ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)	February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE
3 - Advanced technology development	**0603313A - Missile and Rocket Advanced Technology**

	COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
	Total Program Element (PE) Cost	100616	121126	92800	66669	51189	72954	74474
206	MISSILE SIMULATION	15982	9939	3221	3318	3380	3459	3537
263	FUTURE MSL TECH INTEGR(FMTI)	34136	49776	31245	40593	24430	14730	14726
550	COUNTER ACTIVE PROTECTION	7954	2766	0	0	0	0	0
655	HYPERVELOCITY MISSILE TD	38258	44556	52075	16265	13503	20974	22473
704	ADVANCED MISSILE DEMO	1905	6187	6259	6493	0	5464	5440
G03	NATIONAL AEROSPACE INITIATIVE ADVANCED TECHNOLOGY	0	0	0	0	9876	28327	28298
NA6	MISSILE AND ROCKET INITIATIVES (CA)	2381	7902	0	0	0	0	0

A. Mission Description and Budget Item Justification: This program element demonstrates advanced missile technologies to enhance weapon system lethality, survivability, agility, deployability, and affordability capabilities for the Future Force and, where feasible, exploits opportunities to enhance Current Force Capabilities. Efforts are conducted through system simulation, design, demonstration, and test in laboratory and operational scenarios. This program element includes demonstrations of advanced tactical missiles, real-time hardware-in-the-loop simulations, and multi-role seeker technology efforts. The technologies in this PE enhance the capabilities of locating targets in clutter, lightweight missile launchers, precision guidance, hypervelocity missile flight, and missile communications, command and control. The major efforts in this program element are the Compact Kinetic Energy Missile (CKEM), Low Cost Precision Kill (LCPK), Non-Line-Of-Sight Launcher System (NLOS-LS) Communications, NLOS-LS next generation missiles, and the hypersonic missile technology and engine demonstration. The CKEM technology program will demonstrate a prime candidate to provide overwhelming lethality for the FCS Direct Fire System. The goal of the CKEM effort is to design, fabricate and demonstrate a direct-fire missile that offers a significant increase in cost / kill ratio and enhanced stowed-kills, when compared to current direct-fire weapon systems. The NLOS-LS funding provides for longer range, more robust missiles, in a network of missiles and sensors.   The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed at the Aviation & Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

0603313A
Missile and Rocket Advanced Technology

Item No. 46 Page 1 of 13
444

Exhibit R-2
Budget Item Justification

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)	February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE
3 - Advanced technology development	**0603313A - Missile and Rocket Advanced Technology**

B. Program Change Summary	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2004)	99695	111321	94062
Current Budget (FY 2005 PB)	100616	121126	92800
Total Adjustments	921	9805	-1262
Congressional program reductions		-11041	
Congressional rescissions			
Congressional increases		21300	
Reprogrammings	921	-454	
SBIR/STTR Transfer			
Adjustments to Budget Years			-1262

FY04 Congressional Adds with no R2-A:

- ($2685) Close-in Active Protection (CIAPS) prototype, Project 550: The objective of this one year Congressional Add is to demonstrate a complete of Close-In Active Protection System prototype for defense of combat vehicles against rocket propelled grenades and missiles fired without warning from close range; and investigate improvements for weight and size reduction.

- ($959) Army Manufacturing and Maintenance Organization, Project NA6: The objective of this one year Congressional Add is to address technology efforts and requirements impacting the sustainment of Army weapon systems. No additional funding is required to complete this project.

- ($1438) Micro-factories for Precision Parts, Project NA6: The objective of this one year Congressional Add is to develop a "desktop" factory using modular micro CNC machines. No additional funding is required to complete this project.

- ($3356) Warfighter Protection Lab, Project NA6: The objective of this one year Congressional Add is to apply army simulation technology to force protection. No additional funding is required to complete this project.

- ($959) Volumetrically Controlled Manufacturing (VCM), Project NA6: The objective of this one year Congressional Add is to develop a precision synthetic manufacturing process that uses mathematical algorithm to precisely calculate 3D material matrix coefficients, in discrete volumes, and then

0603313A
Missile and Rocket Advanced Technology

Item No. 46 Page 2 of 13
445

Exhibit R-2
Budget Item Justification

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)	February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE
3 - Advanced technology development	**0603313A - Missile and Rocket Advanced Technology**

replicates those properties within a manufacturing process. No additional funding is required to complete this project.

- ($959) Army AMCODE Integration, Project NA6: The objective of this one year Congressional Add is to develop a collaborative design environment for army missiles. No additional funding is required to complete this project.

0603313A
Missile and Rocket Advanced Technology

Item No. 46 Page 3 of 13
446

Exhibit R-2
Budget Item Justification

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	February 2004

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology	PROJECT 206

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
206 MISSILE SIMULATION	15982	9939	3221	3318	3380	3459	3537

A. Mission Description and Budget Item Justification: This project supports three separate, but related tasks. The first task is the design, expansion, and improvement of hardware-in-the-loop (HWIL) simulation capabilities. The HWIL simulation is used to evaluate tactical missiles that are guided by radio frequency (RF), millimeter wave (MMW), electro-optical (EO), and infrared (IR) spectral signals. Future missile systems will use multi-mode combinations of these guidance technologies such as those envisioned for the Common Missile, NLOS-LS, and other systems within the Future Force systems. Evaluation by means of HWIL provides a cost-effective support to missile maturation throughout weapon system life cycles and permits a reduction in the number of flight tests actually performed. The second task is to support the development, implementation, integration, and test of missile simulation capabilities in the Modeling Architecture for Technology and Research Experimentation (MATREX) environment. MATREX is envisioned to support distributed simulations of various current, FCS, and Future Force evaluations, technology trade studies, and experimentations. This effort will facilitate the modeling and simulation capabilities of various Army agencies allowing cooperative simulation efforts such as the MATREX, which is envisioned for FCS and Future Force evaluation. The third task is battlefield distributed simulation, which provides an all-analytical simulation of Future Force weapon systems engaging multiple targets in a simulated battlefield environment, including the effects of natural and battle-caused obscurants and disturbances. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed at the Aviation & Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

0603313A (206)
MISSILE SIMULATION

Item No. 46 Page 4 of 13
447

Exhibit R-2A
Budget Item Justification

BUDGET ACTIVITY **3 - Advanced technology development**	PE NUMBER AND TITLE **0603313A - Missile and Rocket Advanced Technology**	PROJECT **206**

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
Missile Simulation - In FY03, matured tri-mode beam combiner technology for multi-mode guided missiles and sub-munitions; developed IR scene projector capabilities to 1024x1024 elements with frame update rates exceeding 250 Hz, and with "snap" update electronics; implemented an IR in-band target scene projector based on micro-electromechanical systems (MEMS) devices for HWIL simulation. In FY04, develop Laser Detection and Ranging (LADAR) radar scene projector for HWIL simulation; mature end-to-end HWIL simulation techniques with remotely located ground equipment (launchers, Command & Control, Communications, Computers and Intelligence (C4I), fire control sensors and units) connected to real-time HWIL missile components and simulations. In FY05, will design and implement distributed simulation capabilities including classified and unclassified Ethernet and fiber optic wide area and local network equipment to analyze FCS, CKEM, NLOS-LS, the Future Force and weaponization of manned and unmanned air and ground vehicles in conjunction with Battle Labs and other Research, Development, and Engineering Centers. Will investigate parallel processing techniques to provide image processing power to enhance obscuration modeling required by both real and virtual prototype simulators.	2928	2932	3221
Missile Simulation Technology – This Congressional add in FY03 matured high fidelity, man-in-the-loop, simulation support to missile and missile platform development programs. In FY04, this add matures the missile simulation capability to include representations of all fielded missiles systems. It also includes representatives of missiles expected to be in the FCS Unit of Action. No additional funding is required to complete this project.	7335	6720	0
Volumetrically Controlled Manufacturing – This Congressional add matured simulation / modeling capability to optimize component design and manufacturing, using volumetrically controlled manufacturing methods. No additional funding is required to complete this project.	5719	0	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	287	0
Totals	15982	9939	3221

0603313A (206)
MISSILE SIMULATION

Item No. 46 Page 5 of 13
448

Exhibit R-2A
Budget Item Justification

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	0603313A - Missile and Rocket Advanced Technology	263

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
263 FUTURE MSL TECH INTEGR(FMTI)	34136	49776	31245	40593	24430	14730	14726

A. Mission Description and Budget Item Justification: This project demonstrates advanced tactical missile technologies including seekers, propulsion, airframes, communications, and guidance and controls for FCS and the Future Force. The major efforts in this project are the NetFires Comms and NLOS-LS Technology programs. These technologies include the demonstration and integration of multi-mode seeker concepts, controllable thrust motors (gels, pintle-controlled solids, or air breathing), aided target acquisition (ATA), networked missile radios and missile antennas. Seeker technology will address imaging infrared, LADAR, and millimeter wave seeker technologies, combined with semi-active laser technology, to provide precision strike and fire-and-forget guidance modes. Affordable, controllable thrust rocket motors, such as gelled bi-propellants or pintle-controlled solids, will be demonstrated to provide longer ranges and shorter flight times while increasing system robustness in air-to-ground, ground-to-ground, and ground-to-air roles. ATA will be demonstrated permitting true fire-and-forget at targets beyond visual range. A missile communications network enables target position updates to the missiles, re-tasking orders to the missiles, and transmission of imagery to the ground for target verification and battle damage assessment. The Army's baseline communications networking waveform for the NLOS-LS missiles will be developed and demonstrated by funding the Communications Electronics Research Development Engineering Center (CERDEC) SLICE program. In addition, developing a System Development and Demonstration (SDD) risk mitigation missile radio and antenna that supports current NLOS-LS SDD program. Testing of the NLOS-LS products from both the SLICE and risk mitigation efforts will be funded and accomplished by this program. Secure wide-band data link hardware, allowing target position updates during missile flight, and transmission of imagery to the ground will be demonstrated. These efforts provide risk mitigation in support of the start of System Development and Demonstration (SDD) start for NLOS-LS in FY04 and are supported by the Program Executive Officer Tactical Missiles. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed at the Aviation & Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

BUDGET ACTIVITY **3 - Advanced technology development**	PE NUMBER AND TITLE **0603313A - Missile and Rocket Advanced Technology**	PROJECT **263**

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
NLOS-LS Communications Simulation: In FY03, designed and coded software to simulate the NLOS-LS missile seekers, flight models, and communications networking and modeled a Unit of Action with NLOS-LS assets into the TRADOC-approved Caspian Sea scenario. Performed a series of man-in-the-loop experiments employing NLOS-LS in the combat scenario in order to explicitly generate the NLOS-LS communications traffic. In FY04, continue to evaluate results of the simulation experiments to refine communications requirements for NLOS-LS. Update the communications simulation with vendor enhancements and re-evaluate NLOS-LS communications performance in a combat environment.	3845	742	0
NLOS-LS Waveform Development: Develop JTRS SCA 2.2 compliant waveform and networking protocols for NLOS-LS: In FY 03, initiated development of the detailed models of the NLOS-LS networking protocols and the software enhancements to the waveform and networking protocols to achieve the NLOS-LS requirements. In FY04, complete software development of the NLOS-LS waveform and networking and conduct rigorous laboratory testing of the software to prepare for outdoor testing.	11688	10223	0
NLOS-LS Missile Radio and Antenna: Develop risk mitigation missile radio & antenna for NLOS-LS: In FY 03, designed a radio for the NLOS-LS missile application. Specific missile requirements such as thermal dissipation, power interface to the missile, GPS interface to the missile, and packaging were solved. Manufacturability also stressed. In FY04, fabricate and assemble the missile radios and antennas, perform rigorous testing in the laboratory in preparation for outdoor testing.	8060	9980	0
NLOS-LS Communications Testing: Plan and conduct a realistic, real world test of the radio hardware, antennas, and waveforms: In FY03, identified the appropriate format for the test and a test site, prepared data gathering software in order to measure performance of the radios and waveforms, and prepared a test plan. In FY04, rent aircraft and ground vehicles, conduct pre-tests to give the vendors a chance to dry-run the comms networking solutions, and perform the culminating test using aircraft as surrogate missiles in a 20-node test of both the Soldier Radio Waveform and the risk mitigation radio and antenna. Test will consist of 10 aircraft-based radios and 10 ground-based radios operating in a variety of terrain and altitudes while in motion and will replicate NLOS-LS in an operational environment.	1912	4330	0

0603313A (263)
FUTURE MSL TECH INTEGR(FMTI)

Item No. 46 Page 7 of 13
450

Exhibit R-2A
Budget Item Justification

BUDGET ACTIVITY **3 - Advanced technology development**	PE NUMBER AND TITLE **0603313A - Missile and Rocket Advanced Technology**	PROJECT **263**

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
NLOS Technology – Precision Attack Missile (PAM): In FY04, design and develop critical subsystems for PAM: - Enhanced Seeker Uncooled Infrared (UCIR) - Redesign UCIR optics, real-time Autonomous Target Acquisition (ATA) code development, fabricate and assemble two prototype type seekers and perform captive flight tests. - Advanced Propulsion – Demonstrate in static tests a pulse motor without barriers in a PAM size with minimum signature propellant, develop and demonstrate in static tests reduced smoke/ insensitive munition technology in boost-sustain risk mitigation motor, perform nozzle material investigations and static test with PAM type propellants. In FY05, will continue the design, development, fabrication of PAM critical components for Increment 1 and perform laboratory/relevant environment subsystem level testing.	3421	6740	7500
NLOS-Technology – Loiter Attack Missile (LAM): In FY04, design and develop critical subsystems for LAM. Seeker Semi-Active Laser (SAL)/LADAR - Redesign current LAM seeker to incorporate LADAR enhancements, perform trade studies and conceptual design for enhanced LAM seeker; Advanced Propulsion-award multiple contracts for turbofan trade studies and initiate prototype development for bench testing; Lethality/ Warhead- design, develop, and demonstrate advanced warhead technologies. In FY05, will continue the design, development, and fabrication of LAM critical components for Increment 1 and perform laboratory/relevant environment subsystem level testing.	0	4630	7400
NLOS-LS Technology Critical Subsystems: In FY04, design and develop critical subsystems for PAM/LAM: Generate ATA analysis and assessment tools (software/simulation development) for PAM and LAM ATA performance evaluations. Conduct system analysis and simulation development for initial few-on-few capabilities, Common Simulation Framework (CSF) 3-DOF simulation for rapid trade studies, and enhanced visualization demonstrations with 3D battlefield viewer and "heads-up" telemetry display. Address LAM and PAM manufacturing and affordability issues through system research, design and development. Perform trade studies, identifying alternate variants and critical subsystem requirements to achieve NLOS-LS Objective System performance and advanced warhead testing for objective requirements. In FY05, will continue the design, development, fabrication of PAM and LAM critical subsystems for Increment 1 and perform laboratory/relevant environment subsystem level testing. Will focus component experiments for proof of principal of NLOS-LS Objective System concepts.	0	8320	16345
Common Missile (CM) - In FY03, conducted seeker tower testing; prepared seekers and range for Captive Flight Testing; performed Captive Flight Testing of Tri-mode seekers for CM; and conducted final flight-type static testing of controllable propulsion system(s).	2400	0	0

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	0603313A - Missile and Rocket Advanced Technology	263

Accomplishments/Planned Program (continued)	FY 2003	FY 2004	FY 2005
Loiter Attack Munition-Aviation (LAM-A) – This Congressional add in FY03 funded stabilized test vehicle flight tests from a helicopter rail; continued turbofan engine development testing and performed simulations to refine and optimize command and control techniques. In FY04, this add generates force-on-force simulation exercises with warfighters, performs hardware-in-the-loop simulations with flight hardware, completes system vulnerability and turbofan propulsion studies, continues the aircraft cockpit integration design, tests breadboard high-bandwidth data-link hardware; and prepares for control vehicle test flights of a long-range, precision-strike weapon for the aviation forces. No additional funding is required to complete this project.	2810	3375	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1436	0
Totals	34136	49776	31245

0603313A (263)
FUTURE MSL TECH INTEGR(FMTI)

Item No. 46 Page 9 of 13
452

Exhibit R-2A
Budget Item Justification

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

February 2004

BUDGET ACTIVITY **3 - Advanced technology development**	PE NUMBER AND TITLE **0603313A - Missile and Rocket Advanced Technology**	PROJECT **655**

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
655 HYPERVELOCITY MISSILE TD	38258	44556	52075	16265	13503	20974	22473

A. Mission Description and Budget Item Justification: Compact Kinetic Energy Missile (CKEM) ATD will enable the Future Force, including FCS, by providing overwhelming lethality with a small, light, fast hypervelocity compact kinetic energy missile. CKEM will demonstrate enhanced system lethality with a threshold of 60-inch long, 100-lb missile and an objective of 54-inch long, 65-lb missile. Miniature guidance inertial measurement unit (IMU) technology will be demonstrated to survive high-g missile launch and will provide precision guidance to kill targets at ranges of 0.4-5 km. The program will mature and demonstrate advanced component and subsystem and system level technologies in a missile system configuration to achieve next-generation system level performance improvements. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed at the Aviation & Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

0603313A (655)
HYPERVELOCITY MISSILE TD

Item No. 46 Page 10 of 13
453

Exhibit R-2A
Budget Item Justification

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	February 2004	

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology	PROJECT 655

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
- Compact Kinetic Energy Missile (CKEM) - In FY03, continued demonstration of critical hypervelocity technologies in operational environments; completed design trade studies and finalized design; fabricated and tested components/subsystems for advanced propulsion, enhanced lethality, miniaturized high-g guidance and control, and fully operational Inertial Measurement Unit (IMU). In FY04 incorporate demonstrated component technologies into an integrated system and continue to perform critical technology demonstrations and subsystem integration testing and evaluation including hardware-in-the-loop (HWIL) to validate performance models. Conduct full-scale lethality sled tests against advanced threat armors to evaluate penetrator design performance. Integrate advanced propulsion designs into competing missile configurations and complete guidance and control test vehicle flight to characterize performance. Perform a Preliminary Design Review (PDR) in mid FY04 to initiate Option 1 Missile Design, Integration and Controlled Flight Testing of the Advanced Technology Demonstration Contract. In FY05, will provide a detailed design and fabrication of a missile system that is traceable to a tactical system. Will provide fabrication, integration and flight-testing of at least two (2) Control Test Vehicle (CTV) missiles. Will conduct testing in a HWIL facility to verify performance for Critical Design Review (CDR). Will start Option II phase of the CKEM ATD to include fabricate and integrate and six guided flight tests.	37114	43293	52075
- CKEM Distributed Prototype Simulation – This one year Congressional add funded the design of high-bandwidth tool sets for use with simulation models to provide low-cost evaluation techniques for CKEM. No additional funding is required to complete this project.	1144	0	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	1263	0
Totals	38258	44556	52075

0603313A (655)
HYPERVELOCITY MISSILE TD

Item No. 46 Page 11 of 13
454

Exhibit R-2A
Budget Item Justification

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

February 2004

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	0603313A - Missile and Rocket Advanced Technology	704

COST (In Thousands)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
704 ADVANCED MISSILE DEMO	1905	6187	6259	6493	0	5464	5440

A. Mission Description and Budget Item Justification: This project demonstrates advanced state-of-the-art missile system concepts to enhance weapon system lethality, survivability, agility, versatility, deployability and affordability for FCS and the Future Force. Current planned advanced demonstrations are Fire Control-Node Engagement Technology (FC-NET) and Advanced Multi-Role Miniature Precision Guided Missile (AMMPGM). The FC-NET program objective is to develop a common fire control system for the Future Combat Systems (FCS) family of vehicles. The resulting Validated Fire Control Software Package, Enhanced Combat Decision Aid Software (ECDAS), will enable a commander or platform to effectively manage an interchangeable and distributed suite of weapons. The system will recommend Weapon-Target Pairings for multiple weapons (missiles & guns) and is expandable to include future weapon types. The objective of AMMPGM program is to mature and demonstrate advanced, miniature, multi-role precision-guided missile technology that provides robust defeat of a variety of non-armored threats from multiple platforms including manned and unmanned air and ground platforms with a significantly reduced logistics footprint. The cited work is consistent with Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP). Work is performed at the Aviation & Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

0603313A (704)
Advanced Missile Demo

Item No. 46 Page 12 of 13
455

Exhibit R-2A
Budget Item Justification

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)	February 2004

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology	PROJECT 704

Accomplishments/Planned Program	FY 2003	FY 2004	FY 2005
- FC-NET - In FY04, design and mature technical fire control components through modeling and simulation. Start integration of the multi-weapon technical fire control architecture into the lethality module of the Crew integration and Automation Test Bed (CAT) Advanced Technology Demonstration (ATD). Demonstrate common technical fire control architecture in a manned ground vehicle and an unmanned armed ground vehicle in a virtual test environment. Continue to mature the Weapon-Target Pairing Algorithms currently identified as one of the 31 critical technologies for FCS. In FY05, develop a technical fire control interface to the tactical fire control infrastructure and finalize the Weapon-Target Pairing Algorithms. Demonstrate and test in a virtual simulation environment a distributed Technical Fire Control Architecture. This program uses technology developed under 0602303A Missile Technology.	0	4933	3384
- AMMPGM - In FY04, complete wind tunnel testing, fabrication and static testing of flight weight motor. In FY05, will complete ballistic flight testing of flight weight motor and will transition technology and designs to Advanced Precision Kill Weapon System (APKWS) Block II SDD. This program uses technology developed under 0602303A Missile Technology.	0	1074	2875
- M-72 LAW – This one year Congressional add demonstrated increased capability light anti-tank weapon (LAW) for Special Operations Forces in urban environments. No additional funding is required to complete this project.	1905	0	0
Small Business Innovative Research/Small Business Technology Transfer Programs	0	180	0
Totals	1905	6187	6259

0603313A (704)
Advanced Missile Demo

Exhibit R-2A
Budget Item Justification