PE NUMBER: 0604855F
PE TITLE: Operationally Responsive Launch

Exhibit R-2, RDT&E Budget Item Justification

DATE: February 2005

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

PE NUMBER AND TITLE: 0604855F Operationally Responsive Launch

	Cost ($ in Millions)	FY 2004 Actual	FY 2005 Estimate	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	21.544	33.068	23.480	35.504	41.321	74.924	76.327	77.411	Continuing	TBD
A013	Small Launch Vehicle	21.544	33.068	23.480	35.504	41.321	74.924	76.327	77.411	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

The 2002 Operationally Responsive Spacelift (ORS) Mission Needs Statement (MNS) established the requirement for responsive, on-demand access to, through and from space. This requirement encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements. It also requires on-demand, flexible, and cost effective operations.

In December 2002 the DepSecDef directed the Air Force and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Operationally Responsive Space (ORS) effort to meet portions of this requirement. This joint technology development program has been named Falcon and is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space such as Joint Warfighting Space satellites. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools. Although Falcon is a joint program, the Air Force is funding the ORS portion; DARPA is sharing the Hypersonic Technology Vehicle costs with the Air Force.

In July 2004 the Air Force Requirements for Operational Capabilities Council (AFROCC) reviewed the ORS Analysis of Alternatives (AoA), and approved the following recommendations: (1.) Leverage lessons learned from AF-DARPA Falcon demo (2.) Conduct Architecture Studies -- Responsive spacecraft: size and functions study, -- Integration and technology needs (3.) Pursue a Hybrid (part reusable, part expendable) launch vehicle: spiral development approach, Step one: Small scale hybrid integration demonstrator, Step two: Full scale operational hybrid demonstrator, Step three: Vehicle production /operations. The AoA evolutionary approach begins with a starting point Hybrid Demonstrator to reduce risk and uncertainties.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604855F Operationally Responsive Launch

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

		FY 2004	FY 2005	FY 2006	FY 2007
(U)	Previous President's Budget	25.844	35.362	23.354	35.484
(U)	Current PBR/President's Budget	21.544	33.068	23.480	35.504
(U)	Total Adjustments	-4.300	-2.294		
(U)	Congressional Program Reductions		-5.000		
	Congressional Rescissions		-0.294		
	Congressional Increases		3.000		
	Reprogrammings	-4.300			
	SBIR/STTR Transfer				

(U) Significant Program Changes:

FY04: $4.3M reallocated to higher DoD priorities; FY05: Congressional adjustments of +$2M for Blue MAJIC, +$1M for Advanced Rocket Components, and -$5M program reduction

Exhibit R-2a, RDT&E Project Justification

DATE: February 2005

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

PE NUMBER AND TITLE: 0604855F Operationally Responsive Launch

PROJECT NUMBER AND TITLE: A013 Small Launch Vehicle

Cost ($ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
A013 Small Launch Vehicle	21.544	33.068	23.480	35.504	41.321	74.924	76.327	77.411	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

The 2002 Operationally Responsive Spacelift (ORS) Mission Needs Statement (MNS) established the requirement for responsive, on-demand access to, through and from space. This requirement encompasses the spacelift missions of delivering payloads to, or from, mission orbit and changing the orbit of existing systems to better satisfy new mission requirements. It also requires on-demand, flexible, and cost effective operations.

In December 2002 the DepSecDef directed the Air Force and the Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Operationally Responsive Space (ORS) effort to meet portions of this requirement. This joint technology development program has been named Falcon and is focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide from and through space such as Joint Warfighting Space satellites. Concept development, risk reduction and technology maturation are the key elements in the ORS program; and demonstrations, modeling and simulations are the critical tools. Although Falcon is a joint program, the Air Force is funding the ORS portion; DARPA is sharing the Hypersonic Technology Vehicle costs with the Air Force.

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This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007
(U) Initiated SLV system definition, systems engineering and flight test planning for Phase I	3.490			
(U) Initiate SLV system design and development, systems engineering and flight test planning for Phase II	8.140	22.196	21.000	10.500
(U) Initiate Phase III flight tests				3.020
(U) Support early demonstration flights and launch/test facilities evaluation and improvement	6.254	5.804		
(U) Modified Space Launch Complex-3W at Vandenberg AFB, CA	1.700			
(U) Perform analysis, costing and assess utility for operationally responsive space concepts/requirements and Program Management support	1.960	2.068	2.480	2.947
(U) Begin Hybrid Launch vehicle development				19.037
(U) Blue MAJIC		2.000		

Exhibit R-2a, RDT&E Project Justification		DATE February 2005
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0604855F Operationally Responsive Launch	PROJECT NUMBER AND TITLE A013 Small Launch Vehicle

(U)	Advanced Rocket Components		1.000		
(U)	Total Cost	21.544	33.068	23.480	35.504

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

		FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
(U)	AF RDT&E, PE 0604856F, CAV (R-61)	17.025	16.464	27.394	32.529	31.651	39.756	92.711	94.074	Continuing	TBD
(U)	Defensewide RDT&E, DARPA, PE 0603285E, Falcon	17.500	12.500	40.000						Continuing	TBD
(U)	NASA funding provided to support multiple contractors	0.350	2.000								2.350

(U) D. Acquisition Strategy

Efforts will be executed by the joint AF/DARPA Falcon Program Office. Nine Phase I contracts were awarded in November 2003, Firm Fixed Price (FFP) with a duration of 6 months. An open competition was held for Phase II contracts in August 04, resulting in four awards in September 04 using an Other Transactions contract vehicle. At the completion of Phase II, a third phase will be considered to conduct additional developmental flight testing.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2005**

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

PE NUMBER AND TITLE: **0604855F Operationally Responsive Launch**

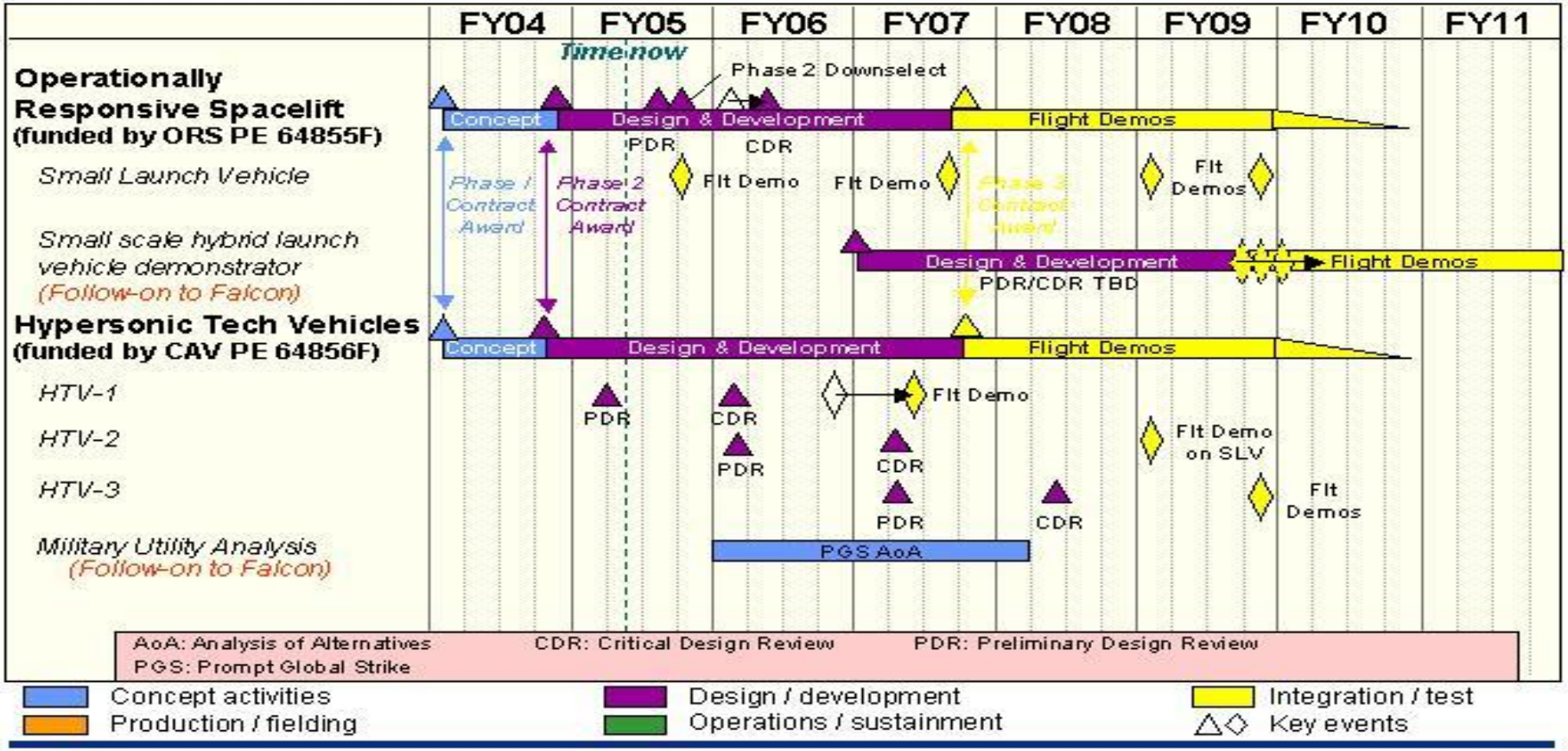
PROJECT NUMBER AND TITLE: **A013 Small Launch Vehicle**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	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														
Nine Phase I contractors	FFP	various		3.490	Nov-03								3.490	3.490
Phase II contractors:						2.000	Sep-05	21.000	Oct-05	10.500	Oct-06	Continuing	TBD	TBD
Air Launch	OTA	Reno, NV		4.140	Sep-04	5.573	Oct-04					Continuing	TBD	TBD
Lockheed Martin	OTA	New Orleans, LA			Sep-04	6.083	Oct-04					Continuing	TBD	TBD
Microcosm	OTA	El Segundo			Sep-04	4.540	Oct-04					Continuing	TBD	TBD
Space-X	OTA	El Segundo		4.000	Sep-04	4.000	Oct-04					Continuing	TBD	TBD
TBD Phase III contractors	TBD	TBD								3.020	Aug-07	Continuing	TBD	TBD
Hybrid Design and Development	TBD	TBD								19.037	Dec-06		19.037	
Subtotal Product Development			0.000	11.630		22.196		21.000		32.557		Continuing	TBD	TBD
Remarks:														
(U) Test & Evaluation														
Test Stand 2A Modification	MIPR	Edwards AFB, CA				3.804	Jan-05						3.804	3.804
Range Services	MIPR	Army-Huntsville, AL				2.000	Mar-05					Continuing	TBD	TBD
Flight Demo Support	MIPR	SMC Det 12/RP/Kirtland AFB NM		6.254	Apr-04							Continuing	TBD	TBD
SLC-3W Modification	MIPR	Naval Research Lab/Wash DC		1.700	Jun-04								1.700	1.700
Blue MAJIC	TBD	TBD				2.000	Mar-05						2.000	2.000
Advanced Rocket Components	TBD	TBD				1.000	Mar-05						1.000	1.000
Subtotal Test & Evaluation			0.000	7.954		8.804		0.000		0.000		Continuing	TBD	TBD
Remarks:														
(U) Development Support and Management														
Perform analysis and assess alternative concepts/requirements & program support	various	various		1.960	Feb-04	2.068	Oct-04	2.480	Oct-05	2.947	Oct-06	Continuing	TBD	TBD
Subtotal Development Support and Management			0.000	1.960		2.068		2.480		2.947		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			0.000	21.544		33.068		23.480		35.504		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile		DATE: February 2005
BUDGET ACTIVITY: 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0604855F Operationally Responsive Launch	PROJECT NUMBER AND TITLE: A013 Small Launch Vehicle

U.S. AIR FORCE

ORS/CAV Schedule



FY06 Staffer Brief

Exhibit R-4a, RDT&E Schedule Detail

DATE: **February 2005**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
04 Advanced Component Development and Prototypes (ACD&P)	**0604855F Operationally Responsive Launch**	**A013 Small Launch Vehicle**

(U) Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007
(U) System Definition (Phase I)	1-4Q			
(U) Design and Development (Phase II) Contract Award	4Q			
(U) Phase II Preliminary Design Review		3Q		
(U) Phase II Critical Design Review			2Q	
(U) Phase II Test Launch		4Q		3Q
(U) Phase II Contract Complete				4Q
(U) Flight Demonstrations (Phase III) Contract Award				1Q
(U) Hybrid Design and Development Contract Award				1Q