

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development			R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01				
COST (In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Program Element (PE) Cost	58.414	71.925	107.857	324.607	230.740	219.032	224.128
Advanced Aerospace Systems AIR-01	58.414	71.925	107.857	324.607	230.740	219.032	224.128

(U) Mission Description:

(U) The Advanced Aerospace Systems program element is budgeted in the Advanced Technology Budget Activity because it addresses high pay-off opportunities to dramatically reduce costs associated with advanced aeronautical systems and provide revolutionary new system capabilities for satisfying current and projected military mission requirements. Research and development of integrated system concepts, as well as enabling vehicle subsystems will be conducted. Studies conducted under this project include examination and evaluation of emerging aerospace threats, technologies, concepts, and applications for missiles, munitions, and vehicle systems.

(U) Program Accomplishments/Planned Programs:

	FY 2007	FY 2008	FY 2009
Heliplane	14.800	15.400	16.000

(U) The Heliplane program will design, develop and flight test an air vehicle that combines the vertical take-off and landing (VTOL) and low disk loading characteristics of a helicopter with the speed and efficiency characteristics of a fixed wing aircraft. The Heliplane demonstrator aircraft will be tailored to a Combat Search and Rescue (CSAR) mission with a 400 mph cruise speed, a 1,000 lb payload, and an unrefueled range of 1,000 miles. The Heliplane program will conduct a combination of analysis and experiments to develop and demonstrate key enabling technologies. Once key enabling technologies have been demonstrated, a preliminary design of the Heliplane system will be completed, a test of the rotor system will be conducted to demonstrate that the rotor is stable in high-speed flight, detailed design will be completed, and a Heliplane demonstrator will be fabricated and flight tested. Potential customers include the Special Operations Command (SOCOM), Air Force, Marines, Army and Navy.

UNCLASSIFIED

R-1 Line Item No 31

Page 1 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

- (U) Program Plans:
- FY 2007 Accomplishments:
- Performed Heliplane system trade studies and developed conceptual design.
 - Developed and conducted risk-reduction demonstrations of key Heliplane technologies and components.
 - Completed the preliminary design of the rotor.
- FY 2008 Plans:
- Complete the preliminary design of an alternate rotor configuration with a > 10 dB reduction in noise from the tip-jet.
 - Design and fabricate a scale model to demonstrate capability for stable operation of the Heliplane at high speed in a wind tunnel.
- FY 2009 Plans:
- Complete preliminary design of Heliplane demonstrator.
 - Complete detailed design of the Heliplane rotor.
 - Demonstrate capability for stable operation of the Heliplane at high speed in a wind tunnel.
 - Demonstrate tip-jet performance on a whirl stand.

	FY 2007	FY 2008	FY 2009
Oblique Flying Wing (OFW)	16.500	20.150	29.525

(U) An Oblique Flying Wing (OFW) aircraft is an asymmetric flying wing that can vary its wing sweep in flight with increasing speed to optimize aerodynamic performance. The variable sweep is achieved asymmetrically on the oblique wing, with one end of the wing swept forward and the other swept aft. An operational supersonic, variable sweep oblique flying wing holds the promise of being very efficient in both high speed cruise and long endurance low speed loiter. Possible applications that would take advantage of the unprecedented combination of high and low speed performance include: penetrating intelligence, surveillance, and reconnaissance; long range strike; hunter/killer; and multi-mission aircraft. A supersonic aircraft capable of long loiter times would have a revolutionary impact on the battlefield, necessitating fewer combat aircraft and fewer tankers to accomplish mission objectives. The goal of the OFW program is to expand the design space for future aircraft concepts, particularly for those missions that demand both supersonic speed and long endurance. The potential for a unique combination of excellent high speed and low speed performance would enable rapid deployment and long loiter time, for example, in surveillance or combat air patrol (CAP) roles. The OFW program will integrate technologies such as advanced controls to develop and fly a small-scale supersonic

UNCLASSIFIED

R-1 Line Item No 31

Page 2 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

technology demonstrator X-Plane. The program will also identify key design requirements for the objective system, allowing the Services to evaluate the technology for implementation in future operational systems. The anticipated transition partner is the Air Force.

(U) Program Plans:

FY 2007 Accomplishments:

- Developed Oblique Flying Wing (OFW) X-Plane system design.
- Conducted initial subsonic and supersonic wind tunnel tests.
- Completed system requirements review.
- Conducted conceptual design studies of potential operational OFW aircraft.

FY 2008 Plans:

- Conduct stability and control analysis to evaluate predicted trim and handling characteristics of OFW design.
- Complete development of a dynamic flight simulation, which will couple modeling of rigid aerodynamics and aeroelasticity effects for control system development.
- Complete preliminary design review.

FY 2009 Plans:

- Perform additional wind tunnel testing for subsonic and supersonic aerodynamic data, dynamic derivative data and aeroelastic evaluations.
- Initiate procurement of long lead items for X-Plane demonstrator.
- Begin flight test software development and test.
- Continue conceptual design studies of potential operational OFW aircraft.

	FY 2007	FY 2008	FY 2009
Heavy Fuel Engine/Low Friction Engine	5.669	4.935	4.932

(U) The Heavy Fuel Engine/Low Friction Engine program will develop and demonstrate a heavy-fuel, lightweight, and efficient engine for air vehicles. In the future, heavy fuel (diesel or JP-8) may be the only logistic fuel for the battlefield. Conventional heavy fuel engines are too heavy for air vehicles and, at the desired size, not efficient enough. Innovative and advanced diesel engine designs are being developed to achieve both

UNCLASSIFIED

R-1 Line Item No 31

Page 3 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

efficiency and a significant reduction in weight. Such engines will enable air vehicles increased maximum range and endurance while operating on diesel fuel. Novel approaches to achieving challenging performance goals include an opposed piston, opposed cylinder (OPOC) concept and a low friction in-line opposed piston configuration. The OPOC engine is designed to achieve sustained high power at high altitude and to minimize the impact of lapse rate. The Low Friction Engine (LFE) is designed to operate without conventional piston rings which are a principal cause of internal combustion engine friction and diminish the amount of useful work that is available from an engine. Detailed design, fabrication, and testing is being conducted to assess engine performance and reliability. Initial engine technology transition planning identified the A160 air vehicle as a promising platform for a heavy fuel engine. Integration of a lightweight heavy fuel engine could double flight endurance for a given weight of fuel. Potential customers include the Army, Special Operations Command (SOCOM), and Marines.

(U) Program Plans:

FY 2007 Accomplishments:

- Successfully completed performance demonstrations of the dual module OPOC prototype engine achieving >36.7% efficiency, a power to weight ratio of >0.92 hp/lb, and producing sea level power of 468 hp (rated at 450 hp at 15,000 ft).

FY 2008 Plans:

- Conduct risk reduction demonstrations of enabling technologies in a single cylinder LFE test engine module to show low friction and viable performance.
- Complete LFE performance, structural and thermodynamic analysis, assessment, and conceptual design.

FY 2009 Plans:

- Demonstrate a four-cylinder LFE for full performance.
- Demonstrate compatibility of prototype engine with the A160 air vehicle.

	FY 2007	FY 2008	FY 2009
Advanced Aerospace System Concepts	3.445	2.440	3.000

(U) Studies conducted under this program examine and evaluate emerging aerospace technologies and system concepts for applicability to military use. This includes the degree and scope of potential impact/improvements to military operations, mission utility, and warfighter capability. Studies are also conducted to analyze emerging aerospace threats along with possible methods and technologies to counter them. The

UNCLASSIFIED

R-1 Line Item No 31

Page 4 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

feasibility of achieving potential improvements, in terms of resources, schedule, and technological risk, is also evaluated. The results from these studies are used, in part, to formulate future programs or refocus ongoing work. Topics of consideration include: methods of defeating enemy anti-aircraft attacks; methods to intercept and defeat enemy unmanned air vehicles (UAVs); autonomous refueling for air vehicles; munition technologies to increase precision, range, endurance, and lethality of weapons for a variety of mission sets; novel launch systems; air vehicle control, power, propulsion, materials, and architectures; payload and cargo handling systems; and the ability of fixed wing UAVs to perform perch-and-stare missions.

(U) Program Plans:

FY 2007 Accomplishments:

- Performed studies on precision airdrop systems; high altitude, long endurance aircraft; autonomous air refueling; critical strike munitions; and novel propulsion systems.

FY 2008 Plans:

- Investigate the use of novel propulsion systems allowing small fixed wing UAVs to perform perch-and-stare missions.
- Evaluate advanced high-performance rotor system concepts for tiltrotor aircraft
- Perform studies of candidate technologies and develop system concepts.
- Conduct modeling and simulation of system architectures and scenarios.

FY 2009 Plans:

- Analyze materials, designs and techniques for air systems weight reduction and structural efficiency, including complex fittings associated with propulsion and drive system housings and gearbox cases.
- Conduct enabling technology and sub-system feasibility experiments.

	FY 2007	FY 2008	FY 2009
A160	7.000	6.000	4.000

(U) The A160 program will exploit a hingeless, rigid rotor concept operating at the optimum rotational speed to produce a vertical take-off and landing (VTOL) unmanned air vehicle (UAV) with low disk loading and rotor tip speeds resulting in an efficient low power loiter and high endurance system. This unique concept offers the potential for significant increases in VTOL UAV range (>2,000 nm) and/or endurance (>20

UNCLASSIFIED

R-1 Line Item No 31

Page 5 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

hours). The focus of the remaining program is on the final development and demonstration of the A160 turboshaft variant. Proof of concept flight test will demonstrate platform performance goals, most notably, endurance, a 15,000 feet high altitude hover-out-of-ground effect capability, payload carrying and speed. This program will also demonstrate airworthiness, reliability, and autonomous capabilities of the vehicle. The A160 concept has the potential to meet a range of surveillance and targeting, communications and data relay, crew recovery, resupply of forces in the field, and special operations missions in support of Army, Navy, Marine Corps, and other agency needs. The program also provides a platform for integration and testing of highly efficient heavy fuel engine technologies. These technologies can further advance current range and endurance. The A160 program will transition to the Army and SOCOM after completion of this Phase.

(U) Program Plans:

FY 2007 Accomplishments:

- Achieved performance payload and high speed goals.

FY 2008 Plans:

- Complete expansion of flight envelope and demonstration of flight performance goals to include hover-out-of-ground effect and long endurance flight.

– FY 2009 Plans:

- Transition program to the Army and SOCOM.

	FY 2007	FY 2008	FY 2009
Dual Mode Small Gunship	3.000	0.000	0.000

(U) The Dual Mode Small Gunship program investigated the utility of a low-cost small aircraft, configured with sensors, weapons and special equipment controlled either remotely or by a crew on-board. The ability to have a pilot on-board would allow for easy deployment to theater and safe operation over populated areas by allowing the pilot to interface with the air traffic control infrastructure rather than the current, cumbersome method of deploying large UAVs. The plan to “unman” an existing aircraft would also minimize development costs.

(U) Program Plans:

FY 2007 Accomplishments:

- Completed a preliminary feasibility study for modification of an existing low-cost aircraft.

UNCLASSIFIED

R-1 Line Item No 31

Page 6 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development		R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	
		FY 2007	FY 2008
Close Air Support Technology for Loitering Engagement (CASTLE)		1.500	4.000
		7.500	

(U) The Close Air Support Technology for Loitering Engagement (CASTLE) program will develop alternatives to current, manned systems and explore approaches to provide persistent on-demand overhead fire support with gun-ship like precision, tailored lethal effectiveness and unit directed responsive command and control. The vehicle will demonstrate persistent, sustained mission capabilities with troops on the ground directly commanding the aircraft's weapons and sensors. It will give the ground warfighter particular advantage in urban environments where it will operate with high availability, fast response, precision strike and low collateral damage. Key technologies to be analyzed, developed and integrated under CASTLE include 1) affordable, survivable, and persistent unmanned aircraft, 2) weapons consistent with man-in-the loop close air support application, such as auto-loading Electro Magnetic (EM) guns, directed energy weapons, vertical launch missiles, or deep magazine traditional guns and precision bombs, 3) sensors for targeting and designation, and 4) an adaptive command and control system to permit small unit request, coordination, and direction of supporting fires. Potential customers include the Army, SOCOM, Marines, and AFSOC.

(U) Program Plans:

FY 2007 Accomplishments:

- Evaluated candidate technologies for CASTLE.

FY 2008 Plans:

- Conduct initial concept trade-off for preliminary CASTLE system designs.
- Perform modeling and simulation of alternative candidate air system architectures to assess effectiveness of alternative CASTLE approaches.

FY 2009 Plans:

- Complete preliminary design of air vehicle design concept and development.
- Perform CASTLE technology risk reduction experiments and demonstrations.

UNCLASSIFIED

R-1 Line Item No 31

Page 7 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

	FY 2007	FY 2008	FY 2009
Aircraft Self Protection (ASP)	3.000	0.000	0.000

(U) The Aircraft Self Protection (ASP) program explored the active protection of slow moving, high altitude aircraft systems with guided missiles or high energy laser weapons as an alternative/complement to passive defense by signature control. An active aircraft self-defense system could relax the design constraints imposed by signature control, allowing a greater range of platform capabilities. Because lasers provide “speed-of-light” response and a deep magazine, their suitability relative to the more conventional missile based solutions was considered. The ASP program evaluated both pod-mounted and fully integrated system concepts for missile detection, threat tracking, engagement, and defeat at a safe range.

(U) Program Plans:

FY 2007 Accomplishments:

- Performed ASP system trade-off analysis, resulting in system size, weight, power and effectiveness criteria.

	FY 2007	FY 2008	FY 2009
Rapid Eye	0.000	10.500	15.900

(U) The goal of the Rapid Eye program is to develop a high altitude, long endurance unmanned aircraft that can be rocket-deployed from the continental United States world-wide within 1-2 hours to perform intelligence, surveillance, reconnaissance (ISR), and communication missions. The enabling technologies are inflatable/folding structures, stable and dense energy storage, and low-oxygen propulsion. Rapid Eye will provide decision makers rapid-reaction ISR and persistent communication capability for emerging situations. The anticipated transition partner is the Air Force.

UNCLASSIFIED

R-1 Line Item No 31

Page 8 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

- (U) Program Plans:
FY 2008 Plans:
- Perform multi-team conceptual design study of system trades to include launch locations and systems, and aircraft altitude, survivability and endurance; effectiveness; and affordability through modeling and simulation.
 - Develop Rapid Eye, risk management plan, and technology and system maturation plan.
- FY 2009 Plans:
- Perform subsystem technology development and subscale tests, including sounding rocket, drop, wind tunnel, and high-altitude chamber testing.
 - Develop Rapid Eye preliminary design.

	FY 2007	FY 2008	FY 2009
Vulture	0.000	6.500	11.000

(U) The objective of the Vulture program is to develop an aircraft capable of remaining on-station uninterrupted for over five years to perform intelligence, surveillance, reconnaissance (ISR), and communication missions over an area of interest. The technology challenges include development of energy management and reliability technologies capable of allowing the aircraft to operate continuously for five years. Vulture, in effect, will be a retaskable, persistent pseudo-satellite capability, in an aircraft package. The Vulture program will conclude with a year-long flight demonstration with a fully functional payload. The anticipated transition partner is the Air Force.

- (U) Program Plans:
FY 2008 Plans:
- Perform multi-team conceptual design study of system trades to include aircraft altitude, survivability, payloads, and missions; effectiveness; and affordability through modeling and simulation.
 - Develop risk mitigation and technology maturation plan.
 - Begin technology development in the area of energy management.
- FY 2009 Plans:
- Maturation of energy management and reliability technologies.

UNCLASSIFIED

R-1 Line Item No 31

Page 9 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

- Demonstration of component performance and reliability including energy storage, propulsion, and flight management/control systems.
- Initiate construction of a sub-scale demonstrator aircraft.

	FY 2007	FY 2008	FY 2009
Heavy Lift	2.500	0.000	0.000

(U) The Heavy Lift program explored technologies that would lead to novel STOL/VTOL air vehicle concepts and designs. The objective VTOL aircraft would have been optionally-manned and able to lift a 20-ton payload and carry it forward at speeds of 200+ knots with a tactical radius of 400 miles. The program examined technology advances in advanced rotors, propellers, hybrid-mode engines, controls, and advanced composite airframes.

- (U) Program Plans:
FY 2007 Accomplishments:
- Performed trade studies.

	FY 2007	FY 2008	FY 2009
Heavy Fuel Engine Development	1.000	0.000	0.000

(U) The Heavy Fuel Engine Development program developed and demonstrated a heavy-fuel (e.g. diesel), lightweight, and efficient engine for air vehicles. Innovative and advanced diesel engine designs are being developed to achieve both efficiency and a significant reduction in overall weight. Such engines provide air vehicles increased maximum range and endurance while operating on a logistic fuel.

- (U) Program Plans:
FY 2007 Accomplishments:
- Assessed initial concepts.

UNCLASSIFIED

R-1 Line Item No 31

Page 10 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

- Completed preliminary design.

	FY 2007	FY 2008	FY 2009
Multi-Modal Missile	0.000	0.000	7.500

(U) The Multi-Modal Missile program will explore the development of an integrated, networked man-portable weapon system capable of performing surface-to-surface, and surface-to-air missions with an emphasis on extreme precision. The program will focus on delivering precision targeting accuracy in both direct and indirect fire modes against multiple targets, and beyond line-of-sight functionality including; armored and soft ground vehicles, bunkers, personnel, helicopters and UAVs. The Multi-Modal Missile will be compatible with existing Javelin and TOW launch infrastructures. The objective Multi-Modal Missile capability will integrate a variety of existing weapons-systems functions and provide both mounted and dismounted soldiers with an affordable compact system. Critical characteristics of this weapon system concept include light weight, simple operation, and affordability. Technologies under consideration will include advanced imaging seekers, precision terminal guidance, propulsion, power storage, vertical launch with lock-on-after-launch capability, and novel warhead concepts to support a wide range of engagement geometries with desired lethality effects against a range of targets. This program was previously funded in PE 0603764E, Project LNW-01. Anticipated service users include the Army, Marines and Special Forces.

(U) Program Plans:

FY 2009 Plans:

- Develop, analyze and assess initial Multi-Modal Missile system preliminary designs and carry out key subsystem technology demonstrations.

	FY 2007	FY 2008	FY 2009
Small UAV Strike Munition	0.000	0.000	4.000

(U) The Small UAV Strike Munition program will develop the technologies to enable a precision guided munition, dramatically reduced in size and cost, for application to airborne unmanned systems and for use by dismounted soldiers/Marines. An inexpensive, low-weight precision

UNCLASSIFIED

R-1 Line Item No 31

Page 11 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

guided munition that is effective against soft targets (vehicles, dismounts, conventional structures) can be utilized where expensive precision guided weapons (e.g. Hellfire, intended for armored vehicles) are used today. Employed in an airborne weapon that delivers multiple precision guided sub-munitions, this technology will allow the force to engage an increased number of soft targets at a lower cost, with reduced response time and logistic footprint. A loitering munition with multiple stowed kills can allow successful engagement of high-value, fleeing targets otherwise not possible to detect and engage today. Use of this small munition by dismounts can enable precision fires with a compact warhead size to effectively engage high value targets in complex terrain with minimal collateral damage.

(U) Technical challenges include: a capable precision guidance system and a control system in a package approximately half the size of the most advanced systems currently in development; a low-cost, strap-down sensor capable of autonomously detecting targets with high probability of detection and low false alarm rate, designation by and in close proximity to dismounted soldiers and marines; precision enabling effective target prosecution with dramatically reduced collateral damage; and safe and effective launch from fielded unmanned aircraft and dismounts. Anticipated service users include the Army, Marines and Special Forces.

(U) Program Plans:

FY 2009 Plans:

- Conduct system trades, effectiveness, and affordability studies through modeling and simulation.
- Develop preliminary design, risk management plan, and technology and system maturation plan.

	FY 2007	FY 2008	FY 2009
Stealthy, Persistent, Perch and Stare (SP2S)	0.000	0.000	4.500

(U) The goal of the Stealthy, Persistent, Perch and Stare (SP2S) program is to develop the technology to enable an entirely new generation of perch-and-stare micro air vehicles, based on the Wasp platform, capable of: 1) vertical launch, 2) forward flight to a target, 3) transition from forward flight to hover, 4) vertical landing at the target site, 5) secure, stable attachment to its “perch,” 6) sustained perch-and-stare missions, to include data collection, and 7) at mission end SP2S would re-launch from the perch and fly home. During perch-and-stare, SP2S would perform surveillance and transmit live video/still images beyond line-of-sight back to the home base, utilizing other low altitude UAVs as relay links, as required. Anticipated service users include the Army, Marines and Special Forces.

UNCLASSIFIED

R-1 Line Item No 31

Page 12 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

- (U) Program Plans:
FY 2009 Plans:
- Demonstrate a perch-and-stare prototype.
 - Fabricate perch-and-stare field test systems.

	FY 2007	FY 2008	FY 2009
Buoyancy Assisted Lift Air Vehicle	0.000	2.000	0.000

- (U) Program Plans:
FY 2008 Plans:
- Investigate a buoyancy assisted lift air vehicle.

(U) **Program Change Summary:** *(In Millions)*

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Previous President's Budget	80.474	86.385	95.703
Current Budget	58.414	71.925	107.857
Total Adjustments	-22.060	-14.460	12.154
 Congressional program reductions	 -10.000	 -16.460	
Congressional increases	0.000	2.000	
Reprogrammings	-10.000	0.000	
SBIR/STTR transfer	-2.060	0.000	

UNCLASSIFIED

R-1 Line Item No 31

Page 13 of 14

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide BA3 Advanced Technology Development	R-1 ITEM NOMENCLATURE Advanced Aerospace Systems PE 0603286E, Project AIR-01	

(U) Change Summary Explanation:

FY 2007	Decrease reflects the reprogramming for DoDEA/DSS, the Section 8043 Recission, and the SBIR/STTR transfer.
FY 2008	Decrease reflects a PE execution adjustment and reductions for Section 8097 Contractor Efficiencies and Section 8104 Economic Assumptions; offset by a congressional add for Buoyancy Assisted Lift Air Vehicle.
FY 2009	Increase reflects funding of several programs such as SP2S, Multi-Modal Missile, and Small UAV Strike Munition.

(U) Other Program Funding Summary Cost:

A160	FY 2007	FY 2008	FY 2009
Army S&T, Phase I	14.407	0.000	0.000

UNCLASSIFIED

R-1 Line Item No 31

Page 14 of 14