

# ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

**February 2008**

<b>BUDGET ACTIVITY</b> <b>5 - System Development and Demonstration</b>		<b>PE NUMBER AND TITLE</b> <b>0604814A - Artillery Munitions - EMD</b>						<b>PROJECT</b> <b>708</b>	
COST (In Thousands)	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	99344	64214	78197	43313	2778	2115	2315	Continuing	Continuing

**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 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 Increment Ia-1 is being fielded to the Multi National Forces - Iraq (MNF-I) in Iraq to fulfill an Urgent Need Request. Additional fielding in FY08 is planned to LW155 howitzers. Increment Ia-2, qualification scheduled to complete in FY08, will provide greatly increased range to LW155, Paladin and FCS Cannon forces Army-wide when fielded. The third planned increment will provide a further performance improvement while significantly lowering unit costs.

<u>Accomplishments/Planned Program:</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 Increment Ia qualification.	73856	16655	
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.	3725	11872	16526
Procure development test hardware and conduct test and evaluation.	6230	4806	3500
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	4880	750	200
Procure production representative projectiles and conduct Independent Operational Test & Evaluation (IOT&E) efforts for Increment Ia.	9908	2185	250
Initiate and implement follow-on Artillery Precision Development	745	26202	57721
Small Business Innovative Research/Small Business Technology Transfer Programs.		1744	
<b>Total</b>	<b>99344</b>	<b>64214</b>	<b>78197</b>

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<b><u>B. Program Change Summary</u></b>	FY 2007	FY 2008	FY 2009	
Previous President's Budget (FY 2008/2009)	101422	63039	78532	
Current BES/President's Budget (FY 2009)	99344	64214	78197	
Total Adjustments	-2078	1175	-335	
Congressional Program Reductions		-425		
Congressional Rescissions				
Congressional Increases		1600		
Reprogrammings	745			
SBIR/STTR Transfer	-2823			
Adjustments to Budget Years			-335	

<b><u>C. Other Program Funding Summary</u></b>	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	69862	28586	34220	64753	61915	85939	102291	1074793	1522359
OPA2: Enhanced Portable Inductive Fuze Setter (E-PIAFS): AD3260	7188	7521	2579	1273					18561

Comment:

**D. Acquisition Strategy** Excalibur is a family of Precision Guided Extended Range Munitions. A competitive source selection awarded an Engineering and Manufacturing Development (E&MD) contract for the initial increment, with options for the other increment'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 that provided for an early fielding capability in FY07 in response to an Urgent Needs Statement. The Product Manager's Office is currently managing a contract for the Increment Ia-1 LRIP concurrent with the balance of System Development and Demonstration (SDD) for follow-on Artillery Precision Development.

# ARMY RDT&E COST ANALYSIS (R3)

February 2008

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 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 Increment Ia Development	C/CPIF	Raytheon Missile System, Tucson, AZ	374970	41675	1-4Q	14308	2-4Q				430953	
Fee on Excalibur Development Contract	N/A	Raytheon Missile System, Tucson, AZ	29354	6025	2-4Q						35379	
TCM Merger Assessment	FP	Bofors Defence, Karlskoga, Sweden	14430								14430	
Platform Integration-Systems Contractor	MIPR	ARES, Annapolis, MD	600	120	2Q	120	2Q	120	2Q	Cont.	Cont.	
Misc Support Contracts	Various	Various	2116	350	1-2Q	400	1-2Q	200	1-2Q	Cont.	Cont.	
Platform Integration/Fire Control - AFATDS	SS/CPIF	Raytheon AFATDS, Ft Wayne, IN	4495	450	1-2Q	300	1-2Q	200	1-2Q	Cont.	Cont.	
Platform Integration Firing Tables Development	MIPR	ARDEC, Firing Tables Branch, Picatinny, NJ/Aberdeen, MD	1724	250	1Q	150	1Q	150	1Q	Cont.	Cont.	
Platform Integration LW155 M777A2	C/CPIF	BAE, Burlington Vt.	11989			50	2Q				12039	
SS-SFM Test Projectiles	C/FFP	Various	10815								10815	
Follow-On Precision Artillery development	Various	Various		745	2-4Q	21500	2-4Q	64207	1-4Q	Cont.	Cont.	
Govt IPT Support Platform Integration Development	MIPR	ARDEC, Picatinny, NJ	2850	3700	1-4Q	250	1-4Q	500	1-4Q	Cont.	Cont.	
Platform Integration & EPIAFS Software Development	MIPR	Navy, Surface Warfare Center, MD	230								230	
Follow-On Precision Artillery risk reduction	C/CPFF	DOTC, Picatinny, NJ		3234	2Q					Cont.	Cont.	
ARDEC fuze technology maturation	DOTC	Picatinny, NJ				2500	2Q	1200	2Q		3700	
Subtotal:			453573	56549		39578		66577		Cont.	Cont.	

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February 2008

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II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	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
Program Management	In House	PM Excalibur , Picatinny, NJ	20612	3458	1-4Q	2103	1-4Q	980	1-4Q	Cont.	Cont.	
Government IPT Support-Excalibur XM982	MIPR	ARDEC, Picatinny, NJ	41733	12306	1-4Q	5380	1-4Q	4370	1-4Q	Cont.	Cont.	
Government TCM Support	MIPR	ARDEC, Picatinny, NJ	910								910	
Government Support- Ft Sill	MIPR	Ft. Sill, OK	2827	582	1-2Q	458	1-2Q	200	1-2Q	Cont.	Cont.	
Paladin Platform Integration	MIPR	PM Paladin Picatinny, NJ	650	280	1-2Q						930	
Modeling and Structural Development	MIPR	Army Research Labs, Adelphi, MD	5976	1198	1-4Q	400	1-4Q	200	1-4Q	Cont.	Cont.	
Govt IPT Support Platform Integration	MIPR	ARDEC, Picatinny, NJ	5591	450	1-4Q	200	1-4Q	120	1-4Q	Cont.	Cont.	
Milestone Support	SS/FP	Camber, Alexandria, VA	1290	250	2Q		1Q	250	1-4Q	Cont.	Cont.	
Technical Spt Contract for Platform Integration	SS/FP	Camber, Dallas, TX	696	125	1-2Q			150	1-2Q	Cont.	Cont.	
Fire Control development support	MIPR	Ft Monmouth, NJ/Ft Sill, OK	883	125	1-2Q					Cont.	Cont.	
Miscellaneous Support	MIPR	Various	1375	2475	1-4Q	300	1-4Q	300	1-4Q	Cont.	Cont.	
Platform Integration Software Support	MIPR	Navy Surface Warfare Center, MD	390								390	
PM CAS SS-SFM	In-House	PM CAS, Picatinny, NJ	700								700	
Government IPT Support - SS-SFM	MIPR	ARDEC, Picatinny, NJ	1625								1625	
Increment Ia Engineering Services	C/CPFF	DRS, Eatontown, NJ		5784	4Q	6261	1-4Q				12045	
Increment Ia Engineering Services	TBS	TBS				1500	2-4Q	1500	1-4Q	Cont.	Cont.	
Subtotal:			85258	27033		16602		8070		Cont.	Cont.	
III. Test And Evaluation	Contract	Performing Activity &	Total	FY 2007	FY 2007	FY 2008	FY 2008	FY 2009	FY 2009	Cost To	Total	Target

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February 2008

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<b>5 - System Development and Demonstration</b>			<b>0604814A - Artillery Munitions - EMD</b>							<b>708</b>		
	Method & Type	Location	PYs Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Complete	Cost	Value of Contract
TECOM Test Range	MIPR	YPG, Yuma, AZ	13893	4600	1-4Q	2350	1-4Q	2000	1-4Q	Cont.	Cont.	
Test Instrumentation and Analysis	MIPR	Army Research Labs, Adelphi, MD	3252	125	1-4Q	150	1-4Q	350	1-4Q	Cont.	Cont.	
Telemetry Support	SS/FF	Physical Science Laboratories (PSL), Las Cruces, NM	1996	550	2Q	400	2Q	450	2Q	Cont.	Cont.	
Telemetry Support	MIPR	ARDEC, Picatinny, NJ	12318	4743	1-4Q	940	1-4Q	250	1-4Q	Cont.	Cont.	
Telemetry Cryptographic Support & Anti-Jam Support	MIPR	Ft. Huachuca, AZ	138	85	2-3Q	500	2-3Q	50	2-3Q			773
Tri-Service Software Assessment	MIPR	OSD, Wash, DC	61									61
Operational Test Support & AEC	MIPR	ATEC, Alexandria, VA	5390	3281	2Q	500	1-4Q					9171
Target Replacement, Definition, Maintenance and Repair and Threat Assessment	MIPR	Target Management Office, Huntsville, AL.	1000	250	1-2Q	500	2-3Q	100	2-3Q	Cont.	Cont.	
ARDEC Testing	MIPR	ARDEC, Picatinny, NJ	1515	350	1-4Q	450	1-4Q	350	1-4Q	Cont.	Cont.	
Test Gun Equipment	MIPR	Watervliet Arsenal, NY	3772	200	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	1-4Q	300	1-4Q			Cont.	Cont.	
White Sands Missile Range	MIPR	White Sands Missile Range, NM		1032	2-3Q					Cont.	Cont.	
Test Hardware	SS/CPFF	SAVIT, Parsippany, NJ		250	2-3Q	200	2-3Q					450
Subtotal:			45635	15762		6290		3550		Cont.	Cont.	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	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						1744					1744	
Subtotal:						1744					1744	

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**February 2008**

BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>	PE NUMBER AND TITLE <b>0604814A - Artillery Munitions - EMD</b>	PROJECT <b>708</b>
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Remarks: Not Applicable

<b>Project Total Cost:</b>	<b>584466</b>	<b>99344</b>		<b>64214</b>		<b>78197</b>		<b>Cont.</b>	<b>Cont.</b>
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**Schedule Detail (R4a Exhibit)**

**February 2008**

**BUDGET ACTIVITY**  
**5 - System Development and Demonstration**

**PE NUMBER AND TITLE**  
**0604814A - Artillery Munitions - EMD**

**PROJECT**  
**708**

<u>Schedule Detail</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>
Increment Ia-1 Prod. Deliveries	1Q - 4Q	1Q - 3Q					
Material Release & Initial Capability	2Q						
Increment Ia-2 SDD	1Q - 4Q	1Q					
Guided Gunfire Demo-B Anti-Jam	2Q						
Increment Ia-2 MS C	4Q						
LRIP Ia-2 Award	4Q						
Increment Ia-2 IOT&E		4Q	1Q				
Increment Ia-2 IOC			3Q				
Full Rate Production Review Ia-2			3Q				
Increment Ia-2 Deliveries / FRP Deliveries		2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q		
Follow-On Precision Artillery Development		2Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 2Q	
Precision Artillery MS C					2Q		
Precision Artillery Production					2Q - 4Q	1Q - 4Q	1Q - 4Q

<b>Termination Liability Funding For Major Defense Acquisition Programs, RDT&amp;E Funding (R5)</b>	<b>February 2008</b>
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Funding in \$000							
Program	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
XM982 Excalibur							
<b>Total Termination Liability Funding:</b>							

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