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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 6: <i>RDT&amp;E Management Support</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605799D8Z: <i>Emerging Capabilities</i>
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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	34.821	19.701	-	-	-	-	-	-	-	Continuing	Continuing
P799: <i>Emerging Capabilities</i>	34.821	19.701	-	-	-	-	-	-	-	Continuing	Continuing

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

This funding request supports the development of emerging capabilities under the Director of Defense Research & Engineering's 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 Future Years Defense Plan (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 Program Element (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 program element has evolved from exclusive support of force transformation activities to the activities described above, more closely aligned with departmental goals. This PE will transition from PE 0605799D8Z to PE 0603699D8Z in FY 2012.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>
Previous President's Budget	23.787	19.701	20.890	-	20.890
Current President's Budget	34.821	19.701	-	-	-
Total Adjustments	11.034	-	-20.890	-	-20.890
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	11.550	-			
• SBIR/STTR Transfer	-0.486	-			
• Program transfer to PE 0603699D8Z	-	-	-20.890	-	-20.890
• Other internal adjustment	-0.030	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** P799: *Emerging Capabilities*

FY 2010	FY 2011

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**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

Congressional Add: *Prototype Rigid Aeroshell Variable Buoyancy (RAVB) Air Vehicle - Project Pelican*

Congressional Add Subtotals for Project: P799

Congressional Add Totals for all Projects

	FY 2010	FY 2011
Congressional Add: <i>Prototype Rigid Aeroshell Variable Buoyancy (RAVB) Air Vehicle - Project Pelican</i>	4.000	-
Congressional Add Subtotals for Project: P799	4.000	-
Congressional Add Totals for all Projects	4.000	-

**Change Summary Explanation**

The FY 2010 funding amount reflects a congressionally approved reprogramming directed toward the accelerated development of the Enhanced Mortar Targeting System (EMTS).

In FY 2012, resources from PE 0605799D8Z are transferred to PE 0603699D8Z to execute the same mission but under a different Budget Activity (BA 3). Alignment under this new program element is more reflective of DOD priorities and mission intent.

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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
P799: <i>Emerging Capabilities</i>	34.821	19.701	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles											

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

Emerging Capability (EC) funding is utilized to develop emerging capabilities under the Director of Defense Research & Engineering's Rapid Reaction Technology Office (RRTO). EC projects seek 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 Program Element (PE) incubates selected concepts and technologies of interest to joint warfighters and interagency partners to provide mature options as capability needs emerge in and beyond the Future Years Defense Plan (FYDP). EC projects will inform the Joint Capabilities Integration & Development System (JCIDS) and acquisition system through technical demonstrations which include: developing risk-reducing subsystems and prototypes, integrating new technologies for field and operational experiments, and demonstrating capabilities in response to joint warfighter and interagency partners' shared requirements. Projects are in support of mid-term irregular warfare needs aligned with those of interagency partners, and often support near term capability needs in support of the Department's rapid fielding efforts.

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

	FY 2010	FY 2011	FY 2012
<p><b>Title:</b> Law Enforcement Capabilities Project</p> <p><b>Description:</b> The Law Enforcement Capabilities Project is advancing current thinking on the nature of, and need for, law enforcement capabilities across DoD, the Services and the interagency to support complex warfighting, conflict resolution, stabilization and reconstruction. This project is identifying and describing specific capabilities relevant to enhancing military cooperation with law enforcement agencies and further improve the interagency cooperation initiated during Transitional Law Enforcement. The payoff will be the development of a series of tools to enhance the capabilities of military, law enforcement agencies and their mutual interaction. It will also identify specific (technological and organizational) capabilities to further develop this capability in the future.</p> <p><b>FY 2010 Accomplishments:</b> Accomplishments included a series of table-top exercises to further concept development. The paper produced as a result of the Lessons Learned workshop series was accepted for publication as a monograph by the U.S. Army Strategic Studies Institute. The first FY 2010 table top exercise explored law-enforcement support to military operations and produced a handbook that is currently in staffing to be published as a U.S. Marine Corps manual. The second FY 2010 table-top exercise developed the overarching concepts regarding police/rule of law capacity building for the Department of Justice/Criminal Division to publish as a capstone capacity building manual. The third table top-exercise was conducted in conjunction with the U.S. Institute for Peace</p>	0.600	1.000	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
to develop a common lexicon and operational framework for stability policing in order to inform U.S. Government (USG) policy development. <b>FY 2011 Plans:</b> Current plans call for two additional table-top exercises. The first will assess the operational validity of several different organizational options for the USG. The second will examine the potential logistics support required from DoD in support of each of the different options.				
<b>Title:</b> Gunslinger Package for Advanced Convoy Security (GunPACS) <b>Description:</b> The GunPACS is a system built on the U.S. Marine Corps Medium Tactical Replacement Vehicle (MTRV) platform that provides enhanced situational awareness and cooperative engagement capabilities for ground and combat logistics elements in Afghanistan. This technology provides accurate targeting solutions to small unit and logistics convoy vehicle crews enabling them to effectively engage hostile shooters with remote weapons while remaining under armor. The objective of this effort is to provide clear, unambiguous data on the location of hostile forces in the vicinity of the small unit equipped with the GunPACS system. GunPACS utilizes 360-degree camera coverage, acoustic shot detection, and networked data fusion technology to determine shooter location information. This information is used by the operators to designate targets for the remote weapons mount to enable vehicle crews to engage hostiles while remaining under armor. Networked data fusion allows for a cooperative engagement capability, providing for more accurate and effective responses to hostile activities. Additionally, an organic ability of convoy units to defend themselves reduces the need for additional combat support for logistics convoys, potentially freeing those assets for active combat operations. <b>FY 2010 Accomplishments:</b> Prototype vehicles were utilized by Marine units as they prepared for deployment to Afghanistan in September 2010. The units deployed with the capability and are utilizing them in combat operations. <b>FY 2011 Plans:</b> Deployment to Afghanistan will span the fiscal year and will inform the development of subsequent spirals/advancement of the capability. Based on the current level of interest by the Marine Corps, it's anticipated this program will transition to the Marines in FY 2011 or early FY 2012.		0.900	1.000	-
<b>Title:</b> Humanitarian Assistance/Disaster Response Capability Development effort <b>Description:</b> As witnessed in Haiti, during Hurricane Katrina, and with the Asian Tsunami, coordinating the international community's emergency responses remains an unsolved – yet critical - challenge. Without a shared diagnosis of the problem space and an assessment of the resources available to address that problem space, the unity of effort needed to effectively		0.700	1.000	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2010</b>	<b>FY 2011</b>
<p>respond in a crisis environment will remain elusive. While all responding organizations share a common intent, to save lives and alleviate the suffering of those affected by these events, this intent is delivered with different end states, timeframes and capabilities in mind. These perspectives differ markedly between military, government and non-government organizations. In previous humanitarian responses this has led to a lack of unity amongst various responders and the host nation government, resulting in a time gap between quickly available financial, human, and relief resources and their application to problems faced on the ground. This project seeks to determine how unity of effort can be achieved to help close the gap between identifying resources and their rapid utilization. The first phase involved a workshop focused on the development and broad application of technological solutions coupled with sound operational concepts. The workshop sought to ask and answer the fundamental questions: In a fast onset disaster, how do we generate unity of effort amongst all actors when unity of command is neither possible nor desirable and what technologies can contribute to this effort?</p> <p><b>FY 2010 Accomplishments:</b> Two joint and interagency workshops were conducted to identify methodological and technical solutions to the identified problem. The first workshop was completed in conjunction with U.S. Pacific Command (PACOM), Marine Corps Forces Pacific (MARFORPAC), other joint representation as well as Non-Governmental Organizations (NGO) and international organization participation. The second workshop was completed with Southern Command (SOUTHCOM) and participants similar to the first workshop.</p> <p><b>FY 2011 Plans:</b> Complete the development of a prototype crowd sourcing system and conduct a series of operational evaluations potentially in the SOUTHCOM Area of Operations (AOR).</p>			
<p><b>Title:</b> Building Effective States</p> <p><b>Description:</b> The problem of failing and failed states is increasingly recognized as a key challenge in the contemporary world, lying at the root of global insecurity. Currently there are estimated to be some 40 to 60 countries that fall short of standards of state functionality, including but not limited to Afghanistan, Pakistan, Iraq, Somalia, Yemen, Haiti and Sudan. There has been increasing recognition within the Office of the Secretary of Defense (OSD) and the broader interagency of the need to develop a USG approach to realize the concepts articulated by the Institute for State Effectiveness (ISE). Given the strong demand at senior levels throughout government and a present deficit within USG of actionable tools for effective institution building, this project is a critical next step to define the operational technologies, templates and tools required to facilitate implementation. The project initiated in late FY 2010. The project will deliver: a mapping of existing capabilities across stakeholders; an identification of the capabilities required (including but not limited to identification of actors, partnerships, roles and responsibilities); a simulation of successful transition in unstable regional/country context, documented how-to implement the ISE framework for USG entities.</p>		0.200	1.000
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>				<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<b><i>FY 2010 Accomplishments:</i></b> Initial assessment of the existing frameworks/assessment tools was completed.						
<b><i>FY 2011 Plans:</i></b> An application of the framework and methodology to a specific country in order to develop a cohesive country specific plan to rectify/address the challenges resident within that particular country. Once complete, the results will be presented to various USG officials/agencies for validation and wider application.						
<b><i>Title:</i></b> Enhanced Mortar Targeting System (EMTS) <b><i>Description:</i></b> Existing Forward Operating Base (FOB) defense systems currently provide only the capability to detect, provide warning, and assess potential threats. At smaller, more remote locations, the kinetic response capability is limited only to existing organic weapon systems, which can become overwhelmed, or to supporting arms which may be unavailable due to weather, competing requirements or Rules of Engagement (ROE). In addition, mortar crews are routinely exposed to enemy fire and/or unable to man their system due to enemy action. The integration of a more robust response capability into detect/warn/assess systems will enhance the capability of small units/FOBs to defend themselves, which in turn enables greater tactical flexibility. This project is augmenting current kinetic capabilities available to units occupying small FOBs by, in the near term, providing the capability for precision mortar fire and, in the longer term, integrating this system and other weapons with existing and future sensors in order to maximize current capabilities and accelerate the development of future FOB defense technologies. The EMTS will provide rapid, 360° indirect fire capability from a single firing position using an integrated fire control system and an electronic drive which provides auto-laying capability at a traverse rate of 15 degrees per second. The mortar will use either 120mm or 81mm US standard mortar tubes and provide an accuracy of 1% of range (e.g. 30 meters at 3 kilometers). The project seeks an end state where next generation FOB defense capabilities are integrated with a robust, precise, kinetic response scalable for application to FOBs ranging from sub-platoon to company sized locations. <b><i>FY 2010 Accomplishments:</i></b> The mortar systems have completed safety certification. Up to 20 mortar systems will be fielded to Afghanistan for operational evaluation in early FY 2011. <b><i>FY 2011 Plans:</i></b> Operational evaluation of 20 mortar systems enabled by Congressionally reprogrammed funds in the amount of \$12.100 million will continue throughout the fiscal year. User feedback on the system and employment techniques, tactics and procedures (TTPs) will be captured and documented to inform future spirals and the development of doctrine guiding the employment of the system. Initial integration of the system with currently fielded sensor systems will begin.				13.200	1.000	-
<b><i>Title:</i></b> Interagency Border Security				0.400	-	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
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<p><b>Description:</b> The primary current venue for exploring/developing interagency capabilities centers on a collaborative effort with Joint Task Force-North (JTF-N) to explore and develop multiple types of sensors designed to improve information gathering and sharing across numerous agencies. JTF-N will be conducting multiple border security operations throughout the year designed to identify, interdict, disrupt, and prosecute organized criminal elements operating along the United States borders. These operations will typically involve numerous partner organizations including the Department of Homeland Security, Department of Justice, the US Coast Guard, Customs and Border Patrol as well as state and local law enforcement agencies. Beginning in FY 2010, participating organizations will conduct operational evaluation of multiple new sensors provided under the umbrella of Project Overwatch in order to enhance situational awareness, planning ability and intelligence gathering capability. The multi-sensor technology applications will facilitate synchronization of interagency operations, and enable better sharing of information and intelligence.</p> <p><b>FY 2010 Accomplishments:</b> The operational evaluation of multiple sensor applications began in February with JTF-N's Operation Greenflash. The evaluated capability transitioned to a USG entity assisting in border security and the project was closed out.</p>			
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<p><b>Title:</b> Marine Systems: Stiletto</p> <p><b>Description:</b> Stiletto was developed to provide the DoD a dedicated operational Research and Development (R&amp;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, 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&amp;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.</p> <p><b>FY 2010 Accomplishments:</b> During the 1Q of FY 2010, a material assessment of the Stiletto program was completed where options for future vessel utilization were explored. With positive results from the material assessment, a decision was made to maximize Stiletto's use as a maritime experimentation platform with a focus on the current needs and future threats that exist in an irregular warfare environment. The Naval Air Warfare Center's Irregular Warfare group, partnered with the NSWC, Combatant Craft Division, and OSD has moved toward the utilization of Stiletto as a key enabling maritime platform for rapid experimentation, demonstration, and prototyping.</p>	1.600	2.793	-
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2010</b>	<b>FY 2011</b>
<p>In FY 2010, work was completed to upgrade Stiletto's electronic keel to allow for easy and flexible adaptation and integration of C4I equipment. Eleven individual demonstrations were completed in FY 2010 aboard Stiletto. During FY 2010, the launch and recovery of AAI Corporation's Aerosonde 4.7 UAV was accomplished with testing at sea less than six weeks from initial discussions with AAI. As an effort to reach out to potential industry partners, Stiletto participated in the Sea-Air-Space and Ocean Tech expositions where over 400 visitors boarded information briefs. The result was several requests to support rapid prototyping demonstrations in a maritime environment.</p> <p>A host of additional demonstrations were completed in FY 2010 including the capture and release testing of an 11-meter Rigid Hull Inflatable Boat (RHIB) for the Littoral Combat Ship (LCS) program; electronics testing in support of the Space and Naval Warfare Systems Center demonstration of a mesh network for the command and control of unmanned surface vessels; and planning and integration for the Blue Dragon Maritime Domain Awareness demonstration in support of the National Maritime Intelligence Center.</p> <p><b>FY 2011 Plans:</b> The Stiletto maritime experimentation platform project will continue operational experimentation through FY 2011 with participation in the Irregular Warfare Innovation Cell's Blue Dragon demonstration. Blue Dragon is a technology demonstration project between the National Maritime Intelligence Center, Naval Air Warfare Center Aircraft Division and NSWC's Combatant Craft Division. Blue Dragon will feature Stiletto as a "mothership" in conjunction with a family of maritime Intelligence, Surveillance, and Reconnaissance (ISR) sensors and platforms to advance state of the art in the Maritime Domain Awareness arena. Testing in support of the Combatant Commanders (COCOMs), service, and interagency will continue.</p>			
<p><b>Title:</b> Griffin Cooperative Autonomy Demonstration Program</p> <p><b>Description:</b> Griffin leverages the Navy's Autonomous Maritime Navigation program to develop and install autonomous command and control systems and integrate the associated sensors on maritime platforms. The goal is to provide a system that is capable of supporting a patrol mission with minimal human interaction, until a target of interest is identified, at which time the system can either interrogate the target autonomously with its sensors, or request operator support for interacting with the target. There is no other fully functional autonomous unmanned surface vessel (USV) within DoD nor a system by which autonomous unmanned systems are able to act cooperatively. Unmanned systems represent a large growth area for the warfighter, but currently require a greater logistics and personnel footprint than a similarly capable manned system. This effort worked with cutting edge technologies to minimize human-machine interaction during the mission phase, while still producing high quality ISR data. This will reduce manning requirements, allowing the tender vessel/station to conduct normal operations while the USV is conducting its assigned mission.</p> <p><b>FY 2010 Accomplishments:</b></p>		1.000	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p>The primary accomplishment in FY10 was the final integration of sensors and perception software, and demonstration in Trident Warrior '10 (TW10) in San Diego, California. During TW10, Griffin demonstrated autonomous flexibility by converting a standard Navy Rigid Hull Inflatable Boat (RHIB) into an autonomous USV capable of cooperative autonomy with a previously configured USV and provided persistent surveillance and high value unit escort while providing relevant information to the expeditionary commander via an adhoc expeditionary wide-area network.</p> <p><b>Title:</b> Prototype Rigid Aeroshell Variable Buoyancy (RAVB) Air Vehicle - Project Pelican</p> <p><b>Description:</b> Project Pelican is a non-deployable airship technology demonstrator that integrates independent technologies into a single, rigid aeroshell variable buoyancy (RAVB) vehicle. Pelican 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, a responsive low-speed/hover control system, and a ground handling subsystem to enable operations on unimproved landing surfaces.</p> <p>The program seeks to reduce risk by integrating and demonstrating a suite of technologies with the potential to reduce operational constraints on future heavy-lift, buoyant-aircraft development programs. Success may lead to a nascent class of air vehicle which will radically reduce energy use per tonmile, permit high-payload operations in austere regions with little infrastructure, and enable long-endurance manned or unmanned air operations. RAVB aircraft appear to be scalable to payloads of 500-1,000 tons (compared with payloads in the 125-ton range for the largest current US cargo aircraft). In addition, RAVB aircraft may also reduce need for intermodal transportation as cargo moves from origin to point of need, with corresponding reduction in delivery times.</p> <p>Project Pelican is a five-year program. The first three years consist of vehicle design, analysis, and subsystem prototyping/testing. Year four involves systems integration and construction. Ground and flight testing are planned in year five. Pelican is an interagency effort between the Department and the National Aeronautics and Space Administration Ames Research Center.</p> <p><b>FY 2010 Accomplishments:</b> The government team conducted several in-progress design reviews of the proposed RAVB air vehicle. The contractor successfully completed several subsystem component prototypes and tests to include primary structural load path, truss frame elements, propulsion unit, buoyancy management components, low speed flight control system, landing system, cockpit layout, and vehicle control units. In addition, the contractor assembled the main internal framework of the rigid structure and initiated risk reduction efforts toward suitable aeroshell skin development.</p> <p><b>FY 2011 Plans:</b></p>		8.100	8.000	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
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During 1Q FY 2011 a successful test of the variable buoyancy system was completed. During the remainder of FY 2011 the contractor plans to continue several subsystem design and integration tests and begin overall vehicle system level integration. Periodic in-progress design reviews will continue.			
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<b>Title:</b> Thunderstorm	4.121	3.908	-
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**Description:** A follow-on to RRTO's "Bluegrass" efforts, Thunderstorm has established an enduring multi-platform, multi-sensor Intelligence Surveillance and Reconnaissance (ISR) test bed using Southern Command's (SOUTHCOM) Joint Interagency Task Force South (JIATF-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.

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.

**FY 2010 Accomplishments:**

Thunderstorm expanded to include operational experiments in JIATF-S, but also supported JTF-N on the Arizona/Mexico border area using developmental airborne ISR capabilities being evaluated for theater deployment. Use of the Southwest Border region replicated the terrain found in the Afghanistan/Pakistan border areas, making the area ideal for evaluating ISR systems.

November 2009: The Vehicle and Dismount Exploitation RADAR (VADER) demonstrated the utility of a Ground Moving Target Indicator (GMTI) system on the Southwest Border. The demonstration was conducted in cooperation with Customs and Border Protection (CBP) Predator and Border Agents. The operational demonstration was invaluable in helping VADER developers refine CONOPS prior to its expected deployment to Afghanistan in FY2011.

March 2010: Thunderstorm Spiral 3 was conducted in the Western Caribbean region 70 miles off shore between Honduras and Nicaragua. The focus was to demonstrate proper sensor management of several intelligence capabilities and then fuse the data into a single display for JIATF-S analysts' evaluation. Participants included multiple USG agencies. The Thunderstorm ISR

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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 6: <i>RDT&amp;E Management Support</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605799D8Z: <i>Emerging Capabilities</i>	<b>PROJECT</b> P799: <i>Emerging Capabilities</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2010	FY 2011	FY 2012
architecture approach is informing Counter Improvised Explosive Device (IED) Senior Integration Group (CSIG) ISR architectural assessments. The lessons learned and data from Spiral 3 have been widely disseminated to aid in development of future capabilities and ISR architecture.  <b>FY 2011 Plans:</b> Thunderstorm will continue to include all of SOUTHCOM (not just JIATF-S AOR and mission sets) and will continue using the U.S. Southern (and possibly Northern) border regions to evaluate Irregular Warfare ISR capabilities. Thunderstorm Spiral 4 will be conducted in the U.S. Southwest Border region for intelligence operational demonstrations. Thunderstorm may also extend to other Combatant Commanders' as Pacific Command (PACOM). The goal is to conduct two Thunderstorm exercise spirals in FY 2011.			
<b>Accomplishments/Planned Programs Subtotals</b>	30.821	19.701	-

	FY 2010	FY 2011
<b>Congressional Add:</b> Prototype Rigid Aeroshell Variable Buoyancy (RAVB) Air Vehicle - Project Pelican	4.000	-
<b>FY 2010 Accomplishments:</b> The government team conducted several in-progress design reviews of the proposed RAVB air vehicle. The contractor successfully completed several subsystem component prototypes and tests to include primary structural load path, truss frame elements, propulsion unit, buoyancy management components, low speed flight control system, landing system, cockpit layout, and vehicle control units. In addition, the contractor assembled the main internal framework of the rigid structure and initiated risk reduction efforts toward suitable aeroshell skin development.		
<b>Congressional Adds Subtotals</b>	4.000	-

**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

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0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 6: <i>RDT&amp;E Management Support</i>	PE 0605799D8Z: <i>Emerging Capabilities</i>	P799: <i>Emerging Capabilities</i>

demonstrations program per year. During FY 2010 Emerging Capabilities achieved a transition rate of 100% for three completing projects, and exceeded the 30% objective.