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Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Army									DATE: February 2012		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 1: <i>Basic Research</i>				R-1 ITEM NOMENCLATURE PE 0601103A: <i>University Research Initiatives</i>							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	84.445	80.850	80.986	-	80.986	82.953	83.246	83.727	84.095	Continuing	Continuing
D55: <i>University Research Initiative</i>	76.393	77.517	77.650	-	77.650	79.615	79.906	80.387	80.698	Continuing	Continuing
V72: <i>MINERVA</i>	8.052	3.333	3.336	-	3.336	3.338	3.340	3.340	3.397	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) supports Army basic research efforts in the Multidisciplinary University Research Initiative (MURI) program, the Defense University Research Instrumentation Program (DURIP) and the Presidential Early Career Awards for Scientists and Engineers (PECASE) program by funding basic research in a wide range of scientific and engineering disciplines pertinent to maintaining the U.S. land combat technology superiority. Army MURI program efforts involve teams of researchers investigating high-priority, transformational topics that intersect more than one traditional technical discipline (e.g., Intelligent Luminescence for Communication, Display, and Identification). For many complex problems, this multidisciplinary approach serves to accelerate research progress and expedite transition of results to application. The DURIP provides funds to acquire major research equipment to augment current, or devise new, research capabilities in support of Army transformational research. The PECASE program funds single-investigator research efforts performed by outstanding academic scientists and engineers early in their independent research careers.

Work in the PE provides a foundation for applied research initiatives at the Army laboratories and research, development and engineering centers.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering science and technology focus areas and the Army Modernization Strategy.

Work on this project is performed by the Army Research Laboratory (ARL), Research Triangle Park, NC.

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
2040: Research, Development, Test & Evaluation, Army		PE 0601103A: University Research Initiatives			
BA 1: Basic Research					
B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	91.161	80.977	82.107	-	82.107
Current President's Budget	84.445	80.850	80.986	-	80.986
Total Adjustments	-6.716	-0.127	-1.121	-	-1.121
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.606	-			
• Adjustments to Budget Years	-	-	-1.121	-	-1.121
• Other Adjustments 1	-4.110	-0.127	-	-	-

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COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
D55: <i>University Research Initiative</i>	76.393	77.517	77.650	-	77.650	79.615	79.906	80.387	80.698	Continuing	Continuing

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

This project supports the Multidisciplinary University Research Initiative (MURI), the Defense University Research Instrumentation Program (DURIP) and the Presidential Early Career Awards for Scientists and Engineers (PECASE) program. The MURI program funds university based basic research in a wide range of scientific and engineering disciplines pertinent to maintaining US land combat technology superiority. Army MURI efforts involve teams of researchers investigating high-priority, transformational topics that intersect more than one traditional technical discipline (e.g. Intelligent Luminescence for Communication, Display, and Identification). For many complex problems, this multidisciplinary approach serves to accelerate research progress and expedite transition of results to application. The DURIP provides funds to acquire major research equipment to augment current, or devise new, research capabilities in support of Army transformational research. The PECASE program funds single-investigator research efforts performed by outstanding academic scientists and engineers early in their independent research careers.

Work in this project provides a foundation for applied research initiatives at the Army laboratories and research, development and engineering centers.

The cited work is consistent with the Assistant Secretary of Defense for Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

Work on this project is performed by the Army Research Laboratory (ARL) located in Research Triangle Park, NC.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: Multidisciplinary University Research Initiative (MURI)	FY 2011	FY 2012	FY 2013
Description: MURI programs are typically 5 years in length at a cost of \$1.25M/yr.	58.766	59.661	59.410
FY 2011 Accomplishments: The program supported MURI, with 8 new awards that are critical to the Army's future operating capabilities. MURI topics were Understanding the Interaction of Peptides and Proteins with Abiotic Surfaces: Towards Water-Free Biologics; Control of Quantum Open Systems: Theory and Experiments; Multi-Qubit Enhanced Sensing and Metrology; Stress-Controlled Catalysis via Engineering Nanostructures; Scalable, Stochastic and Spatiotemporal Game Theory for Real-World Human Adversarial Behavior; Studies of the Delayed Nonlinear Index and Two-Beam Coupling for the Propagation and Control of Filaments; Atomic Layers of			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013
Nitrides, Oxides, and Sulfides (ALNOS); and Value-centered Information Theory for Adaptive Learning, Inference, Tracking, and Exploitation. FY 2012 Plans: Support MURI awards made in prior years and initiated 8 FY12 start MURI awards critical to future operating capabilities. Effective transition mechanisms include collaboration among principal investigators, participation by 6.2/6.3 program managers in MURI program reviews, and communication of the MURI research results to the Army Research Laboratory, the Research, Development, and Engineering Centers including Engineer Research and Development Center, U.S. Army Medical Research and Materiel Command, U.S. Army Research Institute, and industry. FY 2013 Plans: Will provide support for MURI awards made in prior years will continue and will start 8 new FY13 MURI awards critical to future operating capabilities. Effective transition mechanisms include collaboration among principal investigators, participation by 6.2/6.3 program managers in MURI program reviews, and communication of the MURI research results to the Army Research Laboratory, the Research, Development, and Engineering Centers including Engineer Research and Development Center, U.S. Army Medical Research and Materiel Command, U.S. Army Research Institute, and industry.				
Title: Presidential Early Career Awards for Scientists and Engineers (PECASE) Description: Supports PECASE investigators started in prior years. FY 2011 Accomplishments: Continued support for prior year awardees and selected five new awards. FY 2012 Plans: Selected five new awardees and supported prior year's awardees. FY 2013 Plans: Will continue support for prior year PECASE awards and select new FY13 PECASE awardees.		4.340	4.389	4.559
Title: Defense University Research Instrumentation Program (DURIP) Description: Supports basic research through competitive grants for research instrumentation. FY 2011 Accomplishments: Awarded competitive grants for research instrumentation to enhance universities' capabilities to conduct world class research critical to Army transformation. FY 2012 Plans:		13.287	13.467	13.681

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013
Award competitive grants for research instrumentation to enhance universities' capabilities to conduct world class research critical to Army transformation.				
FY 2013 Plans: Will award competitive grants for research instrumentation to enhance universities' capabilities to conduct world class research critical to Army transformation.				
Accomplishments/Planned Programs Subtotals		76.393	77.517	77.650
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.				

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COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
V72: <i>MINERVA</i>	8.052	3.333	3.336	-	3.336	3.338	3.340	3.340	3.397	Continuing	Continuing

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

This project is supports the Minerva Research Initiative (MRI), a university-based social science research program initiated by the Secretary of Defense in FY09. It focuses on areas in the social sciences that are of strategic importance to U.S. national security policy which have not been substantially pursued in the past. The Minerva research effort will be performed to understand the internal military-political dynamics of repressive regimes, the vulnerabilities of regimes and institutions to various kinds of influence and instability, the nature of crowd dynamics, the potential to influence public opinions and attitudes in diverse cultures, cultural effects on network security and military operations, the influence of technology on military capabilities of potential adversaries and allies, and other intersections of social-cultural issues with military activities. Predictive models and other analysis tools will be developed. Leveraging the expertise in the social sciences within the academic community is needed to provide understanding of the roots of terrorist organizations and the challenges and opportunities for military operations in a culturally diverse environment. Better understanding at a fundamental level and new computational tools will provide a beneficial impact on war fighting capabilities at the national policy, military strategy, operational, and tactical levels, and will enhance the capabilities of intelligence activities at all levels. All research results will be open source.

In FY11, this project consolidated efforts that were initiated under PE 0601103A, Project D55. Existing grants on the studies of the strategic impact of religious and cultural change in the Muslim world; Iraqi perspectives; and studies of terrorist organizations and ideologies; and new approaches to understanding dimensions of national security, conflict and cooperation from that project will be continued in FY12.

Beginning in FY12, new research activities related to Minerva Outreach and In-House capability are funded though the Office of the Secretary of Defense.

The cited work is consistent with the Assistant Secretary of Defense for Research and Engineering science and technology priority focus areas and the Army Modernization Strategy.

Work in this project will is performed by the Army Research Office.

B. Accomplishments/Planned Programs (\$ in Millions)

Title: Minerva Outreach and In-house Capability	FY 2011	FY 2012	FY 2013
Description: Supports Minerva basic research projects and establishment of a Chairs program at principally military educational institutions.	4.802	0.033	-
FY 2011 Accomplishments:			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012
Extended research areas to new topics, such as new theories of deterrence and the national security implications of energy and climate change. Developed in-house social science capabilities necessary to integrate results from the extramural program into the planning, programming and management processes of the DoD as well as to tap university-based expertise in cutting edge social scientific research areas.			
FY 2012 Plans: This effort was transferred to the Office of the Secretary of Defense (OSD) in FY2012 and will be executed by OSD in FY2013			
Title: The Minerva Research Initiative (MRI)		3.250	3.300
Description: The MRI is a university-based social science research program initiated by the Secretary of Defense. It focuses on areas in the social sciences of strategic importance to U.S. national security policy. It seeks to increase the Department's intellectual capital in the social sciences and improve its ability to address future challenges and build bridges between the Department and the social science community. Minerva will bring together universities, research institutions, and individual scholars and support multidisciplinary and cross-institutional projects addressing specific topic areas determined by the Department. Proposals have been solicited that address the following topics: Chinese Military and Technology Research and Archive Programs; Studies of the Strategic Impact of Religious and Cultural Changes within the Islamic World; Iraqi Perspectives Project; Studies of Terrorist Organization and Ideologies; New Approaches to Understanding Dimensions of National Security, Conflict, and Cooperation.			3.336
FY 2011 Accomplishments: Continued research was initiated in PE 0601103, Project D55 to conduct studies of the relationship of technology and national security in China, the stability vulnerabilities of African states and institutions to environmental stress, and the internal dynamics of the Baathist regime from the Iraqi perspective.			
FY 2012 Plans: Continue efforts on three (3) existing projects focused on social science and cultural issues affecting US military warfighting capabilities: the relationship of foreign military and technology capabilities; national and military implications of foreign religious and cultural changes; foreign perspectives of US policy and strategy; terrorist organizations and ideologies; as well as other issues related to the national security implications of conflict and cooperation.			
FY 2013 Plans: Research will continue into the relationship of technology and national security in China, the vulnerabilities of stability in African regimes and institutions to environmental stress, and the internal political and military dynamics in authoritarian Middle-Eastern regimes. Predictive models developed previously will be validated by extensive field research and extended by new theoretical			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2011	FY 2012	FY 2013
development. Collaborations with combatant commands, DoD policy staff, and governmental activities will be extended and strengthened. Workshops and training courses for high level policy staff will be increased.				
Accomplishments/Planned Programs Subtotals		8.052	3.333	3.336
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.				