

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2008

BUDGET ACTIVITY	PE NUMBER AND TITLE						
3 - Advanced technology development	0603313A - Missile and Rocket Advanced Technology						
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
Total Program Element (PE) Cost	69885	77259	63998	70767	70623	66613	65193
206 MISSILE SIMULATION	3282	3458	3534	3568	3594	3675	3757
263 FUTURE MSL TECH INTEGR(FMTI)	9116	30921	36927	48999	48585	45610	46634
550 COUNTER ACTIVE PROTECTION	14230	15297	15402	8227	5659	5785	5914
655 HYPERVELOCITY MISSILE TD							
704 Advanced Missile Demo	9024	8320	6149	7943	10723	8443	6699
G03 Army Hypersonics Advanced Technology		1973	1986	2030	2062	3100	2189
NA6 Missile and Rocket Initiatives (CA)	34233	17290					

A. Mission Description and Budget Item Justification: This program element (PE) matures and demonstrates advanced missile technologies to enhance weapon system lethality, survivability, agility, deployability, and affordability for the Future Modular Force and, where feasible, exploits opportunities to enhance Current Force capabilities. This PE includes high fidelity simulations, design, demonstration and testing for real-time Hardware-in-the-Loop (HWIL) of advanced tactical missiles and Active Protection System Interceptors for ground and air platforms. The technologies focused on in this PE enhance the warfighting capabilities for locating targets in clutter, precision guidance, high speed missile flight, and missile communications, command, and control. The major efforts in this PE are the Non-Line-of-Sight Launch System (NLOS-LS), Advanced Multi-Mission Precision Guided Munition (AMMPGM), Active Defense for the Current and Future Force (concentrating on defense against rockets, artillery, and mortars (RAM)), and Active Protection System (APS) components for ground and air platforms. A key effort is the development of a guided interceptor to work with the APS being developed for Future Combat Systems (FCS) and the Future Force. This interceptor requires advanced technology in controls, inertial sensors, and guidance algorithms. Development and demonstration of the guided interceptor is in collaboration with the FCS APS developer, who will provide the tracking sensor and launch mechanism required for the development and demonstration of the guided interceptor. Survivability efforts are coordinated with PE 0602303A (Missile Technology), PE 0603003A (Aviation Advanced Technology), PE 0603270A (Electronic Warfare Technology), PE 0602624A (Weapons and Munitions Technology), PE 0603004A (Weapons and Munitions Advanced Technology), and PE 0603005A (Combat Vehicle and Automotive Advanced Technology). The Army Hypersonics Advanced Technology program matures and demonstrates critical technologies required for force protection against Unmanned Aerial Vehicles and rotary wing aircraft. Project NA6 supports Congressional special interest items. The emphasis in this PE is on smaller, lighter weight, more affordable missiles. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement. This work is performed at the US Army Aviation and Missile Research, Development, and Engineering Center and Space and Missile Defense Command located at Redstone Arsenal, AL.

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<u>B. Program Change Summary</u>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008/2009)	62940	60353	64398
Current BES/President's Budget (FY 2009)	69885	77259	63998
Total Adjustments	6945	16906	-400
Congressional Program Reductions		-494	
Congressional Rescissions			
Congressional Increases		17400	
Reprogrammings	8671		
SBIR/STTR Transfer	-1726		
Adjustments to Budget Years			-400

FY07 funds were increased to support the Interceptor for Kinetic Energy Active Protection System.

Seven FY08 congressional adds totaling \$17400 were added to this PE.

- (\$1000) High Fidelity Virtual Simulation and Analysis (HFVSA)
- (\$1600) Smart Energetics Architecture for Missile Systems
- (\$2400) Army Virtual Emergency Testbed (AVERT)
- (\$2400) Perimeter & Maritime Sensor Network
- (\$3000) Software Engineering Enhancements
- (\$3000) Waterside Wide Area Tactical Coverage & Homing (WaterWATCH)
- (\$4000) Rapid Response System for Protection of Air and Ground Vehicles

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BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology					PROJECT 206	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
206 MISSILE SIMULATION	3282	3458	3534	3568	3594	3675	3757

A. Mission Description and Budget Item Justification: This project matures, develops, and demonstrates modeling and simulation tools for missile design and analysis. This project accomplishes the design, expansion, and improvement of Hardware-in-the-Loop (HWIL) simulation capabilities. HWIL simulation is used to evaluate tactical and theater missiles and precision-guided munitions (ground-to-air, ground-to-ground, air-to-ground) guided by radar frequency (RF), millimeter-wave RF (MMW), electro-optical (EO), and passive and active infrared (IR) spectral signals. Future missile systems use multi-mode combinations of these guidance technologies such as those envisioned for the Non-Line-of-Sight Launch System (NLOS-LS) and other systems within the Future Modular Force. Evaluation by means of HWIL provides a cost-effective method that supports missile maturation throughout weapon system life cycles and permits a reduction in the number of flight tests required, as well as improving the confidence of flight test readiness and the probability of successful flight tests. Recent developments in HWIL simulation technology have enabled these techniques to be applied to missile production lot acceptance testing and post-deployment stockpile reliability tests to reduce their costs. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement. Work is performed at the US Army Aviation and Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Missile Simulation: In FY07, demonstrated scanning and multi-channel laser radar (LADAR) projector capability to provide input to a high-resolution LADAR sensor. Completed the advanced high dynamic range infrared (IR) projector and completed initial tests. Completed preliminary design modifications for the development of millimeter wave (MMW) synthetic aperture radar (SAR) processing for missile guidance. Demonstrated general-purpose interfaces using Field-Programmable Gate Arrays (FPGA) for interfacing to PAM, Longbow and Common Missile seeker designs. Supported integration and development of a multi-mode HWIL capability. Extended scene generation techniques to a practical application. In FY08, define architecture and interface requirements for reusable and standardized HWIL modules to provide more cost effective HWIL simulation systems. Development of standardized interfaces, internal components and creation of a core data network will make these goals realizable. The efforts focus on the HWIL common module and interface definition and testing of high bandwidth communications between prototype modules. In FY09, will continue the common HWIL framework development by testing standard high bandwidth interfaces for an infrared (IR) seeker, 6-DOF and facility modules. Will investigate controls to project polarization capable signals. Will develop and test a passive IR projector with polarization capability. Will continue the development of MMW synthetic aperture radar (SAR) integration and signal processing techniques for high resolution characterization and validation database development.	3282	3365	3534
Small Business Innovative Research/Small Business Technology Transfer Programs		93	
Total	3282	3458	3534

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BUDGET ACTIVITY 3 - Advanced technology development		PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology					PROJECT 263	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
263 FUTURE MSL TECH INTEGR(FMTI)	9116	30921	36927	48999	48585	45610	46634	

A. Mission Description and Budget Item Justification: This project matures and demonstrates advanced tactical missile technologies such as seekers, propulsion, airframes, and guidance and controls for missiles supporting the Future Modular Force and where feasible transitions products into current force. This project focuses on: Multi-mode seekers, controllable thrust motors (gels, pintle-controlled solids, and air breathing), and aided target acquisition (ATA) for missile systems. Seeker development addresses imaging infrared, laser radar (LADAR), and millimeter wave seeker technologies, combined with semi-active laser technology, to provide precision strike and fire-and-forget guidance modes. In addition, this project matures affordable, controllable thrust rocket motors that provide longer ranges, and shorter flight times while increasing system safety and robustness in various mission roles while maturing missile guidance and electronics technologies to enable target position updates and re-tasking orders to the missile, and transmission of imagery to the ground for target verification and battle damage assessment. This project demonstrates an active defense against rockets, artillery, and mortars capability for the Future Force, concentrating on using component technologies funded under program element (PE) 0602303A. The continuing Smaller, Lighter, Cheaper (SLC) Tactical Missiles effort matures component technology developed in PE 602303 that focuses on reducing the cost and logistics burden of precision munitions. This effort's goal is to reduce the cost per kill of precision guided missiles, through the innovative application of technology, as well as initiate guided missile technology efforts for direct and indirect fire missions for individual Soldiers. Close Combat Networking of Weapons and Sensors (CCNW&S) demonstrates a prototype infantry networked lethality capability to dramatically improve weapon/target pairing at the squad and platoon level. This effort responds to a priority US Army Infantry Center need for direct-fire range overmatch against current and future threats. This effort strives to leverage and ensure compatibility with fielded tactical systems, including weapons, sensors, displays, radios, and networks. A key component of the Close Combat Networking of weapons effort is the addition of networked Far Target Locators (FTL) and image/data transmission capability to the Javelin Command Launch Unit (CLU) and Tube-launched, Optically-tracked, Wire-guided (TOW) Improved Target Acquisition System (ITAS). These FTLs organically calculate target coordinates and feed the infantry battle command system. Networked CLUs are to be employed in the same manner. Payoffs include increased Line-of-Sight/Beyond-Line-of-Sight lethality and overmatch made possible by synchronized sensors, fires, and maneuver in near-real time; increased warfighter survivability via early acquisition and targeting; and increased situational awareness. These features provide a common operating picture for the manned platform and dismounted Soldier through the rapid sharing of actionable information. The project also matures the technologies developed and funded under PE 062303A. These efforts directly support the NLOS-LS System Development and Demonstration (SDD) program and multiple other systems managed by the Program Executive Officer for Missiles and Space. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement. Work is performed at the US Army Aviation and Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Enhanced Seeker Development: In FY07, continued fabrication and performed subsystem tests of the PAM (Precision Attack Missile) multi-mode seeker. Conducted aided target acquisition (ATA) performance evaluations utilizing seeker captive flight test data and developed concepts, detailed designs, and began prototype fabrication and component/subsystem testing. In FY08, integrate PAM seeker and electronics together and perform tower and captive flight testing of the PAM seeker. In FY09, will perform two captive flight tests and continue evaluation and maturing seeker technology for transition of the PAM seeker, ATA, and electronics as a spiral upgrade to NLOS-LS SDD.	6510	2323	992

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
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Advanced Propulsion and Warheads: In FY07, updated propulsion trades and evaluations of critical enhanced Precision Attack Missile (PAM) propulsion subsystems for spiral insertion. In addition, conducted baseline evaluations and simulation of the high efficiency turbo-engine (HETE) critical technologies as a potential replacement for PAM propulsion. In FY08, investigate enhanced NLOS-LS technologies, including the HETE technology for potential NLOS-LS variants; perform prototype hardware evaluations through bench testing of components and wind tunnel testing of variant concept designs. In FY09, will perform integrated prototype system concept demonstrations and evaluations of an NLOS-LS cargo variant for rapid, precision deployment of submunitions.	861	4724	1984	
Modeling/Simulation and System Performance Evaluation: In FY07, conducted preflight and post flight reconstruction of PAM captive flight tests performed and supported simulation formal accreditation process. Continued trade studies taking into account various regions, targets, environments, and countermeasures, identifying NLOS-LS variants, and critical subsystem requirements. Addressed manufacturing and affordability (M&A) issues and expanded the envelope of conditions evaluated by the simulation. Performed trade studies and generated detailed simulation models for evaluation of NLOS-LS variant designs. In FY08, support few-on-few simulations and experiments. Perform trade studies and generate detailed simulation models for evaluation of PAM propulsion and PAM multi mode seeker technology insertion. Model M&A issues in preliminary design phase of NLOS-LS variants. In FY09, will perform many-on-many system trade studies and generate detailed simulation models for evaluation of NLOS variants and PAM upgrades while continuing to address M&A issues; will conduct excursions to expand the envelope of simulation evaluated conditions.	1745	2528	992	
Smaller, Lighter, Cheaper (SLC): In FY08, conduct multipurpose warhead design verification testing and warhead pre-qualification tests in conjunction with Armaments Research Development Engineering Center. In FY09, will conduct requirements analysis and trade studies for small, low cost seeker/sensor system and will design and initiate prototype development of electronics for small lightweight precision missiles. Will leverage latest in nanotechnology and electronics packaging to achieve small, light, missile form factors to meet urban and emerging threats. Will conduct trades, build prototype designs and test components in relevant environments. Mature technologies will transition to PM CCWS family of missile systems.		5183	7725	
Close Combat Networking of Weapons and Sensors: In FY08, complete technical specifications definition for network-enabled Tube-launched, Optically-tracked, Wire-guided (TOW) Improved Target Acquisition System (ITAS), and Javelin Command Launch Unit (CLU), including providing a digital link to the current and future tactical network radios/waveforms. Conduct a networked lethality force effectiveness study to quantify force-multiplying battlefield effects of networked TOW and ITAS, including consideration of interface to infantry battle command (AFATDS, FBCB2). Conduct mission software design and development, and component-level assessment and design for CLU Far Target Locator (FTL) and network interface. In FY09, will continue mission software design and development. Will conduct prototype strap-on FTL and network interface development, and integration and test with the CLU. Will conduct planning for a networked lethality demo employing current and future tactical radios/waveforms.		3845	4960	
Multi-Mission/Multi-Purpose Single Missile Propulsion: In FY08, perform system level trades and concept designs of gelled bi-propellants, pintle-controlled solids, and hybrids that provide longer ranges, close inner boundaries, and shorter flight times while increasing system insensitive munitions capability and mission robustness in air-to-ground, ground-to-ground, and ground-to-air roles. In FY09, will complete concept designs. Will conduct fabrication and prepare for demonstration of critical components (including propellants, engine, expulsion systems, and controls) for variable propulsion motors. Will conduct validation of designs.		1291	2391	
Defense Against Rockets, Artillery, and Mortars (RAM): This project transitions from Defense Against RAM efforts in PE 0602303A, project 214. In FY08, conduct development of integrated, form factored interceptor prototypes, launcher prototypes, and fire control prototypes capable of intercepting and defeating rocket, artillery, and mortar threats. Conduct fabrication of interceptor, launcher, and fire control components. In FY09, will complete fabrication of prototype interceptor, launcher, and fire control components and conduct		10188	17883	

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
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bench and field testing. In addition, will integrate components and begin system level Hardware-in-the-Loop (HWIL) testing and evaluation. Will use the component and system level testing results to update and verify the system level simulations.			
Small Business Innovative Research/Small Business Technology Transfer Programs		839	
Total	9116	30921	36927

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BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology					PROJECT 550	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
550 COUNTER ACTIVE PROTECTION	14230	15297	15402	8227	5659	5785	5914

A. Mission Description and Budget Item Justification: This project matures and demonstrates integrated survivability technologies and techniques for lightweight combat platforms including light armored vehicles, tactical wheeled vehicles, and helicopters. Efforts within his project include the development of: Guided interceptors capable of defeating tank fired large caliber anti-armor threats, anti-tank guided missiles and long range rocket propelled grenades (RPGs) and collaborate with Weapons and Munitions Technologies (PE) 62624, project H28 Combat Vehicle and Automotive Advanced Technology (PE) 63005, project 221 on integration into the active protection system for ground vehicles. Explore an integrated aircraft survivability technology maturation program, with mature new survivability techniques and technologies optimized to work in concert with components already matured and being fielded. System modeling and simulation conducted with user participation maximizes the opportunities for operator input to survivability system configuration and guide all aspects of technology maturation. A systems approach ensures the avoidance of interference among survivability system components and techniques while taking every advantage of synergy and assistance from existing aircraft survivability components to improve the performance of the entire survivability suite. This project complements work done on adaptive infrared suppressor, Manned Unmanned Rotorcraft Enhanced Survivability (MURES), Survivability Planner Associate Re-router (SPAR), and acoustic signature technologies matured in the Aviation Advanced Technology Program Element (PE) 0603003A, project 313. This effort is building on the expertise developed in support of rockets, missile, sensors, and active control to develop innovative solutions survivability. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement. Work is performed at the US Army Aviation and Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Kinetic Energy Active Protection System (KEAPS) Guided Interceptor: In FY07, continued development of guided interceptor component technologies to include guided interceptor guidance algorithms, inertial measurement unit, RF seeker, rocket motor, airframe, and control system; built components and began component and subsystem testing, including motor/airframe static tests. In FY08, complete development of components and begin integration into hardware-in-the-loop simulation facility for subsystem testing. Seeker, mission computer, inertial instruments, and control system emulator will be used for HIL testing to evaluate seeker dynamic performance, flight software, and guidance algorithm. Power system, mission computer, telemetry, and propulsion system will be integrated for ballistic flight testing to evaluate interceptor kinematic and aerodynamic performance. Control prototypes will be integrated into interceptors for flight testing to evaluate control authority and aerodynamic response to control. Conduct at least two ballistic flight tests, and conduct up to four pre-programmed control flight tests. In FY09, complete integration of interceptor components and demonstrate fully guided interceptor in up to six flight tests including flight tests from launch to threat defeat. Begin fabrication of guided interceptors for integrated system level demonstration. Begin integration of guided interceptor into the AP system on an FCS vehicle for demonstration. This effort is in collaboration with (PE) 62624, project H28 and (PE) 63005, project 221.	14230	14886	15402
Small Business Innovative Research/Small Business Technology Transfer Programs		411	
Total	14230	15297	15402

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BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology					PROJECT 704	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
704 Advanced Missile Demo	9024	8320	6149	7943	10723	8443	6699

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 defense against the Future Force's air and ground, armored and non-armored threats. Efforts within the Program Element (PE) include: Support the Extended Area Protection and Survivability (EAPS) program, the Counter Rockets, Artillery, and Mortars (CRAM) Tracking, and Fire Control effort transition short range surveillance sensor technology from Weapons and Munitions Advanced Technology (PE) 0603004A and fabricates prototype short range surveillance and fire control sensors capable of acquiring, tracking, intercepting, and defeating RAM threats. This project also supports advanced demonstration of the Advanced Multi-Role Miniature Precision Guided Missile (AMMPGM). The objective of the AMMPGM effort 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. This effort matures and demonstrates technology developed under 0602303A (Missile Technology). The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement. Work is performed at the US Army Aviation and Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

<u>Accomplishments/Planned Program:</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Advanced Multi-Mission Precision Guided Munition (AMMPGM) for air platforms: In FY07, designed and fabricated a prototype smart launcher and IM capability for the Hydra-70 family of munitions, as well as other munitions such as Joint Common Missile. In FY08, complete fabrication and demonstration of alternate Hydra-70 aft configurations through HWIL testing, bench testing, and live fire testing.	2865	3297	
Counter Rockets, Artillery, Mortars (CRAM) Tracking and Fire Control: In FY08, transition short range surveillance sensors technology from PE 0603004A. Fabricate prototype short range surveillance sensors capable of acquiring and tracking rocket, artillery, and mortar threats under realistic operational conditions. Transition fire control sensor technologies from PE 0602303A (Missile Technology), project 214 and conduct development and initiate fabrication of prototype fire control sensors capable of providing end game accuracy for intercepting and defeating RAM threats In FY09, will complete the fabrication and integration of a prototype 360 degree, near hemispherical coverage surveillance sensor (specifically the Rotman lense antenna, exciter, receiver, signal processor and software will be fully integrated). Will test the integrated prototype surveillance sensor in an open air environment to verify technology can acquire and track small mortar and rocket targets with very low radar cross section at range. Also, in FY09, will begin fabrication and integration of fire control sensor components (specifically fabrication of high packaging density, high power Ka-band transmitters will be initiated and integration with other components such as electronically scanned sensor arrays).		4790	6149
Advanced Air-breathing Propulsion Technology: In FY07, successfully completed prototype engine demonstration of a new generation of the most fuel efficient and technically advanced small military turbojets and turbofan engines in the world. The overall goal of the High Efficiency Turbine Engine (HETE) program is to develop new technologies and deliver engine demonstrators which have the same thrust, weight, and volume as the current best turbojets, but have 30% better fuel economy. The HETE program is focused upon scalable technology. The development of techniques, hardware and processes used in these engines broadly supports many thrust classes and size ranges of Army platforms. The core engine can be used as a high thrust per frontal area turbojet, the turbofan engine can be used to	6159		

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maximize range and fuel efficiency, and a shaft engine version can be used as a very fuel efficient turboprop for UAVs (Unmanned Aerial Vehicles).			
Small Business Innovative Research/Small Business Technology Transfer Program		233	
Total		9024	8320 6149

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BUDGET ACTIVITY 3 - Advanced technology development		PE NUMBER AND TITLE 0603313A - Missile and Rocket Advanced Technology					PROJECT G03	
COST (In Thousands)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
G03 Army Hypersonics Advanced Technology		1973	1986	2030	2062	3100	2189	

A. Mission Description and Budget Item Justification: This project is reprioritizing Army Hypersonics funds to support other activities, including: Develop technology to support a force protection capability to protect a brigade against unmanned air vehicles and rotary wing aircraft. Extend the brigade force protection capability to a more inclusive threat set (e.g. all Unmanned Aerial Vehicles and Large Caliber Rockets) and to the protection envelope to a division/corps. Primary focus areas are those deemed critical for weapon maturation to enhance Army operational capability. The cited work is consistent with the Department of Defense Research and Engineering Strategic Plan, the Army Science and Technology Master Plan, the Army Modernization Strategy, and the Army Posture Statement. Work is performed at the US Army Aviation and Missile Research, Development, and Engineering Center, Redstone Arsenal, AL.

Accomplishments/Planned Program:	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
NLOS-LS Air Defense (AD): In FY08, establish system constraints and performance goals for a missile capable of being launched from the NLOS-LS Launcher and capable of providing a force protection capability against slow flying airborne surveillance threats such as surveillance unmanned air vehicles and rotary wing aircraft. Additionally, develop multiple missile concepts to meet the requirements and identify critical technologies required to performance goals. In FY09, will select the most favorable concept for further development and begin maturation and demonstration of associated underlying critical component technologies.		1918	1986
Small Business Innovative Research/Small Business Technology Transfer Programs		55	
Total		1973	1986