PE NUMBER: 0603438F
PE TITLE: Space Control Technology

Exhibit R-2, RDT&E Budget Item Justification	DATE: February 2006
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0603438F Space Control Technology

	Cost ($ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	14.493	15.606	27.076	37.252	52.179	53.635	54.839	Continuing	TBD
2611	Technology Insertion Planning and Analysis	8.232	10.991	21.237	25.302	30.516	31.513	32.326	Continuing	TBD
A007	Space Range	6.261	4.615	5.839	11.950	21.663	22.122	22.513	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS) , and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects.

Also supported is the development of the system architecture for space control elements of the space range. This includes development and demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated space control systems. Additionally, this program supports the development of test range assets required to support developmental and opertational test, exercises, training, and tactics development for space control systems.

These two projects are in Budget Activity 4, Advanced Component Development and Prototypes, because they support the research, demonstration, component development and prototyping of Space Control technologies.

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2006
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology

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

		FY 2005	FY 2006	FY 2007
(U)	Previous President's Budget	14.914	14.205	23.303
(U)	Current PBR/President's Budget	14.493	15.606	27.076
(U)	Total Adjustments	-0.421	1.401	
(U)	Congressional Program Reductions		-0.073	
	Congressional Rescissions	-0.012	-0.226	
	Congressional Increases		1.700	
	Reprogrammings			
	SBIR/STTR Transfer	-0.409		

(U) Significant Program Changes:

FY 2006: $1.700M Congresssional Add for Mulitfunctional Daytime Optical System

FY 2007: $3.773M increase for prototyping, demonstration and test of space control technologies and techniques

Exhibit R-2a, RDT&E Project Justification		DATE: February 2006
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0603438F Space Control Technology	PROJECT NUMBER AND TITLE: 2611 Technology Insertion Planning and Analysis

Cost ($ in Millions)		FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2611	Technology Insertion Planning and Analysis	8.232	10.991	21.237	25.302	30.516	31.513	32.326	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are Space Situational Awareness (SSA), Defensive Counterspace (DCS), and Offensive Counterspace (OCS). For use in the Space Control mission area, SSA includes monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space. DCS includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere and prevention activities that limit or eliminate an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. OCS activities disrupt, deny, degrade or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DOD policy, the negation efforts of this program currently focus on negation technologies which have temporary, localized, and reversible effects.

Budget Activity Justification

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Control technologies.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2005	FY 2006	FY 2007
(U) Space Situational Awareness efforts. Continue development of key space situational awareness enabling technologies for monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing objects and events in space for use in the Space Control mission area.	2.229	3.942	4.370
(U) Defensive Counterspace efforts. Continue vulnerability assessments to include vulnerabilities of space/link/ground segments of DoD space systems. Perform assessments on DoD space systems. Continue looking at protection measures against optical jammers. Continue investigations in key technology areas such as data fusion, data mining, radiation effects, kinetic energy impacts, anomaly resolution. Continue development and demonstration of advanced techniques and technologies for space control prevention systems in the laboratory and field. Includes techniques and technologies for denying adversary use of blue systems on communications, sensor, and navigation platforms. Includes funding for architectural engineering leading to an overall Space Control architecture.	3.126	3.266	4.498
(U) Offensive Counterspace efforts. Continue development and demonstration of advanced counter- communications technologies and techniques, to include bandwidth on demand communications techniques. Continue exploring technologies leading to future generation counter-communications systems and advanced target characteristics. Includes development of countermeasures for insertion into counter-communications weapons systems. Continue	1.405	2.159	2.557

Exhibit R-2a, RDT&E Project Justification		DATE February 2006
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis

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

		FY 2005	FY 2006	FY 2007
	development of critical signal processing technology. Continue to develop, prototype, and demonstrate advanced counter surveillance, reconnaissance techniques. Continue investigation into technologies to counter adversary surveillance and reconnaissance capabilities. Additionally, funding for architectural engineering leading to an overall Space Control architectures is included in this effort.			
(U)	Conduct prototyping, demonstration, testing, and rapid transition of technology and techniques to space control systems.			7.585
(U)	Program Office and Other Technical Support	1.472	1.624	2.227
(U)	Total Cost	8.232	10.991	21.237

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

	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
(U) None									

(U) D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Program consists of numerous small projects. Most funding is either executed in-house by the program office or transferred via MIPR to other agencies for execution.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2006**

BUDGET ACTIVITY: **04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE: **0603438F Space Control Technology**

PROJECT NUMBER AND TITLE: **2611 Technology Insertion Planning and Analysis**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
SSA Development	Various	Various	7.094	2.229	Nov-04	3.942	Nov-05	4.370	Nov-06	Continuing	TBD	TBD
DCS Activities	Various	Various	19.097	3.126	Nov-04	3.266	Nov-05	4.498	Nov-06	Continuing	TBD	TBD
OCS Development	Various	Various	39.188	1.405	Nov-04	2.159	Nov-05	2.557	Nov-06	Continuing	TBD	TBD
Counterspace Technology Prototyping	Various	Various	0.000	0.000		0.000		7.585	Nov-06	Continuing	TBD	
Subtotal Product Development			65.379	6.760		9.367		19.010		Continuing	TBD	TBD
Remarks:												
(U) Support												
Program Office and Other Technical Support	Various	SMC- El Segundo, CA	4.856	1.472	Nov-04	1.624	Nov-05	2.227	Nov-06	Continuing	TBD	TBD
Subtotal Support			4.856	1.472		1.624		2.227		Continuing	TBD	TBD
Remarks:												
(U) Test & Evaluation												
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Management												
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U)												
											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			70.235	8.232		10.991		21.237		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE February 2006
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE 2611 Technology Insertion Planning and Analysis

SCT Schedule
Technology Insertion

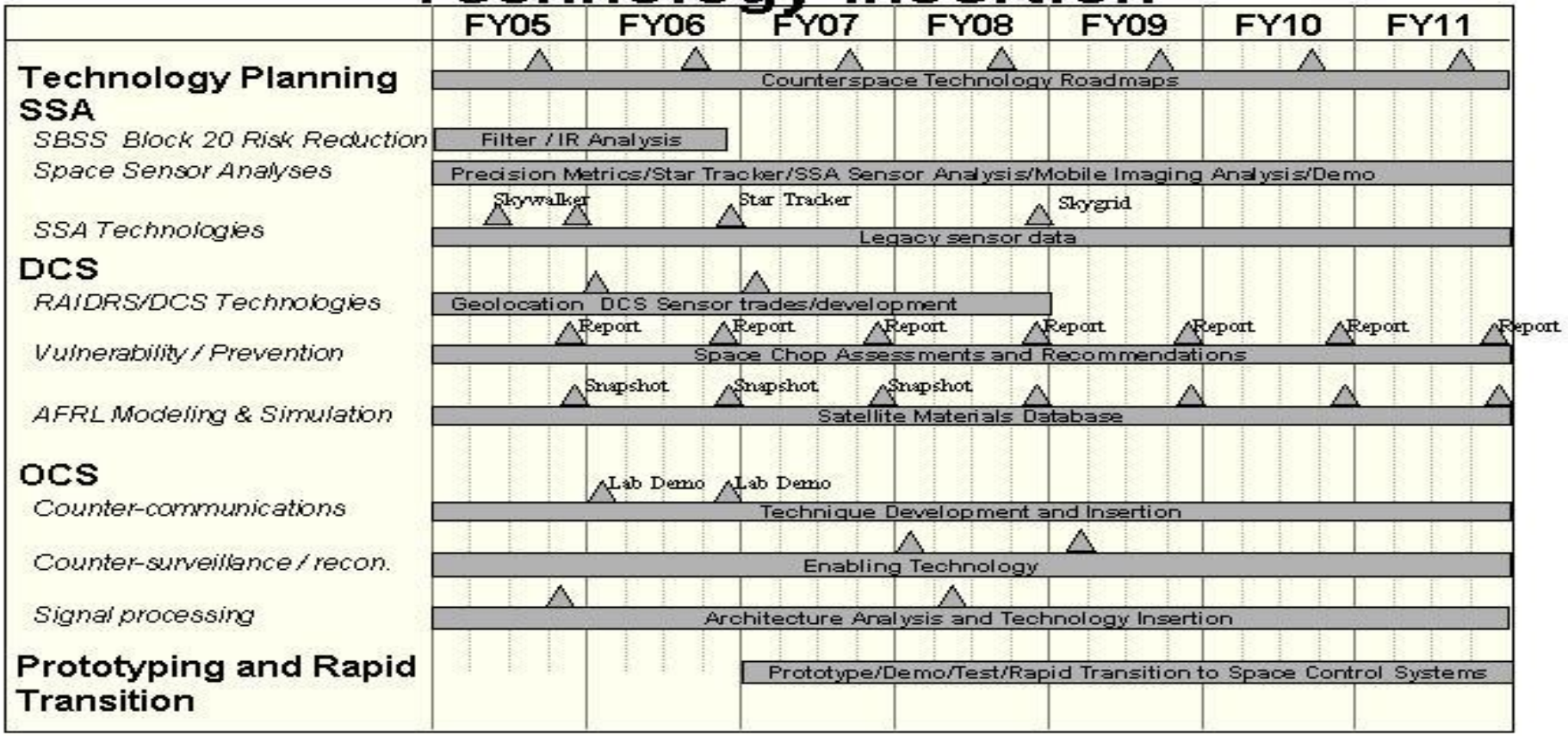

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2006
BUDGET ACTIVITY **04 Advanced Component Development and Prototypes (ACD&P)**	PE NUMBER AND TITLE **0603438F Space Control Technology**	PROJECT NUMBER AND TITLE **2611 Technology Insertion Planning and Analysis**

(U) **Schedule Profile**	FY 2005	FY 2006	FY 2007
(U) Continue Technology Roadmaps & Planning	1-4Q	1-4Q	1-4Q
(U) SSA- Continue SBSS Risk Reduction	1-4Q	1-4Q	
(U) SSA- Continue sensor development	1-4Q	1-4Q	1-4Q
(U) SSA - Continue technologies development and evaluation	1-4Q	1-4Q	1-4Q
(U) DCS - Continue RAIDRS/DCS technology development and evaluation	1-4Q	1-4Q	1-4Q
(U) DCS - Continue Vulnerability and threat assessments	1-4Q	1-4Q	1-4Q
(U) DCS - Continue AFRL Data Modelling and Simulation	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Counter Communications technique development and demonstration	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Counter Surveillance/Reconnaissance technology development	1-4Q	1-4Q	1-4Q
(U) OCS- Continue Signal Processing development	1-4Q	1-4Q	1-4Q
(U) Prototyping and Rapid Transition to Weapons Systems			1-4Q

Exhibit R-2a, RDT&E Project Justification

DATE: February 2006

BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0603438F Space Control Technology

PROJECT NUMBER AND TITLE: A007 Space Range

Cost ($ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A007 Space Range	6.261	4.615	5.839	11.950	21.663	22.122	22.513	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program supports the development of space test and training range assets required to support developmental and operational test, exercises, training, and tactics development for Space Control systems and related architecture.

Budget Activity Justification

This project is in Budget Activity 4, Advanced Component Development and Prototypes because it supports the research, demonstration, component development and prototyping of Space Test & Training Range technologies & infrastructure.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2005	FY 2006	FY 2007
(U) Threat Simulators	2.469	1.022	1.400
(U) Continue development of the system architecture and acquisition of Space Control elements of the Space Range. Continue demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control systems.	2.860	2.500	2.086
(U) Program Office and Other Technical Support	0.932	1.093	2.353
(U) Total Cost	6.261	4.615	5.839

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

	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
(U) None									

(U) D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures to the maximum extent possible. Current contracts are Cost Plus Award Fee. Future contracts TBD.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2006**

BUDGET ACTIVITY: **04 Advanced Component Development and Prototypes (ACD&P)**

PE NUMBER AND TITLE: **0603438F Space Control Technology**

PROJECT NUMBER AND TITLE: **A007 Space Range**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Leased Bandwidth	CPAF	G2 Satellite Systems, Long Beach, CA		2.860	Dec-04	2.500	Jan-06	2.086	Jan-07	0.000	7.446	
TMC	CPAF	Las Cruces, NM	2.050	2.469	Jan-05	1.022	Jan-06	1.400	Jan-07	Continuing	TBD	TBD
Subtotal Product Development			2.050	5.329		3.522		3.486		Continuing	TBD	TBD
Remarks:												
(U) Support												
Program Office and Other Technical Support	Various	SMC, El Segundo, CA	0.236	0.932	Jan-05	1.093	Dec-06	2.353	Dec-07	Continuing	TBD	TBD
Subtotal Support			0.236	0.932		1.093		2.353		Continuing	TBD	TBD
Remarks:												
(U) Test & Evaluation												
None											0.000	
None											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Management												
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			2.286	6.261		4.615		5.839		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE: February 2006
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0603438F Space Control Technology	PROJECT NUMBER AND TITLE: A007 Space Range

SCT Schedule
Space Test and Training Range

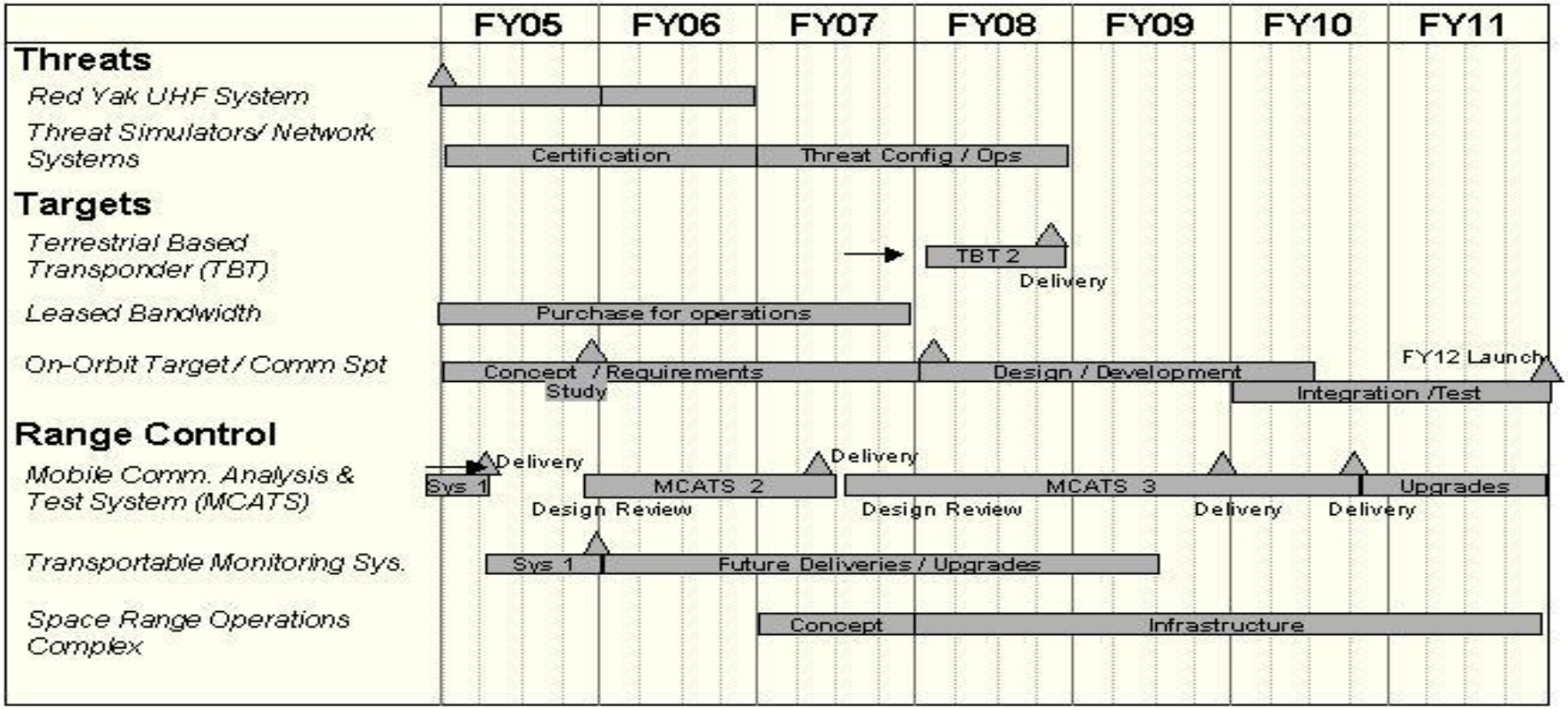

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2006
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603438F Space Control Technology	PROJECT NUMBER AND TITLE A007 Space Range

(U) Schedule Profile	FY 2005	FY 2006	FY 2007
(U) Develop STTR Architecture	1-4Q	1-4Q	1-4Q
(U) THREATS			
(U) Red Yak UHF System	1-4Q	1-4Q	
(U) Threat Simulators/Network Systems	1-4Q	1-4Q	1-4Q
(U) TARGETS			
(U) Leased Bandwidth	1-4Q	1-4Q	1-4Q
(U) Develop on Orbital Target/Communications Support	1-4Q	1-4Q	1-4Q
(U) RANGE CONTROL			
(U) Develop Mobile Comm Analysis and Test System	1-4Q	1-4Q	1-2Q
(U) Deliver MCATS			2Q
(U) Continue developing a Transportable Monitoring System	1-4Q	1-4Q	1-4Q
(U) Space Range Operations Complex concept development			1-4Q