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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2024 Air Force **Date:** March 2023

<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 0604200F / <i>Future Advanced Weapon Analysis &amp; Programs</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	18.180	9.879	9.757	0.000	9.757	9.710	36.814	252.752	261.898	Continuing	Continuing
653133: <i>Armament Subsystems</i>	-	18.180	9.879	9.757	0.000	9.757	9.710	36.814	252.752	261.898	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This program enables Air Force level capability planning activities by supporting requirements generation and executing requirements/cost trade space analysis. These classified and unclassified activities provide studies or responsive design and development engineering and acquisition management infrastructure to address emerging gaps and technology insertion/technology needs on legacy systems, and supports analysis to develop new capability systems, or determine feasibility by conducting prototypes with advanced technology. In addition, activities explore new concept development and analysis in response to stakeholder engagements, technology transitions and common enterprise needs, experimentation, fieldable demonstrations, and the delivery of quick reaction solutions. Efforts will identify methods to improve system performance, develop potential future designs, mitigate evolving threats, reduce life cycle costs, develop/expand modeling/simulation and experimental platforms for weapon qualification activities, improve safety, identify technology gaps, and ensure both viability and durability of future tactical weapon acquisition programs. Results enable highly informed decisions on acquisition initiatives to develop, refine, and rapidly integrate emerging technologies into new weapons concepts or existing aircraft munitions which include, but are not limited to, multi-role missile development, advanced long-range weapon capabilities, advanced propulsion systems technologies, non-kinetic and directed energy technologies, warheads, fuzes, tail kits, sensors, networks, collaborative autonomous, and artificial intelligence/machine learning to address warfighter, Air Staff, and OSD initiatives and strategies.

This program transitions innovative ideas and technologies to the warfighter via the execution of experimentation campaigns, flight demonstrations and rapid response technology deliveries. This program implements the Digital Acquisition tenants of Open, Agile, and Digital in support of all Air Force weapons. Conduct high fidelity Modeling, Simulation and Analysis (MS&A) to support the development, testing and evaluating of future concept and legacy weapons. The MS&A work includes physics-level, engineering-level, and engagement/mission-level modeling, simulation and analysis.

This program leverages common component development, in collaboration with other weapon systems, to reduce redundant costs between systems with similar subsystems requirements. Invests in analytical, information management, data management, digital environments, networks, facilities, and security infrastructure upgrades directly supporting development and sustainment of this program's capabilities, while leveraging DoD and DAF enterprise IT solutions.

In order to accomplish the above objectives, this program may accomplish pre-acquisition planning and systems engineering, risk reducing prototype missile design work, aircraft integration, prototype ground & flight tests, pre-planning and execution of Joint Capability Technology Demonstrations (JCTD), development and prototyping of threat emulations, simulations, presentation of evolving threat scenarios, target area environments to prepare for emerging weapons development activities, maintenance of appropriate IT, and security constructs and program management support.

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 \$0M was expended for civilian pay expenses in this program element, and in FY23 \$0M is forecasted for civilian pay expenses in this program element.

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 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Previous President's Budget	18.499	9.879	9.735	0.000	9.735
Current President's Budget	18.180	9.879	9.757	0.000	9.757
Total Adjustments	-0.319	0.000	0.022	0.000	0.022
• 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	-0.319	0.000			
• Other Adjustments	0.000	0.000	0.022	0.000	0.022

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<b>Title:</b> Capability Strategy Development  <b>Description:</b> Plans and executes early Systems Engineering, concept studies, trade space analyses, modeling & simulation (M&S), portfolio acquisition planning, agile acquisition strategies, common enterprise solutions, and risk reduction activities for future advanced weapon systems to defeat evolving threat scenarios and environments. Provides security, workspace/seating, and information technology capabilities to support mission needs. Collaborate with all program stakeholders to develop technical and investment strategies for future weapons. Create and develop a weapons operational reference architecture. Develops and maintains technology and capability roadmaps to inform strategy development.  <b>FY 2023 Plans:</b> Conduct experiments and demonstrations of kinetic and directed energy weapon concepts to prove feasibility and facilitate transition in air to air, long range strike, maritime strike, and airbase defense mission areas. Evaluate industrial base implementation of agile acquisition initiatives like open systems architecture and digital engineering for future capabilities.  <b>FY 2024 Plans:</b>	9.156	5.913	5.631

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023		
<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 0604200F / <i>Future Advanced Weapon Analysis &amp; Programs</i>		
<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Conduct experiments and demonstrations of kinetic and directed energy weapon concepts to prove feasibility and facilitate transition in air to air, long range strike, maritime strike, and airbase defense mission areas. Evaluate industrial base implementation of agile acquisition initiatives like open systems architecture and digital engineering for future capabilities.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreased due to re-prioritization of program requirements.</p>				
<p><b>Title:</b> Rapid Prototyping Demonstrations</p> <p><b>Description:</b> Enables the conduct of rapid acquisition/prototyping efforts and MS&amp;A validation through integration of empirical data derived from prototypes and demonstrations, shaped by stakeholder engagements.</p> <p><b>FY 2023 Plans:</b> Prototyping weapon concepts to demonstrate feasibility of key attributes and initiate test planning with key stakeholders. Developing armament concepts that are appropriately played in wargames/flag exercises.</p> <p><b>FY 2024 Plans:</b> Prototyping weapon concepts to demonstrate feasibility of key attributes and initiate test planning with key stakeholders. Developing armament concepts that are appropriately played in wargames/flag exercises.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increased due to re-prioritization of program requirements.</p>		4.644	2.288	2.444
<p><b>Title:</b> Digital Foundation</p> <p><b>Description:</b> Provides model-based systems engineering, M&amp;S, data analysis tool suites, and associated software engineering expertise to support weapons capability strategy development and rapid prototyping. Provides Validation &amp; Verification (V&amp;V) of contractor M&amp;S models and tools. Develops Guidance, Navigation, and Control (GNC) and weapon survivability analysis capabilities. Creates and maintains a searchable electronic weapons database. Develops and evaluates future weapon open system architectures, to include common enterprise solutions, and the employment of digital engineering tools to create future acquisition strategies.</p> <p><b>FY 2023 Plans:</b> Conduct lethality analysis to support the development, testing, and evaluation of legacy and future weapon concepts. Work includes physics, engineering, engagement/mission level MS&amp;A and efforts to characterize complex systems, provide independent analysis in mission areas such as long range strike.</p> <p><b>FY 2024 Plans:</b></p>		2.378	0.539	0.628

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Conduct lethality analysis to support the development, testing, and evaluation of legacy and future weapon concepts. Work includes physics, engineering, engagement/mission level MS&amp;A and efforts to characterize complex systems, provide independent analysis in mission areas such as long range strike.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increased due to re-prioritization of program requirements.</p>				
<p><b>Title:</b> Industry Connectivity/Technology Transitions</p> <p><b>Description:</b> Enables Air Force outreach to small and large businesses to solicit innovative and relevant common material solutions for future weapon initiatives. This includes planning and execution activities for the development of campaign analysis, rapid innovation events, communicating technology needs at industry conferences (i.e. Weapons Conference, Air Force Association Symposium), and evaluating industry submissions for innovative technologies. Demonstrate potential utility of innovative technologies from Small Business Innovation Research (SBIR) contracts, studies, campaign analyses, experiments, and prototypes. Ensure alignment of S&amp;T activities, acquisition efforts, and warfighter requirements for air-delivered munitions with Air Force, government, and industry stakeholders to enable technology transitions.</p> <p><b>FY 2023 Plans:</b> Demonstrate utility of innovative technologies for SBIR contracts, studies, campaign analysis and experiments, as well as management of the digital outreach required to meet these objectives. Examine how new digital acquisition programs can meet air to air, long range strike, maritime strike, and airbase defense mission areas to fulfill urgent warfighter requirements focusing on network collaborative autonomous, guidance and control, test and training, and direct attack.</p> <p><b>FY 2024 Plans:</b> Demonstrate utility of innovative technologies for SBIR contracts, studies, campaign analysis and experiments, as well as management of the digital outreach required to meet these objectives. Examine how new digital acquisition programs can meet air to air, long range strike, maritime strike, and airbase defense mission areas to fulfill urgent warfighter requirements focusing on network collaborative autonomous, guidance and control, test and training, and direct attack.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreased due to re-prioritization of program requirements.</p>		2.002	1.139	1.054
<b>Accomplishments/Planned Programs Subtotals</b>		18.180	9.879	9.757
<b>D. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<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 0604200F / <i>Future Advanced Weapon Analysis &amp; Programs</i>	
<b>E. Acquisition Strategy</b> Accomplish studies, analyses, concept development and engineering, as well as test and evaluation; efforts will be conducted using contracting strategies deemed most appropriate, generally using competitive contracts.		

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604200F / <i>Future Advanced Weapon A</i> <i>nlalysis &amp; Programs</i>	<b>Project (Number/Name)</b> 653133 / <i>Armament Subsystems</i>
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<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Affordable Mass & Concept Studies	C/Variou	Various : Various	-	2.819	May 2022	3.966	Nov 2022	5.062	Apr 2024	-		5.062	Continuing	Continuing	-
Future Weapons Open System Architecture	Various	Various : Various	-	6.512	Mar 2022	1.301	Dec 2022	0.112	Nov 2023	-		0.112	Continuing	Continuing	-
<b>Subtotal</b>			-	9.331		5.267		5.174		-		5.174	Continuing	Continuing	N/A

<b>Support (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Systems Engineering & Studies Support	C/Variou	AFLCMC/EB : Eglin AFB, FL	-	2.802	Apr 2022	0.625	Dec 2022	1.743	Apr 2024	-		1.743	Continuing	Continuing	-
Modeling & Simulation Licenses & Support	C/Variou	AFLCMC/EB : Eglin AFB, FL	-	0.350	Apr 2022	0.178	Nov 2022	0.187	May 2024	-		0.187	Continuing	Continuing	-
<b>Subtotal</b>			-	3.152		0.803		1.930		-		1.930	Continuing	Continuing	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Government Test and Evaluation	PO	Various : Various	-	-		-		0.021	Apr 2024	-		0.021	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		0.021		-		0.021	Continuing	Continuing	N/A

<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Government Program Management Administration	Various	Various : Eglin AFB, FL	-	5.697	May 2022	3.809	May 2023	2.632	Oct 2023	-		2.632	Continuing	Continuing	-

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<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
<b>Subtotal</b>			-	5.697		3.809		2.632		-		2.632	Continuing	Continuing	N/A

**Remarks**  
Includes A&AS contract, IT requirements, travel, and office supplies.

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	18.180	9.879	9.757	-	9.757	Continuing	Continuing	N/A

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604200F / <i>Future Advanced Weapon A nalysis &amp; Programs</i>	<b>Project (Number/Name)</b> 653133 / <i>Armament Subsystems</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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>Capability Strategy Development</b>	
Air Superiority, Global Precision Attack, and Base Defense Requirements Analyses	
Future Weapons Open System Architecture	
Trade Space Analysis Framework	
Common Enterprise Solutions	
Technology and Capability Roadmaps	
<b>Rapid Prototyping</b>	
Global Precision Attack Weapon Demos	
Base Defense Weapon Demos	
Capability Demonstrations	
<b>Digital Foundation</b>	
Lethality, GNC & Survivability Modeling, Simulation and Analysis	
Analysis Database Repository	
Model-Based Systems Engineering Foundation	
Weapon Open System Architecture Built-In	
<b>Industry Connectivity</b>	
Futures Workshops, Concepts Studies	
Threat Day Events, Innovation Days	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604200F / <i>Future Advanced Weapon A nalysis &amp; Programs</i>	<b>Project (Number/Name)</b> 653133 / <i>Armament Subsystems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Capability Strategy Development</b>				
Air Superiority, Global Precision Attack, and Base Defense Requirements Analyses	2	2022	4	2028
Future Weapons Open System Architecture	3	2022	4	2028
Trade Space Analysis Framework	2	2022	4	2028
Common Enterprise Solutions	2	2022	4	2028
Technology and Capability Roadmaps	2	2022	4	2028
<b>Rapid Prototyping</b>				
Global Precision Attack Weapon Demos	2	2022	4	2028
Base Defense Weapon Demos	2	2022	4	2028
Capability Demonstrations	2	2022	4	2028
<b>Digital Foundation</b>				
Lethality, GNC & Survivability Modeling, Simulation and Analysis	1	2022	4	2028
Analysis Database Repository	2	2022	3	2028
Model-Based Systems Engineering Foundation	1	2022	4	2028
Weapon Open System Architecture Built-In	1	2022	2	2028
<b>Industry Connectivity</b>				
Futures Workshops, Concepts Studies	1	2022	4	2028
Threat Day Events, Innovation Days	2	2022	2	2028