Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Army										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 2040: *Research, Development, Test & Evaluation, Army* BA 6: *RDT&E Management Support*				R-1 ITEM NOMENCLATURE PE 0605706A: *MATERIEL SYSTEMS ANALYSIS*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	17.472	19.864	18.078	0.000	18.078	18.512	18.984	19.075	19.093	Continuing	Continuing
541: *MATERIEL SYS ANALYSIS*	17.472	19.864	18.078	0.000	18.078	18.512	18.984	19.075	19.093	Continuing	Continuing

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 responsive and effective materiel systems analysis in support of senior Army decision making for equipping the U.S. Army. AMSAA conducts systems and engineering analyses to support Army decisions in technology; materiel acquisitions; and the design, development, fielding, and sustaining of Army weapon systems. As part of this mission, AMSAA develops and certifies systems performance data used in Army studies, and develops systems performance methodology and Modeling and Simulation (M&S). AMSAA is the Army's center for item/system level performance analysis and certified data. In support of its materiel systems analysis mission, AMSAA analyzes the performance and combat effectiveness of conceptual, developmental, and fielded 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 generates performance and effectiveness measures and ensures their standard use across major Army and Joint studies. AMSAA conducts and supports various systems analyses, such as: Analyses of Alternatives, system cost/performance tradeoffs, early science and technology tradeoffs, weapons mix analyses, system risk assessments, analytical support for Test and Evaluation, and requirements analyses. These analyses are used by the Army Research, Development and Engineering Command, Army Materiel Command, Program Executive Officers/Project Managers, DA staff/Assistant Secretary of the Army for Acquisition, Logistics, and Technology, and Department of Defense (DoD) leadership in making acquisition, procurement, and logistics decisions in order to provide quality equipment and procedures to the Soldier. AMSAA's 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 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 of proposed systems/technologies for Current and Future Force efforts. AMSAA is the Army's executive agent for the verification, validation, and accreditation of item/system level performance models. In this role, AMSAA assists model developers with the development and execution of verification and validation plans to ensure new models and simulations provide credible information/results for decision making.As the Army's Executive Agent for reliability and maintainability standardization improvement, AMSAA develops and implements reliability and maintainability acquisition reform initiatives. AMSAA develops and applies engineering approaches that assess the reliability of Army materiel and also provides recommendations on 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. AMSAA's reliability engineering and PoF tools/analyses have been used extensively to support the design improvement of developmental and fielded systems used in Current Operations resulting in improved reliability, reduced Operational and Support costs, and reduced logistics expenditures and footprint.AMSAA's unique analytical capabilities are supporting the Army Evaluation Command to assess and determine the essential analytical requirements to enhance Army evaluations and reduce extensive

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testing. AMSAA's support in this area improves evaluation products and result in better materiel solutions to the Warfighter. AMSAA assists various ACAT systems' evaluations and provides quick response analyses in support of rapid initiatives for Current Operations.As the Army's center for materiel systems analysis, AMSAA provides the technical capability to support Army and DoD decision makers throughout the entire acquisition process in responding to analytical requirements across the full spectrum of materiel. AMSAA's unique in-house, consistent, integrated analytical capability is a critical asset that provides Army leadership with timely, unbiased, reliable, and high quality analysis to support complex decisions required for Army Transformation and Current Operations. AMSAA's integrated set of skills and tools are focused on its core mission to be responsive to the breadth and depth of systems analysis requirements critical in supporting Army decisions.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	16.971	19.969	18.385	0.000	18.385
Current President's Budget	17.472	19.864	18.078	0.000	18.078
Total Adjustments	0.501	-0.105	-0.307	0.000	-0.307
• Congressional General Reductions		-0.105			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.501	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Adjustments to Budget Years	0.000	0.000	-0.307	0.000	-0.307

Change Summary Explanation

Funds realigned to higher priority requirements.

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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
541: *MATERIEL SYS ANALYSIS*	17.472	19.864	18.078	0.000	18.078	18.512	18.984	19.075	19.093	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program #1	17.472	0.000	0.000	0.000	0.000
These funds have been/will be used to conduct various materiel systems analysis efforts in support of senior Army decision makers. AMSAA will continue to conduct analyses, materiel systems performance data generation and certification, methodology development, Modeling and Simulation (M&S) development, and verification, validation, and accreditation. The accomplishments include performance and combat effectiveness analyses of materiel systems and technology base programs for the Department of Army, 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 form the basis for Analysis of Alternatives (AoAs), system cost/performance tradeoffs, early technology trade-offs, weapons/systems mix analyses, requirements analyses, technology insertion studies, reliability growth studies, and Physics of Failure (PoF) analyses. In FY09, critical AMSAA analyses supported the following programs: Future Combat Systems Brigade Combat Team, Experimental Brigade Combat Team, Mine Resistant Ambush Protected System (MRAP) assessment, Joint Light Tactical Vehicle (JLTV), Joint Non-Lethal Weapons Program, Intelligent Munitions System, Stryker, and Future Force Warrior. AMSAA also initiated efforts to develop and modify system level methodologies, and M&S to include enhancements to Infantry Warrior Simulation, One Semi-Automated Force Survivability Suite (OneSAF), suppression methodology, and Network System of Systems modeling.					
FY 2009 Accomplishments: FY 2009					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010 *FY 2011 Base Plans:* FY 2011 Base *FY 2011 OCO Plans:* FY 2011 OCO					
Program #2 In FY10, critical AMSAA analyses will support the following programs: Stryker, Ground Combat Vehicle (GCV), JLTV, MRAP All-Terrain Vehicle (M-ATV), Army Modernization Spin-Off Systems, Ground Soldier System, Biometrics, Armed Aerial Scout, Sensor Fusion System, and Scorpion. Efforts will also focus on enhancements to power and energy (soldier and vehicle) methodology, Improvised Explosive Device modeling, target acquisition methodology, sensor fusion modeling, mechanical and electronic PoF modeling, vehicle performance methodology, Active Protection System performance, non-lethal weapons performance and effectiveness estimation methodology, and modeling operations in urban terrain. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *FY 2011 Base Plans:* FY 2011 Base	0.000	19.307	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: FY 2011 OCO					
Program #3 In FY11, critical AMSAA analyses will continue to support Army Modernization programs and follow-on studies associated with the GCV, JLTV, Ground Soldier System, Biometrics, Armed Aerial Scout, and other current operations-related efforts. Efforts will also continue to focus on enhancements to models, methodologies, and M&S that are the foundation for accurate and timely analytical products and data. *FY 2009 Accomplishments:* FY 2009 *FY 2010 Plans:* FY 2010 *FY 2011 Base Plans:* FY 2011 Base *FY 2011 OCO Plans:* FY 2011 OCO	0.000	0.000	18.078	0.000	18.078
Program #4 FY10 - Small Business Innovative Research/Small Business Technology Transfer Programs *FY 2009 Accomplishments:* FY 2009	0.000	0.557	0.000	0.000	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY 2010 *FY 2011 Base Plans:* FY 2011 Base *FY 2011 OCO Plans:* FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	17.472	19.864	18.078	0.000	18.078

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.