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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>				PE 0603699D8Z: <i>Emerging Capabilities Technology Development</i>							
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	-	-	26.972	-	26.972	32.298	32.493	31.521	29.404	Continuing	Continuing
P795: <i>Emerging Capabilities Technology Development</i>	-	-	26.972	-	26.972	32.298	32.493	31.521	29.404	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element is a new start in FY 2012 and reflects a transition from 0605799D8Z to 0603699D8Z in FY 2012. This funding request supports the development of emerging capabilities under the Director of Defense Research & Engineering's (DDR&E) Rapid Reaction Technology Office (RRTO). These funds are used to advance technical capabilities in mutual areas of interest through focused partnerships and projects with other federal departments and agencies. In addition to supporting interagency cooperation, this PE incubates selected concepts and technologies of interest to joint warfighters and their interagency partners to provide mature options as capability needs emerge in and beyond the FYDP. This includes developing risk-reducing prototypes to demonstrate capabilities in response to joint warfighter and interagency partners' shared requirements; and informing the Joint Capabilities Integration & Development System (JCIDS) and acquisition system through technical demonstrations. Individual projects are developed and funded with interagency partners over a two to three year period – products are demonstrated and fielded in spirals within that project timeline – and generally do not include stand-alone studies. Funding for this PE permits support for four to five major projects per year. Typically, these projects support mid-term irregular warfare needs aligned with those of interagency partners, and often supports near term capability needs in support of the Department's Rapid Fielding efforts. This PE has evolved from exclusive support of force transformation activities to the activities described above, more closely aligned with departmental goals.

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B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	26.972	-	26.972
Total Adjustments	-	-	26.972	-	26.972
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Funding realignment from PE 0605799D8Z	-	-	20.890	-	20.890
• DDR&E Baseline Review	-	-	7.156	-	7.156
• Defense Efficiency – Report, Studies, Boards and Commissions	-	-	-0.753	-	-0.753
• Economic Assumptions	-	-	-0.087	-	-0.087
• Defense Efficiency – Contractor Staff Support.	-	-	-0.234	-	-0.234

Change Summary Explanation

Funding realignment from PE 0605799D8Z. Funds were transferred into this account to more closely aligned with departmental goals.

DDR&E Baseline Review. DDR&E implemented a zero-based review of the organization to align resources to the most critical priorities and eliminate lower priority functions that resulted in an increase of \$7.156M.

Defense Efficiency – Report, Studies, Boards and Commissions. As part of the Department of Defense reform agenda, reflects a reduction in the number and cost of reports, studies, DoD Boards and DoD Commissions and Contractor Staff support below the aggregate level reported in the previous budget submission.

Defense Efficiency – Contractor Staff Support. As part of the Department of Defense reform agenda, reduces funds below the aggregate level reported in the previous budget submission.

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>				PE 0603699D8Z: <i>Emerging Capabilities Technology Development</i>				P795: <i>Emerging Capabilities Technology Development</i>			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
<i>P795: Emerging Capabilities Technology Development</i>	-	-	26.972	-	26.972	32.298	32.493	31.521	29.404	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element is a new start in FY 2012 and reflects the transition from Program Element (PE) 0605799D8Z to 0603699D8Z in FY2012. This funding request supports the development of emerging capabilities under the Director of Defense Research & Engineering (DDR&E) Rapid Reaction Technology Office (RRTO). These funds are used to advance technical capabilities in mutual areas of interest through focused partnerships and projects with other federal departments and agencies. In addition to supporting interagency cooperation, this PE incubates selected concepts and technologies of interest to joint warfighters and their interagency partners to provide mature options as capability needs emerge in and beyond the FYDP. This includes developing risk-reducing prototypes to demonstrate capabilities in response to joint warfighter and interagency partners' shared requirements; and informing the Joint Capabilities Integration & Development System (JCIDS) and acquisition system through technical demonstrations. Individual projects are developed and funded with interagency partners over a two to three year period – products are demonstrated and fielded in spirals within that project timeline – and generally do not include stand-alone studies. Funding for this PE permits support for four to five major projects per year. Typically, these projects support mid-term irregular warfare needs aligned with those of interagency partners, and often supports near term capability needs in support of the Department's Rapid Fielding efforts. This PE has evolved from exclusive support of force transformation activities to the activities described above, more closely aligned with departmental goals.

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

	FY 2010	FY 2011	FY 2012
<p>Title: Overwatch</p> <p>Description: Overwatch is a capability development effort which seeks to leverage technology and new concepts to fill ground combat and interagency capability gaps. Notably, Overwatch will build on previous projects, including Project Wolf Pack, by continuing to maximize the utilization of capabilities and technologies developed and transitioned under past projects.</p> <p>Within this framework, Overwatch is the umbrella project containing multiple initiatives seeking to aggressively cultivate and leverage emerging technologies and concepts to counter the current and future challenges characteristic of the irregular warfare environment. Projects are oriented towards increasing war fighter effectiveness on the battlefield and/or the development/enhancement of "whole of government" irregular warfare capability.</p> <p>Specifically, the capability development effort will focus on two lines of operation to guide the growth of timely, sustainable, and deployable solutions for identified and anticipated requirements inside the formal acquisition process. The first line of operation will involve examination of interagency capabilities by pursuing concept experimentation/validation, interoperability enhancements, and command and control development. The second line of operation will focus on ground, and ground combat, capabilities particularly command and control, force protection, situational awareness, and networked, cooperative engagement. The end-</p>	-	-	5.123

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
state for each line of operation will be practical solutions suitable for transition. These solutions include completed operational assessments, equipment prototypes, or validated concepts which can be used to inform and drive formal procurement processes and/or policy decisions. FY 2012 Plans: Project Overwatch will continue with six active subordinate projects: the Law Enforcement Capabilities Project, the Gunslinger Package for Advanced Convoy Security (GunPACS), a Humanitarian Assistance/Disaster Relief (HA/DR) capability development effort, the Building Effective States Institutions project, the Enhanced Mortar Targeting System (EMTS). Additionally, two additional projects- an Evolved Threat Study focusing on the future evolution of Hezbollah and a project identifying Security Sector Reform technology gaps will be initiated.				
Title: Marine Sytems: Stiletto Description: Stiletto was developed to provide the DoD with a dedicated operational Research and Development (R&D) maritime platform. Although the craft incorporates experimental naval architecture to explore the scalability of non-mechanical dynamic lift, carbon fiber construction, and high speed performance for military operations, it's the craft's electronic keel and associated craft characteristics (e.g., covered payload space, an Unmanned Aerial Vehicle (UAV) flight deck, shallow draft, and ability to easily integrate Command, Control, Communications, Computers, Intelligence (C4I) systems) that provides Stiletto her agile R&D capabilities. The electronic keel was designed to be flexible, modular and re-configurable to support near plug-and-play installation of C4I equipment used as part of experimentation. In addition to testing C4I equipment, Stiletto is ideally suited for operational experimentation and has tested unmanned systems, sensors, and coastal warfare concepts of operations for various commands and agencies. The Stiletto vessel is homeported in Norfolk, Virginia at the Combatant Craft Division of the Naval Surface Warfare Center (NSWC), Carderock. FY 2012 Plans: Stiletto will continue to serve as a maritime demonstration platform. The intent is to expand the number of opportunities for non-traditional businesses that traditionally do not work with DoD to utilize Stiletto as a low cost, accessible demonstration venue to enter the defense support realm. Priority will be given to demonstrations that directly assist an acquisition program. Specific focus for demonstrations will be on evaluating unmanned systems capabilities; sensors; launch and recovery; and human factors.		-	-	2.492
Title: Project Pelican Description: In conjunction with the NASA-Ames Research Center, the Department has undertaken an effort called "Project Pelican" which is a non-deployable technology demonstrator that integrates independent technologies into a single, rigid aeroshell		-	-	15.000

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011
<p>variable buoyancy (RAVB) air vehicle. The Pelican RAVB will demonstrate the technical maturity of a scalable vertical takeoff and landing aircraft. Key technologies to be demonstrated include a buoyancy management system to enable ballast-independent operations, composite lightweight rigid external structure to reduce environmental restrictions, a responsive low-speed/hover control system with associated control algorithms, and a ground handling subsystem to enable operations on unimproved landing surfaces.</p> <p>The program objective is to mitigate long-term technical risk by integrating and demonstrating a suite of technologies with the potential to reduce operational constraints on future heavy-lift, buoyant-aircraft development programs. If successful, the Pelican prototype will enable the rapid development of a nascent class of air vehicle which will radically reduce the energy use per ton-mile of airlift operations, permit high-payload operations directly into and out of austere regions with little infrastructure, and enable long-endurance manned or unmanned air operations.</p> <p>RAVB aircraft appear to be potentially scalable to payloads of 500-1,000 tons (compared with payloads in the 125-ton range for the largest current US cargo aircraft). With cruise speeds of 80-100 knots, RAVB aircraft could surpass by several times the speed of fast sealift. With the potential to operate from land or water with very little infrastructure, RAVB aircraft may also drastically reduce the need for intermodal transportation as cargo moves from origin to point of need, with corresponding reduction in delivery times.</p> <p>Project Pelican will be conducted over a five-year period with the first three years consisting of vehicle design, analysis, and subsystem prototyping/testing. Year four will involve systems integration and construction with ground and flight testing being conducted in year five.</p> <p>FY 2012 Plans: The funding increase in FY 2012 is for the acceleration and technical risk reduction to the Pelican initiative. Specifically it will transition Pelican from its current technical demonstrator approach to a fieldable prototype system. The Pelican initiative is focused on providing significant improvements to inter and intra-theater lift and logistics capability.</p> <p>Additional plans for FY 2012 include completion of integrated subsystems and vehicle assembly followed by a Flight Readiness Review of the RAVB air vehicle prior to full hangar tethered flight testing.</p>			
Title: Thunderstorm		-	-
Description: A follow-on to RRTO's "Bluegrass" efforts, Thunderstorm will established an enduring multi-platform, multi-sensor Intelligence Surveillance and Reconnaissance (ISR) test bed using SOUTHCOM's Joint Interagency Task Force South (JIATF-			4.357

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
<p>S) as an operational venue to conduct operational experiments with next generation detection, cueing, monitoring, tracking, and handoff capabilities against asymmetric target sets. JIATF-S was chosen because the Irregular Warfare environment is similar to Iraq and Afghanistan (i.e., non-state actors, ad hoc networks, and an adaptive enemy), but is not as operationally stressing. The availability of operational intelligence architectures coupled with a true interagency, multi-national organizational construct make JIATF-S a realistic environment to vet capabilities prior to deployment to more stressing operational environments.</p> <p>In addition to providing relevant intelligence to support JIATF-South operations, Thunderstorm will also encourage greater cooperation with multi-agency/multinational partners, and identify improvements in ISR concepts of operations that can be exported for other Areas of Responsibility (AORs) to leverage. OSD will make Thunderstorm exercise data available to facilitate government and industry requirements and capabilities development.</p> <p>FY 2012 Plans: Thunderstorm spirals with interagency and Combatant Command (COCOM) partners will continue. The project will seek opportunities to utilize venues that are similar to current Irregular Warfare operations at the time of the exercise. The goal is to conduct two or three Thunderstorm exercise spirals.</p>				
Accomplishments/Planned Programs Subtotals		-	-	26.972
C. Other Program Funding Summary (\$ in Millions) N/A				
D. Acquisition Strategy N/A				
E. Performance Metrics Project performance metrics are specific to each effort and include measures identified in the specific project plans. In addition, project completions and success are monitored against schedules and deliverables stated in the proposals and statements of work. The metrics include items such as target dates, production measures, fielding dates, and demonstration goals and dates. Generic performance metrics applicable to Emerging Capabilities includes attainment of DoD Strategic Objective 4-3. The title of this objective is "Speed technology transition focused on warfighting needs" and the metrics for this objective is to transition 30% of completing demonstrations program per year.				