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**Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense** **DATE:** February 2010

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603920D8Z: <i>Humanitarian De-mining</i>
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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
Total Program Element	13.993	14.568	14.735	0.000	14.735	15.016	15.402	15.616	15.814	Continuing	Continuing
920: <i>Humanitarian De-mining</i>	13.993	14.568	14.735	0.000	14.735	15.016	15.402	15.616	15.814	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Humanitarian Demining Research and Development (HD R&D) program element develops, demonstrates and evaluates prototype demining systems for US forces and for indigenous, DoD-supported, host nation-conducted demining operations. The HD R&D Program focuses on development of technologies to improve the efficiency and safety of removing post-conflict landmines and UXO, which are a significant danger to U.S. forces performing peace and stability operations, as well as to civilians. The HD R&D Program adapts commercial-off-the-shelf equipment, integrates mature technologies, and leverages R&D activity within DoD, particularly in the Army's Night Vision Electronic Sensors Directorate (NVESD) Tactical Countermine mission area. Equipment capabilities are assessed by host nation demining partners in actual demining conditions. The program aims to improve existing technologies for: detection discrimination and confirmation, vegetation clearance, mechanical mine excavation and clearance, individual deminer/soldier tools, and aerial survey area reduction. Areas of emphasis are identified and validated at a biannual Requirements Workshop held by the Office of the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict (OASD SO/LIC). The Requirements Workshop involves representatives from the combatant commands and from mine-affected nations. Under OASD SO/LIC, the HD R&D Program is a strong participant in the International Test and Evaluation Program (ITEP).

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	13.993	14.687	0.000	0.000	0.000
Current President's Budget	13.993	14.568	14.735	0.000	14.735
Total Adjustments	0.000	-0.119	14.735	0.000	14.735
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	-0.119	14.735	0.000	14.735

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**C. Accomplishments/Planned Program (\$ in Millions)**

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>0603920D8Z - SO/LIC Humanitarian De-mining</p> <p>The Humanitarian Demining Research and Development (HD R&amp;D) program element develops, demonstrates and evaluates prototype demining systems for US forces and for indigenous, DoD supported, host nation conducted demining operations. The HD R&amp;D Program focuses on development of technologies to improve the efficiency and safety of removing post-conflict landmines and UXO, which are a significant danger to U.S. forces performing peace and stability operations, as well as to civilians. The HD R&amp;D Program adapts commercial-off-the-shelf equipment, integrates mature technologies, and leverages R&amp;D activity within DoD, particularly in the Army Night Vision Electronic Sensors Directorate (NVESD) Tactical Countermining mission area. Equipment capabilities are assessed by host nation demining partners in actual demining conditions. The program aims to improve existing technologies for: individual mine/UXO and minefield detection, wide area survey, mechanical mine/UXO and vegetation clearance, mine neutralization, individual soldier/deminer protection, detection of explosives in buried mines, verification of the presence of mines, marking and mapping of mines/minefields, post clearance quality assurance (QA), and individual deminer tools. Areas of emphasis are identified and validated at an annual Requirements Workshop held by the Office of the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict (OASD SO/LIC). The Requirements Workshop involves representatives from the combatant commands and from mine affected nations. Under OASD SO/LIC, the HD R&amp;D Program is a strong participant in the International Test and Evaluation Program (ITEP).</p> <p><i>FY 2009 Accomplishments:</i> The HD R&amp;D Program actively engaged in the operational field evaluations of 37 humanitarian demining (HD) technologies in 10 countries. As a result of requests made during the biannual Requirements Workshop, OCONUS field assessments, and in-house developments, the HD R&amp;D program deployed many of its systems to humanitarian demining organizations overseas, including locations in Afghanistan and Iraq. The deployments initiated in FY2009 included the Beaver II in</p>	13.993	14.568	14.735	0.000	14.735

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**C. Accomplishments/Planned Program (\$ in Millions)**

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Thailand, the Long-Handled Tools in Ecuador and Cambodia, HSTAMIDS with the Cambodian Mine Action Centre, and STORM in Cambodia. In addition, the HD R&amp;D Program continued its deployments of the Tempest, Maxx+, HSTAMIDS, Explosive Harvesting System, Sifting Attachments, Survivable Demining Tractors, Uni-Disk, Beaver, Peco, Multi-Tool Excavator, Air-Spade, Improved Backhoe, MANTIS, Orbit Sifter, Walking Tractor, Modular Detection Array, Heavy Detonation Trailer, JCB Loadall, and the Rotary Mine Comb to countries in Africa, South America and Asia. The HD R&amp;D Program continued final development, test and evaluation of prototype technologies in the following areas: detection discrimination and confirmation, vegetation clearance, mechanical mine excavation and clearance, individual deminer/soldier tools, and aerial survey area reduction. The HD R&amp;D Program supported the combatant commands and Embassy staffs by conducting site surveys, country assessments and technology development and evaluations. The Program performed surveys and assessments in Chile, Armenia, Tajikistan, and Angola to determine whether HD equipment could be effectively utilized. In addition, data from the HD R&amp;D Program's intensive evaluation of HSTAMIDS in the humanitarian demining context continued to provide critical training and operation techniques to the US Army's Tactical Countermine HSTAMIDS program. In FY2009 prototype development, program engineers completed several prototypes, including the Mine Stalker and Large Loop UXO Detection System, which transitioned to evaluations in the field. In FY2009 the program tested 15 mine detection and clearance systems at Fort AP Hill and Yuma Proving Grounds.</p> <p><i>FY 2010 Plans:</i> The HD R&amp;D Program will complete ongoing equipment developments/modifications and operational evaluations from FY2009, including new evaluations of Mini MineWolf in Tajikistan and Badger in Cambodia. The HD R&amp;D Program will support the combatant commands and Embassy staffs by conducting site surveys, country assessments and technology development and evaluation. The program will continue development, test and evaluation of prototype technologies in the following areas: detection discrimination and confirmation, vegetation clearance, mechanical mine excavation and clearance, and individual deminer/soldier tools.</p>					

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<b>C. Accomplishments/Planned Program (\$ in Millions)</b>	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p><i>FY 2011 Base Plans:</i> The HD R&amp;D Program will complete ongoing equipment developments/modifications and operational evaluations from FY2010. The HD R&amp;D Program will support the combatant commands and Embassy staffs by conducting site surveys, country assessments and technology development and evaluation. The program will continue development, test and evaluation of prototype technologies in the following areas: detection discrimination and confirmation, vegetation clearance, mechanical mine excavation and clearance, and individual deminer/soldier tools.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	13.993	14.568	14.735	0.000	14.735

**D. Other Program Funding Summary (\$ in Millions)**  
N/A

**E. Acquisition Strategy**  
Following a rapid prototyping strategy, the program emphasizes the use/modification of existing, commercially-available items and components to build functional prototype equipment suited for humanitarian demining operations. This approach is required due to the immediate need for new demining technologies in the face of ongoing U.S. forces and host nation citizen casualties in mine-affected countries. The program evaluates prototype equipment by acquiring it off-the-shelf from industry using competition to the extent possible, by leveraging ongoing countermine R&D efforts in other U.S. and foreign R&D activities, and by taking advantage of extensive in-house fabrication capabilities at the Army's Night Vision and Electronic Sensors Division (NVESD).

**F. Performance Metrics**  
Long Term Strategies: Obtain adequate funding to support critical shortfalls; prioritize proposals that are deemed acceptable and allocate funding accordingly; and establish outreach programs to leverage institutional knowledge and expertise.

Performance Indicator and Rating:

FY 2010 Target:  
70% of currently funded research projects are completed on time and within budget

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<p>Complete scheduled R&amp;D project tasks Transition scheduled projects to user communities Conduct biannual Humanitarian R&amp;D Program Requirements Workshop</p> <p>FY 2011 Target: 70% of currently funded research projects are completed on time and within budget Complete scheduled R&amp;D project tasks Transition scheduled projects to user communities</p> <p>Basis of FY 2009 to Date Performance Rating: Currently the number of funded research projects are on track to be completed per the target.</p> <p>Verification: The Humanitarian Demining Program performs program reviews and has oversight from OSD.</p> <p>Validation: Completed R&amp;D products increase the capabilities of the DoD to effectively perform demining missions.</p>		

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