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

February 2002

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605706A - MATERIEL SYSTEMS ANALYSIS**	**541**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
541 MATERIEL SYS ANALYSIS	8683	8811	10189	10402	11160	10902	11235	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element funds Department of the Army 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 is the Army's executive agent for the verification, validation, and accreditation (VV&A) of item 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 also develops reliability, availability, and maintainability methodologies for use across the Army. 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.

The capabilities of AMSAA in the RDT&E area are critical to the success of the Transformation Campaign Plan (Legacy to Objective Force transition path) specifically:

Line of Operation 2: Modernization and Re-capitalization
Line of Operation 8: Operational Force Design
Line of Operation 9: Deploying and Sustaining
Line of Operation 10: Develop and Acquire Advanced Technology

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

FY 2001 Accomplishments:

- 8683 Developed and certified system performance and effectiveness data for U.S. and foreign systems used to support Army and Joint analyses of alternatives (AoAs), force structure studies, and theater level studies. Numerous requests were completed supporting specific AoAs (e.g., Crusader, Joint Common Missile), transformation analyses (e.g., Future Combat System baseline scenarios), and other theater level studies. Examples of programs where decisions were influenced: Future Combat System (FCS), LAV III, Hellfire, Crusader, Comanche, and landmines. Analyzed the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included were conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, and technology base analyses. Examples of programs where decisions were influenced: FCS, Interim Armored Vehicles (IAV), Joint Common Missile, Force XXI Battle Command Brigade and Below (FBCB2), Crusader, Comanche, Digitization Brigade and Below (DB2), soldier survivability, and multiple programs where reliability physics of failure analyses were applied. Developed, modified, and maintained weapon system level methodologies, models, and simulations used in the conduct of systems analysis. Examples of efforts include: aviation performance and effectiveness modeling, target acquisition methodology improvements, integrated casualty estimation methodology, dismounted infantry modeling, and active protection systems/counter active protection systems modeling. Performed verification and validation of item level performance models and methodologies. Funding supported DA civilians.

Total 8683

FY 2002 Planned Program

- 8811 Develop and certify system performance data for U.S. and foreign systems to be used to support Army and Joint analyses of alternatives (AoAs), force structure studies, and theater level studies. Key decisions relative to major programs, such as, FCS, Comanche, and Crusader will be supported. Analyze the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included are conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, and technology base analyses. Examples of programs/initiatives that will be supported with analyses include: FCS, IAV, Objective Individual Combat Weapon (OICW), Unmanned Aerial Vehicles (UAV), and FBCB2. Develop, modify, and maintain item level methodologies, models, and simulations to be used in the conduct of systems analysis. Examples of planned efforts include individual combat evaluation model, synthetic aperture radar methodology, vehicle performance methodology, reliability methodology improvements, and non-lethal weapons methodology. Perform verification and validation of item level performance models and methodologies. Funding will support DA civilians.

Total 8811

FY 2003 Planned Program

- 10189 Develop and certify system performance data for U.S. and foreign systems to be used to support Army and Joint AoAs, force structure studies, and theater level studies. Key decisions relative to major programs will be supported. Analyze the performance and combat effectiveness of materiel systems and tech base programs in support of HQDA, AMC, PEOs/ PMs and R&D Centers. Included are conduct of and support to: AoAs, system cost/performance tradeoffs, early technology tradeoffs, weapons mix analyses, requirements analyses, technology insertion, and technology base analyses. A few examples of planned programs/initiatives to be supported with critical analyses include: Future Combat System (FCS), Army Tactical Missile System (ATACMS), Digitization, reliability physics of failure analyses of various weapon systems, PATRIOT, and Unmanned Aerial Vehicles (UAV). Develop, modify, and maintain weapon system level methodologies, models, and simulations to be used in the conduct of systems analysis. A few examples of planned efforts include: modeling of military operations in urban terrain (MOUT), search and target acquisition methodology improvements, dismounted infantry modeling, and physics of failure modeling improvements. Funding will support Department of Army civilians.

Total 10189

B. Program Change Summary	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	8657	8884	9128
Appropriated Value	8737	8884	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-73	0
b. SBIR / STTR	-59	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Below Threshold Reprogramming	85	0	0
e. Rescissions	-80	0	0
Adjustment to support Army Transformation	0	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	1061
Current Budget Submit (FY 2003 PB)	8683	8811	10189

Change Summary Explanation: FY 2003: Funding increase (+1032) implements legislative change directing each agency to pay the full Government share

of the accruing retirement costs of current Civil Service Retirement System (CSRS) employees and the accruing health care costs of all future Federal retirees.