

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

February 2006

## BUDGET ACTIVITY

### 5 - System Development and Demonstration

## PE NUMBER AND TITLE

### 0604802A - Weapons and Munitions - Eng Dev

	COST (In Thousands)	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
	Total Program Element (PE) Cost	150030	104029	130581	114850	85215	38863	34891	Continuing	Continuing
134	OBJ IND CBT WPN ENG DE	19554	0	0	0	0	0	0	0	19554
613	MORTAR SYSTEMS	23295	3071	130	75	11558	973	50	0	83508
705	Adv Precision Kill Weapon System (APKWS) - SD&ED	15289	10625	44742	66670	49824	19014	19666	0	292420
AS1	SMALL ARMS IMPROVEMENT	8709	0	0	0	0	0	0	0	27373
AS5	Artillery Munitions Engineering Development	15045	18730	0	0	0	6209	6198	0	57156
AS6	COMMON REMOTELY OPERATED WEAPONS STATION (CROWS)	5054	0	0	0	0	0	0	0	8802
AS8	XM395 PRECISION GUIDED MORTAR MUNITION (PGMM)	0	27856	48482	26604	18663	11123	8977	Continuing	Continuing
S23	SURF LNCH ADV MED RNG AIR-TO-AIR MSL (SLAMRAAM)	63084	35587	26961	10132	0	0	0	0	173542
S36	COURSE CORRECTING FUZE (CCF)	0	8160	10266	11369	5170	1544	0	0	36509

**A. Mission Description and Budget Item Justification:** This program element funds multiple efforts for engineering development of weapons and munitions systems.

Starting in FY06, funds have been realigned from Project 134 (Objective Individual Combat Weapon (OICW)), Project AS1 (Small Arms Improvements), and Project AS6 (Common Remotely Operated Weapons Station (CROWS)) to PE 0604601 Infantry Support Weapons, Projects S62, S63, and S64 respectively, to streamline the management, development, and testing of infantry support weapons and associated equipment.

Project 134 (OICW) funds the spiral development of the XM-29 Integrated Air Burst Weapons System, and is comprised of two increments. OICW Increment I is the 5.56mm Modular Assault Weapon family and Increment II is the XM-25 Air Burst Weapon System.

Project 613 Mortar Systems funds complete the RDTE effort for the Mortar Fire Control System (MFCS), a revolutionary improvement in mortar capability seamlessly linking mortar fires in the future digital battlefield.

Project 705, the Advanced Precision Kill Weapon System (APKWS), is a highly accurate weapon that will complement the HELLFIRE missile in precision strikes against soft point targets and provide improved accuracy over the current 2.75-inch munition used on the AH-64 Apache, the OH-58 Kiowa Warrior, and armed reconnaissance helicopters (AHRs).

Project AS1 (Small Arms Improvements) funds the development of technology to enhance lethality, target acquisition, fire control, training effectiveness, and reliability for

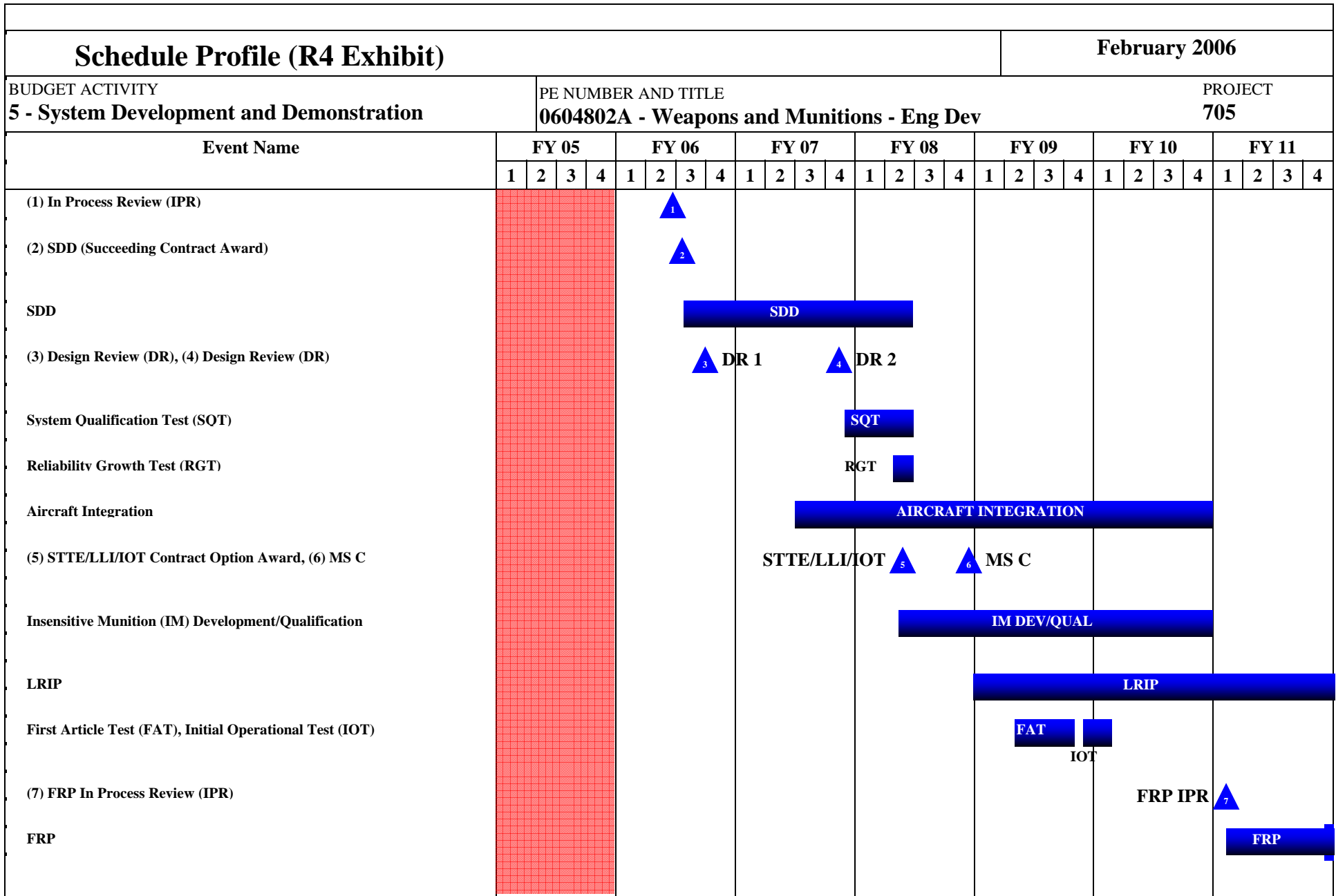
ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)		February 2006
BUDGET ACTIVITY	PE NUMBER AND TITLE	
5 - System Development and Demonstration	0604802A - Weapons and Munitions - Eng Dev	
<p>current small arm weapons and ammunition systems. Funds for this project include several FY05 New Starts: Platform Integration of Crew Served Weapons; High Cap Feed Systems for the M240H Machine Gun (Aviation Variant); 5.56mm Light Weight Ammo; E50 Enhanced Cal. 50 Machine Gun Kit; and improved optics for Rifles and Carbines.</p> <p>Project AS5 Artillery Munitions Engineering Development (AS5) funds the Advanced Cannon Artillery Ammunition Program (ACA2P) Pre Production Engineering, a product improvement program for 105mm and 155mm families of extended range artillery munitions using common airframes for various payloads. FY05 funds ACA2P and Hybrid Propellant for the Future Combat System (FCS). ACA2P munitions have ballistic similitude intended to meet FCS and Force Entry range and ballistic requirements. Hybrid Propellant is a unique propellant under development for future application in small, medium and large caliber munitions. Hybrid propellant releases energy more efficiently than conventional propellants and provides FCS munitions with the highest possible muzzle velocity for extended ranges/lethality, the prospect of lighter barrels with less recoil, extended wear characteristics and the ability to use heavier projectiles at standard muzzle velocities for greater lethality.</p> <p>Project AS6 (CROWS) funds pre-production prototype remote mounting systems for heavy, medium, and light machine guns mounted on top of a variety of vehicles. These remote mounting systems reduce the Soldier's exposure to enemy fire by giving the Soldier the ability to acquire, track, and fire at targets from behind armor during day and night conditions. Funds for CROWS efforts include an FY05 New Start called CROWS Lightning, a smaller, lighter version of the current system.</p> <p>In FY07, Project AS8 funds Increment 1 Precision Guided Mortar Munition (PGMM). PGMM is a precision strike round with advanced sensors, guidance systems and enhanced lethal mechanism technology. It will be capable of a first round defeat of high-value, hard-point targets such as bunkers, command and control centers and stationary lightly armored vehicles.</p> <p>Project S23, the Surface Launched Advanced Medium Range Air-To-Air Missile (SLAMRAAM) is the initial kinetic energy component of Integrated Air &amp; Missile Defense (IAMD), an Air and Missile Defense (AMD) Future Force system. SLAMRAAM's force protection mission is to engage the low-altitude aerial threats out to 18km.</p> <p>Project S36 Course Correcting Fuze (CCF) funds the design, development, assembly and test CCF. CCF is a low-cost, fuze-sized module that is intended to replace a NATO standard fuze on legacy and future artillery projectiles. CCF will effectively reduce target delivery error of conventional artillery munitions and reduce the number of projectiles per fire mission.</p>		

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)			February 2006
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>		PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>	
	FY 2005	FY 2006	FY 2007
<b><u>B. Program Change Summary</u></b>			
Previous President's Budget (FY 2006)	154356	87034	99760
Current BES/President's Budget (FY 2007)	150030	104029	130581
Total Adjustments	-4326	16995	30821
Congressional Program Reductions		-456	
Congressional Rescissions		-1049	
Congressional Increases		18500	
Reprogrammings	-4326		
SBIR/STTR Transfer			
Adjustments to Budget Years			30821
Change Summary Explanation: Funding: FY 2006: Congressional increases for Hybrid Propellant - +\$1.2M (Project AS5), ACAAP - +\$12.8M (Project AS5), Reactive Materials Technology - +\$3.5M (Project AS5), and Short Range Practice Cartridge (SRPC) - +\$1.0M (Project 613).  FY 2007: Funds increased (+\$36.0M) for APKWS - Project 705. Funds increased (+0.7M) for PGMM - Project AS8. Funds increased (+\$0.2M) for PGK. Funds decreased (-\$3.9M) for LDMS - Project 613. Funds decreased (-\$2.2M) for SLAMRAAM - Project S23.			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)								February 2006	
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>					PROJECT <b>705</b>	
COST (In Thousands)	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
705 Adv Precision Kill Weapon System (APKWS) - SD&ED	15289	10625	44742	66670	49824	19014	19666	0	292420
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> The Advanced Precision Kill Weapon System (APKWS) is a family of precision-guided rockets that combines a newly designed guidance section with existing 2.75-inch munition components and launch equipment. The APKWS is a highly accurate weapon that will complement the HELLFIRE missile in a precision strike against soft point targets. The APKWS will provide improved accuracy over the current 2.75-inch munition used on the AH-64 Apache, OH-58 Kiowa Warrior, Armed Reconnaissance Helicopter (ARH), and Special Operations aircraft. The FY07 funding supports System Development and Demonstration and qualification of the APKWS design. The APKWS is expected to provide a substantial increase in the number of stowed kills over the unguided Hydra 70 rocket and a reduction in collateral damage to minimize fratricide.</p>									
<b><u>Accomplishments/Planned Program</u></b>						<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	
Define and develop system requirements and preliminary design for precision guided rocket including hardware and software.						6461	7545	33084	
Develop test plans, test support equipment, and testing,						4336	1845	3846	
Perform government engineering support.						4492	1235	2464	
Aircraft integration and certification of APKWS.						0	0	5348	
Total						15289	10625	44742	
<b><u>B. Other Program Funding Summary</u></b>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
C70301 APKWS (Advanced Precision Kill Weapon System)	0	0	0	9562	10425	83592	82460	1145300	1331339
0203802, project 786 (APKWS Simulator Upgrade)	0	0	12	5546	5747	6149	4871	CONT	CONT
<p><b><u>C. Acquisition Strategy</u></b> The Milestone Decision Authority curtailed the initial APKWS contract in January 2005 due to contract cost, schedule, and performance issues. The program has since been restructured and the succeeding APKWS II contract is a full and open competition for the System Development and Demonstration (SDD) and Low Rate Initial Production (LRIP). Contract award expected 3Q FY06. The U.S. Army Aviation and Missile Life Cycle Management Command will provide assistance and technical expertise during the demonstration effort.</p>									

ARMY RDT&E COST ANALYSIS (R3)										February 2006		
BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
<b>5 - System Development and Demonstration</b>			<b>0604802A - Weapons and Munitions - Eng Dev</b>								<b>705</b>	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs 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
Prime Contract	CPIF	TBD	62880	6461	2Q	6170	3Q	29293	2Q	80597	140177	0
Support Contracts	Various	Various	391	3315	1-4Q	411	1-4Q	6323	1-4Q	45842	56282	0
Development Engineering	Various	Various	1197	193	1-4Q	964	1-4Q	2816	1-4Q	8184	13354	0
Subtotal:			64468	9969		7545		38432		134623	209813	0
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs 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
Subtotal:			0									
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs 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
Test Support	Various	Various	1353	4050	1-4Q	1845	1-4Q	3846	1-4Q	11519	0	0
Subtotal:			1353	4050		1845		3846		11519	0	0
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs 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
In-House Support	Various	Various	769	1270	1-4Q	1235	1-4Q	2464	1-4Q	9032	0	0
Subtotal:			769	1270		1235		2464		9032	0	0

ARMY RDT&E COST ANALYSIS (R3)							February 2006				
BUDGET ACTIVITY 5 - System Development and Demonstration		PE NUMBER AND TITLE 0604802A - Weapons and Munitions - Eng Dev							PROJECT 705		
Project Total Cost:		66590	15289		10625		44742		155174	209813	0



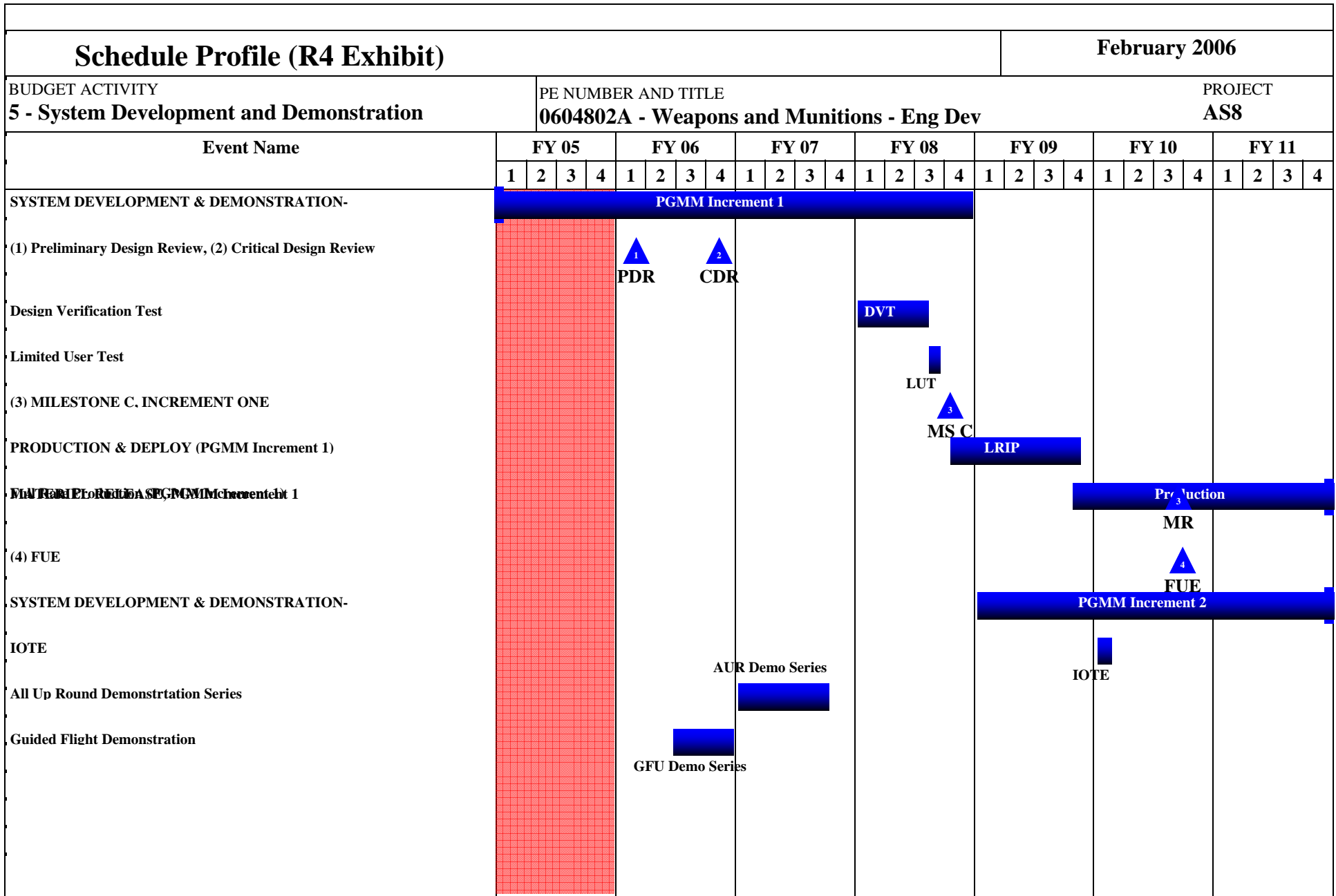
Schedule Detail (R4a Exhibit)						February 2006	
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>			PROJECT <b>705</b>	
<u>Schedule Detail</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
IPR		2Q					
APKWS Prime System Contract Award		3Q					
APKWS Design Reviews (DRs)		4Q	4Q				
APKWS SQT			4Q	1-2Q			
APKWS RGT				2Q			
APKWS IOT					4Q	1Q	
Milestone C				4Q			
Insensitive Munition (IM) Development Contract Award				2Q			
LRIP					1-4Q	1-4Q	1-4Q
IM Engineering Change Proposal (ECP)						2Q	
STTE/LLI/IOT Contract Award				2Q			
Aircraft Integration Contract Award			2Q				
FRP Design Review/Contract Award							1Q



<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>								<b>February 2006</b>																																
<b>BUDGET ACTIVITY</b> <b>5 - System Development and Demonstration</b>			<b>PE NUMBER AND TITLE</b> <b>0604802A - Weapons and Munitions - Eng Dev</b>					<b>PROJECT</b> <b>AS8</b>																																
<b>COST (In Thousands)</b>		<b>FY 2005</b> Estimate	<b>FY 2006</b> Estimate	<b>FY 2007</b> Estimate	<b>FY 2008</b> Estimate	<b>FY 2009</b> Estimate	<b>FY 2010</b> Estimate	<b>FY 2011</b> Estimate	<b>Cost to</b> Complete	<b>Total Cost</b>																														
AS8	XM395 PRECISION GUIDED MORTAR MUNITION (PGMM)	0	27856	48482	26604	18663	11123	8977	Continuing	Continuing																														
<p><b><u>A. Mission Description and Budget Item Justification:</u></b> This program provides funds to perform system and technical development that will enhance the effectiveness, lethality, versatility, mobility, and accuracy of mortar systems. FY 2006-FY 2008 funds provide for the continuation and completion of System Development &amp; Demonstration (SDD) of an Increment 1 PGMM. The PGMM will be a multiple purpose precision strike round with advanced sensors(Semi-Active Laser), guidance systems and enhanced lethal mechanism technology. It will be capable of a first round defeat of multiple types of high-value, hard-point targets such as bunkers, command and control centers and stationary lightly armored vehicles. The capability to hit point targets in built-up areas makes this especially valuable in Military Operations in Urban Terrain (MOUT) and Military Operations Other Than War/Stability and Support Operations (MOOTW/SASO) situations. First round hit capability reduces the overall logistical burden, a critical goal for early entry forces.</p>																																								
<b><u>Accomplishments/Planned Program</u></b>							<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>																															
PGMM: SD&D Subsystem Test and System Integration							0	18610	33282																															
PGMM: System Engineering							0	3294	4442																															
PGMM: Program Management							0	2739	3338																															
PGMM: Development Test & Evaluation							0	3213	7420																															
Total							0	27856	48482																															
<table border="1"> <tr> <td><b><u>B. Other Program Funding Summary</u></b></td> <td><b>FY 2005</b></td> <td><b>FY 2006</b></td> <td><b>FY 2007</b></td> <td><b>FY 2008</b></td> <td><b>FY 2009</b></td> <td><b>FY 2010</b></td> <td><b>FY 2011</b></td> <td><b>To Compl</b></td> <td><b>Total Cost</b></td> </tr> <tr> <td>0604802A 613</td> <td>23770</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>23770</td> </tr> <tr> <td>Procurement, Army Ammunition- E86200 (CTG, Mortar, 120mm, PGMM)</td> <td>0</td> <td>0</td> <td>0</td> <td>23464</td> <td>20337</td> <td>9919</td> <td>12469</td> <td>184300</td> <td>250489</td> </tr> </table>											<b><u>B. Other Program Funding Summary</u></b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>To Compl</b>	<b>Total Cost</b>	0604802A 613	23770	0	0	0	0	0	0	0	23770	Procurement, Army Ammunition- E86200 (CTG, Mortar, 120mm, PGMM)	0	0	0	23464	20337	9919	12469	184300	250489
<b><u>B. Other Program Funding Summary</u></b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>To Compl</b>	<b>Total Cost</b>																															
0604802A 613	23770	0	0	0	0	0	0	0	23770																															
Procurement, Army Ammunition- E86200 (CTG, Mortar, 120mm, PGMM)	0	0	0	23464	20337	9919	12469	184300	250489																															
<p><b><u>C. Acquisition Strategy</u></b> PGMM program Acquisition Decision Memorandum (ADM) and Acquisition Program Baseline (APB) were approved on 21 May 2004. The PGMM SDD contract was awarded 1 December 2004. The FY 2006 and FY 2007 funds are provided as a continuation of the SDD contract that was initiated with FY 2004 Funds.</p>																																								

ARMY RDT&E COST ANALYSIS (R3)										February 2006		
BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT		
<b>5 - System Development and Demonstration</b>			<b>0604802A - Weapons and Munitions - Eng Dev</b>							<b>AS8</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs 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
SD&D- Subsystem Test & System Integration	CPIF/AF	Alliant Techsystems, Plymouth, MN	0	0		18610	1-2Q	31482	1-2Q	Continue	0	0
SD&D- Subsystem Test & System Integration	Award Fee	Alliant Techsystems, Plymouth, MN	0	0		0		1800	1-2Q	Continue	0	0
Subtotal:			0	0		18610		33282		Continue	0	0
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs 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
Systems Engineering	MIPR	ARDEC, Picatinny, NJ	0	0		3294	2-3Q	4442	1-3Q	Continue	0	0
Fuze Setter Development	MIPR	Adelphi, MD	0	0		600	2Q	2000	2Q	Continue	0	0
Ammo Rack Development	MIPR	Warren, MI	0	0		294	2Q	1000	2Q	Continue	0	0
Subtotal:			0	0		4188		7442		Continue	0	0
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs 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
Guided Flight Tests	MIPR	Yuma Proving Grounds, Yuma, AZ	0	0		550	2-3Q	0		0	0	0
Training Simulator Testing	MIPR	PEO Simulation, Training, and Instrumentation, Orlando, FL	0	0		385	2Q	320	1Q	Continue	Continue	0
Design VerificationTesting	MIPR	Yuma Proving Grounds, Yuma, AZ	0	0		0		3500	1Q	Continue	0	0
USA Infantry Center Support	MIPR	Ft. Benning, GA	0	0		100	2-3Q	120	1Q	Continue	Continue	0

ARMY RDT&E COST ANALYSIS (R3)									February 2006			
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>							PROJECT <b>AS8</b>		
Lethality Verification Testing	MIPR	Redstone Technical Test Center, Redstone Arsenal, AL	0	0		855	2Q	0		0	0	0
Misc Test Support	MIPR	Various	0	0		280	2Q	460	1Q	Continue	0	0
Tactics, Techniques and Procedures Demonstration	MIPR	Infantry Center, Ft. Benning, GA	0	0		149	2Q	20	2Q	Continue	0	0
Subtotal:			0	0		2319		4420		Continue	Continue	0
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs 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
Program Management	In-House	PM Mortars, Picatinny, NJ	0	0		2217	1-4Q	2609	1-4Q	Continue	0	0
Program Management Support	T&M	Various	0	0		522	1Q	729	2Q	Continue	0	0
Subtotal:			0	0		2739		3338		Continue	0	0
<b>Project Total Cost:</b>			<b>0</b>	<b>0</b>		<b>27856</b>		<b>48482</b>		<b>Continue</b>	<b>0</b>	<b>0</b>



Schedule Detail (R4a Exhibit)						February 2006	
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>			PROJECT <b>AS8</b>	
<u>Schedule Detail</u>	<u>FY 2005</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>
Continue SD&D, Incr 1 (follow-on from Proj 613)		1Q					
Preliminary Design Review		1Q					
Critical Design Review		3Q					
Guided Flight Demonstration		2-4Q					
All Up Round Demonstration Series			1-4Q				
Design Verification Test				1-3Q			
Limited User Test (LUT)				3Q			
LRIP				4Q			
Milestone C				4Q			
Start SDD, Increment 2					1Q		
IOTE					1-2Q		
FUE						3Q	
IOC						4Q	

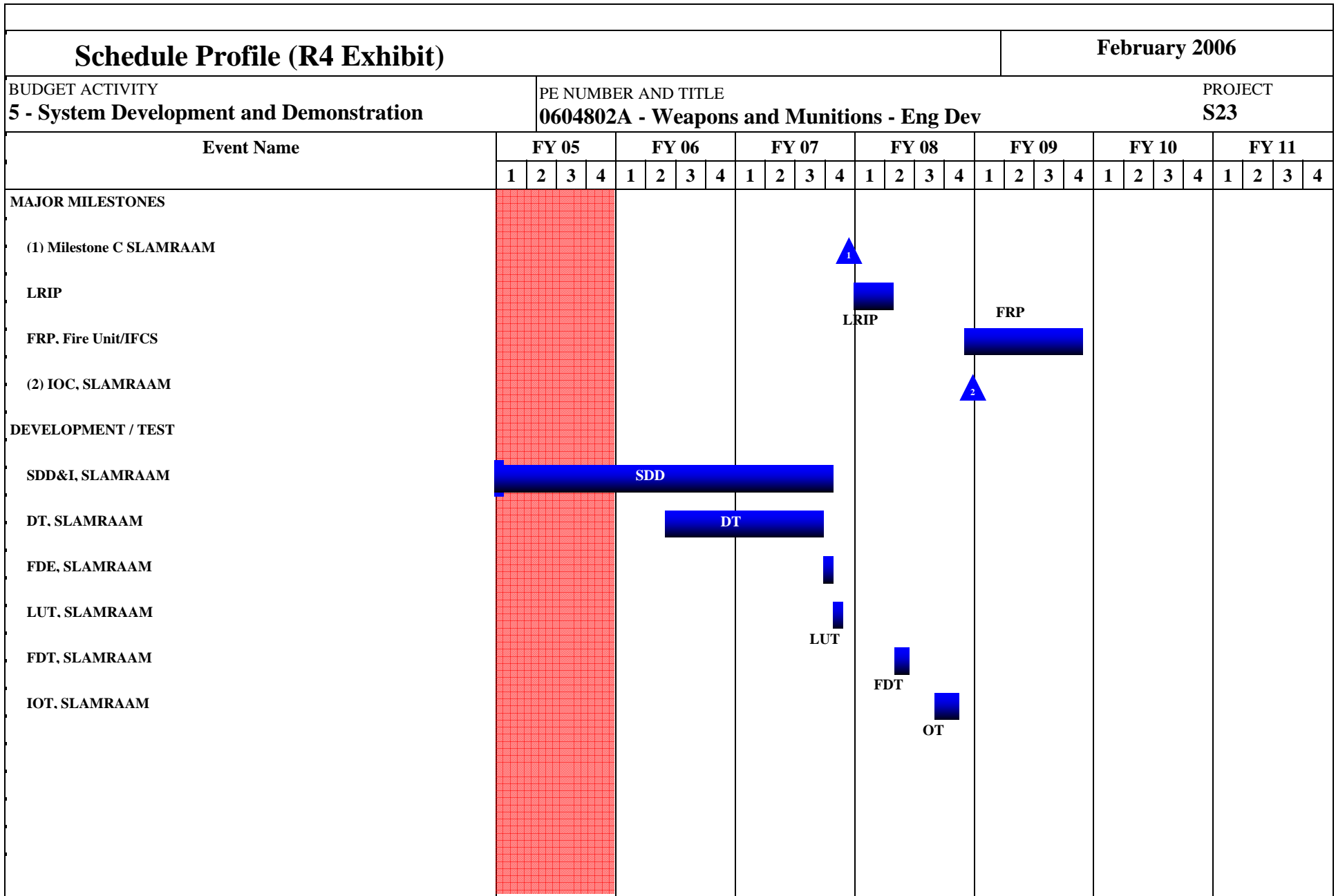
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COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
S23 SURF LNCH ADV MED RNG AIR-TO-AIR MSL (SLAMRAAM)	63084	35587	26961	10132	0	0	0	0	173542
<b><u>A. Mission Description and Budget Item Justification:</u></b> Surface Launched Advanced Medium Range Air-To-Air Missile (SLAMRAAM) is a critical component of the Army's future Cruise Missile Defense capability. It will be resident within Integrated Air & Missile Defense (IAMD) Task Forces and Composite Battalions. SLAMRAAM is part of the Missiles and Space (MS) System of Systems concept, consisting of a launcher platform, AIM-120 Advanced Medium Range Air-to-Air Missiles (AMRAAMs), a common Army vehicle, launch rails, launcher electronics, on-board command, control, communications, and computer (C4) components, Sentinel (Enhanced Target Range and Classification) Sensor, other external Sensors, and an Integrated Fire Control Station (IFCS). SLAMRAAM is a lightweight, day or night, adverse weather, non-line-of-sight (NLOS) system for countering cruise missile (CM), fixed wing (FW), unmanned aerial vehicle (UAV), and reconnaissance, surveillance, and target acquisition (RSTA) platforms. SLAMRAAM's mission is to engage the low-altitude aerial threats in excess of 18km. It is highly mobile and able to operate in close combat areas to protect maneuver forces and critical stationary units, as well as provide cruise missile defense protection for operational and strategic-level critical assets.									
<b><u>Accomplishments/Planned Program</u></b>						<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	
Product Development						47566	22110	11150	
Support Cost						1004	372	522	
Test and Evaluation						9672	9950	13370	
Management Services						4842	3155	1919	
Total						63084	35587	26961	
<b><u>B. Other Program Funding Summary</u></b>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
643869A, Project 01B MEADS	251298	0	0	0	0	0	0	0	251298
654869A Project M06, PATRIOT/MEADS CAP	0	284695	329583	459684	517049	592013	422005	0	2605029
273801A, Project 036 PATRIOT PIP	32067	15957	10770	11051	11297	12227	12734	0	106103
654865, Project 01C PAC-3	60408	0	0	0	0	0	0	0	60408
MSLS PROC C49100, PATRIOT	496990	483260	489067	472907	478795	0	0	0	2421019
MSLS PROC C50001, PATRIOT/MEADS CAP	0	0	0	89735	65296	429735	674386	0	1259152
172419, JLENS	79279	105888	264491	465214	353856	335490	301143	0	1905361
OPA BZ0525, JLENS Prod	0	0	0	0	0	30471	476728	0	507199
MSLS PROC C81001, SLAMRAAM Prod	2438	19061	22039	59314	82656	82143	60979	0	328630

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)							February 2006		
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>					PROJECT <b>S23</b>	
654820A, SENTINEL	5848	5008	2527	2622	0	0	0	0	16005
OPA WK5057, SENTINEL Prod	10566	8289	15125	20914	33394	33239	25314	0	146841
643327, Project E88 Integrated Fire Control AMD	19984	24480	41746	47995	50096	0	0	0	184301
<p>Comment: This PE is an integral part of the Missile and Space Integrated Air and Missile Defense (IAMD) Program including Integrated Fire Control, JLENS, Patriot/MEADS Combined Aggregate Program (CAP), SLAMRAAM, JTAGS, SENTINEL, and on-going initiatives to achieve Single Integrated Air Picture (SIAP).</p> <p><u>C. Acquisition Strategy</u> System Development and Demonstration (SDD) contract award in 2nd Quarter FY04. SDD will be a 41 month effort, culminated by completion of IOT&amp;E in 4th Qtr FY08. Initial Operational Capability (IOC) available in FY08.</p>									

ARMY RDT&E COST ANALYSIS (R3)										February 2006		
BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
<b>5 - System Development and Demonstration</b>			<b>0604802A - Weapons and Munitions - Eng Dev</b>								<b>S23</b>	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs 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
Contractor Hardware/Software Development	CPIF	Raytheon, Tewksbury, MA	19778	47309	1Q	22110	1-3Q	11150	1-3Q	0	100347	100347
Government Prototype Manufacturing (GFE)	MIPR	SFAE-MSLS-CMDS	3368	257	1Q	0		0		0	3625	0
Subtotal:			23146	47566		22110		11150		0	103972	100347
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs 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
Contractor Support Costs	CPIF	Raytheon, Tewksbury, MA	773	1004	1Q	372	1Q	522	1Q	0	2671	2671
Subtotal:			773	1004		372		522		0	2671	2671
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs 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
Contractor System Test & Evaluation	CPIF	Raytheon, Tewksbury, MA	488	2243	1Q	4428	1Q	3139	1Q	2497	12795	12795
Government System Test & Evaluation	MIPR	CMDS (SFAE-MSLS-CMDS) Redstone Arsenal, AL	1257	3879	1Q	3618	1-2Q	7781	1-2Q	3751	0	0
Government Modeling & Simulation	MIPR	CMDS (SFAE-MSLS-CMDS) Redstone Arsenal, AL	3050	3550	1Q	1904	1-2Q	2450	1-2Q	3884	0	0
Subtotal:			4795	9672		9950		13370		10132	12795	12795



ARMY RDT&E COST ANALYSIS (R3)									February 2006			
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604802A - Weapons and Munitions - Eng Dev							PROJECT S23	
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs 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
Contractor SE/PM	CPIF	Raytheon, Tewksbury, MA	4732	2681	1Q	2058	1-3Q	437	1Q	0	0	11308
Government SE/PM	MIPR	CMDS (SFAE-MSLS-CMDS) Redstone Arsenal, AL	4332	2161	1Q	1097	1-3Q	1482	1Q	0	0	0
Subtotal:			9064	4842		3155		1919		0	0	11308
Remarks: Government Modeling & Simulation included in Test & Evaluation.												
Project Total Cost:			37778	63084		35587		26961		10132	119438	127121



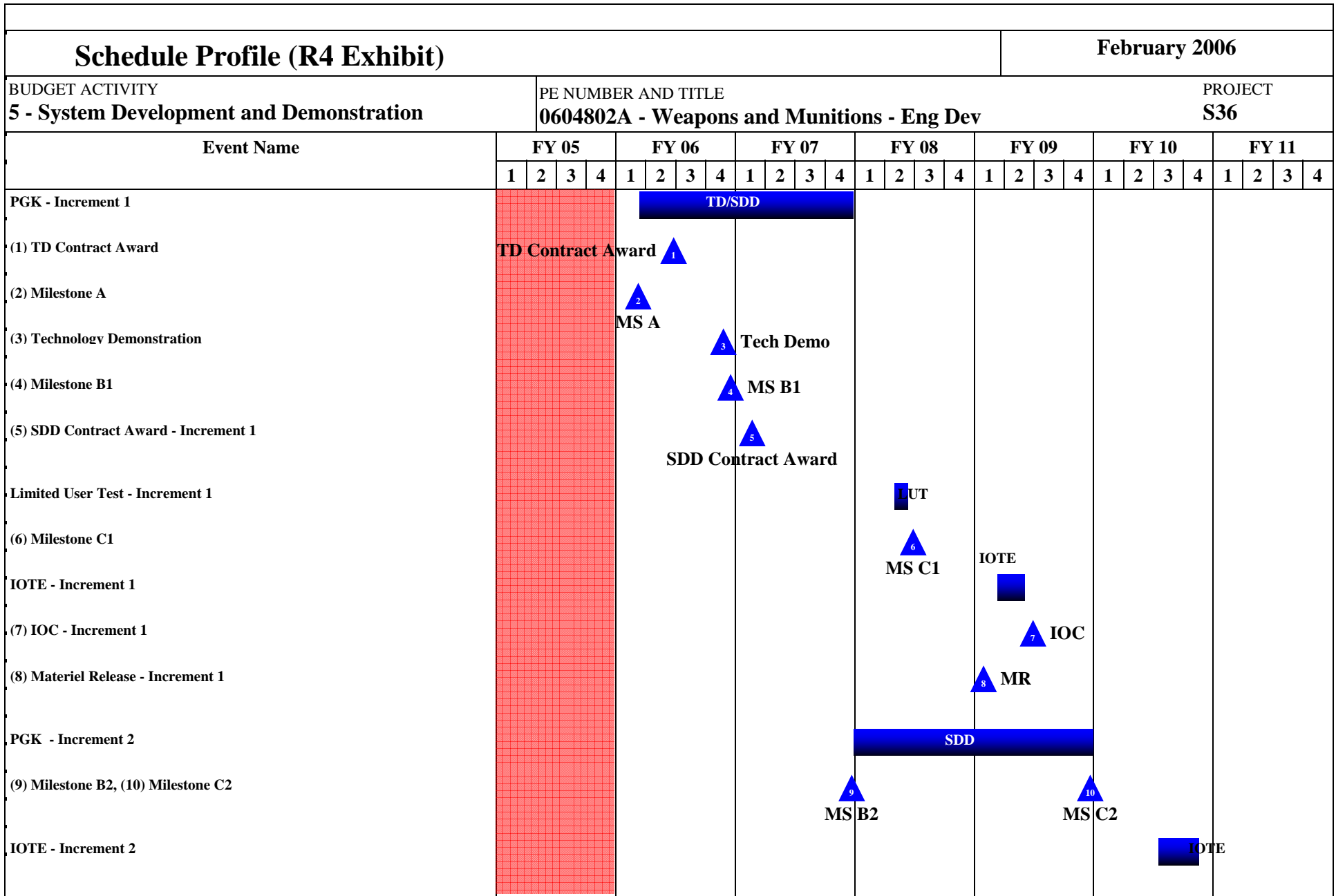
Schedule Detail (R4a Exhibit)					February 2006		
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>		PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>				PROJECT <b>S23</b>	
<u>Schedule Detail</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
Milestone C			4Q				
LRIP				1-2Q			
Full Rate Production				4Q	1-4Q		
IOC				4Q			
SDD&I	1-4Q	1-4Q	1-4Q				
DT		2-4Q	1-3Q				
FDE			3-4Q				
LUT			4Q				
FDT				2Q			
IOT				3-4Q			

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)								February 2006	
BUDGET ACTIVITY 5 - System Development and Demonstration			PE NUMBER AND TITLE 0604802A - Weapons and Munitions - Eng Dev					PROJECT S36	
COST (In Thousands)	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
S36 COURSE CORRECTING FUZE (CCF)	0	8160	10266	11369	5170	1544	0	0	36509
<b>A. Mission Description and Budget Item Justification:</b> The Course Correcting Fuze is currently being pursued as a solution to meet the Precision Guidance Kit (PGK) Capability Development Document requirement. The PGK is adaptable to existing stockpile and future conventional cannon artillery projectiles. The PGK corrects the ballistic trajectory of the projectile to reduce delivery errors and thus improves projectile accuracy. The PGK will effectively reduce target delivery error of conventional artillery munitions and reduce the number of projectiles required to execute a fire mission. The PGK will benefit 155mm projectiles as well as the family of 105mm projectiles. The increase in effectiveness offered by the PGK gives commanders the operational capability to defeat more targets with the same basic load, while reducing the logistical burden associated with the current mission requirements.									
<b><u>Accomplishments/Planned Program</u></b>						<b><u>FY 2005</u></b>	<b><u>FY 2006</u></b>	<b><u>FY 2007</u></b>	
Supporting documentation and Milestone A execution						0	200	0	
Supporting documentation and Milestone B execution						0	200	0	
Conduct Technology Development and Demonstration						0	7260	0	
Conduct Systems Development and Demonstration						0	0	9516	
Testing						0	500	750	
Total						0	8160	10266	
<b><u>B. Other Program Funding Summary</u></b>	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Compl	Total Cost
0604802A Weapons and Munitions - Eng Dev Project AS5	0	0	0	0	0	0	0	0	12284
E99250 Course Correcting Fuze (CCF)	0	0	0	11269	30865	36174	48649	0	126957
<b><u>C. Acquisition Strategy</u></b> The Army issued a competitive Technology Demonstration (TD) Request for Proposal (RFP) with options for Systems Development and Demonstration (SD&D) and 3 years of production in December 2005. The Army approved the PGK Milestone (MS) A on 20 Dec 05. A Technology Readiness Level-7 (TRL) demonstration will be conducted in 4QFY06. TRL-7 is a system or subsystem prototype demonstration conducted in a relevant environment. A down select to one contractor will occur after the conclusion of the TD demonstration. A MS B for Increment 1 (MS B1) will be conducted and the SD&D option will be awarded. The Army will be monitoring the Navy's									

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)		February 2006
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>	PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>	PROJECT <b>S36</b>
<p>Guidance Integrated Fuze (GIF) program for progress towards TRL-7. The Army may terminate its TD efforts should the GIF program meet TRL-7 and achieve an affordable design prior to MS B1. GIF progress will be considered at MS B1, MS B2 and MS B3 allowing the Army to either chose the GIF SD&amp;D option or to continue SD&amp;D with the Army contractor.</p>		

ARMY RDT&E COST ANALYSIS (R3)										February 2006		
BUDGET ACTIVITY				PE NUMBER AND TITLE						PROJECT		
<b>5 - System Development and Demonstration</b>				<b>0604802A - Weapons and Munitions - Eng Dev</b>						<b>S36</b>		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs 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
PGK TD Contract	CPIF	TBS	0	0		5000	2Q	0		0	5000	0
PGK SDD Contract	CPIF/Option	TBS	0	0		0		7000	1Q	Continue	Continue	0
Subtotal:			0	0		5000		7000		Continue	Continue	0
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs 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
Product Manager's Office	In House	PM CAS, Picatinny NJ	0	0		320	1-4Q	330	1-4Q	Continue	Continue	0
Government IPT Support	MIPR	ARDEC, Picatinny NJ	0	0		2265	1-3Q	2106	1-3Q	Continue	Continue	0
Subtotal:			0	0		2585		2436		Continue	Continue	0
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs 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
Component Air Gun/Railgun Testing	MIPR	ARDEC, Picatinny, NJ	0	0		150	2-3Q	100	2-3Q	Continue	Continue	0
System Demonstration	MIPR	Yuma Proving Ground, Yuma, AZ	0	0		350	4Q	150	2Q	Continue	Continue	0
Safety Testing	MIPR	Yuma Proving Ground, Yuma, AZ	0	0		0		500	4Q	Continue	Continue	0
Subtotal:			0	0		500		750		Continue	Continue	0
IV. Management Services	Contract Method &	Performing Activity & Location	Total PYs Cost	FY 2005 Cost	FY 2005 Award	FY 2006 Cost	FY 2006 Award	FY 2007 Cost	FY 2007 Award	Cost To Complete	Total Cost	Target Value of

ARMY RDT&E COST ANALYSIS (R3)								February 2006				
BUDGET ACTIVITY 5 - System Development and Demonstration				PE NUMBER AND TITLE 0604802A - Weapons and Munitions - Eng Dev							PROJECT S36	
	Type				Date		Date		Date			Contract
PGK Management Support Contract	FFP	Alion, Rome, NY	0	0		75	2Q	80	2Q	Continue	Continue	0
Subtotal:			0	0		75		80		Continue	Continue	0
Project Total Cost:			0	0		8160		10266		Continue	Continue	0





Schedule Detail (R4a Exhibit)						February 2006	
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>			PE NUMBER AND TITLE <b>0604802A - Weapons and Munitions - Eng Dev</b>			PROJECT <b>S36</b>	
<u>Schedule Detail</u>	<u>FY 2005</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>
TD Contract Award		2Q					
Milestone A		1Q					
Technology Demonstration		4Q					
Milestone B1		4Q					
SDD Contract Award - Increment 1			1Q				
Limited Users Test				2Q			
Milestone C1				2Q			
Initial Operational Capability - Increment 1					3Q		
Initial Operational Test and Evaluation - Increment 1					1-2Q		
Materiel Release - Increment 1					1Q		
Milestone B2			4Q				
Limited User Test - Increment 2					4Q		
Technical Demonstration - Increment 2					3Q		
Milestone C2					4Q		
Initial Operational Test and Evaluation - Increment 2						3-4Q	
Initial Operational Capability - Increment 2							4Q