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**Exhibit R-2, PB 2010 Air Force RDT&E Budget Item Justification** **DATE:** May 2009

<b>APPROPRIATION/BUDGET ACTIVITY</b>					<b>R-1 ITEM NOMENCLATURE</b>					
3600 - Research, Development, Test & Evaluation, Air Force/BA 3 - Advanced Technology Development (ATD)					PE 0603601F Conventional Weapons Technology					
<b>COST (\$ in Millions)</b>	<b>FY 2008 Actual</b>	<b>FY 2009 Estimate</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	18.698	17.166	14.356						Continuing	Continuing
63670A: Conventional Weapons Development	18.698	17.166	14.356						Continuing	Continuing

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

This program develops, demonstrates, and integrates ordnance and advanced guidance technologies for air-launched conventional weapons. The program includes development of conventional ordnance technologies including warheads, fuzes, and explosives; and development of advanced guidance technologies including seekers, navigation and control, and guidance. This program is in the Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

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

	<u><b>FY 2008</b></u>	<u><b>FY 2009</b></u>	<u><b>FY 2010</b></u>	<u><b>FY 2011</b></u>
Previous President's Budget	18.379	11.813	17.942	
Current BES/President's Budget	18.698	17.166	14.356	
Total Adjustments	0.319	5.353	0.000	
Congressional Program Reductions	0.000	0.000		
Congressional Rescissions	0.000	-0.047		
Total Congressional Increases	0.000	7.400		
Total Reprogrammings	0.779	-2.000		
SBIR/STTR Transfer	-0.460	0.000		

**Change Summary Explanation**

In FY 2009, Congress added \$2.4 million for Energetic Device Quality and Reliability Improvements Using Computer-Aided Process Control and Congress added \$3.0 million for Integrated Targeting Devices.

C. Performance Metrics  
(U) Under Development.

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<b>Exhibit R-2a, PB 2010 Air Force RDT&amp;E Project Justification</b>								<b>DATE:</b> May 2009		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600 - Research, Development, Test & Evaluation, Air Force/BA 3 - Advanced Technology Development (ATD)				<b>R-1 ITEM NOMENCLATURE</b> PE 0603601F Conventional Weapons Technology					<b>PROJECT NUMBER</b> 63670A	
<b>COST (\$ in Millions)</b>	<b>FY 2008 Actual</b>	<b>FY 2009 Estimate</b>	<b>FY 2010 Estimate</b>	<b>FY 2011 Estimate</b>	<b>FY 2012 Estimate</b>	<b>FY 2013 Estimate</b>	<b>FY 2014 Estimate</b>	<b>FY 2015 Estimate</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
63670A: Conventional Weapons Development	18.698	17.166	14.356						Continuing	Continuing

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

This project develops, demonstrates, and integrates ordnance and affordable, autonomous, and adverse weather resistant guidance technologies for enhancing the effectiveness of air-launched conventional weapons delivered from manned and unmanned aerospace vehicles. The project develops conventional ordnance including warheads, fuzes, explosives, carriage and release, munition integration technologies, terminal seekers, midcourse navigation sensors for stand off delivery weapons, and target detection and identification processing algorithms for reducing target location error to improve target kill probability. This project improves the capability for conventional munitions supporting an Air Expeditionary Force.

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

	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>
<p><b>MAJOR THRUST:</b> Develop and demonstrate advanced air-delivered munitions fuze and mass-focusing warhead technologies to improve munition effectiveness, allowing for smaller warheads and munition airframes, thereby improving sortie effectiveness and increasing strike aircraft load-outs. Develop a fuzing capability that will transmit function data from penetrating weapons through various hard target mediums.</p> <p>In FY 2008: Developed and tested hard target influence fuze. Developed an active imaging target device that can provide warhead aimpoint selection for mass focused warheads.</p> <p>In FY 2009: Continue development of an active imaging target device that can provide warhead aimpoint selection for mass focused warheads.</p> <p>In FY 2010: Complete development of an active imaging target device that can provide warhead aimpoint selection for mass focused warheads.</p>	3.399	2.758	3.454	
<p><b>MAJOR THRUST:</b> Develop and demonstrate conventional munition subsystem and platform integration technologies to include innovative air-delivered munition carriage and release equipment, miniature weapon release concepts, and reduced airframe size providing the capability to safely carry, launch, and communicate</p>	0.671	0.267	4.717	

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>
<p>with the aerospace vehicle and other multiple miniature weapons. These integration technologies will increase weapon load-outs and improve sortie effectiveness for current and future strike aircraft, while reducing munition airlift requirements.</p> <p>In FY 2008: Developed small powered short-range precision-guided submunition capable of attacking multiple moving targets.</p> <p>In FY 2009: Begin developing a missile with the capability to defeat a broad range of small and highly agile air targets as well as high value ground targets, such as enemy air defenses.</p> <p>In FY 2010: Continue development of a small powered short-range precision-guided submunition capable of attacking multiple moving targets. Continue developing a missile with the capability to defeat a broad range of small and highly agile air targets as well as high value ground targets, such as enemy air defenses. Begin developing a conventional ordnance package consisting of a case, fuze, fuzewell, and explosive fill capable of penetrating high performance concrete at conventional velocities.</p>				
<p><b>MAJOR THRUST:</b> Develop and demonstrate advanced conventional armament warhead technologies, including heavy metal liners, dense metal cases, and insensitive explosives with increased energy release performance attributes. The goal of these efforts is to destroy hardened targets by more effectively penetrating protective surfaces and by enhancing kill mechanisms against softer surface targets. (NOTE: FY 2009 is the last year for ordnance and air-to-air missile demonstration efforts.)</p> <p>In FY 2008: Developed ordnance package with improved counter-air lethality to address cruise missile and urban targets, as well as attacking a subset of ground targets to include enemy air defenses. Developed a multi-mode warhead package designed for precision guided submunitions.</p> <p>In FY 2009: Demonstrate an ordnance package with improved counter-air lethality to address cruise missile and counter-air targets, as well as attacking a subset of ground targets to include enemy air defenses. Demonstrate a multi-mode warhead package designed for precision guided submunitions.</p>	6.949	3.269	0.000	

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>
In FY 2010: All counter air warhead efforts are concluded. No funds are allocated this year; awaiting 6.2 developed warhead efforts.				
<p><b>MAJOR THRUST:</b> Develop and demonstrate advanced conventional armament seeker technologies for miniature munitions applications. These seeker technologies will autonomously detect, acquire, and guide to targets of interest in adverse weather and battlefield conditions. Also, the seeker technologies will increase the probability of kill and minimize collateral damage, while providing increased weapons load-out and improved sortie effectiveness.</p> <p>In FY 2008: Continued design and demonstration of low cost laser detection and ranging seeker to increase data rates and reduce moving parts compared to earlier generation laser seeker technologies. Developed a multi-mode radar seeker capable of engaging both moving and stationary targets in adverse weather.</p> <p>In FY 2009: Continue design and demonstration of a low cost laser detection ordnance seeker to increase data rates and LADAR moving parts compared to earlier generation LADAR seeker technologies. Flight test a multi-mode radar seeker capable of engaging both moving and stationary targets in adverse weather.</p> <p>In FY 2010: Complete demonstration of a low cost laser detection ordnance seeker to increase data rates. Investigate the design details for a low cost multispectral seeker to provide autonomous, all weather operation.</p>	6.130	5.487	3.460	
<p><b>MAJOR THRUST:</b> Develop and demonstrate advanced conventional armament navigation and control technologies to increase armament navigation accuracy, improve stand off range, and enhance weapons control and operation in electronic jamming environments. (NOTE: In FY 2010, technologies developed under weapon data effort will be used to support guidance/control program which has coordinated submunition attack from an unmanned munition platform.)</p> <p>In FY 2008: Not Applicable.</p>	0.000	0.000	2.725	

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>
In FY 2009: Not Applicable.  In FY 2010: Develop a small guided sub-munition to attack multiple moving targets.				
CONGRESSIONAL ADD: Moving Target Strike.  In FY 2008: Conducted Congressionally-directed effort for Moving Target Strike.  In FY 2009: Not Applicable.  In FY 2010: Not Applicable.	1.549	0.000	0.000	
CONGRESSIONAL ADD: Energetic Device Quality and Reliability Improvements Using Computer Aided Process Control.  In FY 2008: Not Applicable.  In FY 2009 : Conduct Congressionally-directed effort for Energetic Device Quality and Reliability Improvements Using Computer-Aided Process Control.  In FY 2010: Not Applicable.	0.000	2.393	0.000	
CONGRESSIONAL ADD: Integrated Targeting Devices.  In FY 2008: Not Applicable.	0.000	2.992	0.000	

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<b>B. Accomplishments/Planned Program (\$ in Millions)</b>							<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>
<p>In FY 2009: Conduct Congressionally-directed effort for Integrated Targeting Devices.</p> <p>In FY 2010: Not Applicable.</p>										
<b>C. Other Program Funding Summary (\$ in Millions)</b>										
	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Activity Not Provided/ Related Activities:	0.000	0.000							Continuing	Continuing
PE 0602602F/ Conventional Munitions.	0.000	0.000							Continuing	Continuing
Activity Not Provided/ This project has been coordinated through the Reliance 21 process to harmonize efforts and eliminate	0.000	0.000							Continuing	Continuing
<b>D. Acquisition Strategy</b>										
Not Applicable.										
<b>E. Performance Metrics</b>										
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.										

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