Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army												Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603801A *I Aviation - Adv Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Cost To Complete**	**Total Cost**
Total Program Element	-	488.397	694.296	1,125.641	-	1,125.641	-	-	-	-	-	-
B47: *Future Vertical Lift*	-	111.274	213.538	448.412	-	448.412	-	-	-	-	-	-
CK7: *FARA Ecosystem*	-	-	-	26.986	-	26.986	-	-	-	-	-	-
F12: *Future Attack Reconnaissance Aircraft*	-	377.123	480.758	650.243	-	650.243	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

Future Vertical Lift (FVL) is an initiative to develop a family of vertical lift aircraft for the United States Armed Forces. The Department of Defense (DOD) established FVL to focus vertical lift capabilities and technology development as well as retain long-term industrial base capabilities. The Deputy Secretary of Defense issued the FVL Strategic Plan in 2012 to outline a joint approach for the next generation vertical lift aircraft for all military services. The Strategic Plan provided a foundation for replacing the current fleet with advanced capability by shaping the development of vertical lift aircraft for the next 25 to 40 years. In Fiscal Year (FY) 2017, the Army identified FVL as one of the Army's six modernization priorities, and established the FVL Cross Functional Team. The FVL objectives are increased vertical lift maneuverability, range, speed, payload, survivability, and reliability while reducing the logistical footprint. This capability will provide critical vertical lift aviation capability in multi-domain operations to the joint warfighter and maneuver force.

The Future Long Range Assault Aircraft (FLRAA) program pursues FVL Capability Set 3 (CS3) and provides Combatant Commanders with deterrence, power projection, and tactical capabilities at operational and strategic distances. The Army plans to competitively award the weapon system development Program of Record (PoR) contract in FY 2022, using a hybrid acquisition approach. The FY 2022 contract award initiates Rapid Prototyping effort to execute a preliminary design and development of FLRAA Virtual Prototype, using Middle Tier Acquisition (MTA) authorities.

The Future Attack Reconnaissance Aircraft (FARA) Capability Set 1 (CS1) is the Army's number one Aviation modernization priority and will restore attack/ reconnaissance dominance by mitigating enemy long range capabilities by creating lethal effects from outside enemy sensor/weapons range and allowing joint force commanders to maneuver from relative sanctuary.

Both FLRAA and FARA variants will integrate advanced technologies and design configurations with appropriate trades to ensure affordability.

This resourcing funds both FLRAA and FARA.

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603801A *I Aviation - Adv Dev*

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	505.890	647.937	789.356	-	789.356
Current President's Budget	488.397	694.296	1,125.641	-	1,125.641
Total Adjustments	-17.493	46.359	336.285	-	336.285
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-25.491			
• Congressional Rescissions	-	-			
• Congressional Adds	-	95.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-17.493	-23.650			
• Adjustments to Budget Years	-	-	336.285	-	336.285

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2020	FY 2021
Project: B47: *Future Vertical Lift*		
Congressional Add: *Competitive Demonstration Risk Reduction*	75.600	90.500
Congressional Add: *University Partnership and Model Based System Engineering*	5.000	5.000
Congressional Add Subtotals for Project: B47	80.600	95.500
Congressional Add Totals for all Projects	80.600	95.500

Change Summary Explanation

Project B47: FLRAA FY 2022 budget increased by $267.557M to support an extended Competitive Demonstration and Risk Reduction Phase II effort by continuing competition, accelerating preliminary design, and setting the conditions to award the Program of Record contract.

Project F12: FARA FY 2022 budget increased by $41.646M to support FARA Increment #1 air vehicle design and mission systems integration risk reduction efforts.

Project CK7: FY 2022 budget increased by $27.082M to support FARA Ecosystem Prototyping Demonstration efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / *Aviation - Adv Dev*	Project (Number/Name) B47 / *Future Vertical Lift*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
B47: *Future Vertical Lift*	-	111.274	213.538	448.412	-	448.412	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Future Vertical Lift (FVL) Project's funding provides for the development of a Future Long Range Assault Aircraft (FLRAA) Capability Set Three weapon system within the FVL family of systems. FLRAA will conduct air assault, urban assault/security, maritime interdiction, medical evacuation, humanitarian assistance/disaster relief, tactical resupply, direct action, noncombatant evacuation operation, and combat search and rescue operations. FLRAA will support the Army, including Special Operations Command (USSOCOM) and the Joint Force, in a contested, near peer threat environment. The FLRAA weapon system will retain the Army's ability to project combat power with significantly increased range, speed, mobility, and payload over current Army and USSOCOM aircraft.

FLRAA achieved a Materiel Development Decision approval in October 2016 and the Office of Secretary of Defense granted a sufficiency determination of the Analysis of Alternatives (AoA) in July 2019. FY 2020 funding supported continuation of the FVL Architecture Risk Reduction effort in support of Modular Open Systems Approach (MOSA); life cycle affordability efforts; planning, proposal evaluations and award of the Competitive Demonstration and Risk Reduction (CD&RR) Phase I effort; University Partnership; and supported key program documents to include the Abbreviated Capabilities Development Document, the Program Acquisition Strategy, the draft Weapon System Specification, the Systems Engineering Plan, the Life Cycle Sustainment Plan (LCSP) and the Contract Requirements Package (CRP).

FY 2021 funding supports the completion of CD&RR Phase I effort with two project agreement holders culminating with an initial conceptual design and requirements decomposition activities. FY 2021 funding also supports the award of CD&RR Phase II; continued execution of MOSA efforts; efforts to refine affordability; continued development of the CRP; release of the RFP; initiation of the Source Selection Evaluation Board (SSEB); and key events leading to contract award.

FY 2022 funding will support completion of CD&RR Phase II effort culminating with an Initial Design Concept Review (IDCR) equivalent to a preliminary design review; continued MOSA efforts; completion of the SSEB; and key events leading up to the initiation and execution of an approved Army Acquisition Strategy and October 2020 Acquisition Decision Memorandum. The Army will award a contract in FY 2022 for the execution of to complete a weapon system preliminary design review, initiate prototype material acquisition and a Middle Tier Acquisition (MTA) effort to deliver a virtual prototype no later than FY 2024.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Engineering Services / Research Studies	21.327	109.941	296.771
Description: Provide engineering research, planning, modeling, and analysis. Perform model based system engineering and design reviews. Document and review analysis supporting the FLRAA acquisition program. Continue Competitive Demonstration Risk Reduction efforts.			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** B47 / *Future Vertical Lift*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue execution of Competitive Demonstration Risk Reduction and MOSA efforts, support SSEB, and support key events leading to contract award. ***FY 2022 Plans:*** Continue MOSA efforts, complete CD&RR Phase II effort; support the SSEB, and award the Weapon Systems Development contract. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to the CD&RR effort to extend and include preliminary design efforts, and staff to support efforts leading to Weapon System Development contract award.			
Title: Program Management ***Description:*** Oversight and Management of the FLRAA acquisition program. ***FY 2021 Plans:*** Continue to complete efforts to refine affordability, execute Competitive Demonstration Risk Reduction, release Request for Proposal, and execute SSEB. ***FY 2022 Plans:*** Continue efforts to refine affordability, execute CD&RR Phase II effort, execute and complete SSEB, and award the Weapon Systems Development contract. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase to the CD&RR effort and staff to support efforts leading to contract award.	5.549	4.780	16.283
Title: Supportability Analysis and Acquisition Support ***Description:*** Acquisition and supportability research, planning, modeling, analysis, documentation and reviews supporting the FLRAA acquisition program. Early design influence analysis to assess operational durability; emphasizing digital data thread, active health state awareness (CBM+), and optimized human system interface for ease of operations and maintenance. ***FY 2021 Plans:*** Continue to support the developing of the CRP and the initiation of the SSEB. Extensive implementation of reliability centered maintenance and product support analysis planning using robust modeling and simulation such as a system of system analysis tool, focused on delivering sustained System Readiness metrics in support of optimizing Life Cycle Costs. ***FY 2022 Plans:***	3.798	3.317	3.511

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** B47 / *Future Vertical Lift*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Integrate supportability within Systems Engineering design process and the modeling/simulations to influence requirements. Continue to expand the robustness of government baseline models; merging with both Model Base System Engineering (MBSE) and the POE/IGSE , and comparative evaluation of system design and support alternatives. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase is due to expanded MBSE support.			
Title: Middle Tier Acquisition (MTA) Preliminary Design and Virtual Prototype Rapid Prototyping ***Description:*** The Preliminary Design and MTA Virtual Prototype Rapid Prototyping effort is executed under the Weapon System Development Base contract scoped to complete the system preliminary design and develop a virtual prototype. ***FY 2022 Plans:*** Initiate the preliminary design and virtual prototype efforts of the Weapon Systems Development contract. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program begins execution with a MTA Virtual Prototyping and Weapon System Development Contract award in FY 2022.	-	-	102.648
Title: Prototype Material and Manufacturing Development ***Description:*** The Weapon System Development includes procurement of long lead material and initiation of engineering manufacturing development. ***FY 2022 Plans:*** Initiate material buy ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Begin material buy	-	-	29.199
Accomplishments/Planned Programs Subtotals	30.674	118.038	448.412

	FY 2020	FY 2021
Congressional Add: Competitive Demonstration Risk Reduction ***FY 2020 Accomplishments:*** Supported execution of Competitive Demonstration Risk Reduction and MOSA efforts. ***FY 2021 Plans:*** Support execution of Competitive Demonstration Risk Reduction and MOSA efforts.	75.600	90.500
Congressional Add: University Partnership and Model Based System Engineering	5.000	5.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** B47 / *Future Vertical Lift*

	FY 2020	FY 2021
FY 2020 Accomplishments: University Partnership and Model Based System Engineering ***FY 2021 Plans:*** Support Model Based System Engineering		
Congressional Adds Subtotals	80.600	95.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Program Element 0603465A Future Vertical Lift Advanced Technology includes JMR-TD; supported flying demonstrator activities providing knowledge transfer from flight test, data analysis, Soldier touch points, and risk reduction activities to the FLRAA program.

D. Acquisition Strategy

The Army is executing a hybrid acquisition approach to design, develop, and deliver the FLRAA weapons system. In order to support the Army's modernization strategy and concept for multi-domain operations, the FLRAA program will deliver a first unit equipped in FY 2030. This hybrid approach builds on the Joint Multi-Role Technology Demonstration (JMR-TD) efforts (ongoing since 2013); the Army's AoA (completed in July 2019); and multiple ongoing risk mitigation efforts.

The Army's risk mitigation activities ahead of the Program of Record (PoR) include: (1) additional conceptual design and flight envelope expansion tasks on the existing JMR-TD Technology Investment Agreements; (2) a modular open systems approach (MOSA), FVL Architecture Collaboration Working Group (with participation from industry and academia) to establish a common architecture requirements framework for FLRAA and FARA system development; and (3) a Competitive Demonstration and Risk Reduction (CD&RR) effort, awarded to two Project Agreement Holders, using an Aviation Missile and Technology Consortium (AMTC) Other Transaction Authority (OTA) agreements to provide substantiating technical documentation on weapon system designs, requirements decompositions, trade-studies, and requirements feasibility for the FLRAA PoR.

These risk reduction activities maintain industry engagement and momentum from the JMR-TD S&T program, inform capabilities and system requirements, and provide initial trade assessments for the final operational requirements. They also inform the final acquisition strategy, mature the Government's architecture requirements development, and transition appropriate S&T data and technologies to the PoR. CD&RR Phase II incorporates efforts leading to preliminary design using a digital engineering environment. In FY 2022, the Army plans to competitively award the Weapon System Development PoR contract to one vendor with a hybrid acquisition approach. This approach includes the opportunity to employ new DoDI 5000.80 (Operation of the Middle Tier Acquisition (MTA)) authorities along with a tailored DoDI 5000.85 (Major Capability Acquisition) acquisition strategy.

Finally, the Army is also addressing life cycle affordability, sustainability, and maintainability early in the program. The FLRAA program is employing multiple strategies including: should cost reduction opportunities, use of a digital thread from design through sustainment, and stochastic sustainment modeling. Additionally, FLRAA is one of the Army's pilot programs for life cycle intellectual property and data strategy development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / *Aviation - Adv Dev*	Project (Number/Name) B47 / *Future Vertical Lift*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	Various	various : Redstone Arsenal, AL	3.060	5.549	Dec 2019	4.780	Dec 2020	16.283	Dec 2021	-		16.283	Continuing	Continuing	Continuing
		Subtotal	3.060	5.549		4.780		16.283		-		16.283	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Preliminary Design and Virtual Prototype Rapid Prototyping	C/TBD	TBD : TBD	-	-		-		102.648	Jun 2022	-		102.648	Continuing	Continuing	-
Prototype Material and Manufacturing Development	C/TBD	Various : Various	-	-		-		29.199	Jun 2022	-		29.199	0.000	29.199	-
		Subtotal	-	-		-		131.847		-		131.847	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition and Supportability Analysis	C/Various	Army Materiel Command / Army Contracting Command/Army Future Command : Redstone Arsenal, AL	2.468	3.798	Nov 2019	3.317	Nov 2020	3.511	Nov 2021	-		3.511	Continuing	Continuing	Continuing
University Partnership / Model Based System Engineering (MBSE)	C/Various	Various : Various	-	5.000	Mar 2020	5.000	Mar 2021	-		-		-	0.000	10.000	-
Engineering Services/ Competitive Demonstration Risk Reduction - Other	C/CS	Advanced Technology International;Sikorsky Aircraft Corp;	-	75.600	Mar 2020	170.486	Mar 2021	262.279	Nov 2021	-		262.279	0.000	508.365	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / *Aviation - Adv Dev*	Project (Number/Name) B47 / *Future Vertical Lift*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Bell Textron Inc : Summerville, SC; Stratford, CT; Fort Worth, TX													
Engineering Services / Research Studies - Other	Various	Various : Huntsville, AL	0.512	-		27.687	Mar 2021	8.074	Nov 2021	-		8.074	Continuing	Continuing	Continuing
Engineering Services / Research Studies - Organic	MIPR	VARIOUS : VARIOUS	0.039	10.336	Feb 2020	2.268	Feb 2021	5.910	Mar 2022	-		5.910	Continuing	Continuing	Continuing
Engineering Services / Research Studies - Other	C/Various	Various : Various	2.917	10.991	Mar 2020	-		2.346	Dec 2021	-		2.346	Continuing	Continuing	Continuing
FY 2020 SBIR/STTR Transfer	TBD	Various : Various	-	-		-		18.162		-		18.162	Continuing	Continuing	-
		Subtotal	5.936	105.725		208.758		300.282		-		300.282	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8.996	111.274		213.538		448.412		-		448.412	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** B47 / *Future Vertical Lift*

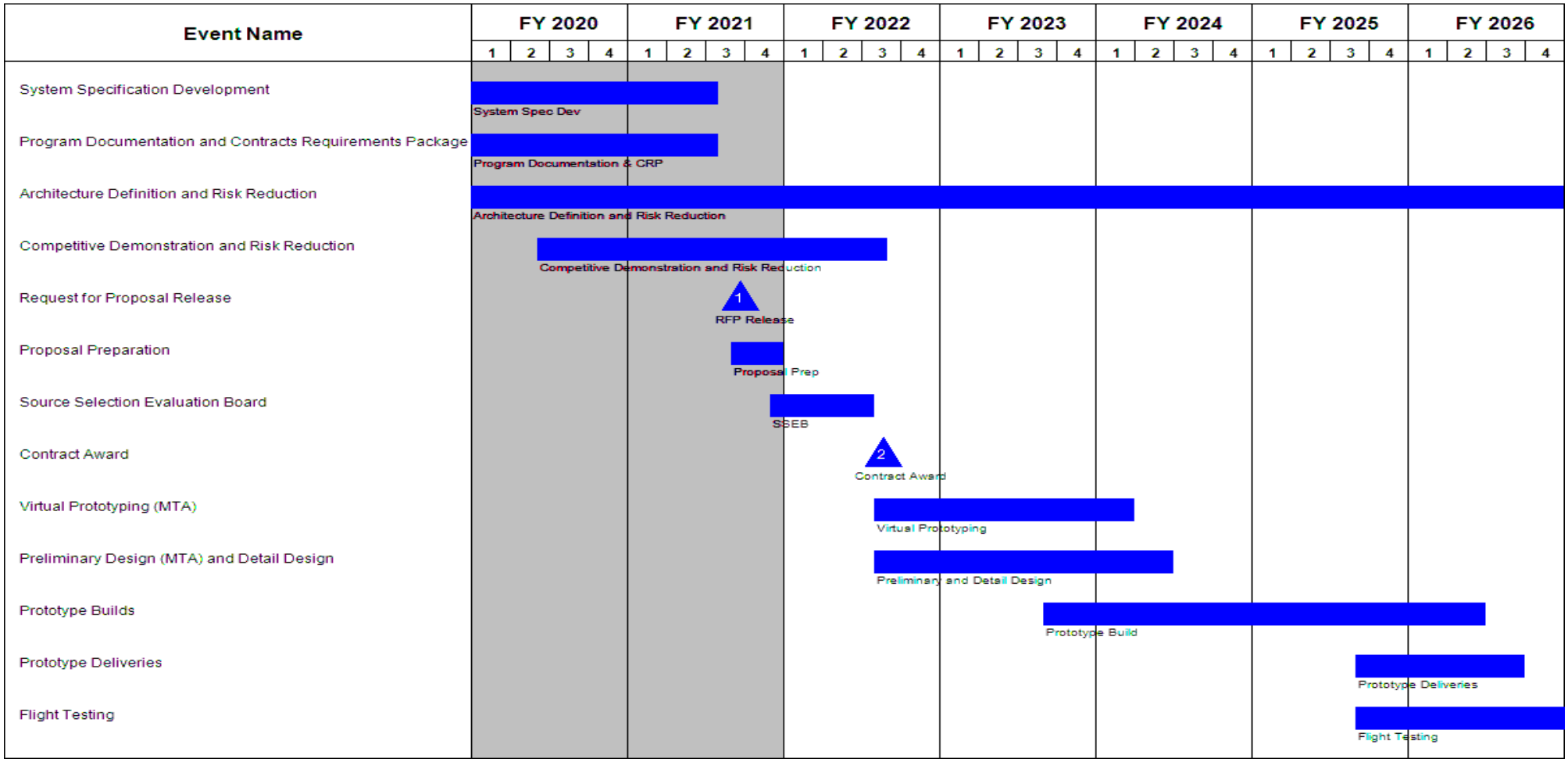

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** B47 / *Future Vertical Lift*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Materiel Development Decision	1	2017	1	2017
Analysis of Alternatives	3	2017	4	2019
System Specification Development	2	2019	3	2021
Program Documentation and Contracts Requirements Package	2	2019	3	2021
Architecture Definition and Risk Reduction	3	2019	4	2026
Competitive Demonstration and Risk Reduction	2	2020	3	2022
Request for Proposal Release	3	2021	3	2021
Proposal Preparation	3	2021	4	2021
Source Selection Evaluation Board	4	2021	3	2022
Contract Award	3	2022	3	2022
Virtual Prototyping (MTA)	3	2022	1	2024
Preliminary Design (MTA) and Detail Design	3	2022	2	2024
Prototype Builds	3	2023	2	2026
Prototype Deliveries	3	2025	3	2026
Flight Testing	3	2025	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / *Aviation - Adv Dev*	Project (Number/Name) CK7 / *FARA Ecosystem*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CK7: *FARA Ecosystem*	-	-	-	26.986	-	26.986	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This effort was previously funded under the Future Attack Reconnaissance Aircraft (FARA) Project F12 and has been restructured to a unique Project to better support the cross-cutting capabilities demonstrated within this Project and provide transparency in modernization efforts.

A. Mission Description and Budget Item Justification

The Future Vertical Lift (FVL) Project's funding builds upon prior demonstrations and provides for early opportunities to validate technologies and requirement concepts and to off-ramp, maintain, or accelerate investments, which enable modernization at the speed of relevance.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: FARA Ecosystems	-	-	26.986
Description: Funding for FARA Ecosystem supports prototyping demonstration with relevant technologies in a Joint All Domain Operations environment, which will inform FVL requirements including FLRAA, MOSA, and Air Launched Effects (ALE) and enable timely decisions to accelerate developmental capabilities, develop new capabilities, or defer development based on actual demonstration outcomes and user feedback. ***FY 2022 Plans:*** Continues FARA Ecosystem prototyping demonstration activities, previously conducted under Project F12, through primary surrogate platforms with multiple technologies to enable early opportunity to validate technologies and requirement concepts and to off-ramp, maintain, or accelerate investments in areas of interoperability, mission equipment, architecture, automation, autonomy, and interfaces (A3I), kinetic and non-kinetic effects, and sensors. Demonstration activities will include early Soldier touch points which will enable early feedback to inform requirements and concepts. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** This effort was previously funded under the Future Attack Reconnaissance Aircraft (FARA) Project F12 and has been restructured to a unique Project to better support the cross-cutting capabilities demonstrated within this Project and provide transparency in modernization efforts.			
Accomplishments/Planned Programs Subtotals	-	-	26.986

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** CK7 / *FARA Ecosystem*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• F12: *Future Attack Reconnaissance Aircraft*	377.123	480.758	650.243	-	650.243	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

The FVL CFT will utilize a number of U.S. Army Combat Capability Development Centers, Other Government Agencies, Test Centers, Project Management Offices and their respective scope execution instruments to execute capability demonstrations to assess the viability of technology and inform the Ecosystems requirements and concepts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / *Aviation - Adv Dev*	Project (Number/Name) CK7 / *FARA Ecosystem*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FARA Ecosystem Demonstration	Various	Multiple : Multiple	-	-		-		26.986	Nov 2021	-		26.986	Continuing	Continuing	Continuing
		Subtotal	-	-		-		26.986		-		26.986	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		0.000		26.986		-		26.986	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** CK7 / *FARA Ecosystem*

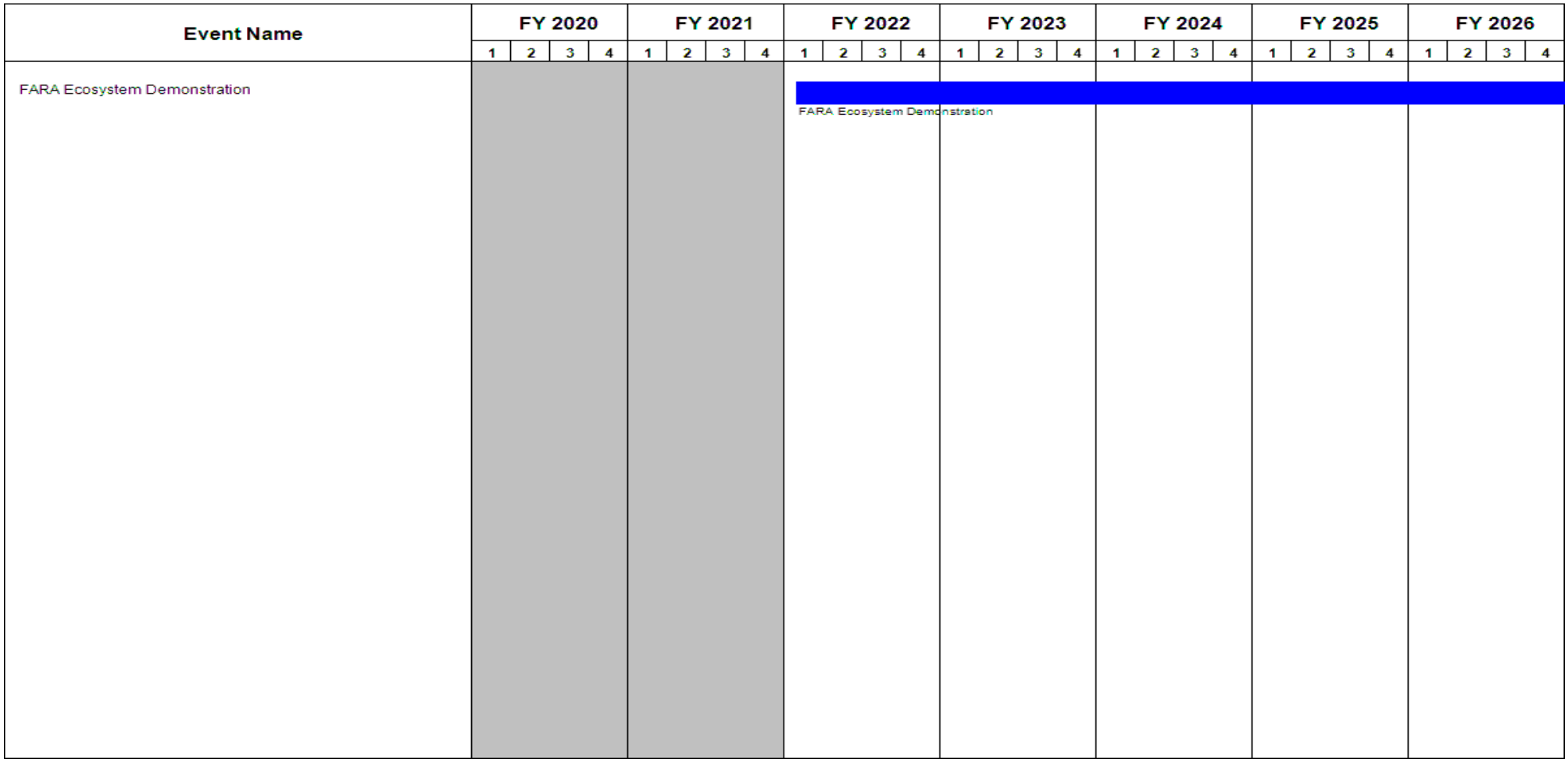

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** CK7 / *FARA Ecosystem*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FARA Ecosystem Demonstration	1	2022	4	2029

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / *Aviation - Adv Dev*	Project (Number/Name) F12 / *Future Attack Reconnaissance Aircraft*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
F12: *Future Attack Reconnaissance Aircraft*	-	377.123	480.758	650.243	-	650.243	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This effort restructured funds under the FARA Ecosystem Project CK7 to better support the cross-cutting capabilities demonstrated & to provide transparency in modernization efforts.

A. Mission Description and Budget Item Justification

The Future Attack Reconnaissance Aircraft (FARA) Project's funding provides for the development of a Capability Set 1 aircraft system within the Future Vertical Lift (FVL) family of systems. FVL Capability Set 1 aircraft will conduct attack/reconnaissance missions in support of the Army's modernization objective of conducting Multi-Domain Operations (MDO). The FARA platform will fill the gap in capability for light weight attack/reconnaissance while significantly increasing speed, range, survivability, and lethality, providing Combatant Commanders with greatly increased tactical, operational and strategic capabilities.

The FVL Capability Set 1 Initial Capabilities Requirements Document (ICRD) was approved in July 2018 under the name Future Attack Reconnaissance Aircraft (FARA). Abbreviated Capability Development Document (A-CDD) was approved 9 Apr 2021. The Acquisition Approach and Determination & Findings for Other Transaction Authority for Prototyping agreements were approved on 1 February 2019 by the Acting Under Secretary of Defense (Acquisition and Sustainment) to execute a Competitive Prototyping effort.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Future Attack Reconnaissance Aircraft	377.123	480.758	650.243
Description: Design, build, and test Competitive Prototype (CP) aircraft in preparation to rapidly develop and field a Multi-Domain Operations capable attack/reconnaissance vertical lift aircraft. ***FY 2021 Plans:*** Funds completion of two industry Performers? CP aircraft design, begins hardware (HW) and software (SW) development, component/subsystem Assembly Integration & Test (AI&T) for the CP aircraft. Begins SW and HW In-the-Loop efforts, as well as funding initial GFE planning and Modular Open System Architecture (MOSA) development. Provides funding for Statutory and Regulatory documentation requirements. ***FY 2022 Plans:*** Continues support of HW and SW development, component/subsystem AI&T, SW and HW In-the-Loop efforts, GFE planning and MOSA development in preparation for final AI&T for CP aircraft. Begins Inc #1 Air Vehicle design and mission systems			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** F12 / *Future Attack Reconnaissance Aircraft*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
development. Continues support of documentation requirements for the Program of Record (POR) and supports an Engineering and Manufacturing Development (EMD) Request For Proposal (RFP) release. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Fiscal Year (FY) 2021 Research Development Test & Evaluation (RDT&E) funding increased to meet requirements for the material purchase, tooling development, engineering support and AI&T to prepare for FARA prototype first flight for both performers. The increase in resources also furthers GFE development and Inc #1 Air Vehicle design and mission systems development.			
Accomplishments/Planned Programs Subtotals	377.123	480.758	650.243

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• B47: *Future Vertical Lift*	111.274	213.538	448.412	-	448.412	-	-	-	-	-	-
• A12001: *Future Attack Recon Aircraft*	-	-	-	-	-	-	-	-	-		
• CK7: *FARA Ecosystem*	-	-	26.986	-	26.986	-	-	-	-	-	-

Remarks

The FARA Competitive Prototype effort was initiated in FY 2019 with Congressional Add of $75.400 million under Program Element (PE) 0603801A Aviation - Adv Dev Project B47 Future Vertical Lift, which was shared with Future Long Range Assault Aircraft. FARA requirements will be executed under PE 0603801A Aviation - Adv Dev Project F12 Future Attack Reconnaissance Aircraft from FY 2020 and beyond.

D. Acquisition Strategy

The Future Attack Reconnaissance Aircraft (FARA) program is executing a streamlined acquisition approach leveraging modern tools, processes, industry innovation, and leveraging efficiencies through the Army's modernization enterprise and Cross Functional Team (CFT) framework. The aircraft developed under this program will utilize a modular open system approach, which will enable more efficient and cost effective mission equipment integration throughout the lifecycle of the weapon system.

The Army is executing a two-phased FARA Competitive Prototyping (CP) effort from FY 2019-2023 using Other Transaction Authority for Prototyping (OTAP) with initial awards to five industry performers. The scope of this effort includes prototype design and fabrication process refinement, subsystem and representative system level testing, flight control and mission processor software development and testing, development of systems integration labs, development or modification of test fixtures and facilities, preparation of test plans and reports, the generation of airworthiness documentation, and testing of all processes and subsystems within the prototype aircraft.

The initial design phase, phase one, was awarded in April 2019. Phase two began in March 2020 with two of the five industry performers selected to proceed to final detailed design and the development, integration and test of a flyable prototype air vehicle. Phase two will culminate with a government flight test evaluation of the FARA Competitive Prototype no later than the end of FY 2023.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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The Competitive Prototype effort will inform full FARA Weapon System requirements development process, and will develop the data needed to reduce the risks for full Weapon System design, integration, testing, and qualification to be completed during the FARA EMD phase.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603801A / *Aviation - Adv Dev*	Project (Number/Name) F12 / *Future Attack Reconnaissance Aircraft*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBIR/STTR Transfer	TBD	Various : Various	-	-		-		26.111	Oct 2021	-		26.111	0.000	26.111	-
PM FARA System Engineering and Program Mangement	Various	Various : Redstone Arsenal, AL	-	11.101		11.030	Mar 2021	22.212	Mar 2022	-		22.212	Continuing	Continuing	Continuing
		Subtotal	-	11.101		11.030		48.323		-		48.323	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Competitive Prototype (CP) Execution - Other Vendors	C/Various	CCDC AvMC : Redstone Arsenal, AL	-	24.016	Mar 2020	-		-		-		-	0.000	24.016	-
Competitive Prototype (CP) Execution - Raider X	C/CS	Sikorsky Aircraft Corporation : Stratford, CT	-	140.000	Apr 2020	201.500	Feb 2021	237.000	Oct 2021	-		237.000	159.500	738.000	-
Competitive Prototype (CP) Execution - 360 Invictus	C/CS	Bell Textron, Inc. : Fort Worth, TX	-	123.800	Apr 2020	187.499	Feb 2021	127.715	Oct 2021	-		127.715	76.157	515.171	-
Inc #1 Air Vehicle Design	C/Various	Various : Various	-	-		-		69.550	Dec 2021	-		69.550	Continuing	Continuing	Continuing
Inc #1 Mission Systems Development	C/Various	Various : Various	-	-		8.335	Jul 2021	69.776	Dec 2021	-		69.776	Continuing	Continuing	Continuing
GFE - Improved Turbine Engine Development - Single Engine Configuration	C/CPIF	PM ATE : Redstone Arsenal	-	13.298	Jun 2020	13.442	Mar 2021	16.670	Dec 2021	-		16.670	Continuing	Continuing	Continuing
GFE - Modular Effects Launcher Development	Various	CCDC AvMC : Redstone Arsenal, AL	-	4.524	May 2020	9.744	Mar 2021	15.560	Dec 2021	-		15.560	Continuing	Continuing	Continuing
GFE - 20mm Cannon Development	Various	CCDC AC : Picatinny Arsenal, NJ	-	13.812	Apr 2020	6.930	Mar 2021	6.200	Dec 2021	-		6.200	Continuing	Continuing	Continuing
GFE - Radar Development	Various	CCDC AvMC : Redstone Arsenal, AL	-	3.009	Mar 2020	3.500	Mar 2021	8.052	Mar 2022	-		8.052	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** F12 / *Future Attack Reconnaissance Aircraft*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modular Open System Approach Development	Various	CCDC AvMC : Redstone Arsenal, AL	-	24.316	May 2020	17.972	Mar 2021	28.602	Dec 2021	-		28.602	Continuing	Continuing	Continuing
		Subtotal	-	346.775		448.922		579.125		-		579.125	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services Support - CP Air Vehicle Dev & Test	MIPR	Redstone Test Center, CCDC-AvMC: : Redstone Arsenal, AL	-	7.246	Mar 2020	1.477	Mar 2021	3.715	Dec 2021	-		3.715	Continuing	Continuing	Continuing
Engineering Services Support - CP Airworthiness	MIPR	CCDC-AvMC-SRD: : Redstone Arsenal, AL	-	7.127	Aug 2020	14.112	Mar 2021	13.500	Mar 2022	-		13.500	Continuing	Continuing	Continuing
Simulation, Studies, and Analysis	Various	Various : Various	-	4.874	Aug 2020	5.217	Mar 2021	5.580	Mar 2022	-		5.580	Continuing	Continuing	Continuing
		Subtotal	-	19.247		20.806		22.795		-		22.795	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	377.123		480.758		650.243		-		650.243	Continuing	Continuing	N/A

Remarks

Under the Other Transaction Authorities for Prototyping (OTAP), five incrementally funded agreements were awarded in April 2019 which have payments based on performance milestones through Fiscal Year (FY) 2023. There will be no additional contract awards or contract options executed. Funding will be incrementally added to the existing awards by modification as negotiated with each performer. In March 2020, two of the five performers were selected for continued execution through final design, prototype build, and flight testing; the other three performers were issued a stop work order and ceased to receive additional funding.

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** F12 / *Future Attack Reconnaissance Aircraft*

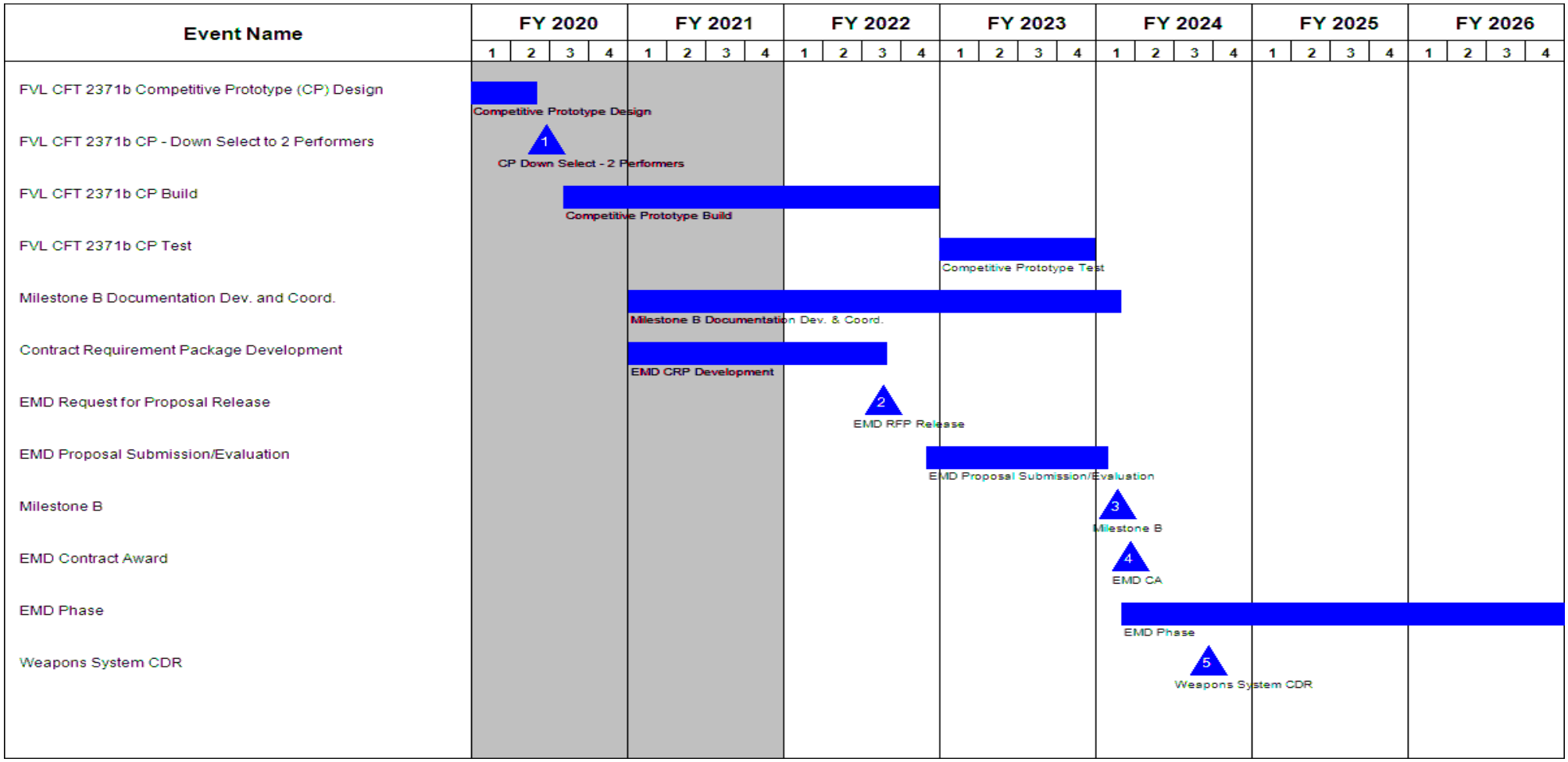

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603801A / *Aviation - Adv Dev*	**Project (Number/Name)** F12 / *Future Attack Reconnaissance Aircraft*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FVL CFT 2371b Competitive Prototype (CP) Design	3	2019	2	2020
FVL CFT 2371b CP - Down Select to 2 Performers	2	2020	2	2020
FVL CFT 2371b CP Build	3	2020	4	2022
FVL CFT 2371b CP Test	1	2023	4	2023
Milestone B Documentation Dev. and Coord.	1	2021	1	2024
Contract Requirement Package Development	1	2021	3	2022
EMD Request for Proposal Release	3	2022	3	2022
EMD Proposal Submission/Evaluation	4	2022	1	2024
Milestone B	1	2024	1	2024
EMD Contract Award	1	2024	1	2024
EMD Phase	1	2024	4	2028
Weapons System CDR	3	2024	3	2024