustments	0.000	0.000	0.031	0.000	0.031
C. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2016	FY 2017	FY 2018		
Title: Systems Engineering Support to Operational Baseline	3.133	7.654	6.453		
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).					
FY 2016 Accomplishments: Managed the baseline (all twelve subsystems) to include configuration management of all range assets, requirements, analysis, and special studies.					
FY 2017 Plans: Manage the baseline (all twelve subsystems) to include configuration management of all range assets, requirements, analysis, and special studies.					
FY 2018 Plans: Continue to manage the baseline (all twelve subsystems)to include configuration management of all range assets, requirements, analysis and special studies.					
Title: Enterprise Systems Engineering and Integration to Support Government-Controlled Baseline	2.575	4.213	4.096		
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					

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>										<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>
strategies to keep the Eastern and Western Ranges operating well beyond the FYDP. The current contract will transition to a Range and Network Enterprise SE&I contract in FY 2017.												
<b>FY 2016 Accomplishments:</b> Continued independent SE&I efforts as required to integrate modernization and sustainment efforts into future ranges. Provided systems and subsystem level definition, baseline, architecture, integration planning and support for future ranges.												
<b>FY 2017 Plans:</b> Continue independent SE&I efforts as required to integrate modernization and sustainment efforts into future ranges. Provide systems and subsystem level definition, baseline, architecture, integration planning and support for future ranges. Award Enterprise SE&I contract.												
<b>FY 2018 Plans:</b> Continue independent SE&I efforts as required to integrate modernization and sustainment efforts into future ranges. Provide systems and subsystem level definition, baseline, architecture, integration planning and support for future ranges.												
<b>Accomplishments/Planned Programs Subtotals</b>										5.708	11.867	10.549
<b>D. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• SPAF: BA01: Line Item #SPRNGE: <i>Spacelift Range System Space</i>	103.275	123.088	113.874	0.000	113.874	133.474	123.248	110.325	112.580	Continuing	Continuing	
<b>Remarks</b>												
<b>E. Acquisition Strategy</b> Due to the fielded LTRS age and obsolescence issues, many systems need to be replaced (e.g. communications systems at ER & 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.												
<b>F. Performance Metrics</b> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.												

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>												<b>Date: May 2017</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 1203182F / <i>Spacelift Range System (SPACE)</i>						<b>Project (Number/Name)</b> 674137 / <i>Launch and Test Range System (LTRS) Modernization</i>			
<b>Product Development (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SLRS Enterprise Systems Engineering and Integration	C/CPIF	Booz Allen Hamilton : McLean, VA	-	2.575	Dec 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Enterprise Systems Engineering and Integration	C/TBD	TBD : TBD	-	0.000		4.213	Oct 2016	4.096	Oct 2017	0.000		4.096	Continuing	Continuing	-
Range Technology Integration	C/Various	Various : TBD	-	1.986	May 2016	6.986	May 2017	5.799	May 2018	0.000		5.799	Continuing	Continuing	-
<b>Subtotal</b>			-	4.561		11.199		9.895		0.000		9.895	-	-	-
<b>Remarks</b> Product Development: The AF is recompeting the Systems Engineering and Integration Contract in FY 2017.															
<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
TEST AND EVALUATION (WS)	Various	MIT, 17th Test Squad, NAVAIR : Various	-	0.000		0.000		0.000		0.000		0.000	Continuing	Continuing	-
<b>Subtotal</b>			-	0.000		0.000		0.000		0.000		0.000	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>												<b>Date:</b> May 2017			
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<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
FFRDC	RO	Aerospace : El Segundo, CA	-	0.857	Nov 2015	0.431	Nov 2016	0.444	Nov 2017	0.000		0.444	Continuing	Continuing	-
OTHER SUPPORT	PO	Various : El Segundo, CA	-	0.290	Nov 2015	0.237	Nov 2016	0.210	Nov 2017	0.000		0.210	Continuing	Continuing	-
<b>Subtotal</b>			-	1.147		0.668		0.654		0.000		0.654	-	-	-

  

	<b>Prior Years</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	5.708	11.867	10.549	0.000	10.549	-	-	-

  

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> FY 2018 Air Force			<b>Date:</b> May 2017		
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 1203182F / <i>Spacelift Range System (SPACE)</i>		
			<b>Project (Number/Name)</b> 674137 / <i>Launch and Test Range System (LTRS) Modernization</i>		

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
SLRS Enterprise SE&I																												
Range Technology Integration																												
Enterprise SE&I																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
SLRS Enterprise SE&I	1	2016	4	2016
Range Technology Integration	1	2016	4	2021
Enterprise SE&I	1	2017	1	2022