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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604706F / <i>Life Support Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	14.697	8.187	7.520	0.000	7.520	9.034	8.983	8.685	8.839	Continuing	Continuing
65412A: <i>Life Support Systems</i>	-	14.697	8.187	7.520	0.000	7.520	9.034	8.983	8.685	8.839	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program is human-centered providing RDT&E recapitalization of aircrew flight equipment and airman combat systems. Air Force acquisition teams lead the upgrade and fielding of new equipment/systems by assessing deficiencies in existing equipment, conducting business case analyses, evaluating existing technologies or developing new technologies, assessing commercially available products for combat use, and conducting required Safe-to-Fly (STF) tests and certifications. Program efforts include, but are not limited to, the following projects: directed energy protective equipment; flight helmets and visors; oxygen breathing systems for aircrew; radios and locator beacons; support equipment; nuclear flash blindness protection; night vision devices; noise reduction devices; anti-gravity (anti-G) suits; flame resistant, retardant and blast protective gear; aircraft seating; impact protection equipment; flotation devices; parachutes; ejection seats; and other life support systems required by the warfighter.

The FY2017 funding request was reduced by \$1.152 million to account for the availability of prior year execution balances.

BA 5 - This program is in Budget Activity 5, System Development and Demonstration (SDD), because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	14.854	8.187	8.747	0.000	8.747
Current President's Budget	14.697	8.187	7.520	0.000	7.520
Total Adjustments	-0.157	0.000	-1.227	0.000	-1.227
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.157	0.000			
• Other Adjustments	0.000	0.000	-1.227	0.000	-1.227

Change Summary Explanation

No Significant Program Changes

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Title: Aircrew Flight Equipment (AFE)</p> <p>Description: Air Force Life Cycle Management Center's Aircrew Performance Branch is the single USAF focal point for Aircrew Flight Equipment (AFE) Safe-to-Fly (STF) testing certification, addressing Safety Investigation Board (SIB) recommendations, along with studies and analysis. STF projects are urgent responses to real-time capability gaps identified by the warfighter which may be satisfied quickly by procuring and qualifying commercial-off-the-shelf (COTS) products and/or performing minor development efforts. In addition, previous successful STF efforts may evolve into enduring capabilities as other users / MAJCOMs seek to incorporate these STF assets into their inventory. The Cold Weather Aviation System (CWAS), Aircrew Body Armor (ABA), BA-X Low Profile Parachute (LPP) and Nuclear Flash Blindness Goggles (NFBG) are currently the active STF programs within Life Support Systems (LSS).</p> <p>FY 2015 Accomplishments: Completed purchase of CWAS Air Force Elements test assets for integration testing. Finalized STF testing of ABA and CWAS gloves. Delivered the signed STF recommendation.</p> <p>FY 2016 Plans: Begin integration testing of CWAS AF Elements. Purchase LPP test assets and begin integration testing. Partner with AFRL to mature the current industry base of nuclear flash protection.</p> <p>FY 2017 Base Plans: Perform STF testing and certification of COTS products. Address SIB recommendations. Formulate an acquisition strategy for next generation aircrew laser eye protection technology to address new and evolving threats and next generation peacetime radio technology to replace Vietnam Era PRC-90 radios.</p> <p>FY 2017 OCO Plans: N/A</p>	1.897	2.025	0.847	0.000	0.847
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<p>Title: Integrated Aircrew Ensemble (IAE)</p> <p>Description: The Integrated Aircrew Ensemble (IAE) is a multi-layer battle ready system of protective clothing, survival equipment, and anti-G protection equipment worn by aircrew members. The ensemble can layer up to seven (7) components allowing for flexible combinations depending on aircraft type, mission, and threat. Each component design is unique but engineered as a single integrated ensemble to improve mobility by reducing bulk, reducing aircrew fatigue from thermal stress using new breathable materials, and increasing overall system performance. The ensemble components are: 1) outer flight layer, 2) Environmental Protection Layer (EPL) with</p>	6.800	6.162	2.373	0.000	2.373
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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
gloves, 3) Chemical Biological Radiological Layer (CBRL) with glove inserts, 4) Life Preserver Unit (LPU), 5) Counter Chest Pressure Bladder (CCPB), 6) survival vest, and 7) G-suit. FY 2015 Accomplishments: Finished Design Verification Testing of the IAE and conducted System Verification Review FY 2016 Plans: Begin First Article Testing of the finalized design of IAE and prove out the maturity of the production line. FY 2017 Base Plans: Start Low Rate Initial Production (LRIP) and begin Operational Testing FY 2017 OCO Plans: N/A					
Title: Ejection Seat Safety/Sustainability Improvement Program for Qualification of B-2 Seat Mod Description: Ejection Seat upgrade for B-2 FY 2015 Accomplishments: Conducted market research to inform appropriate acquisition strategy. FY 2016 Plans: Begin qualification testing of the ACES II SSIP. FY 2017 Base Plans: Complete Qualification testing of the ACES II SSIP for B-2. FY 2017 OCO Plans: N/A	6.000	0.000	4.300	0.000	4.300
Accomplishments/Planned Programs Subtotals	14.697	8.187	7.520	0.000	7.520

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF:BA04: Line Item # 842990: <i>Items Less Than \$5 Million</i> <i>(Safety and Rescue Equipment)</i>	7.035	67.699	20.603	0.000	20.603	21.268	20.343	20.704	21.077	Continuing	Continuing

Remarks

E. Acquisition Strategy

The majority of efforts funded in this project employ a streamlined acquisition approach. Whenever practical, Government-Off-The-Shelf/Commercial-Off-The-Shelf (GOTS/COTS) items are tested and evaluated as candidates for solutions to user needs. This normally involves characterization, verification, and qualification testing to ensure GOTS/COTS equipment is properly certified and adapted for military purposes. However, acquisition strategies may be carried out at the project level for traditional Engineering and Manufacturing Development (EMD), e.g., Integrated Aircrew Ensemble (IAE) and Aircrew Laser Eye Protection (ALEP) Block III.

F. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604706F / <i>Life Support Systems</i>	Project (Number/Name) 65412A / <i>Life Support Systems</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircrew Flight Equipment (AFE)	Various	Multiple Contractors : TBD	-	0.825		0.975		0.500		0.000		0.500	Continuing	Continuing	TBD
Integrated Aircrew Ensemble (IAE)	C/FPIF	Tiax : Lexington, MA	-	5.627	Jan 2016	4.299	Aug 2016	2.100	Oct 2016	0.000		2.100	Continuing	Continuing	TBD
Advanced Concept Ejection Seat (ACES)	SS/TBD	TBD : TBD	-	6.000	Nov 2015	0.000		0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	12.452		5.274		2.600		0.000		2.600	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Tests (IAE, ACES, CWAS, etc.)	Various	Various : Various	-	1.000	Jul 2015	1.045	Jul 2016	3.570	Jul 2017	0.000		3.570	Continuing	Continuing	-
Subtotal			-	1.000		1.045		3.570		0.000		3.570	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	TBD	AFLCMC : Wright-Patterson AFB, OH	-	1.000		1.613		1.100		0.000		1.100	Continuing	Continuing	-
Travel	Various	Various : Various	-	0.245		0.255		0.250		0.000		0.250	Continuing	Continuing	-
Subtotal			-	1.245		1.868		1.350		0.000		1.350	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force **Date:** February 2016

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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
IAE [Milestone C]	3	2017	3	2017
IAE [Low Rate Initial Production]	3	2017	2	2018
IAE [Engineering and Manufacturing Development]	1	2015	3	2017
IAE [Initial Operational Test & Evaluation]	2	2018	4	2018
Advanced Concept Ejection Seat (ACES) Qualification Testing	3	2016	4	2017
Continue projects in support of Aircrew Performance	2	2017	4	2021