

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2003

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM

COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	101595	94623	84839	110537	132991	33288	20032	27687	0	658956
090 MLRS HIMARS	53816	30599	20851	10638	0	0	0	0	0	162093
093 MLRS JOINT TECH ARCHITECTURE	2156	6426	8458	2064	1068	0	5778	3450	0	29400
783 MLRS SMART TACT RKT	0	0	0	1966	5580	0	0	17510	0	25056
784 GUIDED MLRS	45623	57598	55530	95869	126343	33288	10612	778	0	442407
787 HIMARS P3I	0	0	0	0	0	0	3642	5949	0	0

A. Mission Description and Budget Item Justification: The High Mobility Artillery Rocket System (HIMARS), the Joint Technical Architecture-Army (JTA-A), Guided MLRS (GMLRS) and GMLRS Unitary are Legacy to Objective force systems that provide precision strike and are essential due to the expansion of regional power threats. The Guided Smart (previously known as MLRS Smart Tactical Rocket (MSTAR) and HIMARS P3I will support the Army Objective Force. This Product Improvement Program (PIP) provides for the maturation of HIMARS, JTA-A and the System Development and Demonstration (SDD) of a Guided Smart, GMLRS, GMLRS Unitary and the HIMARS P3I.

HIMARS will replace M198 towed howitzer and M270 launchers giving early entry forces immediate fire support within a hot landing zone without waiting for heavy-lift aircraft.

JTA-A will implement the capability for situational awareness in M270A1 and HIMARS launchers and trainers.

Guided Smart will integrate an adverse smart submunition warhead to achieve moving and stationary, hard and soft, point target capability in adverse weather conditions.

The multinational GMLRS program will greatly enhance the capability of the existing MLRS, providing greater range, significantly enhanced accuracy, and interoperability among the nations covered under the MLRS Memorandum of Understanding (MOU). This improvement will reduce the number of rockets required to defeat targets, thus dramatically reducing the logistics burden and increasing crew survivability. The GMLRS program includes GMLRS Unitary. GMLRS Unitary Rocket is an evolutionary product improvement to the GMLRS that provides for the development and integration of a unitary warhead and multi mode fuze providing point hit precision kill capability against hardened stationary targets. Additionally, seeker technologies will be assessed for spiral development and potential insertion into GMLRS Unitary to provide operation flexibility against an expanded target set including moving targets.

HIMARS P3I is the future pre-planned product improvement rocket and missile launch platform.

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HIMARS P3I launcher is a block upgrade to the HIMARS launcher and replaces M270A1 launcher.

HIMARS, JTA -A, GMLRS and GMLRS Unitary support the Legacy to Objective transition path of the Transformation Campaign Plan (TCP). Guided Smart and HIMARS P3I will support the Army Objective Force.

<u>B. Program Change Summary</u>	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	99505	57825	7701	6410
Current Budget (FY 2004/2005 PB)	101595	94623	84839	110537
Total Adjustments	2090	36798	77138	104127
Congressional program reductions				
Congressional rescissions	-613	-1204		
Congressional increases		41250		
Reprogrammings	3904	-548		
SBIR/STTR Transfer	-1326	-2700		
Adjustments to Budget Years			77138	104127

FY03 HIMARS and Guided MLRS (GMLRS) Unitary programs were increased in the FY03 Amended Budget Submission.

FY04/FY05 increases will fund the GMLRS Unitary effort and increased testing costs associated with designation of HIMARS and GMLRS as ACAT IC programs.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2003			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 090			
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
090	MLRS HIMARS	53816	30599	20851	10638	0	0	0	0	0	162093
<p><u>A. Mission Description and Budget Item Justification:</u>The High Mobility Artillery Rocket System (HIMARS) fully supports the Army Transformation to a more deployable, affordable, and lethal force. It provides MLRS capability through a lighter weight, more deployable system in both early and forced entry scenarios. Mounted on a medium tactical wheeled vehicle, HIMARS is transportable on a C-130 aircraft, is self-locating and self-loading. It provides full MLRS and Army TACMS (ATACMS) Family of Munitions capability yet requires significantly reduced airlift resources to transport a battery as opposed to a MLRS tracked battery. HIMARS as part of the Objective Force Unit of Employment will provide fires that share and isolate the battle space. Stryker and Objective Force commanders will employ HIMARS to provide counterfire.</p> <p>HIMARS meets Army's modernization goals for the 21st century, is designated the Army's "Legacy to Objective" Rocket/Missile delivery system, and was selected by Army strategic planners as one of the Army's seven "core" transformation systems.</p>											
<u>Accomplishments/Planned Program</u>							<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	
Assembled hardware, conducted Contractor Development Test (CDT) and Critical Design Review (CDR)							44412	0	0	0	
Continue System Design, conduct Functional Configuration Audit (FCA), and develop Integrated Logistics Products (ILP); Integrate and test Horizontal Technology Insertion (HTI) upgrades including Guided MLRS capability							0	18678	9749	3705	
Conduct Extended System Integration Test (ESIT), Flight Test Series 1 & 2 and Automotive Ground Test, Resupply Vehicle and Resupply Trailer Integration Test (3 Test Articles); Perform Technical Assessments							9404	2100	0	0	
Conduct Cold Region Testing, Nuclear Testing, Production Qualification Test (PQT) 2 testing, ESIT II and Ballistic Survivability, Command, Control, Communications, Computers and Intelligence (C4I) and Analysis of Alternatives (AOA) , Finalize Resupply Vehicle and Trailer for FCA; perform Technical Assessments and Prepare Milestone Documentation; Integrate of Advanced Field Artillery Tactical Data System; conduct Ground and Flight tests							0	9821	11102	6933	
Totals							53816	30599	20851	10638	

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PROGRAM

PROJECT

090

B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
HIMARS Launcher (C03000)	0	128621	124191	169778	211073	229729	231558	241891	2565902	3902743
HIMARS Modifications (C67501)	0	0	467	475	8020	11752	16091	8303	131766	176874
HIMARS Modifications: Initial Spares (CA0289)	0	0	70	71	690	1267	1209	1015	25600	29922
Initial Spares, HIMARS (CA0288)	0	0	7510	4044	8472	7639	13056	10485	109808	161014

C. Acquisition Strategy: The HIMARS program, currently in System Development Demonstration (SDD), is near the end of a 40 month maturation contract which was awarded in Dec 99. A Long Lead Item (LLI) production contract was awarded in Dec 02 to support LRIP1 launchers and to maintain critical program schedule and meet the accelerated First Unit Equipped (FUE) date. Milestone C is scheduled for 2QFY03 with an anticipated LRIP 1 contract award scheduled for 3QFY03.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 090		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Risk Reduction/ Maturation Contract	SS/CPIF & CPAF	LMMFCS, TX	98540	13323	1-2Q	0		0		0	111863	0
b . Path through Operational Test	CPFF	LMMFCS, TX	0	5200	3-4Q	4194	1-4Q	2415	1-2Q	0	11809	0
c . Cab Improv./ OGA	N/A	TACOM (S&S)	4531	300	1-4Q	150	1-4Q	100	1-2Q	0	5081	0
d . GFE, Comm, Trks & Trls	N/A	TACOM & CECOM	4040	0		0		0		0	4040	0
e . Government Support	N/A	AMCOM/ GSA, RSA	12882	1730	1-4Q	1500	1-4Q	700	1-4Q	0	16812	0
Subtotal:			119993	20553		5844		3215		0	149605	0
Remarks: TACOM - Tank-automotive & Armaments Command AMCOM - Aviation & Missile Command RSA - Redstone Arsenal, AL S&S - Stewart & Stevenson GSA - General Services Administration LMMFCS - Lockheed Martin Missile and Fire Control System Note: Path through Operational Test (OT) contract is for OT preparation and execution.												

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 090		
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C & CPFF	Camber Research, AL	988	300	2Q	300	1Q	300	1Q	0	1888	0
Subtotal:			988	300		300		300		0	1888	0
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	APG MD, WSMR NM & RTTC RSA	13488	8500	1-4Q	13907	1-4Q	6723	1-3Q	0	42618	0
Subtotal:			13488	8500		13907		6723		0	42618	0
Remarks: APG MD - Aberdeen Proving Ground, Maryland WSMR NM - White Sands Missile Range, New Mexico RTTC RSA - Redstone Technical Test Center, Redstone Arsenal, AL												

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 090		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	Precision Fires Project Office, Redstone Arsenal, AL	5667	1246	1-4Q	800	1-4Q	400	1-4Q	0	8113	0
Subtotal:			5667	1246		800		400		0	8113	0
Project Total Cost:			140136	30599		20851		10638		0	202224	0

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM			PROJECT 090	
<u>Schedule Detail</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Design IPR 1								
Development Testing Begins								
Functional Qualification Test (FQT), Launchers 1-3 Delivered	1Q							
Design IPR 2	1Q							
Functional Configuration Audit (FCA)		2Q						
Launchers 4-6 delivered	3-4Q							
LLI IPR, Milestone C		1-2Q						
IOT Ground Test Begins			4Q					
IOT Flight Test Begins			4Q	1Q				

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2003			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 093			
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
093	MLRS JOINT TECH ARCHITECTURE	2156	6426	8458	2064	1068	0	5778	3450	0	29400
<p>A. Mission Description and Budget Item Justification:The JTA-A completes final development of the Joint Variable Message Format (JVMF) necessary to meet the Department of Defense Message Standardization requirement in FY03 and transition it to production. The next generation JVMF development and integration begins in FY08. It also develops and integrates situational awareness capability for both the M270A1 and HIMARS in FY04. This development meets the requirement for a digitized HIMARS for the Interim Division by FY06 and transitions this effort to production in FY05. The MLRS launchers are critical to U.S. Forces Korean and the Army Counterattack Corps as well as supporting Army Transformation. Additionally, the JTA-A provides for the development and integration of Selective Availability/Anti-Spoofing Module (SAASM) for the M270A1 and HIMARS through FY04. The next generation of SAASM development and integration begins in FY08. The development makes the M270A1 and HIMARS compliant with the Joint Staff guidance to have weapon systems SAASM compliant by FY07. JTA-A also provides the development and integration of a low cost navigation unit as part of the Reduction in Total Ownership Cost (RTOC) effort from FY03 to FY06. This effort transitions to HIMARS production in FY06-FY07.</p> <p>This effort is required to meet JTA-A compliance requirements and enable firing of GMLRS and future ATACMS variants.</p>											
Accomplishments/Planned Program							FY 2002	FY 2003	FY 2004	FY 2005	
Develop platform situational awareness requirements. Perform Force XXI Battle Command Brigade and Below (FBCB2) applique integration and development testing.							603	0	2421	0	
Develop, integrate, and test SASSM and Joint Variable Message Format.							1553	1272	377	0	
Perform development testing.							0	432	428	0	
Develop, integrate and test Low Cost Pos Nav Unit (LCPNU).							0	4228	4600	2000	
Develop anti-jamming hardware.							0	396	483	0	
Perform Technical assessments, concept studies, prepare milestone documentation and risk reduction.							0	98	149	64	
Totals							2156	6426	8458	2064	

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B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Missile Procurement, Army	0	0	0	0	0	0	0	0	0	0
MLRS Launcher (C65900)	130606	134742	40155	41326	24468	0	0	0	0	371297
MLRS Mods(C67500)	13438	31181	19918	21328	16140	9888	19332	6732	140100	278057
MLRS Initial Spares (CA0257)	9860	6613	6521	6395	0	0	0	0	0	29389
MLRS Mod Initial Spares (CA0265)	851	5546	1269	5770	5942	4281	3257	2597	43989	73502
HIMARS Launcher (C03000)	0	128621	124191	169778	211073	229729	231558	241891	2565902	3902743

C. Acquisition Strategy: The Joint Technical Architecture-Army (JTA-A) standards will be implemented for the M270A1 and HIMARS launcher to provide Force XXI capabilities for the Army Counterattack Corps. The JVMF is currently being developed in the Software Engineering Directorate and will be integrated into the launchers using a sole source contracting strategy with Lockheed Martin Missile and Fire Control System (LMMFC). This contracting strategy will also be used for the transition of the Low Cost Positioning and Navigation Unit.

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 093		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract (LCPNU Support)	CPAF	LMMFCS, Dallas, TX	3538	3202	1-3Q	3675	1-3Q	964	1-3Q	750	12129	0
b . Government Support	N/A	AMCOM/GSA, RSA	2767	2341	1-3Q	3038	1-3Q	443	1-3Q	5508	14097	0
Subtotal:			6305	5543		6713		1407		6258	26226	0
Remarks: LCPNU- Low Cost Positioning Navigation Unit LMMFCS - Lockheed Martin Missile and Fire Control System AMCOM - Aviation and Missile Command GSA - General Services Administration RSA - Redstone Arsenal, AL												
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 093		
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	CTSF, Ft. Hood, TX	492	0		100	1-3Q	0		100	692	0
b . Test Support		AMCOM, RSA	0	100	1-3Q	750	1-3Q	150	1-3Q	1800	2800	0
c . Test Support		WSMR, NM	0	284	1-2Q	250	1-3Q	250	1-3Q	950	1734	0
Subtotal:			492	384		1100		400		2850	5226	0
Remarks: CTSF - Central Test Support Facility AMCOM - Aviation and Missile Command, Redstone Arsenal, Alabama WSMR, NM - White Sands Missile Range, New Mexico												
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	1058	499	1-4Q	645	1-4Q	257	1-4Q	1188	3647	0
Subtotal:			1058	499		645		257		1188	3647	0
Remarks: PFRMS - Precision Fires Rocket and Missile Systems												
Project Total Cost:			7855	6426		8458		2064		10296	35099	0

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM			PROJECT 093	
<u>Schedule Detail</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Conduct rqts analysis, configure prototype h/w and receive applique, begin integration test		2-4Q	1-2Q					
Perform system integration test		3-4Q	3-4Q					
Develop platform situation awareness requirements. Perform FBCB2 applique integr and dev testing.		3-4Q						
Develop, integrate and test SASSM and JVMF.		1-4Q	1-4Q				1-3Q	1-3Q
Perform development testing.		3Q	3Q					3Q
Develop, integrate and test Low Cost Pos Nav Unit (LCPNU).		1-4Q	1-3Q	1-3Q	1-3Q			
Develop anti-jamming hardware.			1-4Q				1-3Q	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2003			
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 783			
COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
783	MLRS SMART TACT RKT	0	0	0	1966	5580	0	0	17510	0	25056
<p><u>A. Mission Description and Budget Item Justification:</u>The Guided Smart (previously known as Multiple Launch Rocket System Smart Tactical Rocket (MSTAR) will complement the GMLRS and GM LRS-Unitary rockets to complete the MLRS layered lethality capability. Guided Smart, when completely developed and tested, will integrate an adverse weather seeker into a larger elliptical volume, smart submunition warhead to achieve moving and stationary, hard and soft, point target capability in adverse weather conditions.</p>											
<u>Accomplishments/Planned Program</u>							FY 2002	FY 2003	FY 2004	FY 2005	
Perform technical assessments, concept studies, risk reduction and prepare requirement and milestone documentation.							0	0	0	1966	
Totals							0	0	0	1966	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)							February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 783		
B. Other Program Funding Summary		<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>To Compl</u>	<u>Total Cost</u>
GMLRS (C65404)		0	36550	107759	112646	129759	249753	487699	570898	9980191	11675255
C. Acquisition Strategy: To design, develop and procure a Guided Smart rocket with a smart warhead through competitive acquisition to support the Army's Objective Force.											

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 783		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Contract	TBD	TBD	0	0		0		1708	1-3Q	37033	38741	0
b . Government Support	TBD	TSM -RAMS, Ft. Sill, OK	0	0		0		21	1Q	0	21	0
c . Government Support	TBD	AMCOM, RSA	0	0		0		67	1Q	2153	2220	0
Subtotal:			0	0		0		1796		39186	40982	0
Remarks: TBD - To be determined TSM -RAMS - TRADOC System Manager-Rocket and Missile Systems AMCOM, RSA - Aviation and Missile Command, Redstone Arsenal												
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			0	0		0		0		0	0	0

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 783		
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	TBD		0	0		0		87	2Q	1712	1799	0
Subtotal:			0	0		0		87		1712	1799	0
Remarks: TBD-To be determined												
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House	N/A	PFRMS Proj Ofc, RSA	0	0		0		83	1-4Q	2139	2222	0
Subtotal:			0	0		0		83		2139	2222	0
Remarks: PFRMS - Precision Fires Rocket and Missile Systems												
Project Total Cost:			0	0		0		1966		43037	45003	0

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM			PROJECT 783	
<u>Schedule Detail</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Contract Award/Concept Study				1Q				
Organization Requirement Document (ORD)				2Q				
Seeker/Airframe Integration Design				3Q				
Prototype Fabrication					1Q			
Engineering Test					2Q			
Milestone Decision Review B					4Q			
Technology Demo								1-2Q
System Development and Demonstration Contract Award								1Q
Preliminary Design Review								3Q

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BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 784		
COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
784 GUIDED MLRS	45623	57598	55530	95869	126343	33288	10612	778	0	442407
<p><u>A. Mission Description and Budget Item Justification:</u>The Guided Multiple Launch Rocket System (GMLRS) is a precision strike, artillery rocket system. Coupled with the High Mobility Artillery Rocket System (HIMARS) launcher platform, the GMLRS provides the warfighter with a highly mobile, rapidly deployable, precision guided munition with a reduced logistics burden effective against counterfire, air defense, light materiel, and personnel targets. The GMLRS is a major upgrade to the M26 series rocket and replaces the aging M26 inventory. GMLRS will integrate a guidance and control package and a new rocket motor to achieve greater range and precision accuracy requiring fewer rockets to defeat targets than current artillery rockets, thereby reducing the logistics burden. The GMLRS will also become the primary munition for the artillery units fielded with the M270A1 launcher. The GMLRS is a five nation cooperative program among France, Germany, Italy, United Kingdom and the United States. FY03 initiated efforts to develop a new high explosive warhead and fuzing system for GMLRS known as GMLRS-Unitary. The GMLRS-Unitary is an all weather, low collateral damage precision rocket which addresses an expanded MLRS target set to include point targets within urban and complex environments. It is a pre-planned product improvement that will integrate a multi-mode fuze and high explosive insensitive munition into a warhead of the same GMLRS dimensions. GMLRS-Unitary satisfies a validated user requirement and will be fielded to support early entry forces, Stryker brigades and the unit of action in the objective force. FY05 initiates efforts to meet DOD mandate on insensitive munitions effort. Additionally, seeker technologies will be assessed for spiral development and potential insertion into GMLRS Unitary to provide operational flexibility against an expanded target set including moving targets. The GMLRS and the GMLRS-Unitary support the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).</p> <p>Guided MLRS and the GMLRS-Unitary are the baseline for future Artillery Precision Rocket Munitions and are critical to the Army's Objective Force. GMLRS and GMLRS-Unitary meet Army Transformation Objectives and support Joint Vision 2020 Tenet of Precision Engagement.</p>										
<u>Accomplishments/Planned Program</u>						<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	
Conducted Development Engineering, EDT Flight Tests, Production Qualification Testing (PQT) Ground and Flight Tests, Test Analysis (30 Test Articles)						25290	0	0	0	
Conduct Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test						0	9820	100	500	
Perform Integration and Test of Alternative Self Destruct Fuze and Improved Mechanical Fuze						3561	2500	0	3422	
Develop Advanced Field Artillery Tactical Data System (AFATDS) Interface						1472	500	200	200	
Procure assets for System Integration, Cold Region Test, Pre OT Live Fire and SDF Qual Tests						5570	4220	0	0	

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2003

BUDGET ACTIVITY

7 - Operational system development

PE NUMBER AND TITLE

**0603778A - MLRS PRODUCT IMPROVEMENT
PROGRAM**

PROJECT

784

Accomplishments/Planned Program (continued)

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Conduct system test and evaluation activities to include Initial Operational Test (IOT), Ground and Flight Test.	7729	1000	4915	0
Procure rockets for Operational Test (30 test articles)	0	3203	0	0
Perform technical assessments, concept studies, prepare milestone documentation and risk reduction	2001	1400	100	100
Conduct HIMARS/GMLRS DT Flight Test, Cold Region Test	0	2700	0	0
Conduct Development and Engineering for Insensitive Munitions (IM) Program	0	0	96	2226
Conduct Design and Development Warheads and Multi Mode Fuzes for Unitary	0	24233	20000	19000
Initiate Initial Common Hardware Buy for Test Activities for Unitary	0	5000	0	0
Perform Anti-Jamming System Engineering and Integration for Unitary	0	2000	4000	3000
Conduct Development Engineering, EDT Flight Test, Production Qualification Testing (PQT) Ground and Flight Tests, Test Analysis for Unitary	0	1022	15119	54344
Conduct Development Engineering, Functional Configuration Audit, Final Product Definition Data Package (PDDP), and System Integration Test for Unitary	0	0	6046	6470
Perform Integration and Test of Alternative Multi-Mode Fuze for Risk Reduction for Unitary	0	0	3000	2500
Conduct system test and evaluation activities for Unitary	0	0	1954	4107
Totals	45623	57598	55530	95869

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								February 2003																																			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM				PROJECT 784																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; padding: 5px;">B. Other Program Funding Summary</th> <th style="text-align: center; padding: 5px;">FY 2002</th> <th style="text-align: center; padding: 5px;">FY 2003</th> <th style="text-align: center; padding: 5px;">FY 2004</th> <th style="text-align: center; padding: 5px;">FY 2005</th> <th style="text-align: center; padding: 5px;">FY 2006</th> <th style="text-align: center; padding: 5px;">FY 2007</th> <th style="text-align: center; padding: 5px;">FY 2008</th> <th style="text-align: center; padding: 5px;">FY 2009</th> <th style="text-align: center; padding: 5px;">To Compl</th> <th style="text-align: center; padding: 5px;">Total Cost</th> </tr> <tr> <td style="padding: 5px;">Missile Procurement Army - ER-MLRS (C65402)</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">119296</td> </tr> <tr> <td style="padding: 5px;">Missile Procurement Army - GMLRS (C65404)</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">36550</td> <td style="text-align: center; padding: 5px;">107759</td> <td style="text-align: center; padding: 5px;">112646</td> <td style="text-align: center; padding: 5px;">129759</td> <td style="text-align: center; padding: 5px;">249753</td> <td style="text-align: center; padding: 5px;">487699</td> <td style="text-align: center; padding: 5px;">570898</td> <td style="text-align: center; padding: 5px;">9980191</td> <td style="text-align: center; padding: 5px;">11675255</td> </tr> </table> <p style="margin-top: 20px;">C. Acquisition Strategy: The GMLRS-DPICM Acquisition Strategy includes entrance into Low Rate Initial Production (LRIP) FY03. After a successful operational test, the program will move into full rate production in FY05. The primary objective of the GMLRS-DPICM System Development Demonstration (SDD) was to develop a rocket with greater range and significantly enhanced accuracy with minimum impact on existing MLRS companion hardware and software. The GMLRS-DPICM effort incorporates the results of other development efforts for an improved mechanical fuze, a self-destruct fuze, as well as, increase the range for a new rocket motor.</p> <p>GMLRS-Unitary Acquisition Strategy is streamlined product improvement program employing a spiral development approach. Block 1 will maximize commonality with GMLRS-DPICM with a new warhead and dual-mode fuze (point detonation and delay). The European Cooperative Development Partners for GMLRS have all expressed a desire to join the GMLRS-Unitary development effort in Block 2 which will include a third fuze mode (proximity), insensitive rocket motor, GPS Anti-Jam capability and other enhancements based on technology maturity.</p>											B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost	Missile Procurement Army - ER-MLRS (C65402)	0	0	0	0	0	0	0	0	0	119296	Missile Procurement Army - GMLRS (C65404)	0	36550	107759	112646	129759	249753	487699	570898	9980191	11675255
B. Other Program Funding Summary	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost																																	
Missile Procurement Army - ER-MLRS (C65402)	0	0	0	0	0	0	0	0	0	119296																																	
Missile Procurement Army - GMLRS (C65404)	0	36550	107759	112646	129759	249753	487699	570898	9980191	11675255																																	

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 784		
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . SDD Contract	SS & CPAF	LMMFCS Dallas, TX	84058	12632	1-4Q	431	1-4Q	4587	1-3Q	21857	123565	0
b . SDD Unitary Contract	SS & CPAF	LMMFCS Dallas, TX	0	26290	1Q	39324	1Q	76465	1Q	115586	257665	0
c . Government Support	N/A	AMCOM/GSA,RSA	18477	500	1-3Q	250	1Q	750	1-3Q	2750	22727	0
d . Government Support for Unitary	N/A	AMCOM/GSA,RSA	0	3423	1-3Q	2613	1-4Q	2609	1-4Q	3147	11792	0
Subtotal:			102535	42845		42618		84411		143340	415749	0
Remarks: LMMFCS - Lockheed Martin Missile and Fire Control System GSA - General Services Admin AMCOM - Aviation and Missile Command												
II. Support Cost	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Support Contract	C & CPFF	Camber Research, AL	1552	1103	1-3Q	0		200	2Q	1100	3955	0
b . P3I Concept Studies	C & TDB	TBD	1500	0		0		0		0	1500	0
c . Support Contract for Unitary	C & CPFF	Camber Research, AL	0	1000	1-3Q	2000	1-3Q	2246	1-3Q	3250	8496	0
d . P3I Concept Studies for Unitary	C& TDB	TBD	0	0		1000	1-3Q	1500	1-3Q	3000	5500	0

ARMY RDT&E COST ANALYSIS(R-3)								February 2003				
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT						PROJECT 784		
PROGRAM												
II. Support Cost (continued)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:			3052	2103		3000		3946		7350	19451	0
III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . Test Support	N/A	WSMR, NM & Meppen,GE	7746	7500	1-4Q	3974	3-4Q	0		4750	23970	0
b . Test Support for Unitary	N/A	WSMR, NM	0	450	1Q	1954	1-4Q	3286	1-4Q	12792	18482	0
Subtotal:			7746	7950		5928		3286		17542	42452	0
Remarks: WSMR, NM - White Sands Missile Range, New Mexico												

ARMY RDT&E COST ANALYSIS(R-3)									February 2003			
BUDGET ACTIVITY 7 - Operational system development					PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM					PROJECT 784		
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost To Complete	Total Cost	Target Value of Contract
a . In-House Support	N/A	PFRMS Proj Ofc, RSA	7136	2300	1-4Q	756	1-4Q	911	1-4Q	1825	12928	0
b . In-House Support for Unitary	N/A	PFRMS Proj Ofc, RSA	0	2400	1-4Q	3228	1-4Q	3315	1-4Q	5017	13960	0
Subtotal:			7136	4700		3984		4226		6842	26888	0
Remarks: PFRMS - Precision Fires Rocket and Missile Systems												
Project Total Cost:			120469	57598		55530		95869		175074	504540	0

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM			PROJECT 784	
<u>Schedule Detail</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
EDT Ground Tests, Ballistic flights 1&2, Motor Qual tests, Final SW Integration Test, HWIL Tests	1-2Q							
EDT Rocket intergration and test, EDT Flight Tests 1&2, Motor Qual Complete	1Q							
EDT and PQT Rocket Integration , EDT Flight Tests 3-6, ROFS Software FQT	2-3Q							
PQT Ground and Flight Test	3-4Q	1Q						
Functional Configuration Audit (FCA)		1Q						
Facilitization IPR, Final PDDP, MS C		1-3Q						
LRIP Contract Award		3Q						
HIMARS/GMLRS DT Flight Test, Cold Region Test			1-2Q					
1st LRIP Rocket Delivery, Production Verification Test (PVT)		2Q						
Initial Operational Test (IOT), Ground and Flight Test			4Q	1Q				
2nd LRIP Rocket Delivery, Production Verification Test (PVT)			2Q					
Full Rate Production Decision, FRP Contract, Initial Operational Capability (IOC)				2-4Q				
Unitary SDD Contract Award		1Q						
Unitary Block 1 Integration and Delivery Decision for Contingency Quantity		4Q						
Unitary 1 EDT Grnd Tests, Ballistic Flights 1&2, Motor Qual Test, Final SW Integration Test, HWIL			2-4Q					
Unitary Block 1 EDT Rocket Integration and Tests, EDT Flight Test 1&2			4Q				1Q	
Unitary Block 1 EDT and PQT Rocket Integration, EDT Flight Tests 3-6, ROFS Software FQT			4Q					
Unitary Block 1 PQT Grnd and Flight Tests			4Q					
Unitary Block 1 Functional Configuration Audit				1Q				

Schedule Profile Detail (R-4a Exhibit)							February 2003	
BUDGET ACTIVITY 7 - Operational system development				PE NUMBER AND TITLE 0603778A - MLRS PRODUCT IMPROVEMENT PROGRAM			PROJECT 784	
<u>Schedule Detail (continued)</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Unitary Block 2 Critical Design Review and In-Progress Review				1Q				
Unitary Block 1 Limited Fielding Decision for Contingencies				1Q				
Unitary Block 2 PQT Ground and Flight Tests					3-4Q			
Unitary Block 2 Functional Configuration Audit					4Q			
Unitary Block 2 Facilitization IPR, Final PDDP and MS C					4Q			
Unitary Block 2 LRIP Contract Award						1Q		
Unitary Block 2 Production Verification Test						3Q		
Unitary Block 2 Environmental Extreme Testing							1Q	
Unitary Block 2 Initial Operational Test							2Q	
Unitary Block 2 Initial Operational Capability							2Q	
Unitary Block 2 Full-Rate Production Decision Review							4Q	