

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604814A - Artillery Munitions - EMD							PROJECT 708		
COST (In Thousands)	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 Cost
708 XM982 PROJECTILE	101957	101422	63039	78532	43584	2759	2088	2289		395670

A. Mission Description and Budget Item Justification: Excalibur provides improved fire support through a Precision Guided Extended Range family of munitions with greatly increased accuracy and offer significant reduction in collateral damage in most of all urban environments. The Excalibur will be interoperable with the M777A2 Lightweight 155mm howitzer (LW155), the M109A6 (Paladin) howitzer, and the Future Combat System (FCS) Non-Line of Sight Cannon (NLOS-C). Excalibur will provide a 33% range increase over current Rocket Assisted Projectiles, with a 10 meter accuracy (Circular Error Probable) at all ranges. Excalibur is also highly resistant to GPS jamming. Excalibur is an international program, teamed with the Kingdom of Sweden (KoS), who contributes resources towards the development in accordance with an established Project Agreement.

The Excalibur program is using an incremental development approach to provide a combat capability to the Soldier as quickly as possible, and to deliver advanced capabilities and lower costs as technology matures. The Block Ia-1 will be fielded to the CFLCC in Iraq to fulfill an Urgent Need Request. Additional fielding in FY07 is planned to the LW155 howitzer equipped Stryker Brigade Combat Team #5 being formed in Hawaii. Block Ia-2 delivered in FY08 will provide greatly increased range to LW155, Paladin and FCS Cannon forces Army-wide when fielded. The third planned increment, Block Ib, will be fielded in FY11 and will provide a further performance improvement while significantly lowering unit costs.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Complete airframe structure, warhead, guidance, systems and procure and test projectiles for system level qualification testing for Block Ia qualification.	93003	70466		
Initiate Block Ib airframe structure and warhead development and integration.			7871	13460
Initiate Block Ib guidance unit integration, gun hardening, tactical telemetry, systems software development, and programmed maneuver flight demonstration and support system integration efforts.			15890	23780
Conduct Systems and Specialty Engineering activities to include specification development, Cost As Independent Variable (CAIV), program metric tracking, and conduct modeling of lethality, effectiveness, and aeroballistics, and reliability in support of Block Ib development		3725	13210	15960
FY07 Support Contractor competitive evaluation demonstration test series. FY08-09 procure and test Contractor Developmental Test (DT) hardware in accordance with the Contractor Development Master Test Plan and Test and Evaluation Master Plan (TEMP) for Block Ib development.		6230	18979	23282
Engineering support for Excalibur platform integration to include development and qualification of the Enhanced Platform Integration Kit and Portable Inductive Artillery Fuze Setter (EPIAFS), Portable Excalibur Fire Control System (PEFCS), Advanced Field Artillery Tactical Direction System (AFATDS), and digital howitzer integration	6162	4880	2250	1800
Procure production representative projectiles and conduct Limited User Test (LUT) and Independent Operational Test & Evaluation	2792	13298	4839	250

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(IOT&E) efforts for Block Ia.				
Small Business Innovative Research/Small Business Technology Transfer Programs.		2823		
Total	101957	101422	63039	78532

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<u>B. Program Change Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	114709	102554	62841	77969
Current BES/President's Budget (FY 2008/2009)	101957	101422	63039	78532
Total Adjustments	-12752	-1132	198	563
Congressional Program Reductions		-387		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-12752	-745		
SBIR/STTR Transfer				
Adjustments to Budget Years			198	563

Change Summary Explanation: Funding:

FY 2006: \$9.0M reprogrammed to PE 0604802A, Project S36, for Course Correcting Fuze (CCF) Tech Demo Contract awards.

<u>C. Other Program Funding Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	To Compl	Total Cost
Procurement Ammunition Army: Proj 155mm Extended Range: XM982-U Excalibur: E80103	49260	26863	28781	34372	64766	61929	85954	102306	956790	1411021
OPA2: Enhanced Portable Inductive Fuze Setter (E-PIAFS): AD3260	6408	7411	7572	2596					Continuing	Continuing

Comment:

D. Acquisition Strategy Excalibur is a family of 155mm Precision Guided Extended Range Munitions. A competitive source selection awarded an Engineering and Manufacturing Development (E&MD) contract for the initial block, with options for the other block's development and all Low Rate Initial Production quantities (LRIP). In coordination with the Defense Acquisition Executive, the Army has implemented an incremental development process to provide for an early fielding capability in FY07 in response to an Urgent Needs Statement. The Product Manager's Office is currently managing a contract option for the Block Ia-1 LRIP concurrent with the balance of System Development and Demonstration (SDD) for the Block Ia-2 configuration. The initial increment (Block Ia-1) will meet the most critical Operational Requirement Document (ORD) Block Ia Key Performance Parameter (KPP) requirements. The second increment (Block (Ia-2)) will meet all of the ORD Block Ia KPP requirements by the fourth quarter FY08. The Product Manager's office intends to award the third increment (Block Ib) SDD in FY07, which will meet all of the ORD Block Ib KPP requirements and fielded in FY11.

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ARMY RDT&E COST ANALYSIS (R3)

February 2007

BUDGET ACTIVITY			PE NUMBER AND TITLE									PROJECT		
5 - System Development and Demonstration			0604814A - Artillery Munitions - EMD									708		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Excalibur Block Ia Development	C/CPAF	Raytheon Missile System, Tucson, AZ	310664	58306	1-4Q	44909	1-4Q					Cont.	Cont.	Cont.
Award Fee on Excalibur Development Contract	N/A	Raytheon Missile System, Tucson, AZ	25511	3843	2-4Q	3006	2-4Q					Cont.	Cont.	Cont.
TCM Merger Assessment	FP	Bofors Defence, Karlskoga, Sweden	14430										14430	
Platform Integration-Systems Contractor	CPAF	TBS	150	450	1Q	120	2Q	120	2Q	125	2Q	Cont.	Cont.	
Misc Support Contracts	Various	Various	1766	350	1-2Q	350	1-2Q	400	1-2Q	400	1-2Q	Cont.	Cont.	
Platform Integration/Fire Control - AFATDS	SS/CPIF	Raytheon AFATDS, Ft Wayne, IN	4045	450	1-2Q	450	1-2Q	200	1-2Q	200	1-2Q	Cont.	Cont.	
Platform Integration Firing Tables Development	MIPR	ARDEC, Firing Tables Branch, Picatinny, NJ/Aberdeen, MD	1261	463	1Q	250	1Q	250	1Q	250	1Q	Cont.	Cont.	
Platform Integration LW155 M777A2	CPIF	BAE, Burlington Vt.	8739	3250	1-2Q		1-2Q						11989	
SS-SFM Test Projectiles	C/FFP	Various	10815										10815	
Excalibur Block Ib Development	C/CPAF	TBS			2-4Q	7177	2Q	27510	1-4Q	42935	1-4Q	Cont.	Cont.	
Govt IPT Support Platform Integration Development	MIPR	ARDEC, Picatinny, NJ	1120	1730	1-4Q	3700	1-4Q	820	1-4Q	500	1-4Q	Cont.	Cont.	
Platform Integration & EPIAFS Software Development	MIPR	Navy, Surface Warfare Center, MD	80	150	2Q		2Q					Cont.	Cont.	
Block Ia Engineering Services	CPIF	Raytheon Missile System, Tucson, Az.				5467	3Q	4000	1-4Q	4000	1-4Q		13467	
Subtotal:			378581	68992		65429		33300		48410		Cont.	Cont.	Cont.
II. Support Costs	Contract Method &	Performing Activity & Location	Total PYs	FY 2006 Cost	FY 2006 Award	FY 2007 Cost	FY 2007 Award	FY 2008 Cost	FY 2008 Award	FY 2009 Cost	FY 2009 Award	Cost To Complet	Total Cost	Target Value of

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	Type		Cost		Date		Date		Date		Date	e	Contract	
Program Management	In House	PM Excalibur , Picatinny, NJ	16465	4147	1-4Q	3458	1-4Q	3613	1-4Q	3812	1-4Q	Cont.	Cont.	
Government IPT Support-Excalibur XM982	MIPR	ARDEC, Picatinny, NJ	31384	10349	1-4Q	10306	1-4Q	9500	1-4Q	10250	1-4Q	Cont.	Cont.	
Government TCM Support	MIPR	ARDEC, Picatinny, NJ	910										910	
Government Support- Ft Sill	MIPR	Ft. Sill, OK	2427	400	1-2Q	600	1-2Q	400	1-2Q	400	1-2Q	Cont.	Cont.	
Paladin Platform Integration	MIPR	PM Paladin Picatinny, NJ	650			280		200	1-2Q				1130	
Modeling and Structural Development	MIPR	Army Research Labs, Adelphi, MD	4632	1344	1-4Q	1198	1-4Q	850	1-4Q	850	1-4Q	Cont.	Cont.	
Govt IPT Support Platform Integration	MIPR	ARDEC, Picatinny, NJ	5591			450		850	1-4Q	850	1-4Q		7741	
Milestone Support	SS/FP	Camber, Alexandria, VA	1040	250	2Q	250	2Q	250	1-4Q	250	1-4Q	Cont.	Cont.	
Technical Spt Contract for Platform Integration	SS/FP	Camber, Dallas, TX	571	125	1-2Q	125	1-2Q	150	1-2Q	150	1-2Q	Cont.	Cont.	
Fire Control development support	MIPR	Ft Monmouth, NJ/Ft Sill, OK	631	252	1-2Q	125	1-2Q	87	1-2Q	90	1-2Q	Cont.	Cont.	
Miscellaneous Support	MIPR	Various	875	500	1-4Q	647	1-4Q	650	1-4Q	650	1-4Q	Cont.	Cont.	
Platform Integration Software Support	MIPR	Navy Surface Warfare Center, MD	390		2Q	36							426	
PM CAS SS-SFM	In-House	PM CAS, Picatinny, NJ	700										700	
Government IPT Support - SS-SFM	MIPR	ARDEC, Picatinny, NJ	1625										1625	
Subtotal:			67891	17367		17475		16550		17302		Cont.	Cont.	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
TECOM Test Range	MIPR	YPG, Yuma, AZ	9519	4374	1-4Q	4900	1-4Q	4375	1-4Q	7250	1-4Q	Cont.	Cont.	
Test Instrumentation and Analysis	MIPR	Army Research Labs,	2902	350	1-4Q	125	1-4Q	350	1-4Q	350	1-4Q	Cont.	Cont.	

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		Adelphi, MD													
Telemetry Support	SS/FF	Physical Science Laboratories (PSL), Las Cruces, NM	1646	350	2Q	900	2Q	200	2Q	450	2Q	Cont.	Cont.		
Telemetry Support	MIPR	ARDEC, Picatinny, NJ	7575	4743	1-4Q	4743	1-4Q	1850	1-4Q	3200	1-4Q	Cont.	Cont.		
Telemetry Cryptographic Support & Anti-Jam Support	MIPR	Ft. Huachuca, AZ	138			150	2-3Q	50	2-3Q	50	2-3Q			388	
Tri-Service Software Assessment	MIPR	OSD, Wash, DC	61											61	
Operational Test Support & AEC	MIPR	ATEC, Alexandria, VA	559	4831	2Q	3281	2Q	4639	1-4Q		1-4Q	Cont.	Cont.		
Target Replacement, Definition, Maintenance and Repair and Threat Assessment	MIPR	Target Management Office, Huntsville, AL.	600	400	1-2Q	250	1-2Q	500	2-3Q	250	2-3Q	Cont.	Cont.		
ARDEC Testing	MIPR	ARDEC, Picatinny, NJ	1165	350	1-4Q	350	1-4Q	350	1-4Q	350	1-4Q	Cont.	Cont.		
Test Gun Equipment	MIPR	Watervliet Arsenal, NY	3572	200	1-2Q	200	1-2Q	200	1-2Q	120	1-2Q	Cont.	Cont.		
SS-SFM Testing	MIPR	Yuma Proving Grounds, Yuma, AZ	2300											2300	
Live Fire Test and Evaluation	MIPR	ARL, Aberdeen, MD				296		125	1-4Q	250	1-4Q	Cont.	Cont.		
White Sands Missile Range	MIPR	White Sands Missile Range, NM				250	2-3Q	300	1-4Q	300	1-4Q	Cont.	Cont.		
Test Hardware	SS/CP	SAVIT, Parsippany, NJ				250	2-3Q	250	2-3Q	250	2-3Q			750	
Subtotal:			30037	15598		15695		13189		12820		Cont.	Cont.		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract	
SBIR/STTR						2823							2823		
Subtotal:						2823							2823		
Remarks: Not Applicable															
Project Total Cost:			476509	101957		101422		63039		78532		Cont.	Cont.	Cont.	

Schedule Detail (R4a Exhibit)

February 2007

BUDGET ACTIVITY
5 - System Development and Demonstration

PE NUMBER AND TITLE
0604814A - Artillery Munitions - EMD

PROJECT
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<u>Schedule Detail</u>	<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>
XM982 (Unitary) Block Ia-1 SDD								
Preliminary Design Review								
Guided Gunfire Demo - A								
Decision Point 2								
Milestone C for Block Ia-1								
SS-SFM JBMOU Testing								
Excalibur Proc / Deliveries	1Q - 4Q	1Q - 4Q	1Q - 2Q					
Material Release & Initial Capability		2Q						
Block Ia-2 SDD	1Q - 4Q	1Q - 3Q						
Guided Gunfire Demo-B Anti-Jam		2Q						
Critical Design Review (CDR)								
System CDR		2Q						
MS C		3Q						
IOT&E			3Q - 4Q					
IOC			4Q					
LRIP Ia-2 Award		4Q						
Full Rate Production Review Ia-2			4Q					
Deliveries / FRP Deliveries			1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q	
XM982 (Unitary) Block Ib SDD		4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q	
Production IPR / Block Ib Production						2Q - 4Q	1Q - 4Q	1Q - 4Q
MS C Block Ib						2Q		
SS-SFM JBMOU Testing								
Guidance Soft Recovery Testing/Sys. Reliability Growth	1Q - 3Q							
Guided Gunfire A (Tactical Guidance System Testing)								

Milestone C for Block Ia-1								
Guided Gunfire B (Initial Full System Test Firing)								

Termination Liability Funding For Major Defense Acquisition Programs, RDT&E Funding (R5)	February 2007
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BUDGET ACTIVITY 5 - System Development and Demonstration	PE NUMBER AND TITLE 0604814A - Artillery Munitions - EMD	PROJECT 708
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Funding in \$000								
Program	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
XM982 Excalibur	10769	33664						
Total Termination Liability Funding:	10769	33664						

