

**UNCLASSIFIED**

PE NUMBER: 0305182F  
 PE TITLE: Spacelift Range System

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2007</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305182F Spacelift Range System</b>
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	49.515	38.900	27.300	12.559	10.311	10.428	10.629	10.845	Continuing	TBD
4137 Launch and Test Range System (LTRS) Modernization	49.515	38.900	27.300	12.559	10.311	10.428	10.629	10.845	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The Eastern Range (ER) at Patrick Air Force Base (AFB)/Cape Canaveral Air Force Station , FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS). They provide tracking, telemetry, communications, flight analysis, and other capabilities necessary to safely conduct: national security, civil, and commercial spacelift operations; ballistic missile and missile defense evaluations; and aeronautical and guided weapons tests. Many range assets are obsolete, unreliable, inefficient, and costly to operate and maintain. Reliability has been a major issue due to reliance on equipment such as 25-year old computers, 1960s vintage high frequency transmitters, wire-wrap circuit boards, etc. As a result, multiple assets are employed for redundancy during launches to ensure availability of range support.

The AF is addressing range deficiencies through two contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications segments at both ranges. Systems being modernized include: weather; communications (voice, video, data, and timing; network management system; and digital telemetry); planning and scheduling; and flight operations and analysis. Second, the SLRS Contract (SLRSC) modernizes command, telemetry, and radar instrumentation at both ranges and supports activation of the WR Operations Control Center. It also provides overall systems engineering and architecture management, follow-on modernization of the control/display and communications segments, and system level testing to complete the modernization effort. Some examples of the most recent deliveries on these two contracts include: automated planning and network management systems; digital telemetry systems; and optical system upgrades. FY08 and FY09 funds continue these modernization, system engineering, testing and architectural management efforts.

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

## Exhibit R-2, RDT&amp;E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305182F Spacelift Range System

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	49.081	38.044	27.045	12.408
(U) Current PBR/President's Budget	49.515	38.900	27.300	12.559
(U) Total Adjustments	0.434			
(U) Congressional Program Reductions	-0.001			
Congressional Rescissions		-0.144		
Congressional Increases		1.000		
Reprogrammings	1.144			
SBIR/STTR Transfer	-0.709			
(U) <b><u>Significant Program Changes:</u></b>				
FY06: AF added \$1.144M to fund Western Range Ops Control Center Activation				
FY07: Congress added \$1M to fund continuation of California Space Infrastructure Program				

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2007**

BUDGET ACTIVITY <b>07 Operational System Development</b>					PE NUMBER AND TITLE <b>0305182F Spacelift Range System</b>			PROJECT NUMBER AND TITLE <b>4137 Launch and Test Range System (LTRS) Modernization</b>		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4137 Launch and Test Range System (LTRS) Modernization	49.515	38.900	27.300	12.559	10.311	10.428	10.629	10.845	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

The Eastern Range (ER) at Patrick Air Force Base (AFB)/Cape Canaveral Air Force Station, FL, and the Western Range (WR) at Vandenberg AFB, CA, make up the Spacelift Range System (SLRS). They provide tracking, telemetry, communications, flight analysis, and other capabilities necessary to safely conduct: national security, civil, and commercial spacelift operations; ballistic missile and missile defense evaluations; and aeronautical and guided weapons tests. Many range assets are obsolete, unreliable, inefficient, and costly to operate and maintain. Reliability has been a major issue due to reliance on equipment such as 25-year old computers, 1960s vintage high frequency transmitters, wire-wrap circuit boards, etc. As a result, multiple assets are employed for redundancy during launches to ensure availability of range support.

The AF is addressing range deficiencies through two contracts. First, the Range Standardization and Automation (RSA) Phase IIA contract modernizes the control/display and communications segments at both ranges. Systems being modernized include: weather; communications (voice, video, data, and timing; network management system; and digital telemetry); planning and scheduling; and flight operations and analysis. Second, the SLRS Contract (SLRSC) modernizes command, telemetry, and radar instrumentation at both ranges and supports activation of the WR Operations Control Center. It also provides overall systems engineering and architecture management, follow-on modernization of the control/display and communications segments, and system level testing to complete the modernization effort. Some examples of the most recent deliveries on these two contracts include: automated planning and network management systems; digital telemetry systems; and optical system upgrades. FY08 and FY09 funds continue these modernization, system engineering, testing and architectural management efforts.

These upgrades to fielded systems are categorized as Budget Activity 7, Operational Systems Development.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Complete RSA Phase IIA development, test, and evaluation of planning/ scheduling; communications; weather; and flight operations/analysis systems. Complete integration of systems into WR Operations Control Center.	30.842	27.413	13.100	
(U) Continue SLRSC systems engineering, instrumentation modernization, and systems integration. Continue development, test, and evaluation of command destruct, telemetry, and radar instrumentation and local control interfaces. Continue activation of operational centers in WR Operations Control Center.	16.716	9.519	13.700	12.281
(U) Provide program support, to include System Program Office operations, SETA, FFRDC, and Systems Engineering and Integration.	0.998	1.000	0.500	0.278

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0305182F Spacelift Range System</b>	PROJECT NUMBER AND TITLE <b>4137 Launch and Test Range System (LTRS) Modernization</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Funds added by Congress for California Space Authority (CSA) to continue California Space Infrastructure Program.	0.959	0.968		
(U) Total Cost	49.515	38.900	27.300	12.559

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) OPAF ( Spacelift Range System Space, P-65, BA 03)	104.142	119.686	122.559	103.384	105.557	106.914	109.013	111.172	Continuing	TBD
(U) OPAF (Spares and Repair Parts, P-103, BA 05)	2.860	2.793	2.932	2.998	3.040	3.089	3.149	3.211	Continuing	TBD

(U) **D. Acquisition Strategy**  
 The AF is using two competitively awarded, complementary contracts, managed by the Space and Missile Systems Center, to modernize the ranges on a minimal-interference basis as they continue to support operational launches and tests.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0305182F Spacelift Range System</b>	<b>PROJECT NUMBER AND TITLE</b> <b>4137 Launch and Test Range System (LTRS) Modernization</b>
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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2006 Cost</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u> RSA Phase IIA	C/CPAF	Lockheed Martin, Santa Maria, CA	257.559	30.842	Oct-05	27.413	Oct-06	13.100	Oct-07			0.000	328.914	TBD
SLRSC	C/CPAF	ITT Industries, Cape Canaveral, FL	118.400	16.716	Oct-05	9.519	Oct-06	13.700	Oct-07	12.281	Oct-08	Continuing	TBD	TBD
Subtotal Product Development			375.959	47.558		36.932		26.800		12.281		Continuing	TBD	TBD
Remarks:														
<u>(U) Support</u> SPO Program Support (FFRDC, SETA, SPO Ops) California Space Authority Studies/Projects	Various	Various	34.114	0.998	Oct-05	1.000	Oct-06	0.500	Oct-07	0.278	Oct-08	Continuing	TBD	TBD
Subtotal Support			66.540	1.957	Jun-06	0.968		0.500		0.278		Continuing	TBD	TBD
Remarks:														
<u>(U) Total Cost</u>			442.499	49.515		38.900		27.300		12.559		Continuing	TBD	TBD

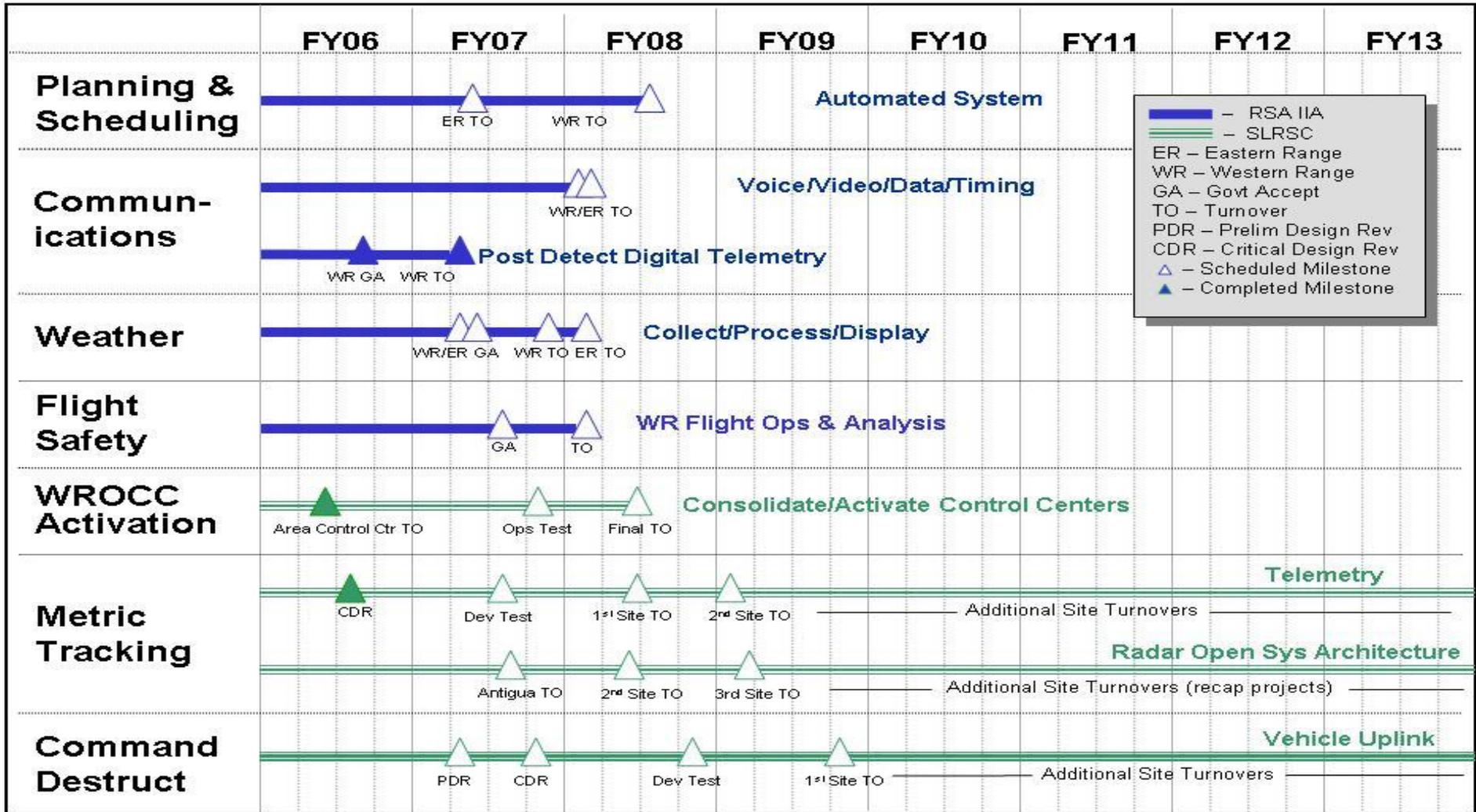
Exhibit R-4, RDT&E Schedule Profile

DATE  
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BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0305182F Spacelift Range System

PROJECT NUMBER AND TITLE  
4137 Launch and Test Range System (LTRS) Modernization



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Exhibit R-4a, RDT&E Schedule Detail		DATE
BUDGET ACTIVITY <b>07 Operational System Development</b>		<b>February 2007</b>
PE NUMBER AND TITLE <b>0305182F Spacelift Range System</b>		PROJECT NUMBER AND TITLE <b>4137 Launch and Test Range System (LTRS) Modernization</b>
<b>(U) <u>Schedule Profile</u></b>	<u>FY 2006</u>	<u>FY 2007</u>
(U) RSA Phase IIA		<u>FY 2008</u>
(U) - Planning & Scheduling ER Operational (Ops) Turnover		<u>FY 2009</u>
(U) - Planning & Scheduling WR Ops Turnover		
(U) - Communications (Voice/Video/Data/Timing) ER Final Ops Turnover		2Q
(U) - Communications (Voice/Video/Data/Timing) WR Final Ops Turnover		3Q
(U) - Communications (Post Detect Digital Telemetry) WR Govt Acceptance	3Q	1Q
(U) - Communications (Post Detect Digital Telemetry) WR Ops Turnover		1Q
(U) - Weather WR Final Govt Acceptance		2Q
(U) - Weather ER Final Govt Acceptance		2Q
(U) - Weather WR Final Ops Turnover		4Q
(U) - Weather ER Final Ops Turnover		1Q
(U) - Flight Safety (WR Flight Ops & Analysis) Govt Acceptance		3Q
(U) - Flight Safety (WR Flight Ops & Analysis) Ops Turnover		2Q
(U) - Contract Closeout		4Q
(U) SLRS Contract		
(U) - WR Ops Control Center (WROCC) Area Control Center Activation	2Q	
(U) - WR Ops Control Center (WROCC) Operational Testing		4Q
(U) - WR Ops Control Center (WROCC) Final Turnover		2Q
(U) - Metric Tracking (Telemetry) Critical Design Review	3Q	
(U) - Metric Tracking (Telemetry) Developmental Test & Evaluation		3Q
(U) - Metric Tracking (Telemetry) 1st Site Turnover		2Q
(U) - Metric Tracking (Telemetry) 2nd Site Turnover		
(U) -Metric Tracking (Radar Open System Architecture) 1st Site Turnover		3Q
(U) -Metric Tracking (Radar Open System Architecture) 2nd Site Turnover		2Q
(U) -Metric Tracking (Radar Open System Architecture) 3rd Site Turnover		
(U) - Command Destruct (Vehicle Uplink) Preliminary Design Review		2Q
(U) - Command Destruct (Vehicle Uplink) Critical Design Review		4Q
(U) - Command Destruct (Vehicle Uplink) Developmental Test		4Q
(U) - Command Destruct (Vehicle Uplink) 1st Site Turnover		
		1Q
		4Q