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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2020 Air Force **Date:** February 2019

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604617F / <i>Agile Combat Support</i>
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	36.351	23.489	19.944	0.000	19.944	20.646	18.033	18.359	23.219	Continuing	Continuing
652895: <i>CE Readiness</i>	-	32.035	21.890	18.315	0.000	18.315	18.989	16.341	16.637	21.256	Continuing	Continuing
654910: <i>Aeromedical Readiness</i>	-	4.316	1.599	1.629	0.000	1.629	1.657	1.692	1.722	1.963	Continuing	Continuing

## A. Mission Description and Budget Item Justification

This program provides lighter, leaner, rapidly-deployable and technologically-advanced materiel, forces and capabilities to the warfighter. Current projects in this program include Civil Engineering Readiness (Project 652895) and Aeromedical Readiness (Project 654910). Civil Engineering Readiness projects enable airfield protection, and airfield damage recovery for sustainment, and increased resiliency of airfield operations anywhere in the world. Aeromedical Readiness projects provide aerospace medical systems and treatment equipment to improve casualty care and meet worldwide warfighter medical operational requirements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver the Civil Engineering and Aeromedical Readiness capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F and 0605833F.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

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.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Previous President's Budget	31.240	20.028	20.344	0.000	20.344
Current President's Budget	36.351	23.489	19.944	0.000	19.944
Total Adjustments	5.111	3.461	-0.400	0.000	-0.400
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	6.476	3.461			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-0.005	0.000			
• SBIR/STTR Transfer	-1.360	0.000			
• Other Adjustments	0.000	0.000	-0.400	0.000	-0.400

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019	
<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 5: System Development &amp; Demonstration (SDD)</i>		<b>R-1 Program Element (Number/Name)</b> PE 0604617F <i>I Agile Combat Support</i>	
<b><u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u></b>		<b>FY 2018</b>	<b>FY 2019</b>
<b>Project:</b> 652895: <i>CE Readiness</i>			
Congressional Add: <i>Expeditionary Airfield Damage Repair (EADR) JCTD Congressional Add</i>		2.890	0.000
Congressional Add: <i>Explosive Resistant Windows Technology</i>		3.370	3.374
Congressional Add Subtotals for Project: 652895		6.260	3.374
Congressional Add Totals for all Projects		6.260	3.374
<b><u>Change Summary Explanation</u></b> FY18 Congressional add for \$3.5M for Explosive Resistant Window and \$3.0M for PACOM Joint Expeditionary ADR Initiative.  FY19 Congressional Add for \$3.5M for Explosive Resistant Window			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support				Project (Number/Name) 652895 / CE Readiness			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
652895: CE Readiness	-	32.035	21.890	18.315	0.000	18.315	18.989	16.341	16.637	21.256	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This Civil Engineering (CE) Readiness project develops Airbase Technologies (ABT), Airfield Damage Repair (ADR), Airfield Protection (AP), Energy & Utilities (E&U), and CE Materials (CEM) solutions for in-garrison, expeditionary, and contingency installations and airbases. This includes: technologies for airfield assessment, pavement repair and unexploded ordnance identification and mitigation to enable rapid recovery and regeneration of airfield operations; infrastructure design criteria, construction methods, hardened shelters, evaluation tools, materials, aviation firefighting, force protection, expeditionary energy, waste water recycling/treatment, CE materials applications and systems for improved resiliency and rapid recovery of airbase and airfield operations following an attack.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> Airbase Technologies	1.337	1.798	1.698
<p><b>Description:</b> Technical support providing RDT&amp;E capabilities for cross-cutting CE applications and processes for all CE functional areas. Provides replacements and repair of critical RDT&amp;E lab equipment, test systems and instruments. Specialized RDT&amp;E systems and software required to conduct CE RDT&amp;E.</p> <p><b>FY 2019 Plans:</b> Develop and test material technologies for indigenous soil-based cements and bio-cementation for expeditionary ADR, investigate aviation asphalt aging mitigation technologies for reduced life cycle costs, develop and test additive manufacturing approaches for CE applications, develop functionalized materials for hardened infrastructure and force protection applications, investigate and evaluate disposal and mitigation technologies for AFFF, investigate and evaluate expeditionary energy storage systems for incorporation of renewable energy systems with USAF BEAR equipment. Replace/repair critical RDT&amp;E lab equipment. Fund program management support, RDT&amp;E IT systems and software required to conduct CE RDT&amp;E.</p> <p><b>FY 2020 Plans:</b> Continue development and testing material technologies for indigenous soil-based cements and bio-cementation for expeditionary ADR, test and evaluation of aviation asphalt aging mitigation technologies for reduced life cycle costs, development and testing of additive manufacturing approaches for CE applications, development of functionalized materials for hardened infrastructure and force protection applications, evaluation of disposal and mitigation technologies for AFFF and evaluation of expeditionary energy storage systems for incorporation of renewable energy systems with USAF BEAR equipment. Replace/repair critical RDT&amp;E lab equipment. Fund program management support, RDT&amp;E IT systems and software required to conduct CE RDT&amp;E.</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b></p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force			<b>Date:</b> February 2019		
<b>Appropriation/Budget Activity</b> 3600 / 5		<b>R-1 Program Element (Number/Name)</b> PE 0604617F / <i>Agile Combat Support</i>		<b>Project (Number/Name)</b> 652895 / <i>CE Readiness</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
FY20 decrease due to OCO realignment					
<b>Title:</b> Airfield Damage Repair  <b>Description:</b> This effort develops, tests, and certifies equipment, materials, and Tactics, Techniques, and Procedures (TTPs) for the rapid assessment and repair of airfield damage, which includes identification, mitigation or removal of unexploded ordnance and expedient repairs for fuel and utility systems. This effort will also accelerate the transition of proven technologies in expedient and sustained protection of critical infrastructure, including operating surfaces, shelters, fuel storage and distribution systems, and command and control (C2) systems. Further, this effort focuses on the resiliency of airbase infrastructure as well as the timely repair and regeneration of airfield operations within established time limits in order to gain and maintain air superiority.  <b>FY 2019 Plans:</b> Continue to mature and transition the rapid assessment, mitigation and repair tools and solutions for airfield damage repair through research, development, testing and evaluation. Rapid assessment includes the development of spiral 2 SUAS, sensors, and automated damaging detection solutions to significantly improve the ability to assess runway damage and conduct the MAOS selection. Mitigation includes the development of generation 2 systems to remotely neutralize and remove UXOs through a family of Rapid Explosive Hazard Mitigation (REHM) systems. Repair of airfield damage focuses on RDT&E of lighter/leaner systems and materials including maximum use of native in-situ materials for airfield recovery.  <b>FY 2020 Plans:</b> Mature and transition the rapid assessment, mitigation and repair tools and solutions for airfield damage repair through research, development, testing and evaluation. Rapid assessment includes the development of spiral 3 SUAS, sensors, and automated damaging detection solutions to significantly decrease the assessment time and improve automated detection of unexploded ordnance. Mitigation includes the testing and evaluation of generation 2 systems to remotely neutralize and remove UXOs through a family of Rapid Explosive Hazard Mitigation (REHM) systems. Repair of airfield damage focuses on development, testing and transition of lighter/leaner systems and materials including maximum use of native in-situ materials for airfield recovery.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Increase due to inflation.			19.774	10.564	11.066
<b>Title:</b> Expeditionary Airfield Damage Repair (EADR) JCTD  <b>Description:</b> The purpose of the EADR JCTD is to develop and transition the capability to rapidly and repeatedly repair damaged airfield surfaces operating under the dynamic basing concept of operations (CONOP). The goal is to develop and transition technologies that minimize airfield downtime and maximize combat sortie generation. The JCTD will execute a spiral development-oriented program that will transition mature technologies throughout the life of the program.  <b>FY 2019 Plans:</b>			0.000	3.374	2.751

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support		Project (Number/Name) 652895 / CE Readiness	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<p>Define dynamic basing boundary conditions and CONOP necessary to successfully execute a mission with respect to air combat sortie generation. Define, understand, and predict the specific threat environment to dynamic basing operations in terms of necessary rapid repair requirements. Identify necessary minimal aircraft operational requirements for aircraft surface/substrate conditions to support air combat sorties. Execute a series of structured analysis of alternatives (AoA) to identify and down-select capability solutions to meet operational requirements.</p> <p><b>FY 2020 Plans:</b> Continue to execute and revise a series of structured analysis of alternatives (AoA) to identify and down-select capability solutions to meet operational requirements. Execute a spiral development program to include modeling, JCTD-appropriate advanced technology development, test and evaluation and field-worthy assessment of prototype solutions. Develop and assess the component spiral products comprising the total capability; along with a predictive methodology to estimate site-specific repair requirements and the tactics, techniques and procedures (TTP) necessary for capability operation. Begin transitioning and acquisition of solutions to meet the requirements for expedient and expeditionary airfield damage repair (EADR).</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Program decrease due to a decrease in funding from PACOM in FY20</p>					
<p><b>Title:</b> Airfield Protection</p> <p><b>Description:</b> Research, develop and transition technologies for hardening and protecting airfield infrastructure from munitions attack, unexploded ordnance and aircraft, equipment and infrastructure fires. Included within this effort are structural solutions, expeditionary and expedient hardening and protection solutions, explosive ordnance disposal technologies and aviation firefighting technologies. The technologies developed from this effort provide improved resiliency and rapid restoration of airbase and airfield operations following an attack.</p> <p><b>FY 2019 Plans:</b> Continue RDT&amp;E of new concepts for protection materials for lighter, less expensive solutions for infrastructure hardening. Advance solution development for penetrating munitions including cruise missile hardening and improve expedient sheltering to address advanced threats. Continue development of selective hardening for infrastructure. Continue development, testing and evaluation of unconventional countermeasures technology. Research and develop aviation firefighting technologies for treatment and replacement of the perfluorinated aqueous film forming foams(AFFF), clean firefighting agents - Halon replacement and aviation firefighting equipment. Research, develop, test and evaluate EOD technologies for neutralization of sub-munition and UXO threats.</p> <p><b>FY 2020 Plans:</b> Continue RDT&amp;E of new concepts for protection materials for lighter, less expensive solutions for infrastructure hardening. Test and evaluate technologies against penetrating munitions including cruise missile hardening and improve expedient sheltering to address advanced threats. Continue development and begin testing of selective hardening systems for infrastructure. Continue</p>			4.664	2.780	2.800

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force								Date: February 2019					
Appropriation/Budget Activity 3600 / 5				R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support				Project (Number/Name) 652895 / CE Readiness					
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018		FY 2019		FY 2020	
testing and evaluation of unconventional countermeasures technology for transition. Continue research and development of aviation firefighting technologies for treatment and replacement of the perfluorinated aqueous film forming foams (AFFF), clean firefighting agents - Halon replacement and aviation firefighting equipment. Continue RDT&E of EOD technologies for neutralization of sub-munition and UXO threats.													
FY 2019 to FY 2020 Increase/Decrease Statement: Increase due to inflation.													
Accomplishments/Planned Programs Subtotals								25.775		18.516		18.315	
								FY 2018		FY 2019			
Congressional Add: Expeditionary Airfield Damage Repair (EADR) JCTD Congressional Add								2.890		0.000			
FY 2018 Accomplishments: Commenced Analysis of Alternatives for all spirals. Completed first level down select for technologies to be considered in spirals. Commenced design and construction of test pad for surrogate threat detonations to assess runway damage. Completed first level enhancement of models to predict runway damage in Pacific Area of Responsibility.													
FY 2019 Plans: N/A													
Congressional Add: Explosive Resistant Windows Technology								3.370		3.374			
FY 2018 Accomplishments: Awaiting contracting action to execute funds.													
FY 2019 Plans: Develop and assess blast and ballistic resistant window, entry and surrounding structure for improved performance against open blast and cased munitions													
Congressional Adds Subtotals								6.260		3.374			
C. Other Program Funding Summary (\$ in Millions)													
Line Item		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• OPAF 04 Line Item 845100A: Contingency Operations - Engineering and EOD Equipment		93.920	105.132	31.906	-	31.906	131.952	132.519	133.097	-	Continuing	Continuing	
Remarks													
FY18-23 Procurement funding for Expedient Small Asset Protection (ESAP) systems, Rapid Airfield Damage Assessment System (RADAS) and Recovery of Airbases Denied by Ordnance (RADBO)in PE 0208028F.													

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604617F / <i>Agile Combat Support</i>	<b>Project (Number/Name)</b> 652895 / <i>CE Readiness</i>
<p><b><u>D. Acquisition Strategy</u></b></p> <p>This Civil Engineering (CE) Readiness project develops and evaluates technologies for in-garrison, expeditionary, and contingency installations &amp; airbases. This encompasses a wide range of solutions and COTS equipment that are fielded to support the CE mission of the USAF. The acquisition strategy utilizes AFCEC RDT&amp;E contracts as well as other DoD and US Government laboratories/engineering centers and contracts whenever practical for the specific technology development effort.</p>		
<p><b><u>E. Performance Metrics</u></b></p> <p>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.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support				Project (Number/Name) 652895 / CE Readiness					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Airbase Technologies	Various	AFCEC : Tyndall AFB, FL	-	1.337	Nov 2017	1.798	Nov 2017	1.798	Nov 2017	-		1.798	Continuing	Continuing	-
Airfield Damage Repair (ADR)	Various	AFCEC : Tyndall AFB, FL	-	7.270	Dec 2017	2.400	Dec 2018	2.400	Dec 2019	-		2.400	Continuing	Continuing	-
Airfield Damage Repair (ADR) ERDC	MIPR	USERDC : Vicksburg, MS	-	3.300	Dec 2017	2.500	Jan 2019	2.400	Jan 2020	-		2.400	Continuing	Continuing	-
Airfield Damage Repair (ADR) Asphalt	C/CPFF	Applied Research Associates : Tyndall AFB, FL	-	2.750	Jan 2018	1.500	Apr 2019	1.700	Apr 2019	-		1.700	Continuing	Continuing	-
Expeditionary Airfield Damage Repair (EADR) JCTD	Various	Not specified. : TBD	-	2.890	Aug 2018	2.851	Apr 2019	2.751	Apr 2019	-		2.751	Continuing	Continuing	-
Rapid Explosive Hazard Mitigation (REHM) Robotics	C/CPFF	Applied Research Associates : Tyndall AFB, FL	-	2.762	Jan 2018	1.250	Dec 2018	1.127	Sep 2019	-		1.127	Continuing	Continuing	-
Rapid Airfield Damage Assessment System (RADAS) Integration	MIPR	TORC Robotics : Blacksburg, VA	-	2.100	Jan 2018	2.091	Dec 2018	2.100	Dec 2018	-		2.100	Continuing	Continuing	-
Airfield Protection	Various	AFCEC : Tyndal AFB, FL	-	4.967	Jan 2018	1.850	Sep 2018	1.850	Sep 2018	-		1.850	Continuing	Continuing	-
Airfield Protection (AP) Infrastructure Hardening	C/CPFF	TBD : TBD	-	3.370	Sep 2018	3.461	Sep 2018	0.000	Sep 2018	-		0.000	Continuing	Continuing	-
Airfield Protection (AP) Aviation Firefighting Technologies	C/CPFF	Battelle : Panama City, FL	-	-		0.900	Nov 2017	0.900	Nov 2017	-		0.900	Continuing	Continuing	-
BEAR BTEIL	Various	AFCEC : Tyndall AFB, FL	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	30.746		20.601		17.026		-		17.026	Continuing	Continuing	N/A
Remarks															
\$77K increase to FY18 ADR due to inflation adjustment															



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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support				Project (Number/Name) 652895 / CE Readiness					
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration (PMA)	Various	AFCEC : Tyndall AFB, FL	-	0.325	Nov 2017	0.325	Nov 2018	0.325	Apr 2019	-		0.325	Continuing	Continuing	-
Subtotal			-	0.325		0.325		0.325		-		0.325	Continuing	Continuing	N/A
Remarks															
PMA includes travel and supplies to support CE Readiness RDT&E activities.															
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS Program Support RDT&E	C/FFP	Multiple : FL	-	0.964	Jan 2018	0.964	Jan 2019	0.964	Jan 2020	-		0.964	Continuing	Continuing	-
Subtotal			-	0.964		0.964		0.964		-		0.964	Continuing	Continuing	N/A
Remarks															
Advisory and Assistance Services (A&AS) contract support for the Life Cycle Management Center (LCMC) procurement of Expeditionary Small Airfield Protection (ESAP), Expeditionary Large Airfield Protection (ELAP), and WaFERS.															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	32.035		21.890		18.315		-		18.315	Continuing	Continuing	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604617F / <i>Agile Combat Support</i>	<b>Project (Number/Name)</b> 652895 / <i>CE Readiness</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>CE Readiness</b>																												
Airbase Technologies																												
ADR Robotic In-seat Appliques																												
ADR In-situ Material Repair RDT&E																												
ADR Lighter/Leaner Expeditionary Repair																												
E-ADR JCTD																												
REHM Spiral 2 Rapid UXO Clearance																												
RADAS Development, Test & Evaluation																												
RADAS Spiral 2 RDT&E																												
Airfield Mitigation and Recovery Robotics																												
AFFF disposal and mitigation technologies																												
Directed Energy Application for UXO Neutralization																												
Civil engineering projects for sustained airbase operations																												
Airfield Protection - Advanced Hardening RDT&E																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604617F / <i>Agile Combat Support</i>	<b>Project (Number/Name)</b> 652895 / <i>CE Readiness</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CE Readiness</b>				
Airbase Technologies	1	2018	4	2024
ADR Robotic In-seat Appliques	4	2018	4	2020
ADR In-situ Material Repair RDT&E	1	2018	4	2023
ADR Lighter/Leaner Expeditionary Repair	3	2018	4	2022
E-ADR JCTD	4	2018	4	2022
REHM Spiral 2 Rapid UXO Clearance	3	2018	4	2023
RADAS Development, Test & Evaluation	1	2018	4	2023
RADAS Spiral 2 RDT&E	3	2018	4	2021
Airfield Mitigation and Recovery Robotics	1	2018	3	2021
AFFF disposal and mitigation technologies	2	2018	4	2022
Directed Energy Application for UXO Neutralization	2	2019	4	2023
Civil engineering projects for sustained airbase operations	2	2018	1	2024
Airfield Protection - Advanced Hardening RDT&E	1	2019	4	2023

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Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support				Project (Number/Name) 654910 / Aeromedical Readiness			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
654910: Aeromedical Readiness	-	4.316	1.599	1.629	0.000	1.629	1.657	1.692	1.722	1.963	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

This program provides key capabilities that provide life-saving and/or quality of life technologies and equipment. Aeromedical Readiness program enables the critical care of combat casualties by further developing and optimizing existing technologies for ground Expeditionary Medical Systems (EMEDS) and Aeromedical evacuation systems. EMEDS and Aeromedical Evacuation systems provide the urgent care needed to treat deployed injured warfighters and return them to duty while in country, and to treat combat casualties that need to be safely transported to a stateside hospital for follow on treatment. The program also supports critical capabilities development in the multi-disciplinary areas for light-weight, durable, and rapidly deployable medical equipment to ensure the Air Force is poised to meet future medical readiness and operational requirements. Additionally, the program supports research efforts to optimize human physiologic and cognitive performance.

## B. Accomplishments/Planned Programs (\$ in Millions)

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> Non-Invasive Warming and Cooling Device (NIWCD) <b>Description:</b> Single device to provide therapeutic temperature control during treatment and movement of patient from point of injury through the continuum of care. The mortality in combat casualties with hypothermia is double that of normothermic casualties with similar injuries. <b>FY 2019 Plans:</b> NIWCD design finalization and testing. <b>FY 2020 Plans:</b> NIWCD Completion of contractor testing and FDA approval. <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decreased due to completion of the RDT&E effort.	1.584	0.625	0.250
<b>Title:</b> Aeromedical Equipment Testing/Studies/Minor Development <b>Description:</b> Procures and qualifies commercial-off-the shelf (COTS) or near COTS medical and aeromedical products and/or performs minor development/studies efforts and program management activities. Programs/studies that are planned to be undergone in FY20 include, but are not limited to, Multi-channel Infusion Pump for expeditionary purposes (MCIP-E) and Cognitive and Physiologic Performance (CPP) projects, Air Plasma Therapy for hemorrhage control/sterilization, para-rescue equipment modernization, austere environment lab equipment. <b>FY 2019 Plans:</b>	2.732	0.974	1.379

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019	
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604617F / <i>Agile Combat Support</i>	<b>Project (Number/Name)</b> 654910 / <i>Aeromedical Readiness</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
Continue the development of MCIP-E in the Engineering and Manufacturing Development (EMD) phase of the acquisition life cycle. Continue implementation of the acquisition strategy for CPP projects.			
<b>FY 2020 Plans:</b> Complete testing of the development of MCIP-E in EMD and begin development of high priority warfighter requirements.			
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding increased due to increased effort for the MCIP-E.			
<b>Accomplishments/Planned Programs Subtotals</b>		4.316	1.599
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> Programs will consider a streamlined acquisition approach. Whenever practical, commercial items are tested and evaluated as candidates for providing solutions to user needs. This normally involves characterization, verification, and qualification testing to ensure commercial off-the-shelf equipment is properly evaluated to identify any capability gaps that may require minor modifications for military use. However, acquisition strategies may be carried out for traditional Engineering and Manufacturing Development (EMD), e.g., Non-Invasive Warming and Cooling Device (NIWCD). Funds may be used to address associated emerging Aeromedical Readiness requirements and for program management activities.			
<b>E. Performance Metrics</b> 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 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support				Project (Number/Name) 654910 / Aeromedical Readiness					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Non-Invasive Warming and Cooling Device (NIWCD)	C/CPIF	Edaptive Computing : Dayton, OH	-	1.926	Apr 2018	0.580	Jan 2019	-		-		-	Continuing	Continuing	-
Aeromedical Equipment	C/TBD	TBD : TBD	-	2.185	Sep 2018	0.774	May 2019	1.367	Feb 2020	-		1.367	Continuing	Continuing	-
Subtotal			-	4.111		1.354		1.367		-		1.367	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	MIPR	AFMESA : Ft Detrick, MD	-	0.120	May 2018	0.150	Apr 2019	0.160	Mar 2020	-		0.160	Continuing	Continuing	-
Subtotal			-	0.120		0.150		0.160		-		0.160	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	AFLCMC : Wright-Patterson AFB, OH	-	0.085	Jul 2018	0.095	Jun 2019	0.102	Jun 2020	-		0.102	Continuing	Continuing	-
Subtotal			-	0.085		0.095		0.102		-		0.102	Continuing	Continuing	N/A
Remarks															
FY18 cost increase result of \$12K adjustment for inflation															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.316		1.599		1.629		-		1.629	Continuing	Continuing	N/A
Remarks															
Aeromedical Equipment is TBD due to contract source selections.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force																Date: February 2019			
Appropriation/Budget Activity 3600 / 5								R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support								Project (Number/Name) 654910 / Aeromedical Readiness			

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604617F / Agile Combat Support	Project (Number/Name) 654910 / Aeromedical Readiness

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Aeromedical Readiness RDTE Efforts</b>				
EMD Phase for the Non-Invasive Warming & Cooling Device (NIWCD)	1	2018	1	2020
Production and Fielding Phase for NIWCD	4	2019	4	2022
Conduct market research and initiate EMD for Aeromedical Readiness products including Multi-Channel Infusion Pump - Expeditionary.	2	2018	4	2024