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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2015 Army **Date:** March 2014

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 1: Basic Research</i>					<b>R-1 Program Element (Number/Name)</b> PE 0601103A / <i>University Research Initiatives</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015 Base</b>	<b>FY 2015 OCO #</b>	<b>FY 2015 Total</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	72.243	79.317	69.808	-	69.808	73.136	73.288	74.511	76.550	-	-
D55: <i>University Research Initiative</i>	-	69.268	75.981	67.289	-	67.289	70.083	70.189	71.358	73.340	-	-
V72: <i>Minerva</i>	-	2.975	3.336	2.519	-	2.519	3.053	3.099	3.153	3.210	-	-

# The FY 2015 OCO Request will be submitted at a later date.

## **Note**

Funding reduced to support higher Army priorities.

## **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.

Project V72 supports Minerva Research Initiative (MRI), a university based social science research project initiated by the Secretary of Defense in FY09.

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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B. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	80.986	79.359	79.679	-	79.679
Current President's Budget	72.243	79.317	69.808	-	69.808
Total Adjustments	-8.743	-0.042	-9.871	-	-9.871
• Congressional General Reductions	-0.107	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.256	-			
• Adjustments to Budget Years	-	-	-9.871	-	-9.871
• Other Adjustments 1	-6.380	-	-	-	-
• Other Adjustments 2	-	-0.042	-	-	-

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Appropriation/Budget Activity 2040 / 1					R-1 Program Element (Number/Name) PE 0601103A / University Research Initiatives				Project (Number/Name) D55 / University Research Initiative			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
D55: University Research Initiative	-	69.268	75.981	67.289	-	67.289	70.083	70.189	71.358	73.340	-	-
# The FY 2015 OCO Request will be submitted at a later date.												
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 U.S. Army Research Laboratory (ARL) located in Research Triangle Park, NC.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2013	FY 2014	FY 2015	
Title: Multidisciplinary University Research Initiative (MURI)									57.529	57.525	50.600	
Description: MURI programs are typically 5 years in length at a cost of \$1.25M/yr.												
FY 2013 Accomplishments: Supported MURI awards made in prior years and initiated ten FY13 start MURI awards critical to supporting future force capabilities. Effective transition mechanisms included 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 U.S. ARL, the U.S. Army												

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Appropriation/Budget Activity 2040 / 1	R-1 Program Element (Number/Name) PE 0601103A / University Research Initiatives	Project (Number/Name) D55 / University Research Initiative		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2013	FY 2014	FY 2015
Research, Development, and the Engineering Centers (RDECs), the U.S. Army Engineer Research and Development Center (ERDC), the U.S. Army Medical Research and Materiel Command (MRMC), U.S. Army Research Institute (ARI), and industry. <b>FY 2014 Plans:</b> Support MURI awards made in prior years and initiate 8 FY14 start MURI awards critical to supporting the future force. 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 U.S. ARL, the U.S. Army RDECs, the U.S. Army ERDC, the U.S. Army MRMC, the U.S. ARI and industry. <b>FY 2015 Plans:</b> Will provide support for MURI awards made in prior years and will start six to eight new FY15 MURI awards critical to supporting the future force. 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 U.S. ARL, the U.S. Army RDECs, the U.S. Army ERDC, the U.S. Army MRMC, the U.S. ARI and industry.				
<b>Title:</b> Presidential Early Career Awards for Scientists and Engineers (PECASE) <b>Description:</b> Supports PECASE investigators started in prior years.  <b>FY 2013 Accomplishments:</b> Continued support for prior year awardees and selected four new awards.  <b>FY 2014 Plans:</b> Select four new awardees and support prior year's awardees.  <b>FY 2015 Plans:</b> Will continue support for prior year awardees and select four new awards.		4.415	4.600	4.500
<b>Title:</b> Defense University Research Instrumentation Program (DURIP) <b>Description:</b> Supports basic research through competitive grants for research instrumentation.  <b>FY 2013 Accomplishments:</b> Awarded 54 competitive grants for research instrumentation to enhance universities' capabilities to conduct world class research critical to Army transformation.  <b>FY 2014 Plans:</b>		7.324	13.856	12.189

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>
Award competitive grants for research instrumentation to enhance universities' capabilities to conduct world class research critical to Army transformation.				
<b>FY 2015 Plans:</b> Will award competitive grants for research instrumentation to enhance universities' capabilities to conduct world class research critical to Army transformation.				
<b>Accomplishments/Planned Programs Subtotals</b>		69.268	75.981	67.289
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> N/A				
<b>E. Performance Metrics</b> N/A				

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COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
V72: Minerva	-	2.975	3.336	2.519	-	2.519	3.053	3.099	3.153	3.210	-	-
# The FY 2015 OCO Request will be submitted at a later date.												
<b>Note</b> Not applicable for this item.												
<b>A. Mission Description and Budget Item Justification</b> This project 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 disruption and instability, the nature of crowd dynamics, group violence, community belief structures, the potential to influence public opinion 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 and national security. 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 are open source.  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.												
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>									FY 2013	FY 2014	FY 2015	
<b>Title:</b> The Minerva Research Initiative (MRI)									2.975	3.336	2.519	
<b>Description:</b> 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.												
<b>FY 2013 Accomplishments:</b>												

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2013</b>	<b>FY 2014</b>
<p>Continued efforts on existing projects focused on social science and cultural issues affecting the U.S. military warfighting capabilities; continued providing support to OSD in managing the program in social science studies related to strategy and policy via research chairs and fellowships at Service schools and universities; validated predictive models developed in previous research with extensive field research and extended by new theoretical development; extended and strengthened collaborations with combatant commands, DoD policy staff, and governmental activities; and increased the number of workshops and training courses for high level policy staff.</p> <p><b>FY 2014 Plans:</b> Complete the university consortium projects started in FY09; support new and ongoing Minerva social science research of strategic importance to the Army and U.S. national security policy; focus research efforts on understanding group belief formation, factors causing or influencing social change and violence, societal resilience, theories of deterrence, and new approaches to conflict and cooperation.</p> <p><b>FY 2015 Plans:</b> Will test theories on the direct and indirect effects of characteristics of natural resources on violence and state stability, which may ultimately provide predictive models of the relationship between natural resources and conflict, and provide options for anticipating and mitigating the acceleration of violence around the globe; and perform social scientific surveys with neuroscientific brain imaging to reveal the role of moral values in social mobilization which in the long term may provide effective strategies and policies in reducing organized violence and preventing its contagion.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		2.975	3.336
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
N/A			
<b>E. Performance Metrics</b>			
N/A			