Exhibit R-2, PB 2010 Army RDT&E Budget Item Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)					R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY					
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	99.457	106.285	60.097						Continuing	Continuing
BA7: AVIATION ADVANCED TECHNOLOGY INITIATIVES (CA)	47.287	44.214	.000						Continuing	Continuing
BA8: VECTORED THRUST DUCTED PROPELLER (CA)	.000	4.983	.000						Continuing	Continuing
313: ADV ROTARYWING VEH TECH	39.254	45.797	39.458						Continuing	Continuing
435: AIRCRAFT WEAPONS	2.323	2.679	2.704						Continuing	Continuing
447: ACFT DEMO ENGINES	10.593	8.612	17.935						Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) matures and demonstrates manned and unmanned rotary wing vehicle (RWV) technologies to enable Army transformation. Within this PE, aviation technologies are matured and integrated into realistic and robust demonstrations. The PE supports the maturation and demonstration of enabling component and subsytems for rotorcraft in the following areas: rotors, drive trains, structures and survivability (project 313), weapons integration (project 435), mission equipment packages to enable control of unmanned systems (project 436) and affordable and efficient engines (project 447). Projects BA7 and BA8 fund congressional special interest items.

Work in this PE is related to and fully coordinated with PE 0602211A (Aviation Technology), PE 0603313A (Missile and Rocket Advanced Technology) and PE 0603270A (Electronic Warfare Technology). Efforts under this PE transition to programs supported by PE 0603801A (Aviation - Advanced Development), PE 0604801A (Aviation - Engineering Development), and PE 0604270A (Electronic Warfare Development).

The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Exhibit R-2, PB 2010 Army RDT&E Budget Item Justification	DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	**R-1 ITEM NOMENCLATURE** PE 0603003A AVIATION ADVANCED TECHNOLOGY

Work in this PE is performed by the Aviation and Missile Research, Development, and Engineering Center (AMRDEC) with facilities located at Redstone Arsenal, AL; Fort Eustis, VA; and Moffett Field, CA.

B. Program Change Summary ($ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011
Previous President's Budget	98.899	57.277	69.597	
Current BES/President's Budget	99.457	106.285	60.097	
Total Adjustments	.558	49.008	-9.500	
Congressional Program Reductions	.000	-.352		
Congressional Rescissions	.000	.000		
Total Congressional Increases	.000	49.360		
Total Reprogrammings	3.221	.000		
SBIR/STTR Transfer	-2.663	.000		

Change Summary Explanation

FY09 funding increase is due to congressional adds.
Multiple task reductions in FY10 to reduce growth.

Exhibit R-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY					PROJECT NUMBER BA7	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
BA7: AVIATION ADVANCED TECHNOLOGY INITIATIVES (CA)	47.287	44.214	.000						Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Aviation advanced technology development.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
UAV-Resupply (BURRO)	1.931	1.163	.000	
Excalibur	2.318	.000	.000	
Technologies for Military Equipment Replenishment	3.864	3.488	.000	
Joint Technical Data Integration-Wide Intelligent Content Enhancements	3.864	.000	.000	
Cutting Tools for Aerospace Materials	1.158	.775	.000	
Fuel Cells for Mobile Robotic Systems Project	2.319	.775	.000	
Improved VAROC/UAV Compression System Development	2.319	.000	.000	
Universal Control Full Authority Digital Engine Control (FADEC)	2.898	3.100	.000	
Alternate Payload Bomb Live Unit Munition	2.165	.000	.000	
Drive System Composite Structural Component Risk - Reduction Program	2.319	2.325	.000	
Helmet Mounted Display/Visor Projection for Army Helicopters	1.546	.000	.000	
Integrated Aircraft Test Bed	1.546	.000	.000	
Quick-MEDS Automated Release Pod	1.546	.775	.000	
Autonomous Cargo Acquisition for Rotorcraft Unmanned Aerial Vehicles	2.319	2.325	.000	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY	PROJECT NUMBER BA7

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Inter Turbine Burner for Turbo Shaft Engines	3.864	3.100	.000	
Night Vision Goggle Compatible Electrostatically Conductive Windscreen Laminates for use on Acrylic/	1.160	.000	.000	
Power Dense Transmissions	.774	1.240	.000	
Enhanced Rapid Tactical Integration and Fielding of Systems	1.546	1.550	.000	
Parts-on-Demand for CONUS Operations	3.478	4.843	.000	
Next Generation Ice Protection Technologies for UAVs	1.937	1.550	.000	
FC3, FCS Reconnaissance (UAV) Platforms	2.416	.000	.000	
Heavy Fuel Burning Engines for UAVs	.000	1.938	.000	
Reconfiguration Tooling System	.000	1.550	.000	
Mission Execution Technology Impementation	.000	3.100	.000	
Defense Helicopter Power Dense Transmission	.000	1.240	.000	
Non-Hazardous Infrared Anti-Reflective Coatings for Army Aircraft Sensors	.000	1.163	.000	
Helicopter Vulnerability Reduction	.000	2.325	.000	
Brownout Sensor Visualization and Hazard Avoidance System	.000	.775	.000	
Improved Black Hawk De-Icing	.000	.775	.000	
Army Aviation Weapon Technology	.000	.775	.000	
UAS Sense and Avoid Concept Evaluation for Airspace Integration	.000	2.325	.000	
SBIR/STTR	.000	1.239	.000	
Total	47.287	44.214	.000	

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY	PROJECT NUMBER BA7

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY					PROJECT NUMBER BA8	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
BA8: VECTORED THRUST DUCTED PROPELLER (CA)	.000	4.983	.000						Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Vectored Thrust Ducted Propeller Compound Helicopter.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Vectored Thrust Ducted Propeller Compound Helicopter (pending transfer to 0643801)	.000	4.844	.000	
SBIR/STTR	.000	.139	.000	
Total	.000	4.983	.000	

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY					PROJECT NUMBER 313	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
313: ADV ROTARYWING VEH TECH	39.254	45.797	39.458						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures and demonstrates systems/subsystems for manned/unmanned rotorcraft that provide, improved survivability, greater performance or lessen the operational costs and required maintenance. Systems demonstrated include rotors, drivetrains, robust airframe structures and integrated threat protection systems.

The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Work in this project is performed by the Aviation Applied Technology Directorate of the Aviation and Missile Research, Development, and Engineering Center (AMRDEC), Fort Eustis, VA.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Advanced Affordable Turbine Engine (AATE): In FY09 complete detailed design activities for several engine components (e.g. compressor, turbine, combustor and mechanical systems). Related work is also being conducted in project 447	.000	2.781	.000	
Rotor Design and Capabilities: This program determines the performance benefits of advanced rotors through the evaluation of alternative designs aimed to satisfy future force capability needs for increased system durability, speed, range and payload. In FY08, matured and demonstrated passive and active control methods for improving rotorcraft performance in a heavy vibration environment. Investigated benefit, design implications and limitations of the Optimum Speed Rotor (OSR) technology when applied to rotorcraft of different classes and mission types. Evaluated high lift technologies that provide rotor systems with improved aero performance, while enhancing damage tolerance. Characterized advanced main rotor hub concepts compatible with on-blade rotor control systems, leading to increased rotorcraft performance. Evaluated the applicability of candidate technologies to current airframes. In FY09, demonstrate high lift technologies that provide rotor systems with improved aero performance, reduced vibrations and noise. Utilize impact models and component tests to select rotor durability solutions for demonstration and fielding. Design and demonstrate a rotor system for reliable transfer of data and power across the rotating and nonrotating interface for applications such as de-icing, on-blade controls and health and usage monitoring systems. Characterize Optimum Speed	12.969	16.035	14.554	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY	PROJECT NUMBER 313

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Rotor system performance through rigorous flight testing. In FY10, will begin to characterize acoustic properties of Optimum Speed Rotor (OSR) through flight testing and demonstrate full flight envelope. Will conduct component testing for rotor durability technologies. Will conduct whirl stand and wind tunnel testing on full-scale rotor blades to demonstrate high performance rotor technologies that improve aeromechanical performance, reduce acoustic detection and reduce vibration.				
Integrated Aircraft and Crew Protection: This effort demonstrates combined rotorcraft platform durability and survivability improvements through a fully optimized and integrated structure, vehicle management system (VMS), and rotors/subsystems technology integration program. In FY10, will conduct a series of platform system trade studies to identify the sensitivities of technology contributions to battlefield and operational survivability from structures, rotors, subsystems, and vehicle management systems areas.	.000	.000	1.954	
Real-time Airspace Collision-Avoidance and Teaming (REACT): This program evaluates, integrates, demonstrates, and flight tests real-time airspace deconfliction and collision avoidance technologies. In FY10, will mature the Army tactical airspace model for systems engineering analysis of potential airspace deconfliction and collision avoidance methods and will demonstrate and evaluate improved airborne and ground control station based real-time situational awareness displays.	.000	.000	1.480	
High Altitude Long Endurance (HALE) Platforms: This effort represents the Army's contribution to an Air Force managed Joint Capabilities Technology Demonstration (JCTD) to demonstrate an unmanned, high altitude, long endurance surveillance system. In FY08, conducted first flight and began expansion of envelope to demonstrate endurance, durability, maintainability and structural life. Evaluated manning schemes to determine optimum ground personnel support requirements. In FY09, refine flight characteristics and demonstrate air vehicle endurance, foot-print, and turn time (time to prepare vehicle for next mission). Demonstrate payload performance and data assimilation and storage. Validate military utility of air vehicle in concert with ground control station and military operators. Work on this effort is performed in coordination with PE's 1160401BB, 1160428BB, 0604857F, 0603160BR, and 0207434F during execution of the Global Observer JCTD.	7.500	7.500	.000	
Enhanced Rotorcraft Drive System (ERDS): This program demonstrates advanced rotorcraft drive technologies that will increase the horsepower-to-weight ratio, reduce drive system noise, reduce production, operating and support costs and provide automatic component impending failure detection. In FY08, fabricated helical face gears, gears for the enhanced power density tail rotor gearbox, and composite shafts. Conducted demonstration testing of the composite gearbox	3.947	4.765	3.596	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
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B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
housing. In FY09, complete fabrication of helical face gear components. Conduct demonstration testing of the helical face gear design. Begin demonstration tests of the composite shaft/coupling, composite main rotor drive shaft and tail rotor enhanced power density gears. Validate diagnostic algorithms as part of the demonstration tests. In FY10, will conduct over-torque fatigue testing of the tail rotor enhanced power density gears. Will complete endurance and over-torque testing of the helical face gears. Will complete demonstration testing of the composite housings and composite shaft/coupling.				
Capability-Based Operations and Sustainment Technologies (COST): Mature and demonstrate technologies that improve the operational availability of rotorcraft while reducing operating and support (maintenance) costs. In FY08, expanded the existing engine diagnostic models to include continuous on-board power availability calculations, prognostic models, and advanced control models to allow the pilot to continuously know the engine power available, allow calculation of engine component efficiencies during flight to predict the remaining life of components and scheduling of maintenance and enable the modification of the engine control laws to optimize engine performance. Developed and validated diagnostic/prognostic algorithms for electrical subsystems. In FY09, mature and refine engine algorithms by testing a turboshaft engine in a controlled, instrumented test cell. Perform full-scale testing, on a rotor test stand, of rotor head, flight controls and bearings to verify/validate the newly developed algorithms. Initiate regression testing of software (evaluating the algorithms' functionality and interoperability with other software and sensor inputs using simulated flight test data) in preparation for system integration and flight testing. Demonstrate prognostication of remaining service life of damage tolerant airframe components. In FY10, will integrate engine, flight control, electrical and rotor technologies to demonstrate the feasibility of implementing the technologies as a single solution. System level data fusion techniques will be applied to increase accuracy and reduce false alarms. A system integration demonstration will be conducted in an avionics systems integration laboratory.	5.678	6.993	6.912	
Small Business Innovative Research/Small Business Technology Transfer Programs	.000	1.212	.000	
Adaptive Vehicle Management System (AVMS): The AVMS integrates advanced flight controls with real time aircraft state information to enable safe and low-effort maneuvering and real time adaptation to aircraft state changes (degradations, damage, mission, etc.). The AVMS will demonstrate technology to enable Level 1 (most acceptable) handling qualities in the entire flight envelope, reduce flight control line replaceable unit counts by over 20% and reduce flight control system weight. In FY10, will compile and identify technologies, including emerging 6.2 results and analyze the technology status and risk assessment of each for inclusion in the AVMS flight demonstration. Will generate a preliminary design of a baseline AVMS system for flight demonstration.	.000	.000	1.221	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY	PROJECT NUMBER 313

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Rotorcraft Survivability: These efforts increase rotorcraft survivability by reducing platform signatures as well as providing the means to jam enemy detection systems. This effort also enhances situational awareness allowing manned/ unmanned aircraft to avoid enemy air threats. In FY08, integrated a suite of candidate survivability technologies on a Black Hawk helicopter and performed flight tests to quantify the increase in threat detection range, as well as the reduction in the threats' lock-on range and targeting accuracy. Developed a fully-integrated aircraft self-protection suite for defeating current Man-Portable Air Defense System (MANPADS) threats, small arms and rocket propelled grenades (RPG), anti-tank guided missiles and laser designated threats, utilizing multi-function threat detection and threat countermeasures for reduced system weight and cost. In FY09 will develop a modular pod-based system for housing the laser jammer turret and hostile fire indication (HFI) sensors to collectively provide a universal B-kit for rotary wing platforms. In FY10, will complete development of lightweight, multi-function laser to counter MANPADS, small arms, RPG and laser designated threats through multi-band, infra-red and eye-safe visual energy. Work on this effort is also being accomplished under PE 0602270A, project 442 and PE 0603270A, project K16.	9.160	6.511	9.741	
Total	39.254	45.797	39.458	

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY					PROJECT NUMBER 435	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
435: AIRCRAFT WEAPONS	2.323	2.679	2.704						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures, demonstrates and integrates manned and unmanned sensor and weaponization technologies such as advanced missiles, guns, fire controls, advanced target acquisition and pilotage sensors into Army aviation platforms. Efforts are directed toward reducing the integrated weight of weapons, increasing engagement ranges, providing selectable effects on a variety of threats, and enabling cost effective integration across multiple aviation platforms.

The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Work in this project is performed by the Aviation and Missile Research, Development, and Engineering Center (AMRDEC), Redstone Arsenal, AL and Fort Eustis, VA.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Small Business Innovative Research/Small Business Technology Transfer Programs	.000	.059	.000	
Aviation Multi-Platform Munition (AMPM): Aircraft weapons efforts were consolidated in this project to focus technologies toward integrating a new lightweight weapon for use with both manned and unmanned rotorcraft systems. In FY08, conducted a Capabilities Based Assessment (CBA) in concert with the user community to identify technologies (such as launcher interface, weapon seeker and weapon motor) and approaches for improving sensor to shooter synergies across Army aviation operations. Matured the requirements definition for a new, lightweight weapon system for both manned and unmanned aviation platforms. Coordinated with the Naval Air Warfare Center, China Lake, to integrate the Navy's 5-lb SPIKE missile with the test-bed rotary wing Vigilante UAV. Issued a Request For Information (RFI) to industry and other military services to identify potential sources of new weapon systems suitable for integration on Army Aviation platforms. Received and reviewed 31 weapon concepts of which at least 7 are sufficiently mature for aircraft integration and live-fire testing. In FY09, develop and fabricate a Universal Test Pod (UTP) to support flight test evaluation of industry weapon systems. The UTP will integrate weapons using the Universal Armaments Interface (UAI) standard and will enable flight test and integration analysis of weapon concepts. Also conduct flight testing of the most promising industry candidate weapon systems in conjunction with scheduled Kiowa Warrior weapons pylon testing. In FY10, will develop and publish interface control documentation of weapons for multi-platform integration (based on CBA	2.323	2.620	2.704	

Exhibit R-2a, PB 2010 Army RDT&E Project Justification		DATE: May 2009
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B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
results). Will develop weapon system engineering concept. Will solicit industry technical solutions and will develop key technologies.				
Total	2.323	2.679	2.704	

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

Exhibit R-2a, PB 2010 Army RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 2040 - Research, Development, Test & Evaluation, Army/BA 3 - Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603003A AVIATION ADVANCED TECHNOLOGY					PROJECT NUMBER 447	
COST ($ in Millions)	**FY 2008 Actual**	**FY 2009 Estimate**	**FY 2010 Estimate**	**FY 2011 Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
447: ACFT DEMO ENGINES	10.593	8.612	17.935						Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures and demonstrates power system technologies through design, fabrication, and testing of advanced engine components in order to improve the performance of turbine engines. This project supports Army transformation by demonstrating mature technologies for lighter turbine engines that provide increased power, increased fuel efficiency, improved sustainability and reduced maintenance. The advanced engine will significantly improve the overall aircraft performance characteristics and reduce the logistical footprint of rotary wing aircraft.

The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.

Work in this project is performed by the Aviation Applied Technology Directorate of the Aviation and Missile Research, Development, and Engineering Center (AMRDEC), at Fort Eustis, VA.

B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
Advanced Affordable Turbine Engine (AATE) Tech (cont'd FY10): In FY10, will integrate core engine (compressor, combustor and gas generator turbine) components into a gas generator configuration and complete initial testing, verifying mechanical integrity of the core design. Will integrate power turbine and conduct first full engine test, establishing initial engine performance capability. Will validate component design modifications required for improved performance. Will complete final design iterations, based on analysis of test results, on identified components to support demonstration testing. Will refine an interim production and maintenance cost goal status assessment.	.000	.000	17.935	
Advanced Affordable Turbine Engine (AATE) Tech: Demonstrate a 3000 horsepower gas turbine engine for improved operational capability for Blackhawk, Apache, and other future rotorcraft. AATE includes two competitive engine demonstrator efforts (General Electric and Advanced Turbine Engine Company (ATEC), (Honeywell and Pratt & Whitney Joint Venture)). The AATE effort includes funding from project 313 to support competitive demonstrations. In FY08, completed preliminary design and executed detailed design and component fabrication tasks, building on knowledge gained in the DoD Versatile Affordable Advanced Turbine Engine effort. Design activity included 2-D and 3-D mechanical and aerothermal efforts to evaluate engine subcomponents. In FY09, complete initial rig-tests for several	10.593	8.397	.000	

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B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
engine components (e.g. compressor, turbine, combustor and mechanical systems) of the competing designs. Validate the design's aerodynamic performance and mechanical integrity, prior to an integrated, full-engine test. Analyze component rig-test results to support redesign efforts as required for future engine builds.				
Small Business Innovative Research/Small Business Technology Transfer Programs	.000	.215	.000	
Total	10.593	8.612	17.935	

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.