PE NUMBER: 0605011F
PE TITLE: RDT&E For Aging Aircraft

Exhibit R-2, RDT&E Budget Item Justification

DATE: February 2007

BUDGET ACTIVITY: 05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE: 0605011F RDT&E For Aging Aircraft

Cost ($ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	37.404	26.490	17.021	26.691	27.240	27.556	28.092	28.667	Continuing	TBD
4685 Aging Aircraft	37.404	26.490	17.021	26.691	27.240	27.556	28.092	28.667	Continuing	TBD

(U) A. Mission Description and Budget Item Justification

This program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. The program identifies these cross-cutting technologies through detailed business case analyses that demonstrate a reduction in total ownership costs and improve reliability, availability, and maintainability. The program then develops and delivers solutions (to include prototype hardware and software) to address cross-cutting platform deficiencies. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Additionally, the program develops and delivers tools to facilitate system/subsystem management, including the sharing of aging aircraft information and knowledge among the Air Logistics Centers, Product Centers, acquisition organizations, other Services and government agencies, and industry, as well as providing senior decision makers with a common, comprehensive understanding of program areas such as corrosion, fatigue, wiring, subsystems, etc. Note: In FY 2007, Congress added $1.1 million for the Aging Landing Gear Life Extension (ALGLE) Program. The RDT&E for Aging Aircraft program is in Budget Activity 5, System Demonstration and Development, since projects/capabilities will be developed in this program and then made available for procurement by already operational systems.

(U) B. Program Change Summary ($ in Millions)

	FY 2006	FY 2007	FY 2008	FY 2009
(U) Previous President's Budget	41.090	25.490	26.039	26.335
(U) Current PBR/President's Budget	37.404	26.490	17.021	26.691
(U) Total Adjustments	-3.686			
(U) Congressional Program Reductions				
Congressional Rescissions	0.035	-0.100		
Congressional Increases		1.100		
Reprogrammings	-2.733			
SBIR/STTR Transfer	-0.988			
(U) Significant Program Changes:				

Exhibit R-2a, RDT&E Project Justification			DATE: February 2007
BUDGET ACTIVITY: 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE: 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE: 4685 Aging Aircraft	

Cost ($ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4685 Aging Aircraft	37.404	26.490	17.021	26.691	27.240	27.556	28.092	28.667	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

This program develops cross-cutting technologies to extend the service life, ensure flight safety, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet. The program identifies these cross-cutting technologies through detailed business case analyses that demonstrate a reduction in total ownership costs and improve reliability, availability, and maintainability. The program then develops and delivers solutions (to include prototype hardware and software) to address cross-cutting platform deficiencies. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes. Additionally, the program develops and delivers tools to facilitate system/subsystem management, including the sharing of aging aircraft information and knowledge among the Air Logistics Centers, Product Centers, acquisition organizations, other Services and government agencies, and industry, as well as providing senior decision makers with a common, comprehensive understanding of program areas such as corrosion, fatigue, wiring, subsystems, etc. Note: In FY 2007, Congress added $1.1 million for the Aging Landing Gear Life Extension (ALGLE) Program. The RDT&E for Aging Aircraft program is in Budget Activity 5, System Demonstration and Development, since projects/capabilities will be developed in this program and then made available for procurement by already operational systems.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
(U) MAJOR THRUST: Structures. Transitions cross-cutting technologies for aircraft structures to weapon systems, field and depot maintainers, and Air Logistics Center engineers and managers to ensure continued airworthiness, control sustainment cost growth, and improve aircraft availability.	5.490	2.451	1.000	1.000

(U) In FY 2006: Identified common requirements and developed implementation strategies for delivery of cross-cutting solutions for aircraft sustainment and depots. Focused on maintaining aircraft safety, increasing aircraft readiness, mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Improved fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Enhanced structural analysis and developed advanced software code for structural assessments, damage rate calculations, and predictions. Continued to transition advanced non-destructive inspection capabilities and provide hidden corrosion and sub-layer crack detection, damage quantification, structural degradation monitoring, and data management for predictive analyses. Developed enhanced capability to inspect for delaminations in metal and composite structures. Developed additional technologies to upgrade repair and replacement methodologies. Continued to provide new or improved repair methodologies, material processes, and design and repair selection software. Enhanced fatigue and corrosion prevention and control techniques.

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft

	B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
(U)	In FY 2007: Identify common requirements and develop implementation strategies for delivery of cross-cutting solutions for aircraft sustainment and depots. Focus on maintaining aircraft safety, increasing aircraft readiness, mission capability, and supporting the extension of aircraft service life with decreased operations and support cost. Further improve fleet management software tools for Air Logistics Center Aircraft Structural Integrity Program managers by integrating analyses for fatigue and corrosion detection, quantification, and repair analyses to determine effect of current and anticipated damage on structural integrity. Enhance structural analysis and develop advanced software code for structural assessments, damage rate calculations, and predictions. Develop non-destructive inspection capabilities, damage quantification, structural degradation, and data management for composites. Provide repair methodologies, material processes, and design and repair selection software. Enhance fatigue and corrosion prevention and control techniques.				
(U)	In FY 2008: Continue to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focus on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost.				
(U)	In FY 2009: Continue to identify common requirements, develop transition strategies, and assist with planning of implementation strategies for delivery of cross-cutting structural maintenance and fleet management solutions to weapon system managers and maintainers. Focus on ensuring aircraft safety, increasing aircraft readiness and mission capability, and supporting the extension of aircraft service life with decreased operations and support cost.				
(U)	MAJOR THRUST: Avionics. Establishes enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Institutionalize Viable Combat Avionics (VCA), the use of affordable tools and techniques, including change management roadmaps, to manage avionics upgrades while keeping pace with technology and prevailing threat conditions in a dynamic environment. Tools range from a Best Value Methodology for evaluation of competitive source selections to a web-based Integrated Change Roadmap process that enables the acquisition organizations to baseline the fielded platforms and merge the upgrades into the program's life cycle planning. Planned investments will establish enabling cross-cutting solutions that can facilitate the affordable insertion of mission enabling capabilities into fielded systems, extending their useful operational life and ensuring their combat superiority. Note: Increase in funding in FY 2009 is due to increased focus on Avionics-related efforts.	14.411	21.289	15.021	24.691

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
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(U) B. Accomplishments/Planned Program ($ in Millions)

	FY 2006	FY 2007	FY 2008	FY 2009

(U) In FY 2006: Established enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Worked to develop an affordable F-15 Heads Up Display (HUD) cathode ray tube (CRT) replacement item that can be transparently inserted into fielded assets as part of the normal repair cycle. Planned CRT advancements will eliminate an inherent F-15 failure mode, increasing the incurred CRT mean time between failure rate from under 400 hours to over 3,000 hours, and will be transferable to alternate platforms experiencing marginal HUD CRT reliability performance. Worked to establish an upgraded 1553 chipset, possessing 200 times increased bandwidth capabilities over current 1553 aircraft/munitions interface capabilities. Continued MIL-STD 1553B update activity to define capabilities of 1553 chipset, as well as how to validate and test those capabilities. Effort included release of MIL-STD 1553B Notice 5. Emphasis placed on identifying opportunities to accelerate capability deployment to the warfighter. Maintained the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Planned efforts linked functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure.

(U) In FY 2007: Establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Validate MIL-STD 1553B Notice 5. Provide additional 1553 data bus capabilities, functionality, and enhanced performance and incorporate them into updates/revisions of MIL-STD 1553. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure WEB site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further develop modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.

(U) In FY 2008: Continue to establish enabling avionics capabilities that can be affordably inserted into the

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
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(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Continue validation of MIL-STD 1553B Notice 5. Provide additional 1553 data bus capabilities, functionality, and enhanced performance and incorporate them into updates/revisions of MIL-STD 1553. Maintain the VCA toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure WEB site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further develop modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.				
(U) In FY 2009: Continue to establish enabling avionics capabilities that can be affordably inserted into the legacy force structure, facilitating a force multiplier combat capability across diverse platforms. Continue Validation of MIL-STD 1553B Notice 5. Provide additional 1553 data bus capabilities, functionality, and enhanced performance and incorporate them into updates/revisions of MIL-STD 1553. Maintain the Viable Combat Avionics toolsets, enabling the VCA program to continue to advance towards establishing a strategic capabilities investment process. Emphasis will be placed on identifying opportunities to accelerate capability deployment to the warfighter. Planned efforts will link functional technologies and common requirements, establishing integrated investment strategies focused on facilitating reduced cycle-time and expanded mission capability for the same total resources expenditure. Provide development upgrade functions for all Universal Armament Interface (UAI) products to include document revisions and distribution for configuration management using the secure WEB site application. Provide UAI support to 22 platform and stores program offices during implementation. Provide for the development of air-to-air weapons, training and targeting pods, and sensors to the UAI interface. Further develop modification of existing conventional Triple Ejection Rack (TER) to allow delivery of both conventional and smart weapons, and integrate the Smart TER onto fighter platforms.				
(U) MAJOR THRUST: Subsystems. Extends the service life, controls the rapidly rising sustainment costs, and retains the operational capability of the aging aircraft fleet through aircraft subsystems	3.286	1.654	1.000	1.000

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
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	B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
	improvement. Cross-cutting opportunities which will reduce total ownership costs are identified using business case analyses.				
(U)	In FY 2006: Extended the service life, controlled the rapidly rising sustainment costs, and retained the operational capability of the aging aircraft fleet through aircraft subsystems improvement. Continued demonstration and development of wiring diagnostic equipment and data collection effort. Performed initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.				
(U)	In FY 2007: Extend the service life, control the rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet through aircraft subsystems improvement. Develop and demonstrate wiring diagnostic equipment and data collection effort. Continue initial aircraft wire characterization evaluation of conductive path material, insulation, and arc fault protection systems.				
(U)	In FY 2008: Continue to extend service life, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet through aircraft subsystems improvement.				
(U)	In FY 2009: Continue to extend service life, control rapidly rising sustainment costs, and retain the operational capability of the aging aircraft fleet through aircraft subsystems improvement.				
(U)	CONGRESSIONAL ADD: Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC.	0.961	0.000	0.000	0.000
(U)	In FY 2006: Conducted Congressionally-directed effort for Skill Kitting Inventory Tracking and Technology for Oklahoma City ALC.				
(U)	In FY 2007: Not Applicable.				
(U)	In FY 2008: Not Applicable.				
(U)	In FY 2009: Not Applicable.				
(U)	CONGRESSIONAL ADD: Advanced Avionics Insertion for Legacy Aircraft.	0.480	0.000	0.000	0.000
(U)	In FY 2006: Conducted Congressionally-directed effort for Advanced Avionics Insertion for Legacy Aircraft.				
(U)	In FY 2007: Not Applicable.				
(U)	In FY 2008: Not Applicable.				
(U)	In FY 2009: Not Applicable.				
(U)	CONGRESSIONAL ADD: Aging Aircraft Structural Repair Facility Study.	0.961	0.000	0.000	0.000
(U)	In FY 2006: Conducted Congressionally-directed effort for Aging Aircraft Structural Repair Facility Study.				
(U)	In FY 2007: Not Applicable.				
(U)	In FY 2008: Not Applicable.				

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
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	B. Accomplishments/Planned Program ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
(U)	In FY 2009: Not Applicable.				
(U)	CONGRESSIONAL ADD: Improved Fleet Readiness and 3-D Modeling.	2.402	0.000	0.000	0.000
(U)	In FY 2006: Conducted Congressionally-directed effort for Improved Fleet Readiness and 3-D Modeling.				
(U)	In FY 2007: Not Applicable.				
(U)	In FY 2008: Not Applicable.				
(U)	In FY 2009: Not Applicable.				
(U)	CONGRESSIONAL ADD: Productivity Improvements for Landing Gear Overhaul Technologies.	4.034	0.000	0.000	0.000
(U)	In FY 2006: Conducted Congressionally -directed effort for Productivity Improvements for Landing Gear Overhaul Technologies.				
(U)	In FY 2007: Not Applicable.				
(U)	In FY 2008: Not Applicable.				
(U)	In FY 2009: Not Applicable.				
(U)	CONGRESSIONAL ADD: Smart Weapons Triple Ejection Rack Development.	1.345	0.000	0.000	0.000
(U)	In FY 2006: Conducted Congressionally-directed effort for Smart Weapons Triple Ejection Rack Development.				
(U)	In FY 2007: Not Applicable.				
(U)	In FY 2008: Not Applicable.				
(U)	In FY 2009: Not Applicable.				
(U)	CONGRESSIONAL ADD: Aging Landing Gear Life Extension.	4.034	1.096	0.000	0.000
(U)	In FY 2006: Conducted Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).				
(U)	In FY 2007: Conducted Congressionally-directed effort for Aging Landing Gear Life Extension (ALGLE).				
(U)	In FY 2008: Not Applicable.				
(U)	In FY 2009: Not Applicable.				
(U)	Total Cost	37.404	26.490	17.021	26.691

(U) C. Other Program Funding Summary ($ in Millions)

	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total Cost
(U) Related Activities:										

Exhibit R-2a, RDT&E Project Justification		DATE February 2007
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft

(U) D. Acquisition Strategy

Funding may be executed internally within the 77th Aeronautical Systems Wing via full and open competition or released to other organizations for projects for which they are the Office of Primary Responsibility (OPR). The OPRs will determine the most appropriate contract vehicle, Design and Engineering Support Program (DESP) contract or full and open competition, to accomplish the project.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: February 2007

BUDGET ACTIVITY: 05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE: 0605011F RDT&E For Aging Aircraft

PROJECT NUMBER AND TITLE: 4685 Aging Aircraft

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2006 Cost	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development														
S&K Technologies, Inc.	IDIQ			1.185									1.185	
Edgewater	IDIQ			7.660		7.000		10.000		15.000			39.660	
Anteon	Cost Plus			0.374									0.374	
Raytheon/Northrop	CPFF			4.939		8.000		5.021		9.691			27.651	
Grumman/Boeing/Lockheed													0.000	
Raytheon	CPFF					5.000							5.000	
United States Air Force Academy	N/A			2.500		1.300		1.000		1.000			5.800	
S&K Technologies, Inc. (here on down are Congressional Adds)	IDIQ			2.401									2.401	
General Atomics	T&M			3.746									3.746	
Dynamics Research Corporation	T&M			3.745									3.745	
Dynamics Research Corporation	CPFF			0.624									0.624	
Raytheon	CPFF			0.558									0.558	
Alion Science & Tech	FFP			0.670									0.670	
Numerous	Various			9.002		5.190		1.000		1.000			16.192	
Subtotal Product Development			0.000	37.404		26.490		17.021		26.691		0.000	107.606	0.000
Remarks:														
(U) Support														
None													0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Test & Evaluation														
None													0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Management														
													0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) Total Cost			0.000	37.404		26.490		17.021		26.691		0.000	107.606	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2007
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft	PROJECT NUMBER AND TITLE 4685 Aging Aircraft

Aging Aircraft Schedule Summary

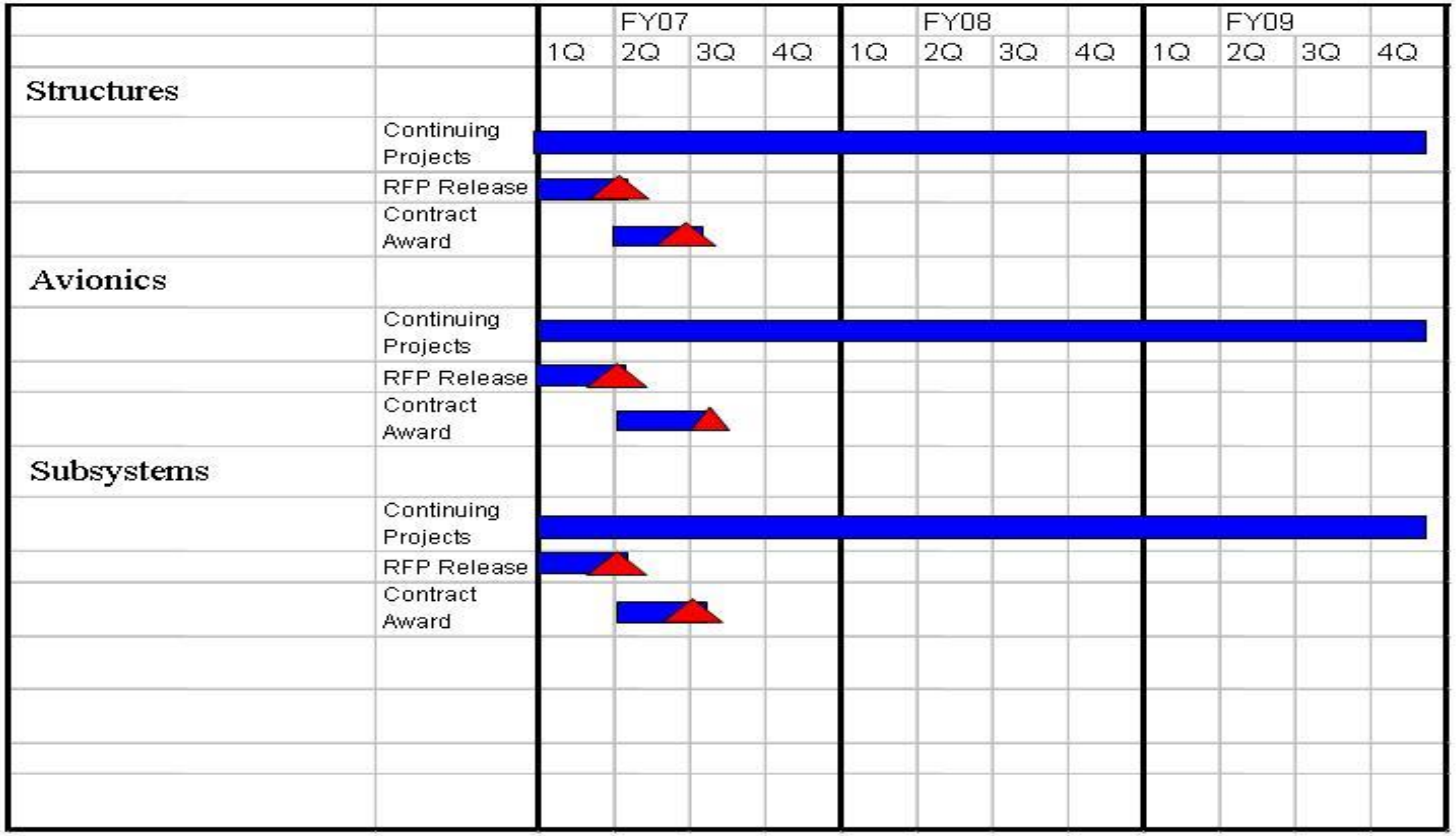

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2007
BUDGET ACTIVITY **05 System Development and Demonstration (SDD)**	PE NUMBER AND TITLE **0605011F RDT&E For Aging Aircraft**	PROJECT NUMBER AND TITLE **4685 Aging Aircraft**

(U) Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009
(U) Aging Aircraft Structures Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q	2Q
(U) Aging Aircraft Avionics Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q	2Q
(U) Aging Aircraft Subsystems Projects	1-4Q	1-4Q	1-4Q	1-4Q
(U) Request for Proposal Release	1Q	1Q	1Q	1Q
(U) Contract Award	2Q	2Q	2Q	2Q