

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2007

BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0605706A - MATERIEL SYSTEMS ANALYSIS						PROJECT 541		
COST (In Thousands)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
541 MATERIEL SYS ANALYSIS	15210	16344	16526	16987	17287	15485	15824	16205	

A. Mission Description and Budget Item Justification: This program element funds Department of the Army (DA) civilians at the Army Materiel Systems Analysis Activity (AMSAA) to conduct its mission of materiel systems analysis.

AMSAA is the Army's center for item/system level performance analysis and certified data. In accomplishing its materiel systems analysis mission, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and existing systems. Unique models and methodologies have been developed to predict critical performance variables, such as weapon accuracy, target acquisition, rate of fire, probability of inflicting catastrophic damage, and system reliability. AMSAA is responsible for the generation of these performance and effectiveness measures and for ensuring their standard use across major Army and Joint studies. AMSAA conducts and supports various systems analyses, such as: Analyses of Alternatives (AoAs), system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, and requirements analyses. These analyses are used by Army and Department of Defense (DoD) leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the soldiers.

AMSAA's modeling and simulation (M&S) capabilities support the development, linkage, and accreditation of live, virtual, and constructive simulations, and provide unique tools that support systems analysis of individual systems and the combined-arms environment. AMSAA has resident and maintains a significant number of models and simulations, most of which were developed in-house to address specific analytical voids. This M&S infrastructure provides a hierarchical modeling process that is unique to AMSAA and allows for a comprehensive performance and effectiveness prediction capability that can be utilized to make trade-off and investment decisions prior to extensive and expensive hardware testing. AMSAA is the Army's executive agent for the verification, validation, and accreditation (VV&A) of item/system level performance models. In this role, AMSAA assists model developers with the development and execution of verification and validation (V&V) plans to ensure new models and simulations faithfully represent actual systems.

AMSAA serves as the Army's Executive Agent for reliability and maintainability standardization improvement by developing and implementing reliability and maintainability acquisition reform initiatives. AMSAA develops and applies reliability-engineering approaches that assess the reliability of Army materiel and recommends ways to improve reliability, thereby reducing the logistics footprint, reducing life cycle costs, and extending failure free periods for deployed equipment. AMSAA's electronic and mechanical Physics of Failure (PoF) program pioneered the Army's involvement in utilizing computer-aided engineering tools in the analysis of root-cause failure mechanisms at the component level during the system design process.

As the Army's center for materiel systems analysis, AMSAA provides the technical capability to support Army and DoD decision-makers throughout the entire materiel acquisition process in responding to analytic requirements across the full spectrum of materiel. It is critical that the Army have access to AMSAA's integrated analytical capability that provides timely, reliable, and high quality analysis on which Army leadership can base the complex decisions required to shape the Future Army. AMSAA has developed an integrated set of skills and tools focused on its core competencies to be responsive to the breadth and depth of systems analysis requirements critical in supporting Army Transformation decisions.

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This Project funds the salaries of civilian employees assigned to the materiel systems analysis mission.

<u>Accomplishments/Planned Program:</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Funding directly pays DA civilians at AMSAA who are responsible for developing and certifying system performance and effectiveness data for U.S. and foreign systems to be used during Army and Joint AoAs, force structure studies, and theater level studies. Analyses of performance and combat effectiveness of materiel systems and technology base programs are conducted in support of DA, the Army Materiel Command, the Research, Development and Engineering Command, Program Executive Officers/Program Managers, the Training and Doctrine Command, and the Army Test and Evaluation Command. These analyses include the conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons/systems mix analyses, requirements analyses, technology insertion studies, reliability growth studies, and PoF analyses. Examples of programs to be supported with critical analyses: Future Combat Systems Brigade Combat Team (FBCT), Experimental Brigade Combat Team (EBCT), Joint Light Tactical Vehicle (JLTV), Joint Non-Lethal Weapons Program (JNLWP), Intelligent Munitions System (IMS), Stryker, Short and Long Range Active Protection Systems (APS), and Future Force Warrior. AMSAA develops and modifies system level methodologies, models, and simulations to be used in the conduct of analyses. Examples of efforts include the Infantry Warrior Simulation (IWARS), SURVIVE, suppression methodology development, Geographical Information Systems (GIS) modeling, Network System of Systems (SoS) modeling, power and energy (soldier/vehicle) methodology development, Improvised Explosive Device (IED) modeling enhancements, aviation modeling improvements, search and target acquisition methodology improvements, sensor fusion modeling, mechanical and electronic Physics of Failure (PoF) modeling, vehicle performance methodology, APS performance, non-lethal weapons performance and effectiveness estimation methodology, and modeling operations in urban terrain.	15210	16344	16526	16987
Total	15210	16344	16526	16987

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<u>B. Program Change Summary</u>	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2007)	15296	16526	17151	17531
Current BES/President's Budget (FY 2008/2009)	54039	80467	74391	75067
Total Adjustments	38743	63941	57240	57536
Congressional Program Reductions		-62		
Congressional Rescissions				
Congressional Increases				
Reprogrammings	-86	-120		
SBIR/STTR Transfer				
Adjustments to Budget Years			-625	-544

FY 2006 reprogrammed to higher priority requirements.
 FY 2007 reprogrammed to higher priority requirements.
 FY 2008 and FY 2009 realigned to higher priority requirements.