Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force											Date: April 2022	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604006F / *Dept of the Air Force Tech Architecture*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	25.138	66.615	0.000	66.615	78.731	110.313	115.791	134.292	Continuing	Continuing
645352: *Department of the Air Force Technical Architecture Design, Integration, and Evaluation*	-	0.000	25.138	66.615	0.000	66.615	78.731	110.313	115.791	134.292	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

PE 0604006F, Dept of the Air Force Tech Architecture, changed from Architecture Initiatives.

A. Mission Description and Budget Item Justification

The Department of the Air Force (DAF) Tech Architecture resources activities to oversee and shape the technical architecture of the entire Air Force and Space Force and foster modular and agile architectures within individual programs and across programs to rapidly deliver warfighting capability.

Potential adversaries are modernizing faster than anticipated. They are advancing individual systems while bringing families of systems (or systems of systems) together into an architecture to deny U.S. interests and counter potential U.S. action. One such example is the increasingly coupled investments and integration of space, air, and maritime sensing with long-range missile systems. The mix of capabilities and the integration of capabilities are just as important as the individual systems themselves because they have to work together in order to achieve the necessary operational effects and do so on increasingly rapid timelines. Successful companies follow a similar approach across product lines, and the same approach is needed for the DAF. The DAF must not only invest in superior capabilities but also invest in superior architectures that enable those capabilities to integrate and modernize.

First, the DAF needs a technical architecture that enables platforms to leverage modular open subcomponents and to integrate them together to achieve operational mission threads, such as Decision Superiority and Information Advantage, Agile Combat Employment, Rapid All-Domain Kill Chains, Logistics Under Attack, Space Domain Awareness, and Space Defense. The Department does not have an integrated reference architecture, so it should not be a surprise if capabilities do not work together as desired or the technical achievements fail to match the warfighter's desired operational effects. An integrated architecture is necessary and must dynamically mature as threats advance and new technological opportunities arise. This architecture must also ensure that programs and platforms are built with agility via Modular open systems and open standards so that they can adapt and upgrade components quickly in response to threats or opportunities to integrate technology as advances are made. Efforts in this arena often fail to produce the desired results as organizations often stop at the "blueprint" phase or the design phase and fail to move from a great design into mission-ready capabilities on the battlefield.

Second, the DAF needs to rapidly field systems-of-systems to deliver incremental gains in capability while creating the path to scaled deployment and sustainment. The Department of the Air Force does not have a deliberate campaign that integrates technology into the force at the architecture level. Architecture Integration addresses this technology integration challenge, highlights architecture level gaps, and rapidly delivers immediate flexible capability improvements in priority areas in

advance of scaled solutions. By rapidly fielding open solutions, the DAF has uncovered mission-critical gaps that might not have been found at test ranges before being discovered on the road to conflict when it would likely be too late to correct. Therefore, a regular campaign to deliver time-critical technology with a bridge to scaling at the architecture level is critical to deliberately advancing the DAF's technological edge and impact overall architecture design, investments, requirements for future capabilities, and acquisition baseline updates for current systems.

This activity is directed by the DAF Chief Architect Officer with oversight by the Secretary of the Air Force along with the Chief of Staff of the Air Force and Chief of Space Operations. This activity is executed by the Air Force Research Laboratory.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Department of the Air Force Tech Architecture. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F, 0605831F and/or 0604858F. In FY 2022 $2.267 million is forecasted for civilian pay expenses in this program element.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	82.438	0.000	0.000	0.000
Current President's Budget	0.000	25.138	66.615	0.000	66.615
Total Adjustments	0.000	-57.300	66.615	0.000	66.615
• Congressional General Reductions	0.000	-57.300			
• 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	0.000	0.000			
• Other Adjustments	0.000	0.000	66.615	0.000	66.615

Change Summary Explanation

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY 2023 cannot be made in a relevant manner.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: DAF Architecture Design and Integration	0.000	25.106	66.615

Description: The Department does not have an integrated reference architecture, so it should not be a surprise if capabilities do not work together as desired or the technical achievements fail to match the warfighter's desired operational effects. An integrated architecture is necessary and must dynamically mature as threats advance and new technological opportunities arise. In other words an architecture must play both defense and offense effectively to adapt to these challenges and opportunities. This architecture drives programs and platforms to be built with agility via open systems and open standards so that they can adapt and upgrade components quickly in response to threats or opportunities to integrate technology as advances are made. While having an integrated architecture is uncommon in the Department, it is a standard commercial practice. This architecture focuses on closing these systems and systems-of-systems modularity and integrated capability gaps.

DAF Architecture Design focuses on integration of DAF systems to deliver superior systems-of-systems capabilities addressing multiple warfighting mission scenarios. Design delivers architectures that enable scalability, flexibility, and interoperability through application of open standards and modular open system architectures. Design enables cross-cutting architecture development across the Air and Space Staffs, Program Executive Offices, Major Commands, and Deltas leveraging a collaborative digital environment and architecture repository. Design analyzes architectures to identify technical gaps and assess operational feasibility of new capabilities across science, technology, research, and development enterprises to inform acquisition strategy to maximize system-of-systems lethality.

DAF Architecture Integration gauges opportunities and delivers architecturally-sound, high impact Minimum Viable Product (MVP) capabilities with roadmaps for programs to scale capabilities that warfighters need. This work is a deliberate campaign that integrates capabilities at the force-level (i.e., architecture level). This process also uncovers mission-critical gaps that may not be uncovered at test ranges—meaning they would have been discovered on the road to conflict when it could be too late to correct. Therefore, a regular campaign to deliver time-critical technology with a bridge to scaling at the architecture level is critical to deliberately advancing the DAF's technological edge and impacts overall architecture design, funding priorities among multiple capability areas, investments, requirements for future capabilities, and acquisition baseline updates for both materiel and non-materiel solutions.

FY 2022 Plans:
Continue to capitalize on DAF Architecture Design activities previously accomplished, to include objectives such as: (1) design technical architectures to enable Department of the Air Force Service Chiefs' cross-cutting priority missions, including Decision Superiority and Information Advantage, Agile Combat Employment, Distributed Operations, and Layered Defense, and Rapid All-domain Kill Chains; (2) design and develop functional cross-cutting architectures such as an enterprise data architecture and associated infrastructure; (3) foster and mature accessible open architecture and standards to enable program agility and

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
adaptability; (4) develop foundational cloud-based digital models of Air Force and Space Force platforms across classification levels; and (5) help drive current and future programs towards the architecture through program objective investments and acquisition program modernization. ***FY 2023 Plans:*** Continue DAF Architecture Design and Integration activities with focus on: (1) the DAF government reference architecture standards and governance within a Digital Architecture Enterprise Cloud Environment that enables programs to transition to DAF-wide technical architectures; (2) Architecture Minimum Viable Product (MVP) for Decision Superiority and Information Advantage inserting Operational Artificial Intelligence to drive global information exchange across regional commander boundaries in the face of contested operations; (3) Architecture MVP for Agile Combat Employment, Distributed Operations, and Layered Defense; (4) Expanded architecture for data infrastructure that includes structured, unstructured, and streaming data enabled through open source interfaces; (5) Integrated Warfighter Network architecture for classified networking and encrypted connectivity for seamless operation and connectivity whether on base or deployed in combat; (6) Identify needed changes to architectures and architecture-driven requirements for modernization programs. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 funding increased compared to FY 2022 by $41.509 million. Funding increased due to increased demand for mission and functional architectures to support Secretary of the Air Force requirements.			
Title: DAF Architecture Force Integration	0.000	0.032	0.000
Description: Description: Department of the Air Force (DAF) Architecture Demonstration and Evaluation demonstrates and evaluates the integration of capabilities, not just individual capabilities. This work is a deliberate campaign that integrates demonstration and evaluation at the force-level (i.e., architecture level). This is critical because great designs on paper may not have traction when meeting reality, and traditional system-level testing and experimentation are not designed to yield insights into the effectiveness of capabilities working together to achieve integrated mission effects. By taking Architecture Demonstrations and Evaluations to the field, the DAF also uncovers mission-critical gaps that may not be uncovered at test ranges—meaning they would have been discovered on the road to conflict when it could be too late to correct. Therefore, a regular campaign of learning at the architecture level with demonstration and evaluation of how and where the Department of the Air Force fights is critical to moving from simply buying systems and hoping they compose into a family of systems in conflict to a deliberate approach that impacts overall architecture design, investments, requirements for future capabilities, and acquisition baseline updates for current systems. The DAF Architecture Demonstration and Evaluation effort focuses on addressing these needs. The DAF Architecture Demonstration and Evaluation pillar enables and conducts architecture-level demonstration and testing throughout the year and specifically at capstone Architecture Evaluations at key points to evaluate the integrated mission-oriented and functional-oriented architectures. These events further evaluate agility by adjusting operational scenarios from technical sprint to technical sprint to better reflect the uncertainty that a potential conflict might bring. The live demonstrations also enable focused			

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
objectives for integration with the joint force, allies, and partners and lower barriers to transition prototypes into operational programs. The Architecture Evaluations approach is modeled after modern commercial industry best practices and elements of the Special Operations community. This line of effort also includes costs for architecture evaluation infrastructure, test personnel, range access, consumables, travel, operational concept and non-materiel development, technical sprints to solve near-term gaps, and other evaluation-specific activities. The necessity of conducting evaluations at the architecture level and the speed required by the operational needs compel enhanced approaches to traditional test and analysis capabilities, namely new, innovative, and sufficiently-resourced test and analysis infrastructure, networks, and core subject matter expertise to include employment of military, civilian, reserve, and contractor capabilities. ***FY 2022 Plans:*** FY 2022 plans capitalize on DAF Architecture Demonstration and Evaluation activities previously accomplished within individual programs and will include objectives such as: (1) demonstrate and evaluate technical architecture designs to enable Department of the Air Force Service Chiefs' cross-cutting priority missions, including Decision Superiority and Information Advantage, Agile Combat Employment, Distributed Operations, and Layered Defense, and Rapid All-domain Kill Chains as well as functional architectures such as enterprise data capabilities; (2) identify needed changes to architectures and architecture-driven requirements for modernization programs and program objective budget investments; (3) solve select "quick win" technical gaps identified as part of the evaluations; (4) assess the military utility of technology solutions to achieve the Department of the Air Force architecture designs; and (5) enhance evaluation infrastructure at test locations and augment relocatable test capabilities to enable Continental United States and Outside the Continental United States evaluations. ***FY 2023 Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 funding decreased compared to FY 2022 by $0.032 million. Funding decreased due to increased demand for design and integration of mission and functional architectures to support Secretary of the Air Force requirements.			
Accomplishments/Planned Programs Subtotals	0.000	25.138	66.615

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Due to the Congressional marks in the Architecture Demonstration and Evaluation thrust identified in the enacted FY2022 President's Budget (PB), the Chief Architect's Office (CAO) will not be able to execute the FY 2022 plans as stated above. The CAO will transition all work to Architecture Design and Integration thrust in FY 2022 and beyond.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*

E. Acquisition Strategy

Contracting strategies vary based on activity; please see R3 for additional details.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*	**Project (Number/Name)** 645352 / *Department of the Air Force Technical Architecture Design, Integration, and Evaluation*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAF Architecture Design	Various	RAFT SBIR PhIII : Reston, VA	-	-		3.780	Jun 2022	-		-		-	Continuing	Continuing	-
DAF Architecture Design and Integration Contract 1	MIPR	BAH : McLean, VA	-	-		1.660	Nov 2021	2.200	Jan 2023	-		2.200	Continuing	Continuing	-
DAF Architecture Design and Integration Contract 2	MIPR	MIT/LL : Lexington, MA	-	-		0.000	Nov 2021	2.740	Jan 2023	-		2.740	Continuing	Continuing	-
DAF Architecture Modeling and Analysis Contract 1	MIPR	GTRI, MITRE, MIT/LL, Aero : Various	-	-		2.900	Nov 2021	2.525	Nov 2022	-		2.525	Continuing	Continuing	-
DAF Architecture Modeling and Analysis Contract 2	MIPR	JHU APL : Laurel, MD	-	-		3.690	Nov 2021	9.546	Nov 2022	-		9.546	Continuing	Continuing	-
DAF Architecture Modeling and Analysis Infrastructure	Various	Various : Various	-	-		0.055	Nov 2021	1.500	Dec 2022	-		1.500	Continuing	Continuing	-
DAF Architecture Technology Solutions, FY22-23	Various	Various : Various	-	-		1.313	Dec 2021	10.060	Jan 2023	-		10.060	Continuing	Continuing	-
DAF Mission Architecture	MIPR	GTRI, SEI : Various	-	-		0.852	Dec 2021	6.642	Dec 2022	-		6.642	Continuing	Continuing	-
DAF Program Architecture	MIPR	GTRI, APL, SEI : Various	-	-		0.000	Dec 2021	3.413	Dec 2022	-		3.413	Continuing	Continuing	-
DAF Architecture Integration	MIPR	MITRE : McLean, VA	-	-		0.800	Mar 2022	0.450	Oct 2022	-		0.450	Continuing	Continuing	-
		Subtotal	-	-		15.050		39.076		-		39.076	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAF Architecture Initiatives Support	MIPR	BAH/SEI : Various	-	-		0.319	Nov 2021	1.150	Dec 2022	-		1.150	Continuing	Continuing	-
DAF Architecture Engineering Support	Reqn	AFRL : Various	-	-		0.000	Oct 2021	0.000	Oct 2022	-		0.000	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force			Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*	**Project (Number/Name)** 645352 / *Department of the Air Force Technical Architecture Design, Integration, and Evaluation*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		0.319		1.150		-		1.150	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAF Architecture Design Test	Various	LL; APL; MITRE; GTRI; BAH : Various	-	-		2.332	Dec 2021	3.040	Oct 2022	-		3.040	Continuing	Continuing	-
DAF Architecture Execution Team 1	MIPR	Booz Allen Hamilton : McLean, VA	-	-		3.196	Oct 2021	4.000	Nov 2022	-		4.000	Continuing	Continuing	-
DAF Architecture Mission Execution	Various	Various : Various	-	-		0.270	Dec 2021	1.500	Dec 2022	-		1.500	Continuing	Continuing	-
DAF Architecture Test Infrastructure	Various	Various : Various	-	-		0.000	Dec 2021	2.000	Dec 2022	-		2.000	Continuing	Continuing	-
Subtotal			-	-		5.798		10.540		-		10.540	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Various : Various	-	-		3.971	Oct 2021	15.849	Oct 2022	-		15.849	Continuing	Continuing	-
Subtotal			-	-		3.971		15.849		-		15.849	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		25.138		66.615		-		66.615	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*	**Project (Number/Name)** 645352 / *Department of the Air Force Technical Architecture Design, Integration, and Evaluation*

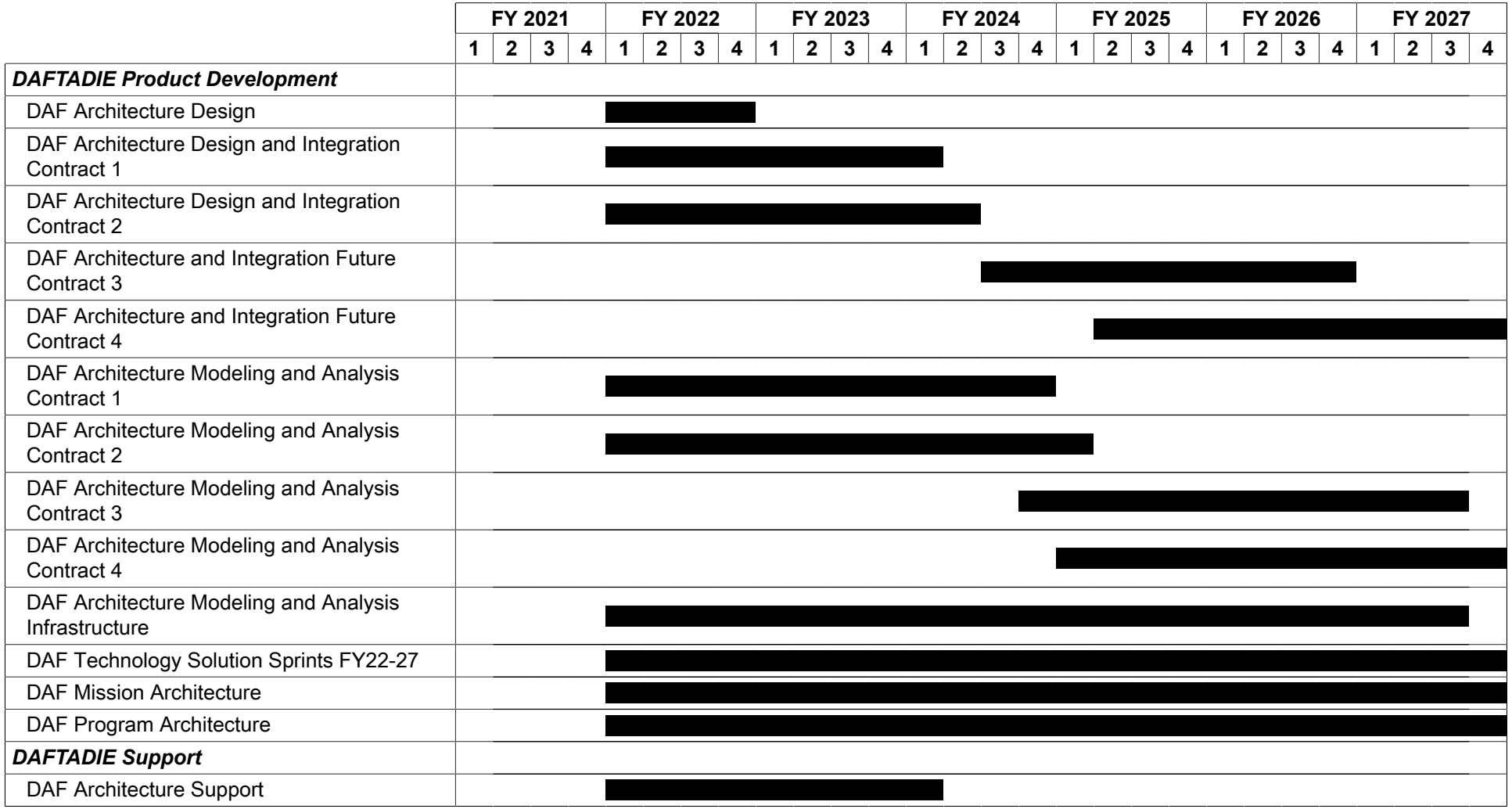

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*	**Project (Number/Name)** 645352 / *Department of the Air Force Technical Architecture Design, Integration, and Evaluation*

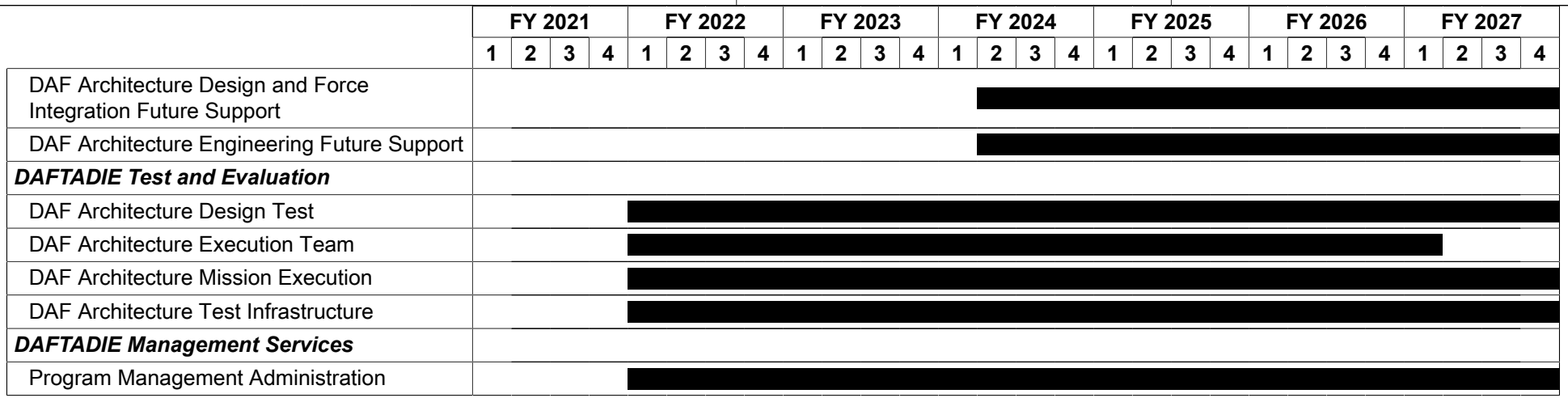

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*	**Project (Number/Name)** 645352 / *Department of the Air Force Technical Architecture Design, Integration, and Evaluation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DAFTADIE Product Development				
DAF Architecture Design	1	2022	4	2022
DAF Architecture Design and Integration Contract 1	1	2022	1	2024
DAF Architecture Design and Integration Contract 2	1	2022	2	2024
DAF Architecture and Integration Future Contract 3	3	2024	4	2026
DAF Architecture and Integration Future Contract 4	2	2025	4	2027
DAF Architecture Modeling and Analysis Contract 1	1	2022	4	2024
DAF Architecture Modeling and Analysis Contract 2	1	2022	1	2025
DAF Architecture Modeling and Analysis Contract 3	4	2024	3	2027
DAF Architecture Modeling and Analysis Contract 4	1	2025	4	2027
DAF Architecture Modeling and Analysis Infrastructure	1	2022	3	2027
DAF Technology Solution Sprints FY22-27	1	2022	4	2027
DAF Mission Architecture	1	2022	4	2027
DAF Program Architecture	1	2022	4	2027
DAFTADIE Support				
DAF Architecture Support	1	2022	1	2024
DAF Architecture Design and Force Integration Future Support	2	2024	4	2027
DAF Architecture Engineering Future Support	2	2024	4	2027
DAFTADIE Test and Evaluation				
DAF Architecture Design Test	1	2022	4	2027
DAF Architecture Execution Team	1	2022	1	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604006F / *Dept of the Air Force Tech Architecture*	**Project (Number/Name)** 645352 / *Department of the Air Force Technical Architecture Design, Integration, and Evaluation*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DAF Architecture Mission Execution	1	2022	4	2027
DAF Architecture Test Infrastructure	1	2022	4	2027
DAFTADIE Management Services				
Program Management Administration	1	2022	4	2027