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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)							DATE February 2000		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development					
COST (In Thousands)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	39650	68464	22505	34336	34354	64335	56212	Continuing	Continuing
D134 Objective Individual Combat Weapon Engineering Development (OICW)	0	14701	0	25513	22238	19340	14999	Continuing	Continuing
D284 Multipurpose Individual Munition	17691	16967	14393	0	0	0	0	0	71859
D613 Mortar Systems	9077	17168	5069	5660	5458	30172	30485	Continuing	Continuing
D695 XM982 Projectile	6585	11784	0	0	0	0	0	0	20378
D705 Hydra 70 Engineering and Manufacturing Development	3787	0	0	0	0	0	0	0	3803
DAS1 Small Arms Improvement	2510	7844	3043	3163	6658	14823	10728	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: Provides for engineering development of weapons and munitions systems. The Multi-Purpose Individual Munition (MPIM) provides the infantry with a fire-and-forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The Objective Individual Combat Weapon (OICW) represents the next generation individual soldier's weapon, replacing selected M16 rifles, the M4 series carbine, the rifle-mounted M203 40mm grenade launcher as well as night vision devices and laser range finders. The mortar systems effort supports development of the Mortar Fire Control System (MFCS). The MFCS is a revolutionary improvement in mortar capability, seamlessly linking mortar fires in the future digital battlefield. Additionally, it funds development of a low cost 60mm training round in FY2000 and the Precision Guided Mortar Munition in FY 02 – FY05. The XM982 extended range Dual Purpose Improved Conventional Munition (DPICM) is an extended range 155mm artillery projectile. It will extend the range of the M198, M190A5, M190A6, 155mm Paladin and the lightweight Howitzer to approximately 37 kilometers, with the Modular Artillery Charge System (MACS) in Crusader extending the range to 47 kilometers. Beginning in FY01, funding for the XM982 Program is in Program Element 0604814, Project D708. The Hydra 70 EMD program will accomplish airworthiness testing of the Hydra 70 rocket motor under various flight conditions. The small arms improvement program develops technology to enhance lethality, target acquisition, fire control, training effectiveness, and /or reliability for small arms weapon systems. This project develops a universal mounting bracket for the MK19-3 Grenade Machine Gun.</p>									

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B. Program Change Summary			
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (<u>FY 2000/2001 PB</u>)	35566	54943	55077
Appropriated Value	35725	69143	
Adjustments to Appropriated Value			
a. Congressional General Reductions	-159		
b. SBIR / STTR	-502		
c. Omnibus or Other Above Threshold Reductions	+2662	-279	
d. Below Threshold Reprogramming	+2000		
e. Rescissions	-76	-400	
Adjustments to Budget Years Since <u>FY 2000/2001 PB</u>			-32572
Current Budget Submit (<u>FY 2001 PB</u>)	39650	68464	22505
<p>Change Summary Explanation: Funding - FY 2001: XM982 projectile (PE 64802.D695) funding (-15594) moved to PE 64814.D708. MPIM program (D284) increased by 2000 for IOTE and by 2100 to complete a cost reduction initiative. OICW funds (-26047) were realigned to Advanced Development PE 63802.DAS3.</p>			

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT D134
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COST (In Thousands)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D134 Objective Individual Combat Weapon Engineering Development (OICW)	0	14701	0	25513	22238	19340	14999	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Objective Individual Combat Weapon (OICW) represents the next generation individual soldier's weapon, replacing selected M16 rifles, the M4 series carbine, the rifle-mounted M203 40mm grenade launcher as well as night vision devices and laser range- finders. The OICW will provide the soldier with significant increases in individual weapon performance that will result in an overall improvement in combat effectiveness to include hit probability, range, lethality, cost per kill, combat load, man/machine interface and sustainability and logistics.

FY 1999 Accomplishments: Project not funded in FY 1999

FY 2000 Planned Program:

- 7200 Contract award-ammo/fuze development
 - 7106 Contract award-weapon/fire control development
 - 395 Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR)
- Total 14701

FY 2001 Planned Program: FY 2001 funds for the OICW realigned to PE 0603802A.DAS3 in advanced development.

B. Other Program Funding Summary	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Compl	Total Cost
RDT&E: PE 0603802.DAS3-OICW				25886	1985					27871
PAA: SSN E92500 Objective Family of Weapons							2431	2429	Cont	Cont

C. Acquisition Strategy: The OICW prototype system was demonstrated in the Advanced Technology Demonstration (ATD) in FY 1999. Based on the results of the ATD and the requirements of the final Operational Requirements document (ORD) for the OICW system, a decision was made to enter the Program Definition and Risk Reduction (PD&RR) phase rather than Engineering and Manufacturing Development (EMD) in FY00. This PD&RR phase (PE 0603802A.DAS3) will be a simulation based acquisition phase which utilizes modeling and simulation while developing, building and testing only the key high technology necessary to conduct Cost as an Independent Variable (CAIV) trade-offs at Milestone II. This phase will produce a near final design for the OICW. The PD&RR phase will continue into FY2002. The EMD phase (PE 0604802A.DAS1) which begins in FY2002, will complete the final design, development and validation of the training simulators and complete the developmental, operational, and live-fire tests necessary to reach Milestone III in FY06. FY 2000 funding is currently being reprogrammed to conform to this strategy.

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development		PROJECT D134	
D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Contract Preparation		1Qtr*		1Qtr			
Ammo/Fuze Development		2-4Qtr*		2-4Qtr	1-4Qtr		
Weapon/Fuze Control Development		2-4Qtr*		2-4Qtr	1-4Qtr		
Quality Design & Build					3-4Qtr	1-2Qtr	1Qtr
Developmental technical test*		4Qtr*					
Developmental Testing & Assessment					1-4Qtr	1-4Qtr	
Live -fire testing						2-4Qtr	
Operational Testing ,(LUT/OT&E) & Assessment							1-2Qtr
<p>* FY2000 funds are being reprogrammed to advanced development PE 0603802.DAS3. The advanced development program will be executed in FY2000 through the beginning of FY2002.</p>							

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ARMY RDT&E COST ANALYSIS (R-3)

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BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604802A Weapons and Munitions - Engineering Development

PROJECT
D134

Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Primary System Contract	TBD	Contractor TBD		10534*	TBD		TBD	49200	59734	
Subtotal Product Development:				10534				49200	59734	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Development	MIPR	Multiple		2062*	Multiple		Multiple	8956	11018	
b. Integrated Logistics Spt	MIPR	Multiple		100*				400	500	
c. Training and Simulations	MIPR	Multiple		778*				12152	12930	
Subtotal Support Costs:				2940				21508	24448	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. DT	MIPR	ATEC		282*				690	972	
b. OT	MIPR	ATEC						7308	7308	
Subtotal Test and Evaluation:				282				7998	8280	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PGM Management	Allotment	PM Small Arms		925*				4304	5229	
b. Travel				20*				80	100	
Subtotal Management Services:				945				4384	5329	

Project Total Cost:				14701				83090	97791	
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*FY 2000 program is being realigned to Advanced Development in PE 0603802A.DAS3. The Advanced Development program will be executed FY 2000 through the beginning of FY 2002.

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development				PROJECT D284	
COST (In Thousands)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D284 Multipurpose Individual Munition	17691	16967	14393	0	0	0	0	0	71859
<p>A. <u>Mission Description and Budget Item Justification:</u> Provides for the engineering manufacturing development (EMD) of a lightweight, shoulder fired, multiple purpose weapon. Provides the infantry with a fire and forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The Multi-Purpose Individual Munition/Short Range Anti-Tank Weapon (MPIM/SRAW) is capable of being fired quickly from its carrying configuration and can be safely fired from an enclosure for close battle. It is more versatile than the AT4 system because it can be fired from enclosures and defeat bunkers and various field fortifications. This system will have tremendously increased lethality over the AT4 and will be multiple targets capable. System design will allow for growth, service life extension and technology insertion to support the U. S. Army mission of crisis response to regionally based threats. The Army and U. S. Marine Corps have signed a memorandum of agreement for a horizontal technology integration effort utilizing the USMC SRAW flight module/launcher as the carrier for the MPIM warhead.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 13249 Phase II EMD contract, development, fabrication, and qualification of the MPIM/SRAW system • 955 Twenty missiles for pre-production testing (PPT) • 965 Tested PPT, warhead section and missile flight testing • 575 Systems engineering requirements generation and system level trade studies • 400 Warhead design, development and trade studies • 157 Safe and Arm (grenade S&A design, development and trade studies) • 237 Flight Module risk analysis, design verification and trade studies • 1153 Program management administration <p>Total 17691</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 11227 Phase II EMD contract, development, fabrication, qualification of the MPIM/SRAW system • 400 Cost reduction initiative • 2339 Fifty missiles for preproduction qualification test (PPQT) • 728 Testing – (PPQT) (warhead and missile flight testing) • 765 Systems engineering requirements generation and system level trade studies • 145 Warhead design, development and trade studies • 90 Safe and Arm (grenade S&A design, development and trade studies) 									
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development			PROJECT D284		
<p>FY 2000 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 143 Flight module risk analysis, design verification and trade studies • 685 Program management administration • 445 Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) <p>Total 16967</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 2083 Phase II EMD contract, fabrication, and qualification of the MPIM/SRAW system, and cost reduction initiatives • 1600 Cost reduction initiative • 4917 Missiles for PPQT (53 missiles) and initial operational test and evaluation (IOTE) (50 missiles) • 1754 Testing- PPQT(warhead and missile flight testing) • 1800 Conduct initial operational test and evaluation (IOTE) • 697 Systems engineering requirements generation and system level trade studies • 255 Warhead design, development and trade studies • 75 Safe and Arm (design, development and trade studies) • 146 Flight module risk analysis, design verification and trade studies • 1066 Program management administration <p>Total 14393</p>									
B. Other Program Funding Summary									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
Missile Procurement, Army, SSN C09100 (Multi-Purpose Individual Munition)	0	0	3547	20306	23043	47276	47224	Cont	Cont
<p>C. Acquisition Strategy: The MPIM/SRAW is a 65-month two phase EMD program which will leverage off the USMC 42-month SRAW EMD contract awarded in June 1994 and the 18-month U. S. Army technology demonstration MPIM/SRAW contract awarded in January 1995. The MPIM/SRAW EMD Phase 1 contract (18 month risk mitigation effort) was awarded in October 1996 with an EMD Phase 2 (maturation) contract (option) award in May 1998. FY99 funding supports PPT and preparation for CDR. FY 00/01 funding will support completion of systems qualifications and maturation in support of Milestone III in FY02. The EMD effort includes dollars to complete a cost reduction initiative (CRI), resulting in increased producibility and a lower average unit production cost.</p>									
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT D284
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D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Complete early user demonstration (EUD) test	1Q*						
Conduct preliminary design review (PDR)	2Q*						
Initiate cost reduction initiative (CRI)		2Q					
Conduct CDR		3Q					
Initiate PPQT		4Q					
Conduct production readiness review (PRR)			3Q				
Complete PPQT			4Q				
Complete IOTE				2Q			
Complete cost reduction initiative (CRI)				4Q			

*Completed milestone

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ARMY RDT&E COST ANALYSIS (R-3)

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PROJECT
D284

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Contract (EMD Phase I)	SS/CPIF	Lockheed Martin, Orlando	7263	0		0		0	7263	
b. Contract (EMD Phase II)	SS	Lockheed Martin Orlando	22371	13566	NOV99-APR 00	7000	NOV 00	0	42937	
c. Cost reduction initiative	SS	Lockheed Martin	0	400	JAN 00	1600	TBD	0	2000	
d. Engineering support	1095	MRDEC, AMCOM	3780	722	Nov 99	713	NOV 00	0	5215	
Subtotal Product Development:			33414	14688		9313			57415	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Engineering Support	SETA	Nichols—Huntsville, Al	557	421	Various	460	Various	0	1438	
Subtotal Support Costs:			557	421		460			1438	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. TECOM: APG	1095	RTTC, RSA	1448	443		880		0	2771	
b. Govt Agencies	MIPR	Multiple	997	285		874		0	2156	
c. ATEC	MIPR	Alexandria, VA	0	0		1800		0	1800	
Subtotal Test and Evaluation:			2445	728		3554			6727	

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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT D284
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IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PM MPIM	In-house	AMCOM ,RSA	4083	1130		1066		0	6279	
Subtotal Management Services:			4083	1130		1066			6279	

Project Total Cost:			40499	16967		14393			71859	
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development				PROJECT D613		
COST (In Thousands)		FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D613	Mortar Systems	9077	17168	5069	5660	5458	30172	30485	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> This program provides funds to complete development and type classify items that will enhance the effectiveness, lethality, versatility of use, mobility, and accuracy of mortar systems. Current mortar systems include conventional ammunition with a variety of fuzing and applications, weapons that range from man-portable 60mm to vehicle-mounted 120mm mortars, and related equipment such as fire control, mortar ballistic computer, training devices, and ammunition. Current funding for this project completes development of the digital Mortar Fire Control System (MFCS). MFCS is a revolutionary improvement in mortar capability, seamlessly linking mortar fires in the future digital battlefield. MFCS provides an on-board fire control system that includes a fire control computer, position navigation system, and gun pointing system. MFCS allows mortar crews to set-up in one minute, down from the current eight minutes. Accuracy is increased by a factor of four. Shorter exposure times increase crew survivability. The MFCS is fully compatible with the Advanced Field Artillery Tactical Data System (AFATDS), making mortars an integral part of Force XXI and Army 2010 and beyond fire support network. This will increase situational awareness and reduce the probability of fratricide. Additional funding in FY2000 funds the development and test of a low-cost 60mm full range training round (XM769). This round will decrease the cost of training while increasing safety and lowering environmental impact. FY 2001 begins a Pre-planned Product Improvement (P3I) to the MFCS to develop a variant of the system for use with 81mm mortars and the 120mm towed mortars.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 7063 Continued contractor software development and hardware integration; provided units for Production Qualification Tests (PQT) • 1419 Government hardware integration • 455 Support and management • 140 Development test preparation <p>Total 9077</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 1853 Complete contractor software development (MFCS) • 2023 Government hardware integration • 2013 Support and management (MFCS 1818K and XM769 240K) • 750 Conduct development test (MFCS) • 160 Operational test preparation (MFCS) • 2160 Developmental engineering (XM769) • 725 Developmental tests/Operational tests (DT/OT) (XM769) 										
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT D613
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FY 2000 Planned Program: (continued)

- 350 Test hardware (Ammunition destructive tests) (XM769)
- 3000 Buy MAPAM test hardware
- 550 Conduct comparative test (500 rounds)
- 2521 Conduct prototype classification tests (2500 rounds)
- 600 Type classify
- 463 Small Business Innovative Research /Small Business Technology Transfer Programs
- Total 17168

FY 2001 Planned Program:

- 2200 Complete operational testing
- 320 Test reports and type classification
- 1380 Support and management
- 1169 Begin development of light forces MFCS variant
- Total 5069

B. Other Program Funding Summary	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Compl	Total Cost
RDT&E: 0603802.DAS4-Mortar System PDRR	0	0	0	0	6739	7804	0	0	0	14653
Other Procurement, Army-2-: K99300 (MFCS)	0	0	0	7341	29720	29724	38147	38540	Cont	Cont
Procurement, Ammunition, Army: E92200 XM769 60mm Full Range Practice Round	0	0	0	2969	3595	3113	3064	3126	Cont	Cont

C. Acquisition Strategy: The Mortar Fire Control System was approved as a two year Warfighting Rapid Acquisition Program (WRAP) effort. FY 1997 funds were realigned to this program from PE 0203758A (Horizontal battlefield Digitization) in FY 1997. FY 1998 WRAP funding was aligned to this PE in the FY 1998 DoD Appropriations Bill, at the Army's request. Development will be accomplished by the prime contractor (L3 Communications-formerly AlliedSignal Corp. of Teterboro, NJ) teamed with a number of subcontractors. Initial production, scheduled for FY 2001, is planned as an option to the development contract. Development of a light forces variant of the MFCS system will begin in FY 2001. This variant will apply MFCS technology to the 81mm and towed 120mm mortars. The XM769 60mm full range practice round will be developed in house at TACOM-ARDEC, using the 120mm M931 program as a model. Components that are common to other 60mm programs (shell body, fin, and propulsion system) will be provided as GFM to the Load, Assemble, and Pack (LAP) contractor. The LAP may be bundled with the LAP of the M720A1 and M768 High Explosive rounds.

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D. Schedule Profile	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Mortar Fire Control System							
Engineering & Manufacturing Dev (heavy)			End 2Q				
Critical Design Review-hardware	1Q						
Critical Design Review-software	4Q						
Operational Test (heavy)		4Q					
Type classify- heavy (MS III)			1Q				
First unit equipped (heavy)				3Q			
Preplanned Product Improvement-MFCS Light							
EMD-light			Start 1Q		End 4Q		
Type Classify-light					4Q		
FUE-light							1Q
60 mm Full Range Practice Round XM769							
Development engineering		Start 1Q	End 2Q				
Design Review		4Q					
Performance Test			1Q				
Type Classify			2Q				
60mm Mortar anti-Personnel/Anti-Materiel							
Procure NDI hardware for evaluation		3Q					
Conduct comparative test			1Q				
Perform PQT			2-3Q				
Type classify			4Q				

Remark: The XM769 60mm Full Range Practice Round (FRPR) is a government in-house development program.

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ARMY RDT&E COST ANALYSIS (R-3)

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BUDGET ACTIVITY
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0604802A Weapons and Munitions - Engineering Development

PROJECT
D613

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Mortar Fire Control System										
a.	C/CPAF	L3 Communications, Teterboro, NJ	17934	1853	Jan 00	0	N/A	0	19787	
b.	C/CPAF	To be determined						3500	3500	
c.	MIPR	TACOM-ARDEC	700	2023	N/A	1200		1600	5523	
d.	MIPR	Other govt agencies	28	0	N.A	0	N/A	0	28	
XM769 60mm FRPR										
e.	Project Order	ARDEC- Picatinny Arsenal, NJ		2160	Jan 00	0	N/A	0	2160	
Subtotal Product Development:			18662	6036		1200		5100	30998	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Mortar Fire Control System										
e.	MIPR	TACOM-ARDEC Picatinny Arsenal, NJ	2652	854	Jan 00	640	Jan 01	17	4163	
f.	MIPR	TACOM-ACALA Rock Island, IL	333	407	Jan 00	90	Jan 01	1	831	
g.	Comp T & M	Various	10	744	Jan 00	110	Jan 01	0	864	
h.	MIPR	OGA	344	203	Jan 00	50	Jan 01	8	605	
Subtotal Support Costs:			3339	2208		890		26	6463	

Remark: Because the XM769 is a training round only, the testing need only prove out that 1)the round is safe to use, and 2) the round accurately simulates the tactical round. Formal operational testing is greatly modified. Test hardware is for components that are common to other 60mm rounds. This hardware will be procured by exercising options on existing production contracts.

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PROJECT
D613

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Mortar Fire Control System										
a.		TECOM	110	700	Jan 00	320	N/A	460	1590	
b.		TEXCOM	62	160	Jan 00	0	N/A	20	242	
c.		OPTEC	50	50	Jan 00	2200	N/A	2205	4505	
XM731 60mm FRPR:										
d. Performance Test	MIPR	TECOM	0	703	Jun 00	0		0	703	
e. Test Hardware	Options	Various	0	350	Jun 00	0		0	350	
MAPAM										
Foreign comparative test	MIPR	TECOM	0	550	Jun 00	0		0	550	
Prototype qualification test	MIPR	TECOM	0	2522	Jun 00	0		0	2522	
Test hardware-foreign	SS/FP	Swiss Munitions Corp.	0	2000	Jun 00	0		0	2000	
Test hardware- U.S.	Options	Various	0	1000	Jun 00	0		0	1000	
Subtotal Management Services:			222	8035		2520		2685	13462	

Remark: Because the XM769 is a training round only, the testing need only prove out that 1) the round is safe to use, and 2) the round accurately simulates the tactical round. Formal operational testing is greatly modified. Test hardware is for components that are common to other 60mm rounds. This will be procured by exercising options on existing production contracts.

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Mortar Fire Control System										
d.	In-house	PM Mortars	577	264	Oct 99	259	Oct 00	528	1628	
e.	Time & Material	Robbins Gioia Corp. Alex, VA	601	225	Jan 00	100	N/A	200	1126	
f.	Time & Material	Various	45	100	Jan 00	100	Jan 01	200	445	
XM769 60mm FRPR										
	In-house	PM Mortars-Picatiny	0	100	Jan 00	0		0	100	
MAPAM										
	In-house	PM Mortars-Picatiny	0	200	Apr 00	0		0	200	
Subtotal Management Services:			1223	889		459		928	3499	

ARMY RDT&E COST ANALYSIS (R-3)

DATE **February 2000**

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
**0604802A Weapons and Munitions - Engineering
Development**

PROJECT
D613

			Total PYs Cost	FY 2000 Cost		FY 2001 Cost		Cost To Complete	Total Cost	
Project Total Cost:			23446	17168		5069		8739	54422	

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development				PROJECT D695	
COST (In Thousands)	FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D695 XM982 Projectile	6585	11784	0	0	0	0	0	0	20378
<p>A. <u>Mission Description and Budget Item Justification:</u> Excalibur (XM982) is a family of extended range, precision guided 155mm artillery projectiles. The first variant carried 64 Dual Purpose Improved Conventional Munitions (DPICM) with self-destruct capability. The second variant will deliver two (2) Product Improved SADARM submunitions. The third variant is a bunker busting Unitary warhead. It will be compatible with all current and future 155mm artillery systems in the U. S. inventory. The XM982 will extend the range of the M198, 155mm Paladin (M109A6), and the lightweight Howitzer to approximately 37 kilometers. The XM982 with the Modular Artillery Charge System (MACS) extends the Crusader range to 47 kilometers. The Excalibur will allow greater stand-off from threats and faster defeat of potential threats, increasing soldier survivability. FY 2001-FY 2005 funds have been transferred to PE 64814.D708.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • 1278 Continued design of projectile and structural assembly. Built prototype sub-systems for test evaluation • 1562 Continued design of guidance and instrumentation systems, and simulations. Built prototype sub-systems for evaluation. • 1595 Continued development of system requirements and subsystem requirement allocation. Conducted laboratory and field testing and evaluation • 2150 Purchased 43 EMD test articles <p>Total 6585</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 3186 Continue design of projectile assembly and structural analysis. Build prototype sub-systems for evaluation • 3039 Continue design of guidance and instrumentation systems, and simulations. Build prototype sub-systems for evaluation for evaluation • 2756 Continue development of system requirements and subsystem requirement allocation. Conduct laboratory and field testing and evaluation 1000 Purchase 25 EMD test articles 1500 M795E1 development 303 Small Business Innovative Research /Small Business Technology Transfer Programs <p>Total 11784</p> <p>FY 2001 Planned Program: XM982 projectile program and funding transferred to PE 0604814A.D708 beginning in FY 2001.</p>									
Project D695			Page 17 of 29 Pages				Exhibit R-2A (PE 0604802A)		

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT D695
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B. <u>Other Program Funding Summary</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To Compl</u>	<u>Total Cost</u>
Procurement Ammunition, Army: E80100						27621	27595	Cont.	Cont.
RDT&E: PE 0604814A.D708			31805	64114	66444	56245	28204	Cont.	Cont.

C. Acquisition Strategy: The approved Acquisition Strategy was to award the EMD contract (FY98-01) to a systems contractor through full and open competition utilizing formal source selection. As a result of this strategy, a contract was awarded to Raytheon-TI Systems, Inc., Lewisville, TX on 23 January 1998 for the design, development, fabrication, and engineering services in support of the development and testing of the 155MM ER DPICM XM982 Projectile, with options for the development of a SADARM and UNITARY variant. Two low rate production fixed price ceiling price options were also included in the award for the first year's buy of 3,400 each and the second year's buy of 4,900 each. Additional XM982-D scope identified in FY 1999 (including test rounds for qualification in the Crusader System) will lead to a revised acquisition strategy and a contract restructure.

D. <u>Schedule Profile</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Initiate Platform Integration Kits effort	1Qtr*						
Integrated Baseline Review (IBR)	2Qtr*						
Initiate Guidance components Gun Hardening tests	2Qtr*						
Award DPICM EMD contract restructure Modification		2Qtr					
Initiate Crusader Compatibility Test Firings		3Qtr					
Award M795E1 contract		2Qtr					
M795E1 structural integrity test		2Qtr					

*Denotes a completed milestone

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ARMY RDT&E COST ANALYSIS (R-3)

DATE **February 2000**

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604802A Weapons and Munitions - Engineering Development

PROJECT
D695

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
XM982-D development	C/CPIF	Raytheon Systems Tucson, AZ	5600	6590	Oct 99				12190	
a. Platform Integration Systems Contractor	C/FPI	TBD								
b. XM982-S EMD option	SS/CPIF	Raytheon Systems Tucson								
c. XM982-U EMD option	SS/CPIF									
d. M795E1 development	Option	Chamberlain Mfg Co. Scranton, PA		350	Mar 00				350	
e. M795E1 Basebleed	SS/CPIF	Tally Industries, AZ		350	Mar 00				350	
Subtotal Product Development:			5600	7290					12890	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
f. XM982	Allot	PM ARMS	719	653					1372	
g. Gov't support-XM982-D	MIPR	ARDEC, Picatinny Arsenal, NJ	3210	2118	Multi				5328	
h. Govt support-Ft. Sill	MIPR	Ft. Sill, OK	15	15	Oct 99				30	
i. XM982-D misc		TBD		303					303	
j. T250 Support	SS/FP	SAVIT Parsippany, NJ	19						19	
k. Platform integration	MIPR	ARDEC- Picatinny	110	105	Multi				215	
l. Govt support-M795E1	MIPR	ARDEC- Picatinny		200					200	
Subtotal Support Costs:			4073	3394					7467	

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ARMY RDT&E COST ANALYSIS (R-3)	DATE February 2000
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT D695
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II. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. TECOM Testing	MIPR	YPG, Yuma, AZ	200	400	Nov 99				600	
b. Army Research Labs	MIPR	ARL, Adelphia, MD	79	100	Nov 99				179	
c. XM982-D test support	MIPR	Ft. Sill, OK	15						15	
d. M795E1 test support	MIPR	YPG, Yuma, AZ		600	Aug 00				600	
Subtotal Support Costs:			294	1100					1394	

IV. Management Services: Not applicable

Project Total Cost:			9967	11784					21751	20378
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000					
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development				PROJECT DAS1				
COST (In Thousands)				FY1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DAS1 Small Arms Improvement				2510	7844	3043	3163	6658	14823	10728	Continuing	Continuing
<p>A. <u>Mission Description and Budget Item Justification:</u> This project addresses the modernization of existing Small Arms Weapon systems. This program provides funds to develop existing and emerging technology to enhance lethality, target acquisition, fire control, training effectiveness, and reliability for small arms weapon systems and munitions. Current small arms include a variety of personal defense weapons (.38 caliber, .45 caliber; 9mm), individual weapons (5.56mm), crew-served weapons (5.56mm-40mm) and related equipment such as fire control, training devices, hand grenades and ammunition. Current efforts focus on the Rifle Launched Entry Munition, improvements to the M249 Squad Automatic Weapon, M16/M4 Rifle, M203 Grenade Launcher, MK19 Grenade Machine Gun, M240B Medium Machine Gun, ammunition, and hand grenades.</p> <p>FY 1999 Accomplishments:</p> <ul style="list-style-type: none"> • <u>Rifle Launched Entry Munition</u> • 25 Market survey/Program documentation • 150 Program documentation/MS I/II • 150 RFP and source selection • 1950 Contract award • 235 Fabrication of DT/OT hardware Total 2510 <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 420 <u>Lightweight Tripod for Light Machine Gun</u> • 120 Solicitation and evaluation of proposals • 120 Contract award • <u>M249 Rails/BIPOD/Handguard</u> • 60 Contract award • 69 Procure materials • 190 Prototype designs • 100 Prototype fabrication • <u>MK19 Modern Mount</u> • 270 Evaluate hardware samples 												
Project DAS1				Page 21 of 29 Pages				Exhibit R-2A (PE 0604802A)				

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)		DATE
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development		February 2000
PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development		PROJECT DAS1
<p>FY 2000 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 80 Prepare RFP and performance specifications • 50 Program management • <u>MK19 Remote Platform</u> • 310 Complete and release RFP; evaluate proposals • 730 Award EMD contract • <u>Small Arms Fire Control System</u> • 1789 Contract award • 350 Development/Engineer/ILS support • 150 PM management • <u>Enhanced Cal. 50 Machine</u> • 400 Contract award • 445 Hardware design • 400 Customer test • 700 Technical test • <u>Rifle Launched Entry Munition</u> • 75 Continue hardware fabrication • 700 DT/OT • 225 MS III/TC-STD • 211 Small Business Innovative Research/Small Business Technology Transfer Programs (SBIR/STTR) <p>Total 7844</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • <u>Lightweight Tripod for Light Machine Gun</u> • 155 Hardware design • 221 Fabricate prototypes • 190 Engineering testing • 170 Prototype modification • <u>M249 Rails/BIPOD/Handguard</u> • 90 Fabricate prototype • 75 Developmental tests • 52 Finalize design 		
Project DAS1	Page 22 of 29 Pages	Exhibit R-2A (PE 0604802A)

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							DATE February 2000		
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development			PROJECT DAS1		
<p>FY 2001 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 180 Technical/user tests <u>M249 Machine Gun Barrel Life Extension Program</u> • 40 Prepare and release RFP • 30 Receive/evaluate proposals; award contract • 300 Contract execution, design and fabrication • 40 Technical data preparation <u>MK19 Modern Mount</u> • 620 Contract for production qualification hardware • 280 Production qualification hardware <u>MK19 Remote Platform</u> • 600 Design and fabrication (EMD) <p>Total 3043</p>									
B. <u>Other Program Funding Summary</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
WTCV, GZ1290, Squad Auto Wpn (MODS)	0	8289	9956	5422	4110	4834	0		32611
WTCV, GZ2800, M16 Rifle MODS	5197	7148	9592	2087	0	2417	2411		21852
WTCV, GB3000, MK19 MODS	0	1971	1813	741	2737	3865	3857		14984
WTCV, GZ1300, Med MG (MODS)	0	0	495	742	0	2995	2990		7222
PAA, E93500, Rifle Launched Entry Munition	400	0	3478	2777	2725	0	0		9380
<p>C. <u>Acquisition Strategy:</u> Primary strategy is to mature and finalize design, award RDTE hardware contracts, and test and evaluate system with ultimate goal of type classification and production award.</p>									
D. <u>Schedule Profile</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>		
Lightweight Tripod for Light Machine Gun									
Solicitation		3Qtr							
Contract award		4Qtr							
Design/fabricate prototypes			2-3Qtr						
Test prototypes			3-4Qtr	1-2Qtr					
Fabricate test hardware				3-4Qtr					
Project DAS1	Page 23 of 29 Pages				Exhibit R-2A (PE 0604802A)				

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)						DATE February 2000	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development		PROJECT DAS1	
D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Development Test					1-2Qtr		
Operational Test					2-3Qtr		
Type Classify					4Qtr		
M249 Rails/BIPOD/Handguard							
Award contract		2 Qtr					
Procure materials		3 Qtr					
Prototype designs		3-4Qtr					
Prototype fabrication		4 Qtr	1Qtr				
Developmental Tests			1Qtr				
Final design			2Qtr				
Technical Tests			3-4Qtr				
User Evaluation			3-4Qtr				
Engineering change approval			4 Qtr				
M249 RAM Improvement/Weight Reduction							
Award contract						2 Qtr	
Long lead procurements						3 Qtr	
Prototype designs						3-4 Qtr	
Prototype fabrication							1-2 Qtr
Engineering tests							2-3 Qtr
Final design							4 Qtr
Hardware fabrication							4Qtr
M249 MG Barrel Life Extension Program							
Prepare and release RFP			1-2 Qtr				
Receive proposals, evaluate, award contract			2-3 Qtr				
Contract execution, design/fabrication			3-4 Qtr	1-4 Qtr			
Technical testing & evaluation				4 Qtr	1 Qtr		
User Evaluation					1-2 Qtr		
Finalize design					2 Qtr		
Tech data preparation			3-4 Qtr	1-4 Qtr	1-3 Qtr		
Approval of ECP					3 Qtr		
M249 Low Cost Training Ammunition							
Contract award				1Qtr			

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)						DATE February 2000	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development		PROJECT DAS1	
D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Manufacturing				1Qtr			
DT/OT				1-2 Qtr			
Performance spec				3Qtr			
Safety certification				4Qtr			
Independent assessment reports					1Qtr		
Prepare packages					1-2Qtr		
Staff packages					3Qtr		
MS III IPR/TC					3Qtr		
M203 Upgrade							
Finalize requirements					1Qtr		
Competitive contractor selection/award					2-3 Qtr		
Technical assessments/risk reduction					4 Qtr	1-4Qtr	
Fabricate prototype						1-4Qtr	
Finalize prototype							1-3 Qtr
DT/OT							4 Qtr
MK19 Modern Mount							
Prepare solicitation and concept definition	3Qtr						
Contract award (test hardware samples)	4Qtr						
Engineering test-hardware samples		1-2Qtr					
Prepare solicitation, performance specs, evaluation		3-4Qtr	1-2Qtr				
Contract award			3Qtr				
Production qualification hardware fabrication			4Qtr	1Qtr			
Testing-production qualification hardware				1-3Qtr			
Evaluate data, prepare MS III package				4Qtr	1Qtr		
MK19 Remote Platform							
Program planning and documentation	1-4Qtr						
Modeling and simulation (FY98 c/o)	1-4Qtr	2Qtr					
Requirement analysis and system spec (FY98 c/o)	1-4Qtr						
RFP preparation and release (FY98 c/o)	4Qtr	1-2Qtr					
Evaluate proposal		3Qtr					
Award EMD contract		4Qtr					
Design, fabricate (EMD)			1-4Qtr	1-3Qtr			

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)						DATE February 2000	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development		PROJECT DAS1	
D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Vehicle integration				3-4Qtr	1Qtr		
Test and evaluate				1-4Qtr	1-4Qtr		
Type classification					4Qtr		
MK19 Stabilized Platform							
RFP preparation, release, and proposal evaluation						1-4Qtr	
EMD contract award						4 Qtr	
Design and fabrication							1-4Qtr
Small Arms Fire Control System							
Award contract		4Qtr					
Design hardware (FY00 c/o)		4Qtr	1-4Qtr				
Build hardware (FY00 c/o)		4Qtr	1-4Qtr				
MK19 Self-Destruct Cartridge							
Update program documentation/market survey							1Qtr
Performance Specification							1Qtr
Small purchase							2-3Qtr
Technical evaluation							3Qtr
Prepare procurement package							4Qtr
Source selection							4Qtr
M240 Weight Reduction							
Contract award					3Qtr		
Design Review						1Qtr	
Receive hardware						4Qtr	
Technical test						4Qtr	1 Qtr
User test							2-3 Qtr
Report/ECP							4Qtr
M240 Improved MG Barrel							
Contract award						3 Qtr	
Design review							1 Qtr
Receive hardware							2 Qtr
Test							3 Qtr
Report/ECP							4 Qtr

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)						DATE February 2000	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Development			PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development			PROJECT DAS1	
D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Enhanced Cal .50 Machine Gun							
Contract award		4Qtr					
Customer test complete (FY00 c/o)			2Qtr				
Technical test complete (FY00 c/o)			4Qtr				
Lightweight Hand Grenade							
Update Concussion/Mini-Frag (C/M-F) prog dev/market survey					1Qtr		
Award C/M-F grenades eng development option					1Qtr		
C/M-F grenades engineering development					1-3Qtr		
C/M-F final dev test and Critical Design Review					4Qtr		
Award C/M-F grenades Qual Lot fab option						1Qtr	
C/M-F qual hardware mfg						1-3Qtr	
Initiate C/M-F final development- DT/OT/LFT						4Qtr	
Complete C/M-F DT/OT/LFT							1-2Qtr
Prepare C/M-F MS III IPR Package							3-4Qtr
C/M-F MS III IPR/TC-STD							4Qtr
Update Obscuration/Signaling O/S) grenades program documentation/Market survey							1Qtr
Award O/S grenades eng dev option							1-3Qtr
O/S grenades engineering development							3-4Qtr
Non-Toxic Ammo							
Market Survey/program documentation					1 Qtr		
Prepare RFP					1-2 Qtr		
Bid sample testing for 9mm					3 Qtr		
Source selection					3-4 Qtr		
Contract award—Toxic free primer development					4 Qtr		
Award contracts for all projectile/cartridge dev						1Qtr	
Toxic free primer development						1-4 Qtr	
Projectiles/cartridges development						1-4Qtr	
Final development test for toxic free primer							1Qtr
Final development test for projectiles/cartridges							1-2Qtr
Modify cart cont f/ integration of toxic free primer							2Qtr

Project DAS1

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Exhibit R-2A (PE 0604802A)

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	DATE February 2000
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BUDGET ACTIVITY 5 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604802A Weapons and Munitions - Engineering Development	PROJECT DAS1
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D. Schedule Profile	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Integration of toxic free primer							3-4Qtr
Critical design review (CDR)							4Qtr
Award qual lot fabrication option for 9mm							4Qtr
Rifle Launched Entry System							
Market survey	2Qtr						
Program documentation/MS I/II	4Qtr	1Qtr					
RFP and source selection	4Qtr	1Qtr					
Contract award		2Qtr					
Fabrication of DT/OT hardware		2-3Qtr					
Continue hardware fabrication		4Qtr					
DT/OT (FY00 c/o)			1-2Qtr				
MS III IPR/TC-STD (FY00 c/o)			3Qtr				

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ARMY RDT&E COST ANALYSIS (R-3)

DATE **February 2000**

BUDGET ACTIVITY
5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604802A Weapons and Munitions - Engineering Development

PROJECT
DAS1

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. Hardware Development	FP	Multi	1103	1801	3474	Multi	1632	Multi	28366	36376	
Subtotal Product Development:			1103	1801	3474		1632		28366	36376	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
b. Development	MIPR	ARDEC	1635	438	1752	Multi	690	Multi	15919	20434	
c. ILS	MIPR	ACALA	34	0	200	Multi	45	Multi	1350	1629	
d. HRED	MIPR	APG	24	22	36		10		677	769	
Subtotal Support Costs:			1693	460	1988		745		17946	22832	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
e. DT	MIPR	TECOM	294	50	1586	Multi	130	Multi	10130	12190	
f. OT	MIPR	OPTEC	0	0	0		275	Multi	4052	4327	
g. SBIR/STTR					211				0	211	
h. Validation testing	MIPR	TECOM	0	100	0		0		0	100	
Subtotal Support Costs:			294	150	1797		405		14182	16828	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 1999 Cost	FY 2000 Cost	FY 2000 Award Date	FY 2001 Cost	FY 2001 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a. PGM Management	ALLOT	PM Small Arms	318	99	450	Multi	206	Multi	4728	5801	
b. Travel	ALLOT	PM Small Arms	17	0	135		55	Multi	1350	1557	
Subtotal Management Services:			335	99	585		261		6078	7358	

Project Total Cost:			3425	2510	7844		3043		66572	83394	
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