Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army											DATE: April 2013	
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)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	-	60.333	64.215	81.080	-	81.080	92.341	91.503	96.893	101.546	Continuing	Continuing
313: *Adv Rotarywing Veh Tech*	-	46.776	44.814	63.547	-	63.547	75.223	73.890	78.792	83.936	Continuing	Continuing
436: *Rotarywing MEP Integ*	-	5.408	9.492	9.257	-	9.257	6.867	7.841	9.623	8.979	Continuing	Continuing
447: *ACFT Demo Engines*	-	8.149	9.909	8.276	-	8.276	10.251	9.772	8.478	8.631	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

FY 14 resources increased for Future Vertical Lift

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 aviation modernization. Within this PE, aviation technologies are advanced and integrated into realistic and robust demonstrations. Project 313 matures, demonstrates and integrates enabling component, subsystems and systems in the following areas: rotors, drive trains, structures and survivability. Project 435 focuses on weapons integration and demonstration. Project 436 matures and demonstrates mission equipment packages to enable control of unmanned systems. Project 447 matures and demonstrates affordable and efficient engines. Focus areas include: engines & drive trains; rotors & vehicle management systems; platform design & structures; aircraft & occupant survivability; aircraft weapons & sensors; maintainability & sustainability; and unmanned & optionally manned systems. A major effort in this PE is the Joint Multi-Role (JMR) Aircraft Demonstrator.

Work in this PE contributes to the Army S&T Air Systems portfolio and is related to and fully coordinated with PE 0602211A (Aviation Technology), PE 0603313A (Missile and Rocket Advanced Technology), PE 0603710A (Night Vision Advanced technology), and PE 0603270A (Electronic Warfare Technology).

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering S&T focus areas and the Army Modernization Strategy.

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Army					DATE: April 2013
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B. Program Change Summary ($ in Millions)	**FY 2012**	**FY 2013**	**FY 2014 Base**	**FY 2014 OCO**	**FY 2014 Total**
Previous President's Budget	62.095	64.215	69.519	-	69.519
Current President's Budget	60.333	64.215	81.080	-	81.080
Total Adjustments	-1.762	0.000	11.561	-	11.561
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.762	-			
• Adjustments to Budget Years	-	-	11.561	-	11.561

Exhibit R-2A, RDT&E Project Justification: PB 2014 Army			DATE: April 2013
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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
313: *Adv Rotarywing Veh Tech*	-	46.776	44.814	63.547	-	63.547	75.223	73.890	78.792	83.936	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project matures, demonstrates and integrates components, subsystems and systems for vertical lift and unmanned air systems that provide, improved aircraft & occupant survivability, reduced maintenance & sustainment costs, and greater performance through improved rotors, drives, vehicle management systems and platform design & structures. Systems demonstrated include rotors, drive trains, robust airframe structures and integrated threat protection systems. A major effort in this project is the Joint Multi-Role (JMR) Technology Demonstrator in support of the Future Vertical Lift (FVL) family of aircraft.

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering S&T focus areas and the Army Modernization Strategy.

Work in this project is performed by the Aviation Development Directorate of the Aviation and Missile Research, Development, and Engineering Center (AMRDEC), Joint Base Langley-Eustis, VA, and the System Simulation Development Directorate, AMRDEC, Redstone Arsenal, AL. Work in this project is coordinated with Program Manager Aircraft Survivability Equipment (PM-ASE).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Rotorcraft Survivability	6.555	0.000	0.000
Description: These efforts increase rotorcraft survivability by reducing platform signatures and providing the means to more efficiently counter enemy detection and tracking systems. This effort also enhances situational awareness, allowing manned/ unmanned aircraft to avoid enemy air threats. This effort continues in FY13 under the Aircraft & Occupant Survivability Systems effort. ***FY 2012 Accomplishments:*** Conducted follow-on Hardware-In-The-Loop (HITL) demonstration of survivability software adapter utilizing Integrated Aircraft Survivability Equipment (I-ASE) system, developed by PM-ASE, and additional aircraft survivability systems; and finalized Super - Application Programming Interface (API) definition to allow existing legacy ASE devices and newly developed ASE devices to be added to the aircraft with little or no software changes to the aircraft - plug & play.			
Title: Integrated Aircraft and Crew Protection	5.142	0.000	0.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Description: This effort demonstrates combined rotorcraft platform durability and survivability improvements through a fully optimized, integrated and hardened structure, Vehicle Management System (VMS), and rotors/subsystems technology integration program. This work continues in FY13 under the Aircraft & Occupant Survivability Systems effort. ***FY 2012 Accomplishments:*** Completed definition of integrated technology solution, including ballistic protection, vehicle crashworthiness, aircrew restraints and crash loads alleviation to enhance aircraft / occupant protection, improve durability, and reduce environmental vulnerability Defined and began technology maturation and an integrated demonstration approach for a combat tempered platform.			
Title: Aircraft & Occupant Survivability Systems ***Description:*** This effort increases rotorcraft survivability by reducing platform signatures, providing the means to more efficiently counter enemy detection and tracking systems, and also increases protection to the aircraft and aircrew against ballistic munitions, crash landings, and post-crash fire events. This effort enhances air crew situational awareness, allowing manned/ unmanned aircraft to avoid enemy air threats. Prior to FY13, these efforts were exhibited under the Rotorcraft Survivability effort and the Integrated Aircraft and Crew Protection effort. ***FY 2013 Plans:*** Research concepts that most effectively and efficiently make the pilot aware of the current threat situation and offer the best survivability actions to dynamic threats; design a 3-D route optimization planner architecture that allows the aircraft to maneuver to its flight dynamic limits, coupled with real-time threat lethality predictions; initiate component and full-scale preliminary design of a combat tempered platform that exemplifies enhanced aircraft and crew/occupant protection, improved battlefield durability, and reduced environmental vulnerability; substantiate the results of the system level trade studies, which are key to understanding structural design parameters and the performance of the optimized concepts through integrated, full-scale component testing; and conduct system engineering trades and validation of component integration. ***FY 2014 Plans:*** Will generate real-time threat lethality prediction algorithms and 3-D route planning optimization algorithms which include consideration of aircraft flight dynamics limits, and will demonstrate in the AMRDEC Aviation Integration System Facility; will demonstrate modular integrated survivability architecture using aircraft survivability equipment components, and incorporate Future Airborne Common Environment conforming software; and will initiate full scale fabrication of a combat tempered airframe sub-section designed to meet damage tolerance criteria.	0.000	9.178	11.452
Title: Rotor Design and Capabilities ***Description:*** This effort determines the performance benefits of advanced rotors and air vehicles through the evaluation of alternative designs aimed to satisfy future force capability needs for increased system durability, speed, range and payload. The	17.230	0.000	0.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
rotor design work continues in FY13 under the Rotors & Vehicle Management Systems effort. Air vehicle design work continues in FY13 under the Platform Design & Structures Systems effort. ***FY 2012 Accomplishments:*** Completed assessment of reconfigurable rotors technology; designed a high performance, low vibration, low noise rotor and integrated control system; investigated advanced air vehicle concepts that address Army Aviation performance gaps; and initiated trade studies that support the evaluation of candidate next generation air vehicle designs that include performance, survivability, cost and sustainability attributes to be pursued for demonstration.			
Title: Adaptive Vehicle Management System (AVMS) ***Description:*** The AVMS integrates advanced flight controls with real-time aircraft state information to enable safe, low-effort maneuvering and real-time adaptation to aircraft state changes (degradation, damage, mission, etc.). The AVMS demonstrates technology that enables Level 1 (most acceptable) handling qualities in the entire flight envelope, reduces flight control line replaceable unit counts, and reduces flight control system weight. This work continues in FY13 under the Rotors & Vehicle Management Systems effort. ***FY 2012 Accomplishments:*** Finished simulation evaluation of candidate systems to determine final candidates for flight demonstration in FY15; and began detailed analysis and design of the best candidate Adaptive Vehicle Management System (AVMS) suites in preparation for flight demonstration of advanced technologies to improve legacy and future fleet handling qualities.	3.736	0.000	0.000
Title: Rotors & Vehicle Management Systems ***Description:*** This effort demonstrates 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. This effort also integrates advanced flight controls with real-time aircraft state information into vehicle management systems to enable safe, low-effort maneuvering and real-time adaptation to aircraft state changes (degradation, damage, mission, etc.). Prior to FY13, these efforts were exhibited under the Adaptive Vehicle Management System (AVMS) effort and the rotor design work of the Rotor Design and Capabilities effort. ***FY 2013 Plans:*** Conduct testing to mitigate risk and address integration issues associated with integrating multiple active technologies into a rotor system; conduct detailed design of reconfigurable rotors with integrated active rotor components; demonstrate improved state sensing subsystems (rotor states, weight on wheels, external loads), rotating to non-rotating data and power transfer, real time adaptive control laws, and software validation technologies; develop a fault tolerant architecture that combines flight safety critical,	0.000	9.590	7.296

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
mission critical and other non-safety critical subsystems into an integrated rotorcraft guidance and control system (Adaptive VMS); design and fabricate system hardware and software components in preparation for flight demonstration. ***FY 2014 Plans:*** Will demonstrate scalable and portable vehicle management system techniques to more efficiently use available data to improve performance and reduce pilot workload using advanced flight controls, across a wide range of Army rotorcraft sized vehicles and missions (cargo, assault, scout, attack and recon); will demonstrate an integrated reconfigurable rotor, at full scale in a wind tunnel, and its capability to adapt during operation to maximize performance, reduce vibrations, and reduce acoustic signatures.			
Title: Platform Design & Structures Systems ***Description:*** Design, fabricate, evaluate and demonstrate advanced vertical lift aircraft system configurations that address Future Vertical Lift (FVL) medium class capability needs. Determine optimum vehicle attributes that meet future force capability needs for increased system speed, range, payload, and reduced operating costs. Conduct preliminary and detailed system design of multiple candidate systems. Flight demonstrate operational capability of FVL medium class technology demonstrators. Prior to FY13, this effort was exhibited under the Rotor Design and Capabilities effort. ***FY 2013 Plans:*** Complete initial Operations Analysis and use results to assign warfighter value to aircraft features and attributes; complete Configuration Trades & Analysis tasks, utilizing multiple contractors, that document design trades, cost/weight sensitivity studies, and vehicle configuration recommendations; investigate space, weight & power requirements and provisions for aircraft mission equipment (avionics, weapons, sensors); develop a demonstrator performance specification; and initiate preliminary design of multiple aircraft concepts. ***FY 2014 Plans:*** Will conduct preliminary design of multiple technology demonstrator aircraft, considering higher speed rotor/prop-rotor configurations, lightweight airframe structures, and low drag fuselages to support medium lift utility and attack/recon missions; design support testing will be conducted to establish performance expectations for vehicle subsystem concepts and enablers; will refine a model development specification; will initiate technology maturation plans for the selected vehicle concepts; and will conduct configuration and architecture concept evaluations with analyses and demonstrations performed to mature tools, processes and technologies required for mission systems development.	0.000	11.770	33.068
Title: Rotorcraft Drive Systems ***Description:*** This effort demonstrates advanced rotorcraft drive technologies with the potential to: increase the horsepower-to-weight ratio; reduce drive system noise; reduce production, operating and support costs; and provide automatic component impending failure detection.	3.877	5.000	6.204

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: Completed detailed design and began fabrication of drive system component test hardware to validate key materials for ultra-highly loaded gears and bearings as well as lightweight gearbox housings with improved corrosion resistance and reduced operational maintenance. ***FY 2013 Plans:*** Conduct testing of component hardware to validate gear and bearing designs; evaluate modeling and design tools for accuracy to predict component stresses and material properties; test advanced oils and additives for extending component durability; assess reliability of new technologies for improved aircraft affordability; and test advanced cooling technologies for reduced aircraft weight. ***FY 2014 Plans:*** Will complete designs of full-scale demonstrator transmissions and tail rotor drive shaft system; will fabricate full-scale demonstrator hardware for Kiowa and Blackhawk aircraft configurations; will assess and validate reliability and maintainability algorithms; and will assess progress towards meeting production and operational cost goals.			
Title: Maintainability & Sustainability Systems ***Description:*** Mature and demonstrate technologies that improve the operational availability of rotorcraft while reducing operating and support (maintenance) costs. Efforts include component sensing, diagnostics, prognostics, and control systems. ***FY 2012 Accomplishments:*** Demonstrated individual algorithms for prognostics of engine components, structural integrity, rotor components, and vehicle management systems for improved component time on wing and reduced maintenance; and developed data fusion techniques to improve sensor coverage and account for system-to-system influences. ***FY 2013 Plans:*** Perform an aircraft level demonstration of the integrated set of technologies developed in FY11 and project the operational benefits and support cost savings; demonstrate additional prognostic technologies for accessories and controls; validate prognostic algorithms for structural integrity, corrosion, electrical distribution system, and rotor components; flight test energy harvesting sensors used to monitor component health and extend component service times; and validate a sensor network system for reducing aircraft weight and improving health monitoring capabilities. ***FY 2014 Plans:*** Will develop advanced prognostic algorithms for more chaotic, non-linear dynamic failure modes for engines, flight controls, rotor systems and drives; will develop the interfaces for health monitoring systems to communicate with Joint Common Architecture	6.477	6.976	2.027

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
standards; and will evaluate the integration of system health monitoring with electronic controls to enable adaptive control systems.			
Title: Real-time Airspace Collision Avoidance and Teaming (REACT) and Joint Common Architecture (JCA) ***Description:*** This program evaluates, and integrates real-time airspace de-confliction and collision avoidance technologies. The JCA effort develops standards and requirements for an aviation open systems, mission processing architecture that is scalable across joint rotorcraft missions. This effort implements these standards into a prototype processing system and demonstrates them through Software Integration Lab (SIL) testing. ***FY 2012 Accomplishments:*** Increased complexity of airspace/battlespace scenario and demonstrated effectiveness of real-time displays and collision avoidance technologies; and began development of a software developer toolkit and integrator toolkit to verify software compliance with defined JCA standards and requirements. ***FY 2013 Plans:*** Publish version 3 of the JCA standard that defines an open avionics systems architecture for future vertical lift aircraft and validate performance of the supporting JCA Ecosystem components (Software Developer's Tool Kit, Integrator's Tool Kit, Conformance Test Tool, Repository, and Simulation/Stimulation tools).	3.759	2.300	0.000
Title: Crew Decision Aid System ***Description:*** Development of intelligent algorithms that aid decisions and actions in order to increase situation awareness, maximize use of on-board and off-board sensors, efficiently manage a team of manned and unmanned vehicles and their mission systems, and develop and execute effective and appropriate offensive and defensive responses. ***FY 2014 Plans:*** Will initiate development of intelligent search and screen functions to sort actionable priority data from onboard and offboard sources and will evaluate Joint Common Architecture-like protocols for algorithm integration.	0.000	0.000	3.500
Accomplishments/Planned Programs Subtotals	46.776	44.814	63.547

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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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.

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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
436: *Rotarywing MEP Integ*	-	5.408	9.492	9.257	-	9.257	6.867	7.841	9.623	8.979	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project matures and validates man-machine integration and mission equipment software and hardware technologies for unmanned and optionally manned aircraft systems. Efforts focus on artificial intelligence, intelligent agents, cognitive decision aiding (CDA), sensors, avionics, communications, and pilot vehicle interfaces. This project improves the overall mission execution by demonstrating manned and unmanned system teaming, enhanced aircraft pilotage capability, improved crew workload distribution, and new capabilities for both manned and unmanned aircraft. This project supports Army transformation by providing mature technology to greatly expand the capabilities of unmanned aircraft, in current operating roles and future unmanned wingman roles. This project also develops, 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 Assistant Secretary of Defense, Research and Engineering S&T focus areas and the Army Modernization Strategy.

Work in this project is performed by the Aviation Development Directorate of the Aviation and Missile Research, Development and Engineering Center (AMRDEC), Joint Base Langley-Eustis, VA.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Unmanned and Optionally Manned Systems	2.648	4.992	7.257
Description: Mature and apply tactical behavior algorithms and safe-flight technologies to enable unmanned and optionally manned aircraft to maintain safe, responsive, flexible and tactical formation flight with manned helicopters for unmanned wingman applications in re-supply, reconnaissance, surveillance and attack missions. Develop, mature, apply, and integrate advanced decision aiding, autonomy, and human-machine interface technologies to enable the helicopter flight crew to make full use of the capabilities of an unmanned aerial system (UAS) without requiring continuous attention.			
FY 2012 Accomplishments: Migrated autonomy functions from ground control station to the unmanned aircraft to enable precise adjustment of delivery location in re-supply mission and autonomous onboard real time mission re-planning.			
FY 2013 Plans:			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Complete fabrication of unattended delivery and landing system through incorporation of 3-D terrain analysis and mapping; mature and integrate multi-vehicle control technologies for cargo/resupply Unmanned Aerial System (UAS) operations; and prepare for flight demonstration. ***FY 2014 Plans:*** Will mature and integrate autonomous retrograde capability on rotary-wing cargo UAS; will conduct flight testing and system-level demonstration of all technologies integrated on the cargo unmanned aerial demonstrator system; will determine highest-value unmanned wingman functions for decision aiding and autonomy; and will select and begin algorithm implementation and integration approach.			
Title: Aircraft Weapon & Sensor Systems ***Description:*** Mature and integrate sensors, weapons, and networked technologies into manned and unmanned air systems for enhanced reconnaissance, attack, utility, and cargo missions. ***FY 2012 Accomplishments:*** Developed a lightweight, integrated weapon system for manned and unmanned engagements of ground and airborne targets, to include advanced munitions for platform self-defense from threat unmanned aircraft. ***FY 2013 Plans:*** Perform detailed design of the lightweight, integrated weapon system concept developed in FY12 to defeat threat aircraft systems (manned and unmanned) and soft ground targets; design target tracking algorithms to enable airborne engagement of maneuvering targets; evaluate performance of airburst munition fuzing concepts. ***FY 2014 Plans:*** Will fabricate advanced fire control systems and demonstrate an integrated weapon system through flight test, including: sensors, proximity/point detonation airburst ammunition and sensor targeting algorithms, for use against ground and air targets.	2.760	4.500	2.000
Accomplishments/Planned Programs Subtotals	5.408	9.492	9.257

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

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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.

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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
447: *ACFT Demo Engines*	-	8.149	9.909	8.276	-	8.276	10.251	9.772	8.478	8.631	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

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

The cited work is consistent with the Assistant Secretary of Defense, Research and Engineering S&T focus areas and the Army Modernization Strategy.

Work in this project is performed by the Aviation Development Directorate of the Aviation and Missile Research, Development, and Engineering Center (AMRDEC), at Joint Base Langley-Eustis, VA.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Future Affordable Turbine Engine (FATE)	8.149	9.909	8.276

Description: Demonstrate an advanced, innovative 7000 horsepower class gas turbine engine that provides significant improvement in operational capability for current and future rotorcraft. FATE uses sequential design and fabrication iterations to mature a design to demonstrate significant reduction in specific fuel consumption (SFC), significant improvement in horsepower-to-weight ratio, and significant reduction in production and maintenance cost compared to year 2000 state-of-the-art engine technology. The sequential design and fabrication process will begin with the compressor subsystem, then the combustor subsystem, then the turbine subsystem, and finally the mechanical systems. Work in this project is coordinated with efforts in PE 0602211A, project 47A.

FY 2012 Accomplishments:

Completed preliminary design, and initiated detailed design and component fabrication efforts for initial build of advanced engine system demonstrator, building on knowledge gained under other DoD Versatile Affordable Advanced Turbine Engine (VAATE) efforts; and design activities that included 2-D and 3-D mechanical and aero-thermal efforts to evaluate the merits of individual components.

FY 2013 Plans:

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Complete detailed system design activities and initiate tests for multiple engine subsystems and components (e.g. compressor, turbine, combustor, and mechanical systems), with an emphasis on the compressor and turbine subsystems of the advanced FATE design; validate the design's aerodynamic performance and mechanical integrity, prior to the first integrated, full-engine test; and analyze completed component test results to support redesign efforts as required for future engine builds. ***FY 2014 Plans:*** Will complete all remaining component tests in support of first engine build; will use results from these initial component level tests to complete/refine hardware fabrication efforts as appropriate for the first engine build and redesigned component tests; will complete FATE engine hardware fabrication and initiate assembly/instrumentation for first engine test; and will identify design improvements for goal demonstration testing.			
Accomplishments/Planned Programs Subtotals	8.149	9.909	8.276

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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.