

UNCLASSIFIED

PE NUMBER: 0305910F
 PE TITLE: SPACETRACK

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2007
---	-------------------------------------

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK
--	--

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	182.779	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	432.178
4930 Space Based Space Surveillance	107.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	252.038
5011 Space Situational Awareness Initiatives	14.469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.043
A008 Sensor Service Life Extension Programs (Sensor SLEPs)	34.096	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.397
A009 Orbital Deep Space Imager (ODSI)	20.302	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.800
A015 Space Fence	6.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.900

In FY 2007 these projects all transferred to PE 0604425F, Space Situation Awareness Systems, to reflect evolution of space surveillance to the Space Situation Awareness construct, with two exceptions: Project 67A008 transferred to PE 0305940F, Space Situation Awareness Operations, for the same reason, and Project 67A009 was terminated in FY 2006 rather than transferred to another PE.

(U) A. Mission Description and Budget Item Justification

The Spacetrack program element funds a worldwide network of electro-optical and radar sensors that conduct surveillance of objects in Earth orbit to aid tasks including satellite tracking; space object identification and cataloging; satellite attack warning; notification to U.S. forces of satellite flyovers; space treaty monitoring; and technical intelligence gathering. Ongoing modernization efforts are upgrading existing sensors, improving data integration across the sensor network, and developing new network sensors in order to meet current and emerging requirements for Space Situation Awareness (SSA). Spacetrack activities transferred to new SSA program elements in FY 2007 to reflect evolution to the SSA concept.

All development efforts in this program element are in Budget Activity 7, Operational Systems Development, because they develop, field, modify, and integrate sensors within the operational SSA network.

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

(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	164.190	0.000	0.000	0.000
(U) Current PBR/President's Budget	182.779	0.000	0.000	0.000
(U) Total Adjustments	18.589			
(U) Congressional Program Reductions				
Congressional Rescissions	-0.005			
Congressional Increases				
Reprogrammings	22.154			
SBIR/STTR Transfer	-3.560			

(U) **Significant Program Changes:**

FY 2006: +\$5.5M Omnibus reprogram and +\$3.9M below threshold reprogram to fund Haystack radar antenna cost growth; +\$10.0M Omnibus reprogram and +\$2.8M below threshold reprogram to fund Space-Based Space Surveillance program cost growth

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305910F SPACETRACK			PROJECT NUMBER AND TITLE 4930 Space Based Space Surveillance		
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
4930 Space Based Space Surveillance	107.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	252.038
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2007 this effort transferred to Project 65A006, Space Based Space Surveillance, in PE 0604425F, Space Situation Awareness Systems, to reflect evolution of space surveillance to the new Space Situation Awareness construct. The full FY 2006 - FY 2013 schedule for it is included here for clarity, but refer to the RDT&E Budget Item Justification for that PE for further information on funding and activities after FY 2006.

(U) A. Mission Description and Budget Item Justification

Building upon the success of the Space-Based Visible technology demonstration, which proved the utility of surveilling orbiting objects from space, the Space-Based Space Surveillance (SBSS) project will develop a constellation of optical sensing satellites to search, detect, and track objects in Earth orbit. It will accomplish this via collecting and processing space object identification and satellite metric data, then communicating it to command and control nodes. Migrating surveillance to space augments existing ground sensors with timely 24-hour, all-weather object search capabilities. In conjunction with information from other Space Situation Awareness network sensors, SBSS data will enable more timely detection and tracking of space objects, particularly those in geosynchronous orbits.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Block 10 design, development, and risk reduction	91.241	0.000	0.000	0.000
(U) Block 10 launch vehicle integration	4.372	0.000	0.000	0.000
(U) Block 20 concept studies	0.302	0.000	0.000	0.000
(U) Program operations and Systems Engineering & Integration	11.097	0.000	0.000	0.000
(U) Total Cost	107.012	0.000	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u> <u>Actual</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) RDT&E, Air Force (PE 0604425F, Space Situation Awareness Systems)	0.000	110.141	157.457	122.715	196.118	240.695	245.804	159.103	Continuing	TBD
(U) Missile Procurement, Air Force (PE 305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	0.000	0.000	0.000	31.824	95.783	Continuing	TBD

(U) D. Acquisition Strategy

This system is being acquired via a block approach. Block 10 will develop and field a pathfinder satellite-based capability to replace the aging Space-Based Visible

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
--	--	------------------------------

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE 4930 Space Based Space Surveillance
---	---	--

sensor on the orbiting Midcourse Space Experiment research & development spacecraft with a capability significantly improving the timeliness of data on objects in geosynchronous orbit. Block 20 will develop additional satellites to provide simultaneous, worldwide space surveillance in order to observe smaller objects on shorter timelines. Lessons learned from the former block will guide development of the latter. Block 10 began as an option on the existing Mission Area Prime Integrating Contract for the space control mission area to expedite fielding but was transformed into its own contract when a competitive award was held for the Block 10 subcontract. The contracting approaches for additional capabilities will be determined in the future.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT NUMBER AND TITLE				
07 Operational System Development				0305910F SPACETRACK						4930 Space Based Space Surveillance				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & 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>														
Block 10 design and development	C/CPAF	Northrop Grumman, Redondo Beach, CA	126.105	91.241	Oct-05	0.000		0.000		0.000		0.000	217.346	
Technical risk reduction, mission planning, and mission data processing	SS/CPFF	MIT Lincoln Laboratory, Lexington, MA	1.700	1.070	Jan-06	0.000		0.000		0.000		0.000	2.770	
Launch vehicle integration	MIPR	Space and Missile Systems Center Det., Kirtland AFB, NM	2.871	4.372	Oct-05	0.000		0.000		0.000		0.000	7.243	
Block 20 concept studies	Various	Various	0.000	0.302	Jan-06	0.000		0.000		0.000		0.000	0.302	
Subtotal Product Development			130.676	96.985		0.000		0.000		0.000		0.000	227.661	0.000
Remarks:														
(U) <u>Support</u>														
Program operations and Systems Engineering & Integration	Various	Space and Missile Systems Center, Los Angeles AFB, CA	14.350	10.027	Oct-05	0.000		0.000		0.000		0.000	24.377	
Subtotal Support			14.350	10.027		0.000		0.000		0.000		0.000	24.377	0.000
Remarks:														
(U) <u>Test & Evaluation</u>														
Not applicable												0.000	0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Not applicable												0.000	0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			145.026	107.012		0.000		0.000		0.000		0.000	252.038	0.000

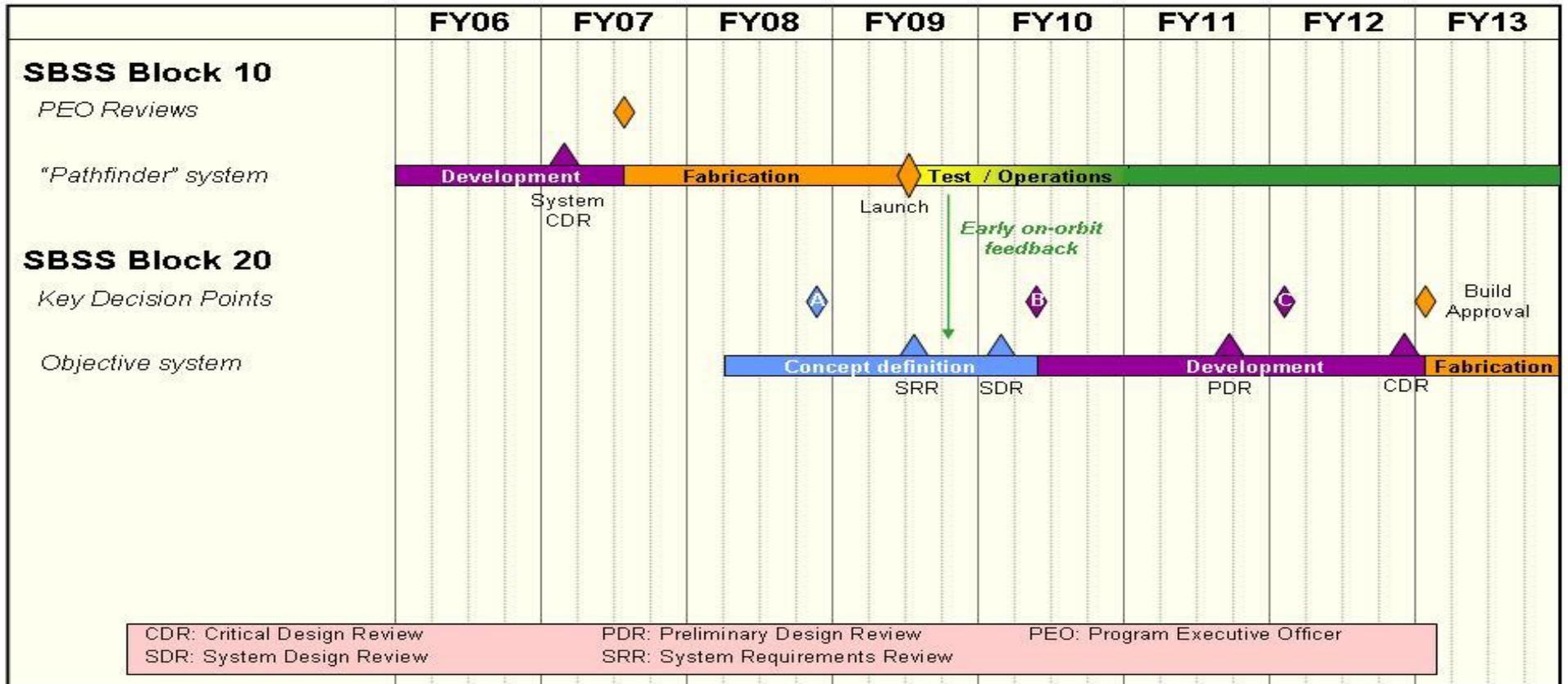
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
4930 Space Based Space Surveillance



- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- △ ◆ Key events

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

4930 Space Based Space
Surveillance

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Block 10 development

1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK				PROJECT NUMBER AND TITLE 5011 Space Situational Awareness Initiatives		
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
5011 Space Situational Awareness Initiatives	14.469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	54.043
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2007 these efforts transferred to Project 65A008, Integrated Space Situation Awareness, in PE 0604425F, Space Situation Awareness Systems, to reflect evolution of space surveillance to the new Space Situation Awareness construct. The full FY 2006 - FY 2013 schedule for them is included here for clarity, but refer to the RDT&E Budget Item Justification for that PE for further information on funding and activities after FY 2006.

(U) A. Mission Description and Budget Item Justification

Space Situation Awareness Initiatives improve the integration of the disparate information components of Space Situation Awareness (SSA) in order to better support space command, control, operations, and planning activities with timely data. These projects primarily develop hardware and software to collect, process, correlate, fuse, disseminate, and/or access intelligence, surveillance, reconnaissance, and environmental data; conduct operational utility evaluations of these using the SSA data fusion testbed, as necessary; integrate them into space command & control applications; and upgrade the testbed to ensure its ability to evaluate the utility of future applications under operationally-representative conditions. A related Extended Space Sensors Architecture Advanced Concept Technology Demonstration is developing and demonstrating SSA data fusion capabilities. Other projects conduct architecture, computer modeling, and study efforts to capture SSA needs; develop short- and mid-term enterprise architectures; and identify and evaluate satisfaction of capabilities to guide budget formulation, systems integration, operations, and requirements allocation toward improved fulfillment of SSA requirements.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Intelligence data integration and applications	1.751	0.000	0.000	0.000
(U) Surveillance & reconnaissance data integration and applications	3.329	0.000	0.000	0.000
(U) Environmental data integration and applications	0.854	0.000	0.000	0.000
(U) Fusion tool development, assessments, requirements development, and technical support	5.906	0.000	0.000	0.000
(U) Extended Space Sensors Architecture Advanced Concept Technology Demonstration (ESSA ACTD)	1.200	0.000	0.000	0.000
(U) SSA architecture development and modeling activities	1.429	0.000	0.000	0.000
(U) Total Cost	14.469	0.000	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2006</u> Actual	<u>FY 2007</u> Estimate	<u>FY 2008</u> Estimate	<u>FY 2009</u> Estimate	<u>FY 2010</u> Estimate	<u>FY 2011</u> Estimate	<u>FY 2012</u> Estimate	<u>FY 2013</u> Estimate	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) RDT&E, Air Force (PE 0604425F, Space Situation Awareness Systems)	0.000	11.555	26.212	22.998	50.614	43.517	24.697	22.416	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification	DATE February 2007
--	------------------------------

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE 5011 Space Situational Awareness Initiatives
--	--	--

(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) Other Procurement, Air Force
(PE 0305940F, Space Situation Awareness Operations)

	0.000	0.000	0.000	9.133	0.000	0.000	0.000	0.000	0.000	9.133
--	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

(U) **D. Acquisition Strategy**

SSA Initiatives utilize existing engineering and study contracts awarded and maintained by space planning and development organizations throughout the Department of Defense in order to accomplish required development activities and to obtain infrastructure and technical support. Many activities develop, test, and deliver capabilities or provide products in successive spirals. Operational needs drive the prioritization and selection of particular applications, modeling tools, and architecture products for development.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2007			
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK				PROJECT NUMBER AND TITLE 5011 Space Situational Awareness Initiatives						
<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & 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>														
Intelligence data applications	Various	Various	1.478	1.751	Oct-05	0.000		0.000		0.000		0.000	3.229	
Surveillance & reconnaissance data applications	Various	Various	17.731	3.329	Nov-05	0.000		0.000		0.000		0.000	21.060	
Environmental data applications	MIPR	Space and Missile Systems Center Det., Peterson AFB, CO	5.028	0.854	Feb-06	0.000		0.000		0.000		0.000	5.882	
ESSA ACTD	SS/Cost reimbursement (no fee)	MIT Lincoln Laboratory, Lexington, MA	0.000	1.200	Mar-06	0.000		0.000		0.000		0.000	1.200	
SSA architecture development	Various	Various	4.386	1.429	Dec-05	0.000		0.000		0.000		0.000	5.815	
Various (including Eglin, Haystack, and others)	Various	Various	6.744	0.000		0.000		0.000		0.000		0.000	6.744	
Subtotal Product Development			35.367	8.563		0.000		0.000		0.000		0.000	43.930	0.000
Remarks:														
<u>(U) Support</u>														
Fusion tool development, requirements, and technical support	Various	Electronic Systems Center Det., Peterson AFB, CO	4.207	5.906	Dec-05	0.000		0.000		0.000		0.000	10.113	
Subtotal Support			4.207	5.906		0.000		0.000		0.000		0.000	10.113	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Not applicable													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Not applicable													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			39.574	14.469		0.000		0.000		0.000		0.000	54.043	0.000

R-1 Line Item No. 210

Page-10 of 26

Project 5011

Exhibit R-3 (PE 0305910F)

2032

UNCLASSIFIED

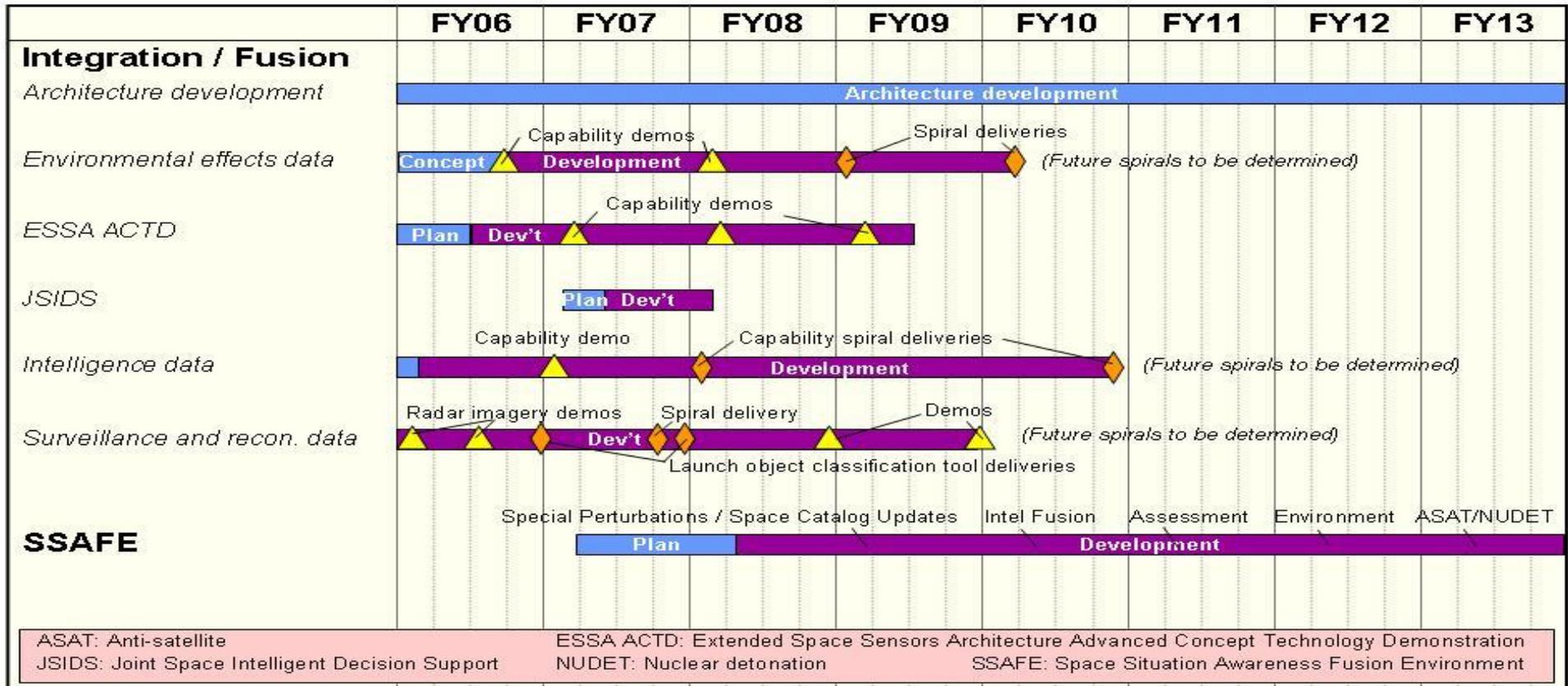
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
5011 Space Situational Awareness Initiatives



■ Concept activities
 ■ Design / development
 ■ Integration / test
■ Production / fielding
 ■ Operations / sustainment
 △ Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

5011 Space Situational Awareness Initiatives

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) ESSA ACTD development commencement

3Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK				PROJECT NUMBER AND TITLE A008 Sensor Service Life Extension Programs (Sensor SLEPs)		
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
A008 Sensor Service Life Extension Programs (Sensor SLEPs)	34.096	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.397
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2007 these efforts transferred to Project 67A017, Sensor Service Life Extension Programs, in PE 0305940F, Space Situation Awareness Operations, to reflect evolution of space surveillance to the new Space Situation Awareness construct. The full FY 2006 - FY 2013 schedule for them is included here for clarity, but refer to the RDT&E Budget Item Justification for that PE for further information on funding and activities after FY 2006.

(U) A. Mission Description and Budget Item Justification

The Sensor Service Life Extension Programs (SLEPs) project funds efforts to upgrade and extend the lifetimes of operational Space Situation Awareness (SSA) sensors. The first of these, the Eglin SLEP, extends the lifetime of the one-of-a-kind AN/FPS-85 phased array radar at Eglin Air Force Base, Florida, dedicated to finding and tracking near Earth and deep space objects. Operational since 1968, this radar is the SSA network's largest tracker of objects in the manned flight region, and it tracks over half the objects in the Air Force space object catalog. The SLEP effort replaces aging, increasingly unsupportable radar components.

The second effort in this project, the Haystack Ultra-wideband Satellite Imaging Radar, upgrades the X-band Haystack radar at the Lincoln Space Surveillance Complex in Westford, Massachusetts. Haystack provides radar imagery, space object identification, and metric data to the Air Force to aid SSA operations. The upgrade effort builds a W-band high-power transmitter enabling object imaging with resolution significantly greater than that of the X-band system; it also replaces the existing antenna and processing equipment with more modern hardware and software compatible with W-band operations. The resulting architecture will enable seamless W- and X-band operations as well as easier switching between X-band space surveillance and radio astronomy activities. Greater radar resolution is necessary to maintain current levels of space object characterization since satellites are becoming smaller than ever, making X-band characterization of them increasingly difficult.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Eglin radar life extension engineering design, development and support	15.585	0.000	0.000	0.000
(U) Haystack radar upgrade engineering design, development, and support	18.511	0.000	0.000	0.000
(U) Total Cost	34.096	0.000	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<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</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	31.282	23.980	16.405	0.000	0.000	0.000	0.000	0.000	71.667

Exhibit R-2a, RDT&E Project Justification

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

A008 Sensor Service Life Extension Programs (Sensor SLEPs)**(U) D. Acquisition Strategy**

The acquisition strategy for the Eglin SLEP effort was re-examined due to program cost growth. Instead of completing the full SLEP originally envisioned, the effort will now only conduct a partial SLEP replacing key items. This program utilizes an option on the System Engineering, Sustainment, and Modernization (SENSOR) contract competitively awarded to ITT Industries for sustaining and upgrading various Air Force radars, including the Eglin radar, in February 2002.

The Massachusetts Institute of Technology's Lincoln Laboratory (MIT/LL), a non-profit Federally-Funded Research & Development Center, performs the Haystack upgrade effort under a master contract with the Electronics System Center. This effort is classified as applied research under that contract. MIT/LL transferred ownership of the radar to the Air Force but continues to operate it as part of its Lincoln Space Surveillance Complex per contract with the Air Force.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE A008 Sensor Service Life Extension Programs (Sensor SLEPs)
--	--	--

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & 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> Eglin architecture development and life extension	C/CPAF	ITT Industries, Colorado Springs, CO	21.425	12.785	Oct-05	0.000		0.000		0.000		0.000	34.210	
Haystack radar upgrade design and build	SS/FP-LOE	MIT Lincoln Laboratory, Lexington, MA	19.725	18.087	Oct-05	0.000		0.000		0.000		0.000	37.812	
Prior Eglin, Haystack, and Space Fence design evaluation and other activities	Various	Various	9.119	0.000		0.000		0.000		0.000		0.000	9.119	
Subtotal Product Development			50.269	30.872		0.000		0.000		0.000		0.000	81.141	0.000
Remarks:														
(U) <u>Support</u> Development review and management	C/FP-LOE	L-3 Titan, Billerica, MA	1.315	2.233	Dec-05	0.000		0.000		0.000		0.000	3.548	
Development review and management	Various	Electronic Systems Center, Hanscom AFB, MA	1.717	0.991	Nov-05	0.000		0.000		0.000		0.000	2.708	
Subtotal Support			3.032	3.224		0.000		0.000		0.000		0.000	6.256	0.000
Remarks:														
(U) <u>Test & Evaluation</u> Not applicable														0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u> Not applicable														0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			53.301	34.096		0.000		0.000		0.000		0.000	87.397	0.000

Exhibit R-4, RDT&E Schedule Profile

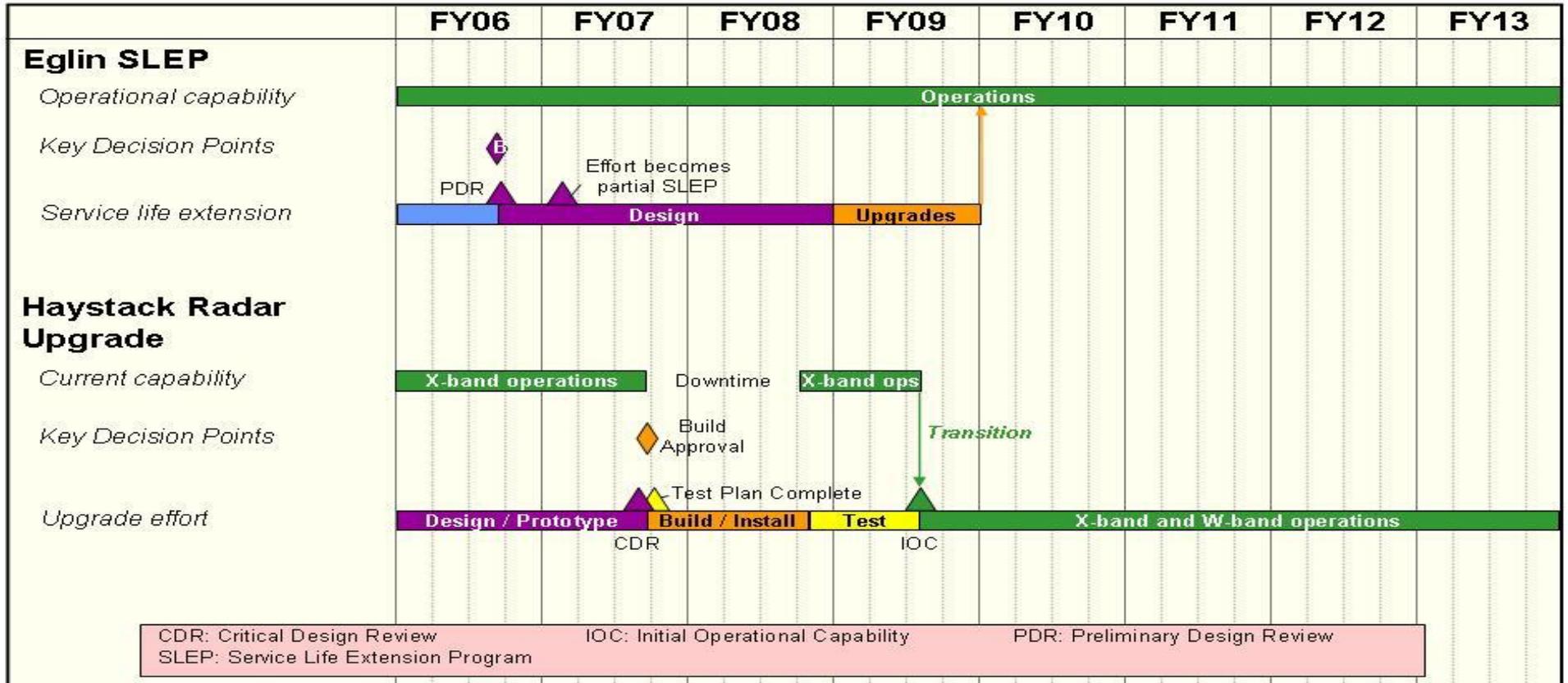
DATE

February 2007

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A008 Sensor Service Life Extension Programs (Sensor SLEPs)



- Concept activities
- Production / fielding
- Design / development
- Operations / sustainment
- Integration / test
- Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

A008 Sensor Service Life Extension Programs (Sensor SLEPs)

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Eglin life extension Preliminary Design Review

3Q

(U) Haystack upgrade design effort

1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK			PROJECT NUMBER AND TITLE A009 Orbital Deep Space Imager (ODSI)			
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
A009 Orbital Deep Space Imager (ODSI)	20.302	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.800
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2006 this project was terminated.

(U) A. Mission Description and Budget Item Justification

The Orbital Deep Space Imager (ODSI) effort develops a system to provide imagery of deep space objects for satellite characterization. In concert with other Space Situation Awareness network sensors, ODSI will permit improved knowledge of space activities.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Funds directed per classified direction	20.302	0.000	0.000	0.000
(U) Total Cost	20.302	0.000	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<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</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Not applicable										

(U) D. Acquisition Strategy

Not applicable

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE A009 Orbital Deep Space Imager (ODSI)
--	--	---

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & 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>														
Pre-phase A activities and architecture development	SS/CPAF *	Northrop Grumman, Redondo Beach, CA	5.822	0.000		0.000		0.000		0.000		0.000	5.822	
Concept definition studies	C/FFP	Lockheed Martin, Denver, CO	1.000	0.000		0.000		0.000		0.000		0.000	1.000	
Concept definition studies	C/FFP	Boeing, Seal Beach, CA	1.000	0.000		0.000		0.000		0.000		0.000	1.000	
Concept definition studies	C/FFP	Northrop Grumman, Redondo Beach, CA	1.000	0.000		0.000		0.000		0.000		0.000	1.000	
Funds directed per classified direction			0.000	20.302		0.000		0.000		0.000		0.000	20.302	
Subtotal Product Development			8.822	20.302		0.000		0.000		0.000		0.000	29.124	0.000
Remarks:	*Utilized Mission Area Prime Integrating Contract for space control mission area													
<u>(U) Support</u>														
Program operations	Various	Space and Missile Systems Center, Los Angeles AFB, CA	2.676	0.000		0.000		0.000		0.000		0.000	2.676	
Subtotal Support			2.676	0.000		0.000		0.000		0.000		0.000	2.676	0.000
Remarks:														
<u>(U) Test & Evaluation</u>														
Not applicable				0.000		0.000							0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Management</u>														
Not applicable				0.000		0.000							0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
<u>(U) Total Cost</u>			11.498	20.302		0.000		0.000		0.000		0.000	31.800	0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2007

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A009 Orbital Deep Space Imager (ODSI)

	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
ODSI								

This program was terminated. The Department of Defense has chosen not to pursue an operational system at this time. All FY 2006 funds were directed per classified direction.

 Concept activities
 Production / fielding

 Design / development
 Operations / sustainment

 Integration / test
 Key events

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2007

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305910F SPACETRACK

PROJECT NUMBER AND TITLE

A009 Orbital Deep Space Imager
(ODSI)

(U) Schedule Profile

FY 2006

FY 2007

FY 2008

FY 2009

(U) Not applicable

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification

DATE
February 2007

BUDGET ACTIVITY 07 Operational System Development					PE NUMBER AND TITLE 0305910F SPACETRACK			PROJECT NUMBER AND TITLE A015 Space Fence		
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
A015 Space Fence	6.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.900
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

In FY 2007 this project transferred to Project 65A009, Space Fence, in PE 0604425F, Space Situation Awareness Systems, to reflect evolution of space surveillance to the new Space Situation Awareness construct. The full FY 2006 - FY 2013 schedule for the effort is included here for clarity, but refer to the RDT&E Budget Item Justification for that PE for further information on funding and activities after FY 2006.

(U) A. Mission Description and Budget Item Justification

The Space Fence effort will develop a system of ground-based sensors to replace the aging Air Force Space Surveillance System (AFSSS), a Very High Frequency radar operational since 1961. By using higher radio frequencies in conjunction with radar transmitters and receivers co-located at sites dispersed worldwide, the Space Fence will provide timely detection of smaller orbiting objects, primarily those in Low Earth Orbit. As a result, it will expand the detection and tracking capacity of the Space Situation Awareness network by an order of magnitude, from 10,000 to 100,000 objects, while working in concert with other network sensors.

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

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Engineering design, development, and support	5.408	0.000	0.000	0.000
(U) Initial design activities	1.492	0.000	0.000	0.000
(U) Total Cost	6.900	0.000	0.000	0.000

(U) C. Other Program Funding Summary (\$ in Millions)

	<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</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E, Air Force (PE 0604425F, Space Situation Awareness Systems)	0.000	0.000	4.135	14.745	66.606	95.695	81.176	82.767	Continuing	TBD
(U) Other Procurement, Air Force (PE 0305940F, Space Situation Awareness Operations)	0.000	0.000	0.000	0.000	0.000	0.000	62.522	63.890	Continuing	TBD

(U) D. Acquisition Strategy

The Air Force competitively awarded requirements definition contracts for the effort in FY 2006. A block approach acquisition strategy for the program will be developed in FY 2007 - FY 2008 with a development contract award to follow in FY 2009 after a full and open competition.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2007			
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305910F SPACETRACK				PROJECT NUMBER AND TITLE A015 Space Fence						
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & 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>														
Industry design tasks	C/FFP	Lockheed Martin, Moorestown, NJ	0.000	0.498	Jun-06	0.000		0.000		0.000		0.000	0.498	
Industry design tasks	C/FFP	Northrop Grumman, Linthicum, MD	0.000	0.500	Jun-06	0.000		0.000		0.000		0.000	0.500	
Industry design tasks	C/FFP	Raytheon, Colorado Springs, CO	0.000	0.494	Jun-06	0.000		0.000		0.000		0.000	0.494	
Design/development	C/FP-LOE	L-3 Titan, Billerica, MA	0.000	2.697	Jun-06	0.000		0.000		0.000		0.000	2.697	
Design/development	C/FP-LOE	Tecolote, Goleta, CA	0.000	0.220	Jun-06	0.000		0.000		0.000		0.000	0.220	
Design evaluation	SS/FP-LO E	MIT Lincoln Laboratory, Lexington, MA	0.000	0.900	May-06	0.000		0.000		0.000		0.000	0.900	
Design evaluation	SS/FP-LO E	MITRE Corporation, Bedford, MA	0.000	0.568	Apr-06	0.000		0.000		0.000		0.000	0.568	
Design evaluation	Various	Air Force Space Command, Peterson AFB, CO	0.000	0.375	Sep-06	0.000		0.000		0.000		0.000	0.375	
Subtotal Product Development Remarks:			0.000	6.252		0.000		0.000		0.000		0.000	6.252	0.000
(U) <u>Support</u>														
Design review and management	Various	Electronic Systems Command, Hanscom AFB, MA; others	0.000	0.648	Jul-06	0.000		0.000		0.000		0.000	0.648	
Subtotal Support Remarks:			0.000	0.648		0.000		0.000		0.000		0.000	0.648	0.000

R-1 Line Item No. 210

Page-23 of 26

Project A015

Exhibit R-3 (PE 0305910F)

2045

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2007

BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
07 Operational System Development				0305910F SPACETRACK			A015 Space Fence		
(U) <u>Test & Evaluation</u>									
Not applicable								0.000	
Subtotal Test & Evaluation	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) <u>Management</u>									
Not applicable								0.000	
Subtotal Management	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000
Remarks:									
(U) Total Cost	0.000	6.900		0.000	0.000	0.000	0.000	6.900	0.000

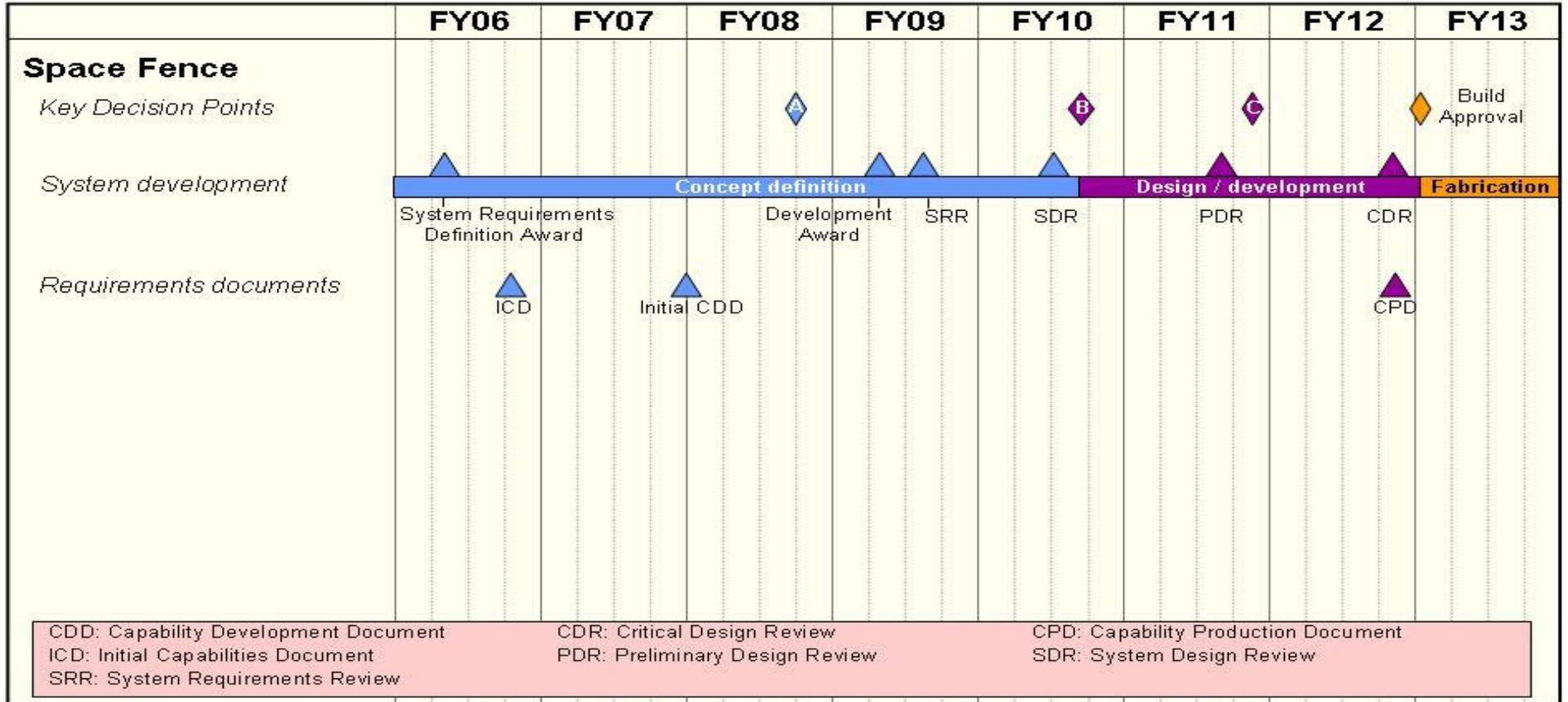
Exhibit R-4, RDT&E Schedule Profile

DATE
February 2007

BUDGET ACTIVITY
07 Operational System Development

PE NUMBER AND TITLE
0305910F SPACETRACK

PROJECT NUMBER AND TITLE
A015 Space Fence



- Concept activities
- Design / development
- Integration / test
- Production / fielding
- Operations / sustainment
- △◇ Key events

Exhibit R-4a, RDT&E Schedule Detail	DATE February 2007
--	------------------------------

BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0305910F SPACETRACK	PROJECT NUMBER AND TITLE A015 Space Fence
---	---	---

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>				
(U) System requirements definition contract awards*	2Q			
(U) Industry design tasks contract award	3Q			
*Partially supported by FY 2005 Space Fence congressional add in Project 67A008 of this program element				