

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

February 2004

## BUDGET ACTIVITY

### 5 - System Development and Demonstration

## PE NUMBER AND TITLE

### 0604768A - Brilliant Anti-Armor Submunition (BAT)

COST (In Thousands)		FY 2003 Actual	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		55922	9897	21	23	0	0	0	0	236179
687	BAT P3I	0	0	21	23	0	0	0	0	170360
MD6	ARMY TACTICAL MISSILE SYSTEM - PENETRATOR	0	6928	0	0	0	0	0	0	6928
P01	MULTI - MODE SEEKER DEVELOPMENT AND TEST	55922	2969	0	0	0	0	0	0	58891

**A. Mission Description and Budget Item Justification:** This Program Element (PE) provides funding for the ATACMS Penetrator (ATACMS-P) program, Multi-Mode Seeker (MMS) program, and the Viper Strike effort which is funded in project P01 with the MMS.

The ATACMS-P is a standoff ballistic-missile-delivered penetrator weapon for use against fixed hard and deeply buried strategic and tactical targets. This system is employed from the M270A1 and High Mobility Artillery Rocket System (HIMARS). The ATACMS-P will complement current ATACMS Family of Munitions (AFOM) capabilities by adding the capability to attack and destroy Hardened and/or Deeply Buried Targets (HDBT) with a penetrator payload/warhead. These targets, considered High Value Targets (HVT), pose a considerable threat to U.S. and coalition forces. FY04 funds will complete the ATACMS-P ACTD effort. The follow on effort for ATACMS-P was terminated by the Army in the FY05 PB to fund Transformation and other higher priority Army requirements.

The MMS program will develop, assemble and test a MMS. This seeker will search, detect, acquire, and track moving armored vehicles, Multiple Rocket Launchers/Transporter Erector Launchers (MRLs/TELs), and other lightly armored vehicles. Funding will also support the software development and simulation of the MMS for stationary targets. The seeker, which uses millimeter wave and imaging infrared, will permit modern weapon systems to be operational in near all-weather and countermeasured conditions. The MMS program was developed in parallel with the Viper Strike/Hunter effort. The MMS program strategy shared development of common technologies needed for both programs.

The Viper Strike effort provides for weaponization of the Unmanned Aerial Vehicle (UAV). This is accomplished by mounting a Semi-Active Laser (SAL) Seeker on a submunition with integrated Global Positioning System (GPS) and dispensing from the Hunter or Fire Scout UAV. This system provides the ability to attack targets ranging from armored tracks (tanks, Armored Personnel Carriers (APCs)), TELs/MRLs, and Scuds to thin-skinned "technical" (pickup trucks and cars) wheeled vehicles, crew served weapons and lightly constructed buildings. Viper Strike is well suited for situations where precision (near-zero Circular Error Probable (CEP)) and minimum collateral damage are important. Viper Strike deployed from the Hunter UAV and Fire Scout UAV will meet the critical weaponization needs of the Future Combat Systems Class IV interim and objective UAV system.

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These systems support the Current to Future Force transition path of the Transformation Campaign Plan (TCP).

Note: Funding reflected in FY05 and FY06 will be realigned to the proper Program Element for execution.

<b><u>B. Program Change Summary</u></b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Previous President's Budget (FY 2004)	42942	55075	9836
Current Budget (FY 2005 PB)	55922	9897	21
Total Adjustments	12980	-45178	-9815
Congressional program reductions		-45168	
Congressional rescissions			
Congressional increases			
Reprogrammings	12980	-10	
SBIR/STTR Transfer			
Adjustments to Budget Years			-9815

FY04 decrease due to Congressional reduction (\$-45.075 million) and undistributed Congressional reductions of (\$-.093 million).

The ATACMS-Penetrator program was terminated by the Army in the FY05 PB; therefore, FY05 funds were realigned to support higher priority requirements.

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

February 2004

BUDGET ACTIVITY

**5 - System Development and Demonstration**

PE NUMBER AND TITLE

**0604768A - Brilliant Anti-Armor Submunition (BAT)**

PROJECT

**MD6**

COST (In Thousands)		FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
MD6	ARMY TACTICAL MISSILE SYSTEM - PENETRATOR	0	6928	0	0	0	0	0	0	6928

**A. Mission Description and Budget Item Justification:** The Army Tactical Missile System-Penetrator (ATACMS-P) is a standoff ballistic-missile-delivered penetrator weapon for use against fixed hard and deeply buried operational and tactical targets. ATACMS-P will complement current ATACMS Family of Munitions (AFOM) operational capabilities by adding the capability to attack and destroy Hardened and/or Deeply Buried Targets (HDBT) with a penetrator payload/warhead. These targets, considered High Value Targets (HVT), pose a considerable threat to U.S. and coalition forces. FY04 funds will complete the ATACMS-P ACTD effort. The follow on effort for ATACMS-P was terminated by the Army in the FY05 PB in order to fund Transformation and higher Army priority requirements. The ATACMS-P supports the Current to Future Force transition path of the Transformation Campaign Plan (TCP).

<b>Accomplishments/Planned Program</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Complete the Army integration of the Earth Penetrator Warhead (EPW) and final assembly of flight test assets and six residual units.	0	5359	0
Complete Qualification Test and Safety Certification of the EPW fuze.	0	809	0
Support flight tests at White Sands Missile Range (WSMR).	0	566	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	194	0
<b>Totals</b>	<b>0</b>	<b>6928</b>	<b>0</b>

<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)</b>							<b>February 2004</b>		
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>				PE NUMBER AND TITLE <b>0604768A - Brilliant Anti-Armor Submunition (BAT)</b>				PROJECT <b>MD6</b>	
<b><u>B. Other Program Funding Summary</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Compl	Total Cost
Navy Penetrator	0	0	0	0	0	0	0	0	0
<p><b><u>C. Acquisition Strategy:</u></b> The Army Tactical Missile System-Penetrator (ATACMS-P) strategy is to complete the Advance Concept Technology Demonstration (ACTD). There will be a series of flight tests to evaluate the system. The ACTD will be completed with the delivery of six residual assets to forces in Korea.</p>									

ARMY RDT&E COST ANALYSIS(R3)									February 2004				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
5 - System Development and Demonstration					0604768A - Brilliant Anti-Armor Submunition (BAT)					MD6			
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 . LMMFCS-Dallas,	Sole Source (SS) / Cost Plus Incentive Fee (CPIF)	LMMFCS, TX	0	0		3001	2Q	0		0	3001	0	
b . Strategic Systems Programs (NAVY)	N/A	Washington, DC	0	0		3927	2Q	0		0	3927	0	
Subtotal:			0	0		6928		0		0	6928	0	
Remarks: Lockheed Martin Missiles and Fire Control Systems (LMMFCS)													
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(R3)									February 2004				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
5 - System Development and Demonstration					0604768A - Brilliant Anti-Armor Submunition (BAT)					MD6			
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	
			0	0		0		0		0	0	0	
Subtotal:													
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	
			0	0		0		0		0	0	0	
Subtotal:													
Project Total Cost:			0	0		6928		0		0	6928	0	

Schedule Profile (R4 Exhibit)																							February 2004											
BUDGET ACTIVITY 5 - System Development and Demonstration												PE NUMBER AND TITLE 0604768A - Brilliant Anti-Armor Submunition (BAT)																PROJECT MD6						
Event Name		FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09				
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
(1) Complete Proof-of-Concept flight tests															▲1																			
(2) Delivery of six residual assets to Korea and complete ACTD															▲2																			

### Schedule Detail (R4a Exhibit)

February 2004

## BUDGET ACTIVITY

### 5 - System Development and Demonstration

PE NUMBER AND TITLE  
**0604768A - Brilliant Anti-Armor Submunition (BAT)**

# PROJECT MD6

## 5 - System Development and Demonstration

**0604768A - Brilliant Anti-Armor Submunition (BAT)**

MD6

<b><u>Schedule Detail</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Conduct Proof-of-Concept flight tests		2-4Q	1-2Q				
Complete Advanced Technology Demonstration (ACTD)		1-4Q	1-3Q				



<b>ARMY RDT&amp;E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)</b>							<b>February 2004</b>					
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>				PE NUMBER AND TITLE <b>0604768A - Brilliant Anti-Armor Submunition (BAT)</b>			PROJECT <b>P01</b>					
COST (In Thousands)				FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
P01     MULTI - MODE SEEKER DEVELOPMENT AND TEST				55922	2969	0	0	0	0	0	0	58891
<p><b>A. Mission Description and Budget Item Justification:</b> The Multi-Mode Seeker (MMS) program completes the development, assembly, and test of a MMS. This seeker will search, detect, acquire, and track moving armored vehicles, Multiple Rocket Launchers/Transporter Erector Launchers (MRLs/TELs), and other lightly armored vehicles. Funding will also support the software development and simulation of the MMS for stationary targets. The seeker, which uses millimeter wave and imaging infrared, will permit modern weapon systems to be operational in near all-weather and countermeasured conditions. The MMS program was developed in parallel with the Viper Strike/Hunter effort. The MMS program strategy shared development of common technologies needed for both programs.</p> <p>This Program Element (PE) provides funding for the Viper Strike effort and related Hunter Unmanned Aerial Vehicle (UAV) integration items. The funds in FY04 enable Global Positioning System (GPS) integration and Fire Scout UAV integration and demonstration. The Viper Strike effort has completed demonstration of the Proof-of-Principle for a Semi-Active Laser Seeker mounted on a submunition with integrated GPS and dispensing from the Hunter tactical UAV which provides the ability to attack targets ranging from armored tracks (tanks, Armored Personnel Carriers (APCs)), Multiple Rocket Launchers/ Transporter Erector Launchers (MRLs/TELs), and Scuds to thin-skinned "technical" (pickup trucks and cars) wheeled vehicles, and crew-served weapons and lightly constructed buildings. Viper Strike is particularly well suited for situations where precision (near-zero Circular Error Probable (CEP)) and minimum collateral damage are important. Viper Strike deployed from the Hunter UAV and Fire Scout UAV will meet critical weaponization needs of the Future Combat System Class IV Interim and Objective UAV systems.</p>												
<b>Accomplishments/Planned Program</b>									FY 2003	FY 2004	FY 2005	
Integrate Global Positioning System (GPS) into the munition Central Electronics Unit									0	1920	0	
Fire Scout UAV Demonstration									0	966	0	
Small Business Innovative Research/Small Business Technology Transfer Programs									0	83	0	
Multi-Mode Seeker (MMS) Integration and Demonstration with Hunter UAV									11696	0	0	
MMS GPS and stationary target software development.									9983	0	0	
MMS hardware obsolescence.									1038	0	0	
MMS moving target development and test.									5486	0	0	
Developed Hardware in the Loop Facility (HWIL) for MMS.									1551	0	0	

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

February 2004

BUDGET ACTIVITY

**5 - System Development and Demonstration**

PE NUMBER AND TITLE

**0604768A - Brilliant Anti-Armor Submunition  
(BAT)**

PROJECT

**P01**

## Accomplishments/Planned Program (continued)

	FY 2003	FY 2004	FY 2005
Developed Digital Simulation for MMS.	2013	0	0
Produced munitions to support MMS flight tests.	2156	0	0
Integrated Semi-Active Laser Seeker (SAL) on munition for Viper Strike.	10986	0	0
Developed HWIL for Viper Strike.	469	0	0
Conducted 2 demonstrations for Viper Strike system testing against multiple target sets designated by Hunters and Lightweight Laser Designators and Rangefinders (LLDRs)	5013	0	0
Conducted demonstration of submunition from Hunter UAV for Viper Strike.	5531	0	0
<b>Totals</b>	<b>55922</b>	<b>2969</b>	<b>0</b>

**B. Other Program Funding Summary:** Not applicable for this item.

**C. Acquisition Strategy:** The Multi-Mode Seeker (MMS) program completes the development, assembly, and test of a MMS. This seeker will search, detect, acquire and track moving MRLs/TELS, armored and lightly armored vehicles. Development and simulations will be performed against stationary targets. The seeker, which uses millimeter wave and imaging infrared, will permit modern weapon systems to be operational in near all-weather and countermeasured conditions. The Viper Strike effort completes the demonstration of Proof-of-Principle program for a Semi-Active Laser Seeker mounted on a submunition with integrated Global Positioning System (GPS) dispensed from the Fire Scout tactical Unmanned Aerial Vehicle (UAV).

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>					PE NUMBER AND TITLE <b>0604768A - Brilliant Anti-Armor Submunition (BAT)</b>					PROJECT <b>P01</b>		
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 . Northrop Grumman (Multi-Mode Seeker)	Sole Source(SS)/ Cost Plus Incentive Fee (CPIF)	Huntsville, AL	0	25849	2-4Q	0		0		0	25849	0
b . Northrop Grumman (Viper Strike)	SS/CPIF	Huntsville, AL	0	15267	2-4Q	2643	2-3Q	0		0	17910	0
Subtotal:			0	41116		2643		0		0	43759	0
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 . SPARTA, CAS (SETA Spt)	Competitive (C)/Cost Plus Fixed Fee (CPFF)	Huntsville, AL	0	912	2-3Q	0		0		0	912	0
b . Miscellaneous (SETA Spt)	C/CPFF	Huntsville, AL	0	463	2Q	193	2Q	0		0	656	0

ARMY RDT&E COST ANALYSIS(R3)									February 2004			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
5 - System Development and Demonstration					0604768A - Brilliant Anti-Armor Submunition (BAT)					P01		
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:			0	1375		193		0		0	1568	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 . Army Technical Test Center (ATTC)-Multi-Mode Seeker (MMS)	NA	Fort Rucker, AL	0	457	4Q	0		0		0	457	0
b . White Sands Missile Range (WSMR)-MMS	N/A	WSMR, NM	0	5006	2Q	0		0		0	5006	0
c . WSMR (Viper Strike)	N/A	WSMR, NM	0	4747	2Q	0		0		0	4747	0
Subtotal:			0	10210		0		0		0	10210	0

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BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>					PE NUMBER AND TITLE <b>0604768A - Brilliant Anti-Armor Submunition (BAT)</b>					PROJECT <b>P01</b>		
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	Project Office, Redstone Arsenal, AL	0	1868	1-4Q	133	1-4Q	0		0	2001	0
b . Research Development Engineering Center (RDEC)	N/A	Redstone Arsenal, AL	0	1353	1-4Q	0		0		0	1353	0
Subtotal:			0	3221		133		0		0	3354	0
Project Total Cost:			0	55922		2969		0		0	58891	0

Schedule Profile (R4 Exhibit)																					February 2004											
BUDGET ACTIVITY 5 - System Development and Demonstration												PE NUMBER AND TITLE 0604768A - Brilliant Anti-Armor Submunition (BAT)												PROJECT P01								
Event Name	FY 02				FY 03				FY 04				FY 05				FY 06				FY 07				FY 08				FY 09			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Fire Scout and Global Positioning System (GPS) Integration																																
(1) Fire Scout Demonstration, (2) GPS Demonstration																																

<b>Schedule Detail (R4a Exhibit)</b>						<b>February 2004</b>		
BUDGET ACTIVITY <b>5 - System Development and Demonstration</b>				PE NUMBER AND TITLE <b>0604768A - Brilliant Anti-Armor Submunition (BAT)</b>				PROJECT <b>P01</b>

  

<b><u>Schedule Detail</u></b>	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Fire Scout Integration and Demonstration		2-4Q					
Global Positioning System (GPS) Integration and Test		2-4Q					