Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force											Date: March 2023	
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 0604858F / *Tech Transition Program*							
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	-	348.134	370.810	210.806	0.000	210.806	192.833	100.212	121.892	189.614	Continuing	Continuing
640858: *AFWERX Prime*	-	112.534	0.000	0.000	0.000	0.000	1.476	1.511	1.545	1.476	Continuing	Continuing
645350: *Experimentation*	-	90.686	217.894	95.233	0.000	95.233	65.804	66.952	67.876	69.625	Continuing	Continuing
645351: *Prototyping*	-	144.914	152.916	108.495	0.000	108.495	118.326	24.371	45.093	110.980	Continuing	Continuing
645352: *Architecture Design and Evaluation*	-	0.000	0.000	7.078	0.000	7.078	7.227	7.378	7.378	7.533	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Tech Transition Program addresses the gap between initial system-level technology or concept development and demonstration, and successful acquisition and operational capability implementation. The Tech Transition Program matures new warfighting concepts, rapidly develops fieldable prototypes, and performs experimentation to assess military utility of transition-ready weapon systems. This program utilizes multiple approaches and integrated activities to field technology for the warfighter focusing on efforts that are directly tied to the Secretary of the Air Force's (SecAF) Operational Imperatives.

Experimentation efforts explore new concepts and their applications in potential future operating environments within a system-of-systems context taking risks early in the acquisition process to drive a more optimized and efficient acquisition approach significantly reducing overall acquisitions costs.

Prototyping enables integration and demonstration of emerging technologies to quickly move them into warfighting capability. Following strategic guidance the Department of the Air Force has institutionalized Experimentation and Prototyping to achieve smarter, faster, and more efficient acquisitions that move technologies rapidly into the most critical warfighting capabilities.

The Tech Transition Program allows acquisition program managers (the capability developers) and warfighters (the capability recipients and end users) to prototype, integrate, and demonstrate candidate technologies and assess them in an operational system of systems environment in partnership with Combatant Commanders, Major and Field Commands, Program Executive Officers, schoolhouses, simulation facilities, and development planning organizations.

Architecture Design and Evaluation is directed by the DAF PEO C3BM with oversight by the Secretary of the Air Force along with the Chief of Staff of the Air Force, Chief of Space Operations, and Senior Acquisition Executive. This activity is supported by the Air Force Research Laboratory.

The total cost of the AKCS Middle Tier of Acquisition effort is 64.27 million, including RDT&E and procurement of prototype units. The AKCS is fully funded across the Future Years Defense Program.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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 0604858F / *Tech Transition Program*

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, 0605831F, and/or 0606017F.

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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	359.045	649.545	314.135	0.000	314.135
Current President's Budget	348.134	370.810	210.806	0.000	210.806
Total Adjustments	-10.911	-278.735	-103.329	0.000	-103.329
• Congressional General Reductions	0.000	-30.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	57.300			
• Congressional Directed Transfers	0.000	-247.860			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-10.911	-58.175	-103.329	0.000	-103.329

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 640858: *AFWERX Prime*		
Congressional Add: *Program increase - Agility Prime*	52.359	-
Congressional Add Subtotals for Project: 640858	52.359	-
Project: 645350: *Experimentation*		
Congressional Add: *Program Increase - Autonomous Air Combat Operations*	9.696	10.000
Congressional Add: *Program Increase Advanced Rotary Engine Hybrid Power System*	-	10.000
Congressional Add: *Program Increase - Operational Additive Manufacturing Capabilities*	-	9.800
Congressional Add: *Program Increase Advanced Air Mobility*	-	5.500
Congressional Add: *Program Increase - F35 Logistics Enhancements*	-	10.000
Congressional Add: *Program Increase - Hybrid Autonomous Maritime Expeditionary Logistics*	-	2.000
Congressional Add: *Program Increase Versatile Aerial Power System*	-	10.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
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 0604858F / *Tech Transition Program*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Congressional Add Subtotals for Project: 645350	9.696	57.300
Project: 645351: *Prototyping*		
Congressional Add: *Program increase - Logistics Enhancements*	3.878	0.000
Congressional Add: *Program increase - Alternative PNT phase III Demonstration*	3.878	0.000
Congressional Add Subtotals for Project: 645351	7.756	0.000
Congressional Add Totals for all Projects	69.811	57.300

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604858F / *Tech Transition Program*	Project (Number/Name) 640858 / *AFWERX Prime*	

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
640858: *AFWERX Prime*	-	112.534	0.000	0.000	0.000	0.000	1.476	1.511	1.545	1.476	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

AFWERX Prime BPAC 640858 under PE 64858F (Tech Transition) is planned to transition to PE 64317F (Tech Transfer) beginning FY 24.

A. Mission Description and Budget Item Justification

AFWERX Prime (formerly Agility Prime) is a new acquisition approach that uses government-specific resources to reduce risk in emerging technology markets while partnering with investors, industry, interagency, and international partners for accelerated, affordable, and agile commercial and military capability. These Prime efforts are led by a Chief Commercialization Officer whose key responsibility is to accelerate technology commercialization for fielding of military capability. Initial efforts of AFWERX Prime provides research, development, testing, and evaluation to field transformative vertical flight technology. These systems incorporate non-traditional electric or hybrid propulsion for manned or optionally manned missions, with onboard, remote, or eventually autonomous control. AFWERX Prime leverages commercial investment in technologies that support mobility and sustainment in benign or contested environments to enable agile, lower-cost distributed logistics, humanitarian operations, disaster response operations, and communications capabilities.

AFWERX Prime explores associated technologies and follow-on Prime initiatives, including autonomy, and leveraging commercial software best practices and capabilities to solve capability integration problem sets. Agility Prime, the first prime, leverages emerging vertical lift and logistics platforms, enabling resilient basing and sustainment options. Future Prime initiatives will use the same paradigm to leverage commercial technology and investment for high returns on government participation in this sector, achieving advanced, agile, and accelerated fielding of commercial and military capability bolstering national security and domestic technological dominance.

Next-Gen Large Aircraft aims to accelerate prototyping and widespread adoption of blended wing body aircraft for military and commercial applications, leveraging common goals among DOD and allied nations, commercial airlines and freight companies, other industry partners, and private investors. Cargo, tanker, and non-stealth bomber aircraft account for approximately 40% of DOD's total annual operational energy consumption, estimated to be about 1.2 billion gallons per year. Next-Gen Large Aircraft endeavors to meaningfully reduce fuel delivery logistical challenges, and prime the U.S. commercial aerospace sector to advance 21st century airframe designs in similar manner as military-developed aircraft primed commercial aircraft derivatives in the mid-20th century.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: AFWERX Prime (formerly Agility Prime)	60.175	0.000	0.000	-	0.000
Description: Execution of efforts to explore and transition emerging dual-use technologies under this new acquisition approach to include evaluation of transformative vertical flight and agile logistics supporting distributed operations, and applicable initial use cases, autonomous capabilities, advanced energy and hybrid					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 640858 / *AFWERX Prime*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
propulsion, and rapid commercial software capabilities. Activities include technical exchanges, research, development, certification, testing, and evaluation. ***FY 2023 Plans:*** Continue risk reduction ground testing with multiple aircraft manufacturers including wind tunnel, environmental, cyber penetration, and Electromagnetic Interference characterization. Continue prototype testing to characterize performance, handling qualities, and mission system effectiveness. Continue airworthiness assessments aimed at providing flight certified vehicles in 2024. Continue flight tests in realistic operating environments and scenarios to provide data for business case analysis and fielding. Continue to perform initial research, development, testing, and evaluation of other potential technology sectors to follow this Prime acquisition paradigm. ***FY 2024 Base Plans:*** Efforts include enabling technology risk reduction with multiple manufacturers for commercial and operations assessment. For Agility Prime, continue prototype testing to characterize performance, handling qualities, and mission system effectiveness. Facilitate airworthiness assessments aimed at initial flight certified vehicles. Conduct flight tests in realistic operating environments and scenarios to provide data for business case analysis and fielding. Conduct research, development, test and evaluation for key enabling technologies of autonomous operations and vehicle collaboration along with hybrid propulsion. For Autonomy Prime, provide a low-cost pipeline and proving ground for evaluate, iterate, and mature of autonomous capabilities for industry and government organizations, including dual-use applications. Supports commercial advancement of overlapping autonomous mission capabilities and transitioning capabilities into major Air Force autonomy programs. With Integration Prime, provide a multi-level environment to prototype and transition integrating software capabilities with industry and non-traditional solution providers and software integration stacks to enable rapid adaptability and scalability of mission threads along with a government owned open architecture toolkit for integrating applications onto multiple platforms.					
Accomplishments/Planned Programs Subtotals	60.175	0.000	0.000	-	0.000

	FY 2022	FY 2023
Congressional Add: Program increase - Agility Prime ***FY 2022 Accomplishments:*** Conduct Congressionally-directed efforts	52.359	-
Congressional Adds Subtotals	52.359	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 640858 / *AFWERX Prime*

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• RDTE 04 0604009F: *AFWERX Prime*	0.000	130.860	12.988	0.000	12.988	5.483	5.568	5.568	6.442	Continuing	Continuing

Remarks

Funding for AFWERX Prime Project, BPAC 640858 under PE 0604858F (Tech Transition) transitioned to Project, BPAC 640858 under PE 0604009F (AFWERX) beginning FY 2023 per Congressional direction.

D. Acquisition Strategy

AFWERX Prime effort will proceed along the following path: 1) investigate details regarding potential commercial markets; 2) identify technologies that are likely to result in successful prototypes and support future DAF capability needs and Operational Imperatives ; 3) create collaborative test plans potentially offering test assets and expertise; 4) leverage this campaign for near-term airworthiness as well as preparation for procurement of hardware, software, data, or services. The intent is to accelerate learning to enable early adoption, procurement, and fielding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604858F / *Tech Transition Program*	Project (Number/Name) 640858 / *AFWERX Prime*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AOI 1 Performer A	C/FFP	Various : Various	-	12.000	Oct 2021	-		-		-		-	Continuing	Continuing	-
AOI 2 Performer A	C/FFP	Various : Various	-	3.000	Nov 2021	-		-		-		-	Continuing	Continuing	-
AOI 1 Performer B	C/FFP	Various : Various	-	6.000	Jan 2022	-		-		-		-	Continuing	Continuing	-
AOI 2 Performer B	C/FFP	Various : Various	-	4.000	Feb 2022	-		-		-		-	Continuing	Continuing	-
AOI 3 Performer A	C/FFP	Various : Various	-	3.000	Dec 2021	-		-		-		-	Continuing	Continuing	-
AOI 3 Performer B	C/FFP	Various : Various	-	4.000	Mar 2022	-		-		-		-	Continuing	Continuing	-
Air Race Partners	RO	Various : Various	-	5.000	Jun 2022	-		-		-		-	Continuing	Continuing	-
Next Gen Large Aircraft	MIPR	DIU : Mountain View, CA	-	-		-		-		-		-	Continuing	Continuing	-
Congressional Add- Agility Prime	Various	Various : Various	-	52.359	Sep 2022	-		-		-		-	Continuing	Continuing	-
Prime Efforts	TBD	TBD : TBD	-	-		-		0.000	Jun 2024	0.000	Jun 2024	0.000	Continuing	Continuing	-
Agility Prime AOI 1 Performer A	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Agility Prime AOI 1 Performer B	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Agility Prime AOI 2 Performer A	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Agility Prime AOI 3 Performer A	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Agility Prime AOI 3 Performer B	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Autonomy Prime Line of Effort A	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Autonomy Prime Line of Effort B	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Autonomy Prime Line of Effort C	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Autonomy Prime Line of Effort D	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Integration Prime Capability Sprint A	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 640858 / *AFWERX Prime*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration Prime Capability Sprint B	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Integration Prime Capability Sprint C	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Integration Prime Open Architecture App Toolkit	C/FFP	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	89.359		-		0.000		0.000		0.000	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling and Analytics Support	MIPR	Various : Various	-	2.000	Nov 2021	-		-		-		-	Continuing	Continuing	-
Government Test Support	WR	Various : Various	-	2.000	Dec 2021	-		-		-		-	Continuing	Continuing	-
Airworthiness and Test Support	Various	Various : Various	-	3.000	Nov 2021	-		-		-		-	Continuing	Continuing	-
Next Generation Large Aircraft Test Support	MIPR	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	7.000		-		-		-		-	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Autonomy And Hybrid Stratfi	MIPR	Various : Various	-	5.000	Dec 2021	-		-		-		-	Continuing	Continuing	-
Autonomy and Hybrid Stratfi (2)	MIPR	Various : Various	-	5.000	Feb 2022	-		-		-		-	Continuing	Continuing	-
Next Gen Large Aircraft/ Test/Airworthiness	MIPR	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
Integration Testing	Various	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604858F / *Tech Transition Program*	Project (Number/Name) 640858 / *AFWERX Prime*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Autonomy Test Capabilities	Reqn	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	10.000		-		-		-		-	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AFWERX Prime Management PMA	Various	Various : Various	-	6.175	Dec 2021	-		-		-		-	Continuing	Continuing	-
Next Generation Large Aircraft PMA	Various	Various : Various	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	-	6.175		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	112.534		-		0.000		0.000		0.000	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 640858 / *AFWERX Prime*

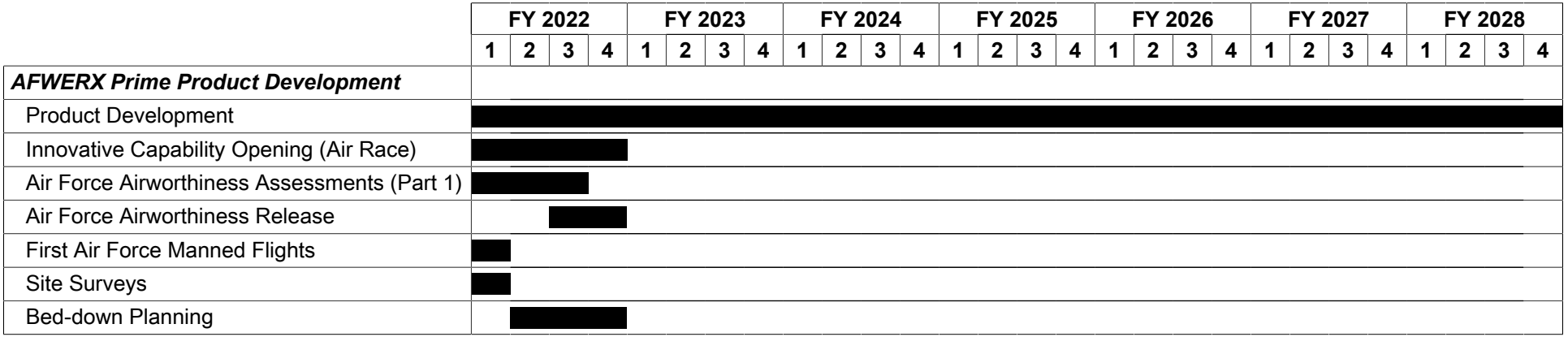

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 640858 / *AFWERX Prime*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AFWERX Prime Product Development				
Product Development	1	2022	4	2028
Innovative Capability Opening (Air Race)	1	2022	4	2022
Air Force Airworthiness Assessments (Part 1)	1	2022	3	2022
Air Force Airworthiness Release	3	2022	4	2022
First Air Force Manned Flights	1	2022	1	2022
Site Surveys	1	2022	1	2022
Bed-down Planning	2	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604858F / *Tech Transition Program*	Project (Number/Name) 645350 / *Experimentation*	

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
645350: *Experimentation*	-	90.686	217.894	95.233	0.000	95.233	65.804	66.952	67.876	69.625	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Experimentation project funds experimentation campaigns to explore new concepts and their applications in operationally relevant environments and within a system-of-systems warfighting context. Operational Experimentation Campaigns are directly aligned and integrated with the SecAF's Operational Imperatives. Concepts and enabling technologies including but not limited to, airborne targeting and tracking, autonomy, spectrum warfare, artificial intelligence, machine learning, expeditionary base defense, agile combat operations, and joint all-domain operations hold great promise, yet their transition to acquisition programs and fielded capabilities is typically hampered due to uncertainties regarding their military utility and organizational adoption. Experimentation campaigns assess hypotheses that new capabilities will deliver decisive competitive advantage against our adversaries in a dynamic threat environment. These campaigns dramatically shorten and reduce the overall cost of the acquisition process by delivering robust information including operational utility assessments, total life cycle cost estimates, preliminary product support strategy, reliability and maintainability metrics, operational utility assessments and Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy implications.

A key element of the experimentation campaigns is strong stakeholder partnerships and buy-in from senior DAF leadership including the Secretary of the Air Force, Air Force Futures, Air Force Plans and Programs, US Space Force Futures and Integration, Office of the Assistant Secretary of the Air Force for Acquisition, Technology and Logistics, warfighting Major Commands and Combatants Commands (capability recipients/end users), Space and Missile Systems Center and Air Force Material Command (capability developers) that ensures rapid transition of capabilities when operational utility, affordability, sustainability, and industrial capacity meet the Department of Air Force needs.

Experimentation campaigns are centered on an operational level warfighting concept to provide context for assessment. They use wargaming, simulation, demonstrations, and field/flight experimentation to evolve, refine, and validate the warfighting concepts leading to solid, evidence-based materiel and non-materiel capability development approaches with associated recommendations. Experimentation campaigns improve the effectiveness of operations by refining concepts and generating new information to address challenging threats of the future which aids the fielding of advanced technologies by providing the credible evidence needed to make sound strategic decisions and investment choices. Warfighting concepts evolve based on the latest threat assessments and the Experimentation Campaigns are likewise modified to ensure the Department of the Air Force retains a competitive advantage. Much of the Operational Experimentation efforts are more thoroughly described at higher classification levels.

The Department of the Air Force's component of the Rapid Defense Experimentation Reserve (RDER) is one of the many experimentation efforts executed within this project. To facilitate rapid modernization of the force, the Rapid Defense Experimentation Reserve (RDER) initiative was established in the Defense Planning Guidance for Fiscal Years 2023-2027, to encourage multi-component experimentation through a campaign of learning. Services, Agencies, and other participating organizations are to identify "best of breed" capabilities developed among the DoD prototyping programs, and execute approved projects through large-scale, cross-service experiments in order to refine and/or validate the Joint Warfighting Concept (JWC). Organizations nominate proposals to the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) that are multi-component — involving Joint Services, International partners and/or other government agencies —

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645350 / *Experimentation*

and link to one or more of the four key supporting concepts ("functional battles") of the Joint Warfighting Concept: Joint Concept for Fires, Joint Concept for Command and Control, Joint Concept for Contested Logistics, and Joint Concept for Information Advantage.

Experimentation is focused on rapid learning and then pivoting existing or future capability development efforts based on that knowledge to ensure the most pressing operational gaps are addressed and our warfighting advantages are preserved. Further details can be provided in the appropriate forum.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Experimentation Campaigns	80.990	160.594	95.233	-	95.233
Description: Execution of Experimentation Campaigns to identify the competitive advantages of operational warfighting concepts and the technologies that enable these concepts. Activities may include flight tests, operational exercises, joint-service exercises, digital engineering, system-of-systems integration facilitated workshops, wargaming, modeling and simulation, and virtual and hardware prototyping to enable experimentation campaigns. ***FY 2023 Plans:*** Continue to execute Experimentation Campaigns that aim to produce competitive advantages against near-peer adversaries and advance multi-domain operations to bring a convergence of effects, as directed by Department of the Air Force Leadership. - In FY 2023 the App Enabled Rapidly Reprogrammable EW/EMS Systems (AERRES) program will demonstrate Artificial Intelligence/ Machine Learning Electromagnetic Spectrum (EMS) algorithms and assess the competitive advantages of these algorithms on several operational platforms in tactical operations extending the capability of 4th gen Aircraft. - Following the live fire joint service, Operational Experimentation test event with an international partner, the Base Defense Experimentation efforts will assess the maintainability, reliability, and suitability of the National Advanced Surface to Air Missile System (NASAMS) in OCONUS operations as part of Joint Service operations in partnership with EUCOM. - As part of the ADAIR-UX Experimentation effort, the Strategic Development Planning and Experimentation office will partner with Major Commands and Program Executive Offices to build and execute operational experimentation efforts focused on the implementation of Collaborative Combat Aircraft (CCA) in key operational tests, operational training exercises, and joint-service campaigns. This will transition advancements pioneered through the Skyborg effort and industry advancements to produce initial fielded capability. - The Department of Defense is actively pushing the development and fielding of adaptable and flexible targeting capabilities that can leverage machine learning and advanced communication networks to minimize the continual requirements placed our DoD and national sensing resources. Leveraging the findings from the Intelligence Community, efforts will not only identify limitations in Department of the Air Force systems, but					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645350 / *Experimentation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
also seek opportunities to incorporate state-of-the art statistics and AI, and machine-to-machine processing to maintain target awareness. The Air Force has long maintained a tactical advantage against any and all adversaries in the utilization and employment of the E-3 Airborne Warning & Control System (AWACS) to identify, track, and target enemy airborne platforms. Experimentation efforts will focus on determining how the Air Force can maintain this competitive advantage by assessing Artificial Intelligence/Machine Learning algorithms employed on several different autonomous air platforms in tactical operations and joint exercises. Experimentation efforts will deploy and assess cost-curve flipping base defense capabilities such as the Hypervelocity Gun Weapon System (HGWS) to defend and protect Air Force expeditionary operations in austere, difficult to locate positions. SDPE will work with HAF, MAJCOMs, COCOMs, and joint-service partners to explore, build, and assess High Altitude Long Endurance (HALE) capabilities such as High Altitude Balloons (HABs). - Smaller experimentation campaigns will be undertaken to address the strategic dilemma posed at Air University's Chief of Staff of the Air Force sponsored Blue Horizons program. Only those Experimentation efforts that are deemed the absolute highest priority by the Department of the Air Force Leadership will be executed aiming to create technologies and processes that will provide the largest competitive advantages and produce the most significant dilemmas for our adversaries will be investigated or executed. Data from all efforts is provided directly to AF Plans and Programs (A8), Futures (5/7), Secretary of the Air Force for Acquisition, Technology and Logistics (AQ), and US Space Force Futures and Integration (S8), and the Space Warfighting Analysis Center (SWAC) to drive capability development ***FY 2024 Base Plans:*** Continue to execute Experimentation Campaigns that aim to assess and enable competitive advantages against near-peer adversaries and advance multi-domain operations to bring a convergence of effects, as directed by Department of the Air Force Leadership. In FY 2024 the App Enabled Rapidly Reprogrammable EW/EMS Systems (AERRES) program will evaluate the operational utility of open architectures for rapidly reprogrammable Electronic Warfare (EW) and assess the competitive advantages of Artificial Intelligence/Machine Learning Electromagnetic Spectrum (EMS) algorithms on several operational platforms in tactical operations. Software focused EW and AI/ML tools will enable responsive Electronic Attack to rapidly adapt and defeat near-peer RF threats. SDPE's Hawkeye Experimentation Campaign will perform end-to-end operational experimentation of a long-range kill chain, scale the capability up to the throughput needed for an operational system, and work with DOD					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
USG organizations to transition the capability onto a DOD digital infrastructure. All relevant data from multiple domains is shared to contribute to the optimized targeting solution, The accuracy and latency of each data stream is coherently fused to form optimal targeting information that is ideally only limited by the capability of the available sensors. The target information is then passed through multiple communications pathways to the platforms. Under the FY 2019-2022 Hawkeye effort, all key elements were demonstrated in live testing, characterized at limited scale, and shown to be effective. The current effort integrates the element, scales the system to large numbers of platforms, and transitions the capability to an operational digital infrastructure, and completes the overall transition to the operational program offices for sustainment. FY 2024: adding funding for targeting efficiency to demonstrate communications, track extraction, and weapon/target pairing The Base Defense Battle Management Command and Control Experimentation efforts will assess the maintainability, reliability, and suitability of the National Advanced Surface to Air Missile System (NASAMS) and Hypervelocity Ground Weapon System (HGWS) in OCONUS operations as part of Joint Service operations in partnership with EUCOM and INDOPACOM. The systems both will be integrated with an operationally fielded USAF Command and Control (C2) systems providing centralized control and fusion of Joint Service sensors to improve weapons quality track. Efforts will focus on evaluating the Air Defense Controller to reduce manpower, improve target engagement, cut engagement timelines, and assess operator limitations vs. raids of various threats. In addition, the HGWS prototype will rapidly deploy to a remote location to understand the effectiveness of expeditionary operations. The Autonomous Attritable Aircraft Experiment (AAAx) will transform manned fighter platforms to AI driven aircraft to dramatically accelerate the evaluation and integration AI/ML algorithms in combat systems. In addition, AAAx efforts will focus not on solely building and understanding the competitive advantages of an Artificial Intelligence-fueled platform, but also in understanding the infrastructure required to maintain vehicle operations including deployment of advanced software on a flight line, acquiring and cataloguing sensor data, and exploring unique waveforms to connect these platforms to traditional manned assets. SDPE will collaborate with industry Artificial Intelligence/Machine Learning leaders and service labs to assess vulnerabilities of codes that are being developed, tested, and implemented in air platforms. Leveraging the findings from the Intelligence Community, efforts will not only identify susceptibilities in Department of the Air Force systems, but also seek opportunities to counter and exploit adversary Artificial Intelligence platforms. As part of the ADAIR-UX Experimentation effort, the Strategic Development Planning and Experimentation office will partner with Major Commands and Program Executive Offices to build and execute operational experimentation efforts focused on the implementation of Autonomous Air Platforms in key operational tests,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
operational training exercises, and joint-service campaigns. The Operational Experimentation effort will improve overall CAF operationalization of tactical uncrewed platforms through operational assessment of five capability components: vehicle design, sensors/payloads, networks/high-performance computing, human-machine interface, and autonomy. Under Project SAINT SDPE will build a digital environment to assess the ability to establish and maintain custody of adversary targets using cross-service, cross-agency, and commercial sensing capabilities. SDPE will also explore low cost, nontraditional platforms such as high altitude balloons and uncrewed, long endurance air platforms to sense and track adversary platforms and actions. Additional efforts will continue to identify and evaluate potential game-changing Agile Combat Employment operations that enable Air Force expeditionary operations in austere, difficult to locate positions. Smaller experimentation campaigns will be undertaken to address the strategic dilemma posed at Air University's Chief of Staff of the Air Force sponsored Blue Horizons program. Only those Experimentation efforts that are deemed the absolute highest priority by the Department of the Air Force Leadership will be executed aiming to create technologies and processes that will provide the largest competitive advantages and produce the most significant dilemmas for our adversaries will be investigated or executed. Data from all efforts is provided directly to the Secretary of the Air Force, AF Plans and Programs (A8), Futures (5/7), Secretary of the Air Force for Acquisition, Technology and Logistics (AQ), and US Space Force Futures and Integration (S8), and the Space Warfighting Analysis Center (SWAC) to drive capability development. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funding decreased compared to FY 2023 by $65.361 million. Funding decreased due to higher Air Force Priorities and due to moving Rapid Defense Experimentation Reserve (RDER) funds out of this effort to a new Program Element, 0604025F per Congressional Direction.					
Accomplishments/Planned Programs Subtotals	80.990	160.594	95.233	-	95.233

	FY 2022	FY 2023
Congressional Add: Program Increase - Autonomous Air Combat Operations	9.696	10.000
FY 2022 Accomplishments: Conduct Congressionally - Directed Efforts		
FY 2023 Plans: Conduct Congressionally - Directed Efforts		
Congressional Add: Program Increase Advanced Rotary Engine Hybrid Power System	-	10.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
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	FY 2022	FY 2023
FY 2023 Plans: Conduct Congressionally - Directed Efforts		
Congressional Add: Program Increase - Operational Additive Manufacturing Capabilities ***FY 2023 Plans:*** Conduct Congressionally - Directed Efforts	-	9.800
Congressional Add: Program Increase Advanced Air Mobility ***FY 2023 Plans:*** Conduct Congressionally - Directed Efforts	-	5.500
Congressional Add: Program Increase - F35 Logistics Enhancements ***FY 2023 Plans:*** Conduct Congressionally - Directed Efforts	-	10.000
Congressional Add: Program Increase - Hybrid Autonomous Maritime Expeditionary Logistics ***FY 2023 Plans:*** Conduct Congressionally - Directed Efforts	-	2.000
Congressional Add: Program Increase Versatile Aerial Power System ***FY 2023 Plans:*** Conduct Congressionally - Directed Efforts	-	10.000
Congressional Adds Subtotals	9.696	57.300

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• RDTE 04 0604025F: *Rapid Defense Experimentation Reserve (RDER)*	-	-	154.300	-	154.300	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Experimentation campaigns will aid the advancement and transition of advanced technologies by providing the credible evidence decision makers need to make sound strategic decisions and investment choices, to provide the warfighter with advanced capabilities. Air Force Futures, Air Force Plans and Programs, US Space Force Futures and Integration, and the Office of the Assistant Secretary of the Air Force for Acquisition, Technology and Logistics direct experimentation campaigns. The Air Force Strategic Development Planning and Experimentation (SDPE) Office located at Wright-Patterson Air Force Base, Ohio and Eglin Air Force Base manages and executes each experimentation campaign. Contracting strategies vary based on the activities of each campaign.
Global Thunder: The system will be acquired through a full-and-open competition using the existing AFRL Defense Experimentation Using the Commercial Space Internet (DEUCSI) solicitation and a new Acquisition Strategy is not required.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experimentation Campaigns	C/Various	Various : Various	-	5.509	Sep 2022	-		19.467	Jan 2024	-		19.467	Continuing	Continuing	-
Experimentation Campaign Hawkeye Contract 1	C/CPAF	L3 Harris : Salt Lake City, UT	-	-		-		-		-		-	Continuing	Continuing	-
Experimentation Campaign Hawkeye Contract 2	C/CPFF	Lockheed : Fort Worth, TX	-	-		-		-		-		-	Continuing	Continuing	-
Experimentation Campaign Hawkeye Contract 3	C/CPFF	Space X : Hawthorne, CA	-	3.903	Aug 2022	-		-		-		-	Continuing	Continuing	-
Experimentation Campaign Hawkeye Contract 4	Various	Various : Various	-	5.666	Sep 2022	10.000	Dec 2022	20.000	Oct 2023	-		20.000	Continuing	Continuing	-
Experimentation Campaigns Hawkeye Contract 5	Various	Various : Various	-	-		18.000	Nov 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign Hawkeye Contract 6	Various	Various : Various	-	-		2.000	Dec 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft	Various	Various : Various	-	0.236	Aug 2022	-		4.000	Jan 2024	-		4.000	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Contract 1	C/CPFF	Lockheed : Palmdale, CA	-	0.500	Jul 2022	2.000	Jul 2023	-		-		-	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Contract 2	C/CPFF	Kratos : Colorado Springs, CO	-	0.000	May 2022	2.000	May 2023	-		-		-	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Contract 3	C/CPFF	Calspan : Buffalo, NY	-	0.400	Jul 2022	2.000	Jul 2023	-		-		-	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Contract 4	C/CPAF	Leidos : Reston, VA	-	0.000	Sep 2022	2.000	Sep 2023	-		-		-	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Contract 5	C/CPAF	Infoscitex : Dayton, OH	-	0.000	Jun 2022	2.000	Jun 2023	-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experimentation Campaign Autonomous Attritable Aircraft Contract 6	C/CPAF	Fregata : St Louis, MO	-	0.389	Dec 2022	2.000	Dec 2023	-		-		-	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Contract 7	C/CPAF	GRE OTA : FL	-	5.900	Sep 2022	-		-		-		-	Continuing	Continuing	-
Experimentation Campaign Blue Horizons	Various	Various : Various	-	2.915	Sep 2022	2.250	Dec 2022	2.000	Nov 2023	-		2.000	Continuing	Continuing	-
Experimentation Campaign Base Defense Gun Weapon System 1	C/CPFF	Raytheon : Tucson, AZ	-	18.500	Jul 2022	7.000	Jan 2023	-		-		-	Continuing	Continuing	-
Experimentation Campaign Base Defense Gun Weapon System 2	C/CPAF	Various : Various	-	2.435	Sep 2022	-		-		-		-	Continuing	Continuing	-
Experimentation Campaign Base Defense National Advanced Surface to Air Missile System	C/CPFF	BAE : Minneapolis, MN	-	0.000	Aug 2022	12.000	Dec 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign Counter AI	C/CPAF	Various : Various	-	5.000	Sep 2022	-		-		-		-	Continuing	Continuing	-
Experimentation Campaign AERRES	Various	Various : Various	-	10.917	Sep 2022	6.500	Dec 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign AMTI	Various	Various : Various	-	1.800	Sep 2022	5.000	Feb 2023	3.000	Jan 2024	-		3.000	Continuing	Continuing	-
Experimentation Campaign Agile Combat Employment	Various	Various : Various	-	-		5.000	Dec 2022	-		-		-	Continuing	Continuing	-
Congressional Add - Autonomous Air Combat Operations	Various	Various : Various	-	9.696	Sep 2022	10.000	Oct 2023	-		-		-	0.000	19.696	-
Congressional Add - advanced rotary engine hybrid power system	Various	Various : Various	-	-		10.000	Oct 2023	-		-		-	Continuing	Continuing	-
Congressional Add - operational additive manufacturing capabilities	Various	Various : Various	-	-		9.800	Dec 2023	-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Congressional Add - advanced air mobility	Various	Various : Various	-	-		5.500	Aug 2023	-		-		-	Continuing	Continuing	-
Congressional Add - F-35 Logistics Enhancements	Various	Various : Various	-	-		10.000	Jun 2024	-		-		-	Continuing	Continuing	-
Congressional Add - hybrid autonomous maritime expeditionary logistics	Various	Various : Various	-	-		2.000	Nov 2023	-		-		-	Continuing	Continuing	-
Congressional Add - Versatile Aerial Power System	Various	Various : Various	-	-		10.000	Dec 2023	-		-		-	Continuing	Continuing	-
Experimentation Campaign Unmanned Adversary Air (ADAIR UX)	Various	Various : Various	-	-		45.607	Jul 2023	-		-		-	Continuing	Continuing	-
		Subtotal	-	73.766		182.657		48.467		-		48.467	Continuing	Continuing	N/A

Remarks

Experimentation is focused on rapid learning and then pivoting based on that learning. Therefore, specific plans are not detailed to prevent locking into an approach that will likely shift based on current experimentation efforts. Further budget details can be provided in the appropriate forum.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experimentation Campaign Support	Various	Various : Various	-	0.225	Mar 2022	1.361	Mar 2023	4.000	Jan 2024	-		4.000	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Support 1	MIPR	Perduco/GSA : O'Fallon, IL	-	2.000	Nov 2021	5.200	Nov 2022	1.000	Nov 2023	-		1.000	Continuing	Continuing	-
Experimentation Campaign Autonomous Attritable Aircraft Support 2	MIPR	OO-ALC : Ogden, UT	-	0.700	Sep 2022	-		-		-		-	Continuing	Continuing	-
Experimentation Campaign Hawkeye	Various	Various : Various	-	0.717	Dec 2022	-		2.000	Dec 2023	-		2.000	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experimentation Campaign Base Defense	MIPR	Various : Various	-	2.845	Sep 2022	4.000	Nov 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign Blue Horizons	MIPR	DOE : Oak Ridge, TN	-	-		0.250	Nov 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign AERRES 1	MIPR	AAFC/AFR : Adelphi, MD	-	-		0.500	Oct 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign AERRES 2	MIPR	SWRI : TBD	-	0.300		-		-		-		-	Continuing	Continuing	-
Experimentation Campaign AMTI	Various	Various : Various	-	0.000	Sep 2022	1.000	Oct 2022	-		-		-	Continuing	Continuing	-
		Subtotal	-	6.787		12.311		7.000		-		7.000	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experimentation Campaign Test and Evaluation	MIPR	Various : Various	-	0.000	Dec 2021	2.480	Dec 2022	5.000	Dec 2023	-		5.000	Continuing	Continuing	-
Experimentation Campaign Hawkeye	Various	Various : Various	-	3.014	Jun 2022	-		10.000	Oct 2023	-		10.000	0.000	13.014	-
Experimentation Campaign Autonomous Attritable Aircraft T&E 1	MIPR	Various : Various	-	0.775	Apr 2022	6.100	Apr 2023	14.260	Feb 2024	-		14.260	Continuing	Continuing	-
Experimentation Campaign AERRES 1	MIPR	96 OSS : Eglin AFB, FL	-	0.000	Dec 2021	3.770	Dec 2022	-		-		-	Continuing	Continuing	-
Experimentation Campaign AERRES 2	MIPR	586th : CA	-	1.320		-		-		-		-	Continuing	Continuing	-
Experimentation Campaign Base Defense	MIPR	Various : Various	-	0.000	Dec 2021	4.000	Oct 2022	-		-		-	Continuing	Continuing	-
Blue Horizons	Various	Various : Various	-	-		1.000	Nov 2022	1.500	Nov 2023	-		1.500	Continuing	Continuing	-
Experimentation Campaign Counter AI	Various	Various : Various	-	0.000	Jun 2022	-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experimentation Campaign AMTI	Various	Various : Various	-	-		-		3.000	Jan 2024	-		3.000	Continuing	Continuing	-
		Subtotal	-	5.109		17.350		33.760		-		33.760	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experimentation Campaign Contractor Support	Various	Various : Various	-	0.233	Dec 2021	0.266	Oct 2022	0.300	Oct 2023	-		0.300	Continuing	Continuing	-
Experimentation Campaign Program Management Administration Costs	Various	Various : Various	-	4.791	Jan 2022	5.310	Nov 2022	5.706	Nov 2023	-		5.706	Continuing	Continuing	-
		Subtotal	-	5.024		5.576		6.006		-		6.006	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	90.686		217.894		95.233		-		95.233	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645350 / *Experimentation*

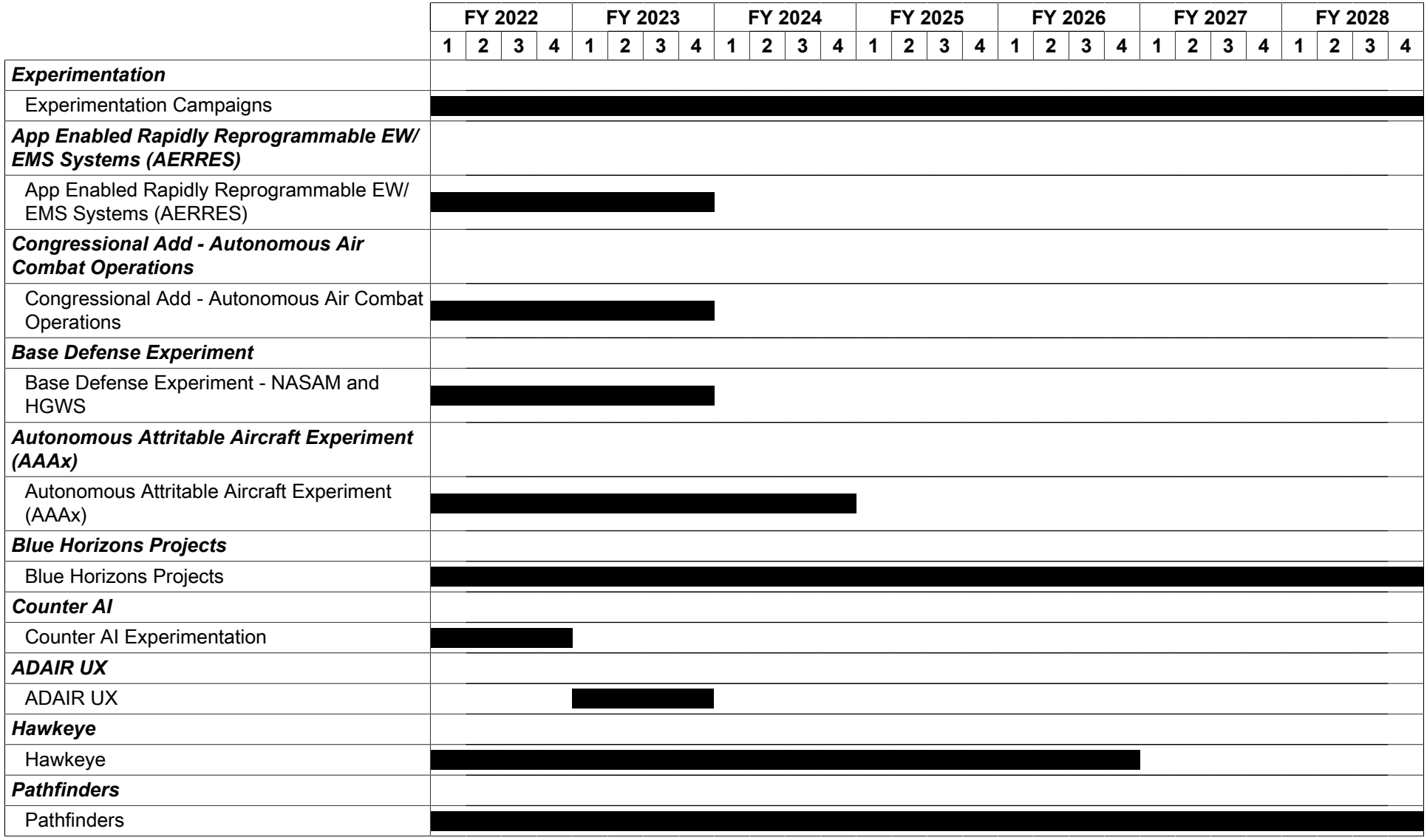

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
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	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Congressional Add - Advanced Rotary Engine Hybrid Power system																												
Congressional Add - Advanced Rotary Engine Hybrid Power system																												
Congressional Add - Operational Additive anufacturing capabilities																												
Congressional Add - Operational Additive Manufacturing Capabilities																												
Congressional Add - Advanced Air Mobility																												
Congressional Add - Advanced Air Mobility																												
Congressional Add - F-35 Logistics Enhancements																												
Congressional Add - F-35 Logistics Enhancements																												
Congressional Add - Hybrid Autonomous Maritime Expeditionary Logistics																												
Congressional Add - Hybrid Autonomous Maritime Expeditionary Logistics																												
Congressional Add - Versatile Aerial Power System																												
Congressional Add - Versatile Aerial Power System																												

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Experimentation				
Experimentation Campaigns	1	2022	4	2028
App Enabled Rapidly Reprogrammable EW/EMS Systems (AERRES)				
App Enabled Rapidly Reprogrammable EW/EMS Systems (AERRES)	1	2022	4	2023
Congressional Add - Autonomous Air Combat Operations				
Congressional Add - Autonomous Air Combat Operations	1	2022	4	2023
Base Defense Experiment				
Base Defense Experiment - NASAM and HGWS	1	2022	4	2023
Autonomous Attritable Aircraft Experiment (AAAx)				
Autonomous Attritable Aircraft Experiment (AAAx)	1	2022	4	2024
Blue Horizons Projects				
Blue Horizons Projects	1	2022	4	2028
Counter AI				
Counter AI Experimentation	1	2022	4	2022
ADAIR UX				
ADAIR UX	1	2023	4	2023
Hawkeye				
Hawkeye	1	2022	4	2026
Pathfinders				
Pathfinders	1	2022	4	2028
Congressional Add - Advanced Rotary Engine Hybrid Power system				
Congressional Add - Advanced Rotary Engine Hybrid Power system	1	2023	4	2023
Congressional Add - Operational Additive anufacturing capabilities				

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645350 / *Experimentation*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Congressional Add - Operational Additive Manufacturing Capabilities	1	2023	4	2023
Congressional Add - Advanced Air Mobility				
Congressional Add - Advanced Air Mobility	1	2023	4	2023
Congressional Add - F-35 Logistics Enhancements				
Congressional Add - F-35 Logistics Enhancements	1	2023	4	2023
Congressional Add - Hybrid Autonomous Maritime Expeditionary Logistics				
Congressional Add - Hybrid Autonomous Maritime Expeditionary Logistics	1	2023	4	2023
Congressional Add - Versatile Aerial Power System				
Congressional Add - Versatile Aerial Power System	1	2023	4	2023

Note

Experimentation is focused on rapid learning and then pivoting based on that learning. They are used to determine the competitive advantage a technology or warfighting concept can have over our adversaries and ascertain operational utility. Often Experimentation Campaigns uncover new ways to use existing technology or how to exploit new Science and Technology for our competitive gain. Further schedule details regarding individual experimentation campaigns can be provided in the appropriate forum.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604858F / *Tech Transition Program*	Project (Number/Name) 645351 / *Prototyping*	

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
645351: *Prototyping*	-	144.914	152.916	108.495	0.000	108.495	118.326	24.371	45.093	110.980	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Prototyping project enables demonstration of emerging technologies in an operational environment to determine and evaluate the completive advantage against our adversaries and how the technology is integrated into the future fight.

Lifecycle Prototyping investments focus on three major thrusts (1) advancing capabilities of legacy weapon systems, (2) militarizing novel mature commercial technologies, and (3) exploring partnerships with Department of the Air Force Program Executive Officers to rapidly transition technologies that are being developed as part of the Department of Air Force Vanguard programs. Prototype project investments that advance capabilities of legacy weapon systems focus on kinetic energy effectors for base defense and expeditionary employment operations, a multi-source resilient Position Navigation and Timing pod, and software defined electronic warfare and communication capabilities. Prototype projects that seek to militarize novel mature commercial technologies will focus on artificial intelligence, autonomy, cyber warfare capabilities, digital engineering, and novel weapon and aircraft technologies. Finally, prototype projects that explore partnerships will invest in risk reduction activities in partnership with the Department of the Air Force Program Executive Officers assigned to each of the Department of the Air Force Vanguard Programs to ensure rapid and seamlessly transition of Science and Technology into warfighting capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Lifecycle Prototyping	137.158	88.916	20.274	-	20.274
Description: Following Strategic Department of Defense and Department of the Air Force direction cross-functional teams composed of operators, technologists, engineers, acquisition, and requirements personnel from across the Department of the Air Force execute Prototyping Campaigns to determine if and how much of a competitive advantage these systems can produce against our adversaries. Developmental Prototypes are an opportunity to understand the operational utility of a new warfighting concept or technology, while avoiding the pitfalls of entering into a lengthy, formal acquisition program without the requisite knowledge of performance trade-offs and technical and programmatic risks. Prototypes integrated into carefully crafted operational Experimentation Campaigns provide immediate feedback to Department of the Air Force senior leaders driving rapid acquisition or divestment with minimal resources. Prototype efforts provide an initial capability if warranted that can act as a catalyst for future rapid acquisition. Exploring innovative prototypes that range across the full Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy spectrum gives Department of the Air Force senior leaders a quicker understanding of the potential operational utility, leading to better decisions on what to pursue with limited acquisition resources.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: Continue to integrate operational prototypes into Experimental Campaigns to determine the feasibility and evaluate the strategic military advantage these capabilities present against adversaries. - A Rapid Dragon (palletized munitions) operational prototype will be built and will launch heterogeneous weapon loads identified by Department of the Air Force senior leaders that will provide strategic advantages against China and other peer adversaries. Palletized munition prototypes will be built and integrated into Joint Operations and Allied Partner exercises to understand the operational advantages that can be exploited across services and strategic allied partners. - A C-130 transportable/deployable Hypervelocity Ground Weapon System (HGWS) prototype will be built and integrated into a Joint-Service operation that will rapidly deploy the HGWS prototype, integrate the system into an existing joint service battle management system, and test its effectiveness against incoming cruise missiles as part of a life fire experiment. The HGWS prototype will rapidly deploy to a remote location to understand the effectiveness of expeditionary operations. - Autonomous Aircraft efforts will build and conduct operational experimentation efforts implementing proven artificial intelligence architectures and algorithms from AFRL, DOD-service partners, Industry, and Allied partners integrated into existing operational aircraft. In addition, prototype efforts will focus not on solely building and understanding the competitive advantages of an Artificial Intelligence-fueled platform, but also in understanding the infrastructure required to maintain vehicle operations including deployment of advanced software on a flight line, acquiring and cataloguing sensor data, and exploring unique waveforms to connect these platforms to traditional manned assets. - The Regional Operating Picture initiative will deploy Wave Relay Mobile Ad-Hoc Network communications equipment at FE Warren Air Force Base Wyoming, Minot Air Force Base North Dakota, and Malmstrom Air Force Base Montana to provide seamless digital Command, Control, and Communications and real-time status of all intercontinental ballistic missile (ICBM) personnel and equipment across the entire 90th, 91st, and 341st Missile Wings. Only those Prototype efforts that are deemed the absolute highest priority by the Department of the Air Force Leadership will be executed aiming to create technologies and processes that will provide the largest competitive advantages and produce the most significant dilemmas for our adversaries will be investigated or executed. Data from all efforts is provided directly to AF Plans and Programs (A8), Futures (5/7), Secretary of the Air Force for					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Acquisition, Technology and Logistics (AQ), and US Space Force Futures and Integration (S8), and the Space Warfighting Analysis Center (SWAC) to drive capability development decisions and inform warfighting concepts. ***FY 2024 Base Plans:*** SDPE Hawkeye Prototyping Funding to demonstrate targeting efficiency to demonstrate communications, track extraction, and weapon/target pairing ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 decreased compared to FY 2023 by $68.642 million due to higher Air Force priorities.					
Title: Rapid Defense Experimentation Reserve	-	64.000	-	-	-
Description: The Department of Defense implement multiple RDER experimentation series through Service nominated projects with execution timelines ranging from one to two years. The USD (R&E) will review project progress, and recommend new projects at least annually with the goal of quickly incorporating the most promising innovative prototypes into experiments, and promptly terminating projects that fail to achieve expectations. To incentivize a disciplined approach to rapidly identify, incorporate, and execute projects largely through the Military Services, the Department will fund approved Service projects for the upcoming fiscal year out of the Department reserves. Funding decisions on additional funds in follow-on years for new projects, and funding decrements for project terminations will be incorporated in budgets annually based on emerging requirements and periodic assessments of project viability. Services will execute these funds under oversight of the OSD in a manner consistent with the experimentation scenario for which individual projects were selected. Service experimentation outcomes will be designed to validate required capabilities enabling the JWC by evaluating and integrating prototyped technologies in operationally relevant, multi-domain environments. Experimentation results will facilitate Joint Staff analysis in the evaluation of the Joint Warfighting Concept, assist the Joint Requirements Oversight Counsel in requirements determination, and inform the Deputy's Management Action Group to make budget decisions that effect changes throughout the Department. ***FY 2023 Plans:*** RDER efforts include the following efforts: CONCEAD, TURUL, Global Thunder, and RDER Classified Effort # 2 (further details available on the appropriate forum). - CONCEAD: will develop and flight demonstrate precision RF synchronization open-architecture prototypes for enhanced sensing and disruptive electromagnetic spectrum (EMS) capability. CONCEAD expands on methods developed under the Retroactive Arrays for Coherent Transmission (ReACT) program (previously budgeted in PE 0603766E Network Centric Warfare Technology) to advance EMS dominance.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Specific plans for FY 2023 include developing advanced hardware and waveforms to raise the technology readiness level (TRL) of this disruptive EMS capability. Design and purchase advanced hardware system; Mature methods for acquiring threat radar waveforms; Mature and analyze enhanced waveforms. - Turul: will deliver a minimum viable product software that will enable the warfighter to make requests and receive information from a variety of commercial space providers. These data products will be utilized to automatically generate information products that the warfighter can leverage in their find, fix, track, target, engage, and assess (F2T2EA) workflows. In FY 2023 TURUL will deliver graphical User Interface accessible unclassified via the cloud that the warfighter can utilize to task, collect, and view data products from commercial space sensors. - Global Thunder: will prototype, integrate and perform operational experimentation on advanced satellite communications terminals for selected aircraft, and integrate these platforms into the Hawkeye long-range kill chain. The terminals will follow the Global Lightning design architecture with the capability to dynamically switch between communications spacecraft in low-Earth orbit (LEO, 500-km), medium-Earth orbit (MEO, 8,000 km), and geosynchronous orbit (GEO, 36,000 km), utilizing a multi-modem design that allows connectivity to both commercial and protected government satellites. Global Thunder FY 2023 efforts include receiver terminal prototyping and initial aircraft integration. For FY 2023 funding Congress directed the creation of a new RDER PE (0604025F). Due to the timing of PE creation and database locking the funds were mistakenly placed in the Tech Transition Prototyping BPAC. This is a known issue that will be addressed via tech adjustment. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 decreased compared to FY 2023 by $64.000 million. Funding decreased due to the movement to a newly established Program Element, 0604025F per Congressionally Direction.					
Title: Blended Wing Body - Next Generation Aircraft ***Description:*** In partnership with Defense Innovation Unit, allies, industry stakeholders, and private investors, Next-Gen Large Aircraft targets over a 30% increase in aerodynamic efficiency over traditional tube-and-wing large aircraft (given same engines), with a corresponding 30% decrease in greenhouse gas emissions. For military applications, initial analysis shows increases in combat capability greater than the percent increase in fuel efficiency for both aerial refueling and cargo aircraft productivity (e.g. 30% increase in fuel efficiency can equal 60% or more increased aerial refueling fuel offload at range). Project goals include designing an aircraft that can cost-effectively scale up and down to enable acquisition by a broader community of government and industry stakeholders. Overall effort intends to manufacture a prototype large-scale aircraft for certification and	-	0.000	88.221	-	88.221

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
testing. This project works in coordination with DOD's Chief Sustainability Officer and the Air Force Operational Energy office. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** Execute prototype development of a blended wing body aircraft. Creation of digital environment for airframe design iteration and risk reduction. Manufacturing technology maturation and risk reduction, as well as esign integration of advanced composites, non-cylindrical pressure vessel technology expanding on work done by NASA, flight control laws, and nacelle-airframe optimization. Complete initial requirements generation phase, continue vehicle and airframe design, structural analysis and component testing, and avionics and flight control system integration plan. Incorporate life-cycle sustainment cost considerations into design phase. Initial airworthiness and test planning for prototype aircraft. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increased compared to FY 2023 In FY2024 by $88.221 million. Funding increased due to the transfer of funding from PE 064009F, AFWERX Prime, Project 640858.					
Accomplishments/Planned Programs Subtotals	137.158	152.916	108.495	-	108.495

	FY 2022	FY 2023
Congressional Add: Program increase - Logistics Enhancements ***FY 2022 Accomplishments:*** Conduct Congressionally-directed efforts ***FY 2023 Plans:*** N/A	3.878	0.000
Congressional Add: Program increase - Alternative PNT phase III Demonstration ***FY 2022 Accomplishments:*** Conduct Congressionally-directed efforts ***FY 2023 Plans:*** N/A	3.878	0.000
Congressional Adds Subtotals	7.756	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• RDTE 04 0604025F: *Rapid Defense Experimentation Reserve (RDER)*	-	-	154.300	-	154.300	-	-	-	-	Continuing	Continuing
• RDTE 04 0604009F: *AFWERX Prime*	-	41.909	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Prototyping campaigns will aid the advancement and transition of advanced technologies by providing the credible evidence decision makers need to make sound strategic decisions and investment choices, to provide the warfighter with advanced capabilities. Air Force Futures, Air Force Plans and Programs, US Space Force Futures and Integration, and the Office of the Assistant Secretary of the Air Force for Acquisition, Technology and Logistics direct experimentation campaigns. The Air Force Strategic Development Planning and Experimentation (SDPE) Office located at Wright-Patterson Air Force Base, Ohio and Eglin Air Force Base manages and executes each experimentation campaign. Contracting strategies vary based on the activities of each campaign.

NC3 Commercial Development/Prototyping will use full-and-open proposal calls under the existing Defense Experimentation Using the Commercial Space Internet (DEUCSI) solicitation. Terminals (radios, modems, antennas) will be prototypes using multiple prime vendors. These contracts are currently in negotiation and are on track for a Jan 2023 award. The primes will be expected to establish sub-contracts with the commercial vendors to secure the modems or waveforms, so as to allow the government to operationalize this capability as an integrated unit. With awards to a qualified integration contractor for each platform, the prototype units will be integrated onto a single platform of each type, complete flight worthiness approvals, interim authorities to test (IATT), and complete flight testing in an operational environment to prove the system. Working with the PEO of each platform we will then be able to extend the capability to the rest of the fleet as a simple procurement of a proven prototype, using Firm Fixed Price contracts and enabling Rapid Acquisition Authorities if needed. The Satellite communication (SATCOM) service will be acquired through the terminal prototype contracts for a limited duration to support the experimentation (typically 1 year), and transition to service contracts under United States Space Force, Commercial Satellite Communications Office (USSF/CSCO) for operations.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604858F / *Tech Transition Program*	Project (Number/Name) 645351 / *Prototyping*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototyping Requirements	Various	Not specified. : Various	-	-		-		20.274	Mar 2024	-		20.274	Continuing	Continuing	-
Prototyping Campaign Global Lightning Commercial Space Internet Contract 1	C/CPFF	Raytheon : McKinney, TX	-	3.688	Feb 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Global Lightning Commercial Space Internet Contract 3	C/CPFF	SpaceX : Hawthorne, CA	-	7.936	Apr 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Global Lightning Commercial Space Internet Contract 4	C/CPFF	Northrop Grumman : San Diego, CA	-	7.822	May 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Global Lightning Commercial Space Internet Contract 5	C/CPFF	L3 : Salt Lake City, UT	-	2.015	Apr 2022	-		-		-		-	0.000	2.015	-
Prototyping Campaign Global Lightning Commercial Space Internet Contract 8	C/CPFF	Lockheed Martin : Fort Worth, TX	-	8.369	Apr 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Base Defense Contract 1	C/CPFF	BAE : Minneapolis, MN	-	18.317	Mar 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Hawkeye	C/CPFF	Space X : Hawthorne, CA	-	7.849	Apr 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Hawkeye Contract 2	C/CPFF	Ball Aerospace : Boulder, CO	-	1.650	Apr 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Autonomous Attritable Aircraft Contract 1	C/CPFF	CALSPAN : Buffalo, NY	-	2.220	Sep 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Autonomous Attritable Aircraft Contract 2	C/CPFF	Various : Various	-	9.011	Oct 2022	-		-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototyping Campaign Autonomous Attritable Aircraft Contract 3	C/CPFF	Lockheed : Various	-	0.970	Aug 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Palletized Munitions (Rapid Dragon) Contract 1	C/CPFF	Lockheed Martin : Orlando, FL	-	14.700	Apr 2022	20.000	May 2023	-		-		-	Continuing	Continuing	-
Regional Operating Picture	C/Various	Persistent Systems, LLC : New York, NY	-	21.120	Sep 2022	32.000	May 2023	-		-		-	Continuing	Continuing	-
Congressional Add alternative PNT phase III demonstration	Various	Various : Various	-	3.878	Sep 2022	-		-		-		-	Continuing	Continuing	-
Next Gen Large Aircraft (BWB)	MIPR	DIU : Mountain view, CA	-	-		-		79.518	Dec 2023	-		79.518	Continuing	Continuing	-
Congressional Add Logistics Enhancements	Various	Various : Various	-	3.878	Sep 2022	-		-		-		-	Continuing	Continuing	-
Rapid Defense Experimentation Reserve (RDER) CONCEAD	Various	Various : Various	-	-		18.000	Mar 2023	-		-		-	Continuing	Continuing	-
Rapid Defense Experimentation Reserve (RDER) Global Thunder	Various	Various : Various	-	-		20.000	Dec 2022	-		-		-	Continuing	Continuing	-
Rapid Defense Experimentation Reserve (RDER) Classified	Various	Various : Various	-	-		15.000	Nov 2022	-		-		-	Continuing	Continuing	-
Rapid Defense Experimentation Reserve (RDER) TURUL	Various	Various : Various	-	-		11.000	Jan 2023	-		-		-	Continuing	Continuing	-
		Subtotal	-	113.423		116.000		99.792		-		99.792	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototyping Campaign Global Lightning Commercial Space Internet Support 1	MIPR	BAH : Tysons Corner, VA	-	2.129	Feb 2022	-		-		-		-	0.000	2.129	-
Prototyping Campaign Global Lightning Commercial Space Internet Support 3	MIPR	Various : Various	-	0.975	Oct 2021	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Base Defense Support 1	MIPR	JHU : Baltimore, MD	-	0.854	Jun 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Base Defense Support 3	MIPR	Navy : Dahlgren, VA	-	2.218	Mar 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Palletized Munitions (Rapid Dragon)	MIPR	Dahlgren Navy : Dahglren, VA	-	1.560	Nov 2021	1.500	Apr 2023	-		-		-	Continuing	Continuing	-
Prototyping Campaign Palletized Munitions (Rapid Dragon) 2	MIPR	412 TW : Edwards AFB, CA	-	1.350		-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Palletized Munitions Support	Various	Various : Various	-	6.639		2.000	Apr 2023	-		-		-	Continuing	Continuing	-
Prototyping Campaign Autonomous Attritable Aircraft	Various	Various : Various	-	1.925	Feb 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Podded Position Navigation and Timing Prototyping	Various	Various : Various	-	0.466	Mar 2022	-		-		-		-	Continuing	Continuing	-
Regional Operating Picture	C/Various	Persistent Systems, LLC : New York, NY	-	-		5.500	Jan 2023	-		-		-	Continuing	Continuing	-
Next Generation Large Aircraft Test Support (BWB)	MIPR	Various : Various	-	-		-		3.053	Nov 2023	-		3.053	Continuing	Continuing	-
		Subtotal	-	18.116		9.000		3.053		-		3.053	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototyping Campaign Global Lightning Commercial Space Internet	MIPR	Various : Various	-	1.197	May 2022	-		-		-		-	0.000	1.197	-
Prototyping Campaign Palletized Munitions (Rapid Dragon)	MIPR	Various : Various	-	3.290	May 2022	6.546		-		-		-	Continuing	Continuing	-
Prototyping Campaign Base Defense	MIPR	Various : Various	-	2.600	Apr 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Autonomous Attritable Aircraft	Various	Various : Various	-	2.475	Apr 2022	-		-		-		-	Continuing	Continuing	-
Prototyping Campaign Hawkeye	MIPR	Various : Various	-	0.390	Jun 2022	-		-		-		-	Continuing	Continuing	-
Regional Operating Picture	C/Various	Persistent Systems LLC : New York, NY	-	-		18.000	Jan 2023	-		-		-	Continuing	Continuing	-
Prototyping Campaign Podded Position Navigation and Timing Prototyping	Various	Various : Various	-	0.534	Mar 2022	-		-		-		-	Continuing	Continuing	-
Next Generation Large Aircraft (BWB)	MIPR	Various : Various	-	-		-		2.877	Jan 2024	-		2.877	Continuing	Continuing	-
		Subtotal	-	10.486		24.546		2.877		-		2.877	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prototyping Contractor Support	Various	Various : Various	-	-		0.327	Sep 2023	0.698		-		0.698	Continuing	Continuing	-
Prototyping Program Management Administration Costs	Various	Various : Various	-	2.889	Feb 2022	3.043	Feb 2023	2.075	Nov 2023	-		2.075	Continuing	Continuing	-
		Subtotal	-	2.889		3.370		2.773		-		2.773	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force			Date: March 2023
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	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	144.914		152.916		108.495		-		108.495	Continuing	Continuing	N/A

Remarks

Additional details can be provided in the appropriate forum.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

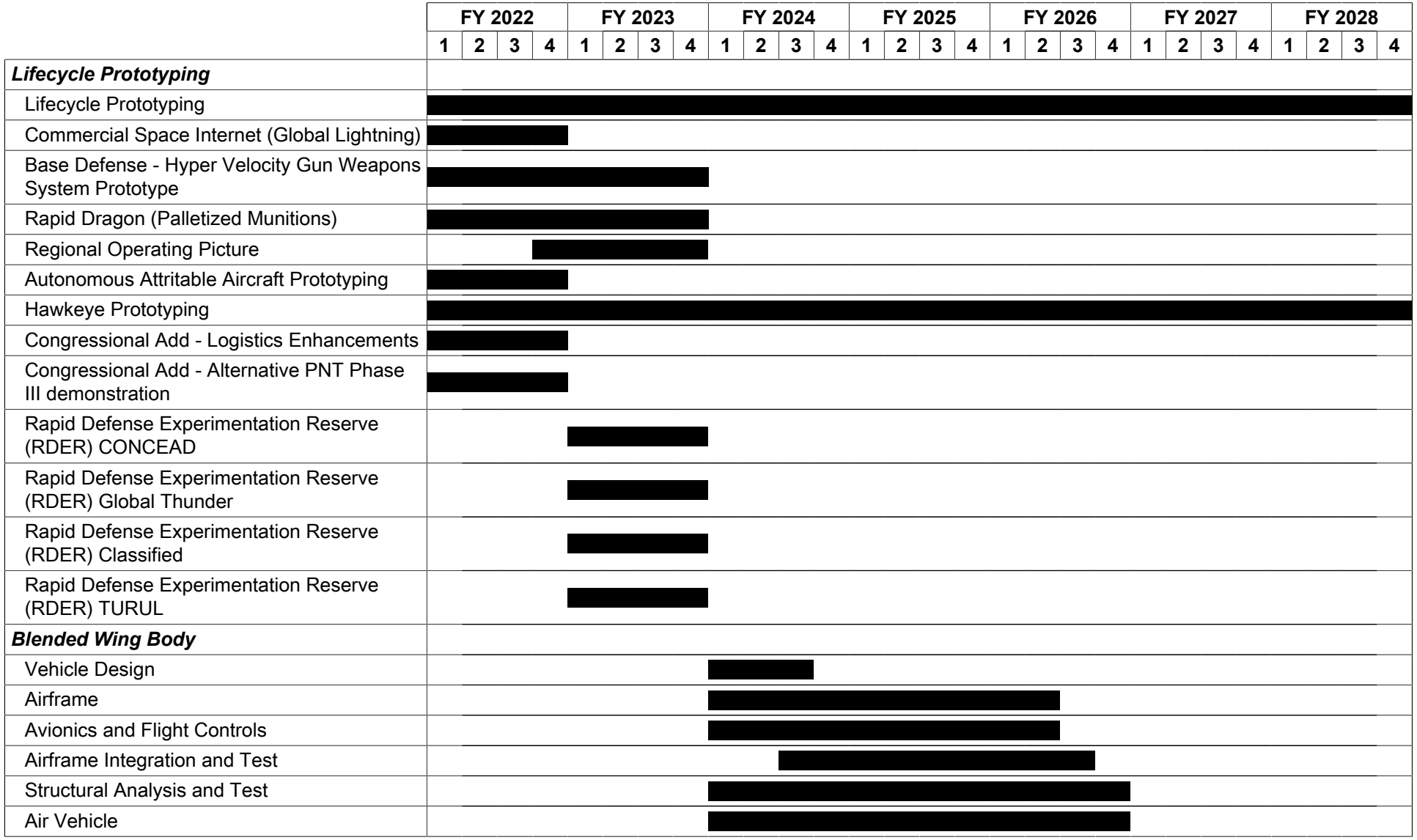

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

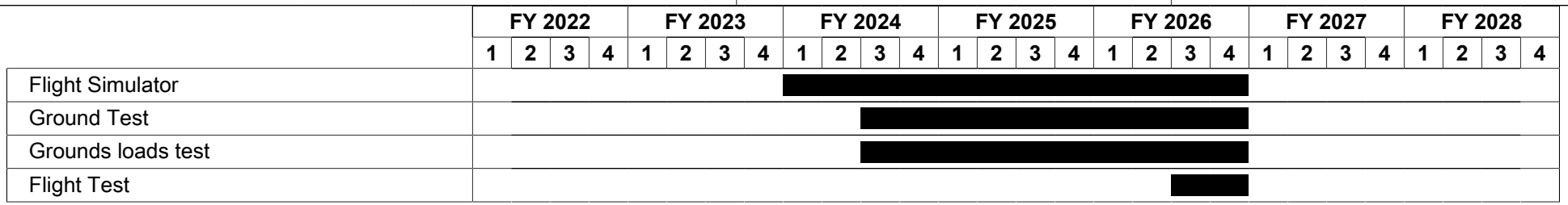

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Lifecycle Prototyping				
Lifecycle Prototyping	1	2022	4	2028
Commercial Space Internet (Global Lightning)	1	2022	4	2022
Base Defense - Hyper Velocity Gun Weapons System Prototype	1	2022	4	2023
Rapid Dragon (Palletized Munitions)	1	2022	4	2023
Regional Operating Picture	4	2022	4	2023
Autonomous Attritable Aircraft Prototyping	1	2022	4	2022
Hawkeye Prototyping	1	2022	4	2028
Congressional Add - Logistics Enhancements	1	2022	4	2022
Congressional Add - Alternative PNT Phase III demonstration	1	2022	4	2022
Rapid Defense Experimentation Reserve (RDER) CONCEAD	1	2023	4	2023
Rapid Defense Experimentation Reserve (RDER) Global Thunder	1	2023	4	2023
Rapid Defense Experimentation Reserve (RDER) Classified	1	2023	4	2023
Rapid Defense Experimentation Reserve (RDER) TURUL	1	2023	4	2023
Blended Wing Body				
Vehicle Design	1	2024	3	2024
Airframe	1	2024	2	2026
Avionics and Flight Controls	1	2024	2	2026
Airframe Integration and Test	3	2024	3	2026
Structural Analysis and Test	1	2024	4	2026
Air Vehicle	1	2024	4	2026
Flight Simulator	1	2024	4	2026
Ground Test	3	2024	4	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645351 / *Prototyping*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Grounds loads test	3	2024	4	2026
Flight Test	3	2026	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force			Date: March 2023
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604858F / *Tech Transition Program*	Project (Number/Name) 645352 / *Architecture Design and Evaluation*	

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
645352: *Architecture Design and Evaluation*	-	0.000	0.000	7.078	0.000	7.078	7.227	7.378	7.378	7.533	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In September 2022, the Secretary of the Air Force (SecAF) directed the standup of the DAF Integrating Program Executive Office for Command, Control, Communication and Battle Management (DAF PEO C3BM). The construct emerged out of the Operational Imperatives (OI) analysis that identified a significant need for C3BM integration and a greater level of systems engineering and technical discipline across the enterprise to ensure the effectiveness of ABMS in supporting DAF operations. Notably, DAF PEO C3BM combines the previous efforts of the DAF Rapid Capabilities Office (RCO) ABMS program and the DAF Chief Architect Office (CAO). Furthermore, DAF PEO C3BM works in a federated manner with other PEOs across the DAF with C3BM equity to orchestrate end-to-end capability delivery. By bringing the ABMS and CAO portfolio of programs and authorities under a single PEO and then conferring unto that PEO the responsibility to integrate broader DAF battle management and C2 capabilities, one organization now has the architectural authorities to direct technical integration activities across the DAF while also having the acquisition authorities of a PEO to execute organic materiel solutions to field a survivable, distributable command and control capability into the integrated DAF BATTLE NETWORK.

Architecture Design and Evaluation is directed by the DAF PEO C3BM with oversight by the Secretary of the Air Force along with the Chief of Staff of the Air Force, Chief of Space Operations, and Senior Acquisition Executive. This activity is supported 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.

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. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: DAF Architecture Design and Integration	0.000	0.000	7.078	-	7.078
Description: DAF PEO C3BM combined the roles of the Chief Architect and the Chief Engineer into a single office called the Architecture and Systems Engineering (ASE) office, which is responsible for the technical integrity of the DAF BATTLE NETWORK as we integrate ABMS capabilities, the rest of the DAF's C2 systems,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645352 / *Architecture Design and Evaluation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
and other Services's capabilities under JADC2. Architecture integration in system-of-systems mission threads and environments is critical to deliberately advancing the DAF's technological edge by informing architecture design, acquisition investments, system requirements for future capabilities, and acquisition baseline updates for current systems. Architecture Design and Evaluation provides the subject matter expertise to develop mission-focused architectures to enable cross-cutting architecture development across Program Executive Offices, Major Commands, and Space Deltas. Architecture Design and Evaluation analyzes science, technology, research, development, and experimentation enterprises to determine the technical and operational feasibility of new technical concepts. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** Provide subject matter expertise and product development capability to develop and maintain: - Digital engineering - Create or leverage common way for all the mission integration teams to aggregate various data products and make them available to the community. Fund Model-Based Systems Engineering at multiple security levels, to include TS/SCI and SAP level, for all ASE and DAF/OSD/Joint partners. Develop Modeling & Simulation capabilities to enable evaluation of C3BM systems. - Mission Domain Architectures and Mission Integration Teams - Support operational analysis, architecture modeling, systems engineering, risk reduction, and architecture test and evaluation. - Operational Response Team - Support operational integration and experimentation of C3BM Digital Infrastructure development. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increased compared to FY 2023 by $7.078 million due to realignment of funding from PE 0604006F.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	7.078	-	7.078

C. Other Program Funding Summary ($ in Millions)

Line Item	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
• RDTE 04 0604006F: *Dept of the Air Force Tech Architecture*	0.000	0.000	2.620	-	2.620	2.899	3.138	3.919	4.281	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645352 / *Architecture Design and Evaluation*

C. Other Program Funding Summary ($ in Millions)

Line Item	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

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645352 / *Architecture Design and Evaluation*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C3BM Architecture Development	Various	Various : Various	-	-		-		6.000	Oct 2023	-		6.000	Continuing	Continuing	-
		Subtotal	-	-		-		6.000		-		6.000	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C3BM ORT Evaluation	Various	Various : Various	-	-		-		0.078	Oct 2023	-		0.078	Continuing	Continuing	-
		Subtotal	-	-		-		0.078		-		0.078	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration	Various	Various : Various	-	-		-		1.000	Oct 2023	-		1.000	Continuing	Continuing	-
		Subtotal	-	-		-		1.000		-		1.000	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		-		7.078		-		7.078	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645352 / *Architecture Design and Evaluation*

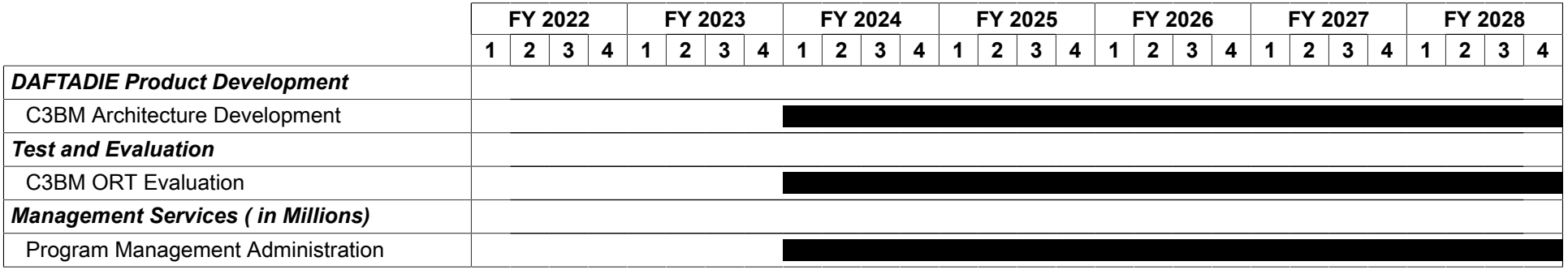

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0604858F / *Tech Transition Program*	**Project (Number/Name)** 645352 / *Architecture Design and Evaluation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DAFTADIE Product Development				
C3BM Architecture Development	1	2024	4	2028
Test and Evaluation				
C3BM ORT Evaluation	1	2024	4	2028
Management Services (in Millions)				
Program Management Administration	1	2024	4	2028