Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force											Date: April 2022	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 2: *Applied Research*					R-1 Program Element (Number/Name) PE 0602020F / *Future AF Capabilities Applied Research*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	-	73.226	79.901	88.672	0.000	88.672	88.852	88.840	90.976	93.198	Continuing	Continuing
620200: *Enterprise Transformational Appld Research*	-	73.226	79.901	88.672	0.000	88.672	88.852	88.840	90.976	93.198	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program develops cross-enterprise transformational applied research efforts to accelerate the "pipeline" of technology-enabled capability candidates focused on the five strategic capabilities outlined in the Air Force 2030 Science and Technology (S&T) Strategy: Global Persistent Awareness; Resilient Information Sharing; Rapid, Effective Decision-Making; Complexity, Unpredictability, and Mass; and Speed and Reach of Disruption and Lethality. The Air Force Research Laboratory (AFRL) will plan and manage these funds at the enterprise level to achieve the intent of the Strategy.

These activities are managed by the Air Force Research Laboratory Chief Technologist located at Wright Patterson Air Force Base, Ohio, at the Enterprise level, and executed across the various AFRL Technology Directorate locations.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver science & technology capabilities. The use of program funds in this program element would be in addition to the civilian pay expenses budgeted in program elements 0601102F, 0602102F, 0602201F, 0602202F, 0602203F, 0602204F, 0602602F, 0602605F, 0602788F, and 0602298F.

This program is in Budget Activity 2, Applied Research because this budget activity includes studies, investigations, and non-system specific technology efforts directed toward general military needs with a view toward developing and evaluating the feasibility and practicality of proposed solutions and determining their parameters.

B. Program Change Summary ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**
Previous President's Budget	79.854	79.901	0.000	0.000	0.000
Current President's Budget	73.226	79.901	88.672	0.000	88.672
Total Adjustments	-6.628	0.000	88.672	0.000	88.672
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	-4.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-2.628	0.000			
• Other Adjustments	0.000	0.000	88.672	0.000	88.672

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Change Summary Explanation

FY 2021 reduction ($4.000 million) Congressional Directed Transfer for Section 219.
FY 2021 reduction ($2.628 million) SBIR/STTR Transfer.
The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Transformational Capability Incubator	73.226	79.901	88.672

Description: Integrates cross-enterprise multi-directorate transformational applied research efforts to accelerate the "pipeline" of technology-enabled capability candidates pursuing the five strategic capabilities outlined in the Air Force Science and Technology Strategy. The Air Force Research Laboratory will plan and manage these research activities at the enterprise level with decentralized execution to achieve the intent of the Strategy.

FY 2022 Plans:
Continue to develop future candidate technology programs which result from the scanning and ideation activities from the previous year. The current technology programs include: Air Force Explore (now called Explore), Seedlings for Disruptive Capabilities, WARTECH capability demonstrations, and novel business processes all intent on implementing the Department of the Air Force Science and Technology 2030 Strategy with applied research. Technology studies and demonstrations include integrated base defense, space integration, airships for logistics, low cost multipurpose unmanned aircraft, and predictive tracking for commercial satellites. Advance the development of disruptive seedling technologies such as integrated compact Electro-Optic/Infra-Red sensing, autonomous runway and airfield augmentation, digital arrays for airborne battle management systems, printed composites for attritable and rapidly deployable aircraft, and articulated nose technology for missiles. Continue to explore transformational research analytic technologies to enable validated positions and provide a solid foundation to predict future outcomes, as well as looking for more seedlings to feed the capability pipeline. Continue to advance future workforce development programs and broadening partnerships to deepen and expand the scientific and technology enterprise.

FY 2023 Plans:
Continue to develop future candidate technology programs which result from the scanning and ideation activities from the previous year, while maturing the programs already in progress from the previous year. The current technology programs include: Explore, Seedlings for Disruptive Capabilities, WARTECH capability demonstrations, and novel business processes. Capability demonstrations and close out will occur for FY22 Explore projects with potential new technology studies and demonstrations in areas of fog and edge computing, cement replacement material, and potential WARTECH topics that require technology maturation and studies, as well as, seedling technologies such as next generation targeted electromagnetics, In-Band lethality against seeker threats, Magnetic and star tracking for extended range navigation, and photonic integrated circuits for improved space-based position and timing. Continue to explore transformational research analytic technologies to enable

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
validated positions and provide a solid foundation to predict future outcomes, as well as looking for more seedlings to feed the transformational capability pipeline. Continue to advance future workforce development programs and broadening partnerships to deepen and expand the scientific and technology enterprise. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 increased compared to FY 2022 by $8.771 million. Funding increased to scale investment toward the Department of the Air Force target outlined in the Air Force 2030 Science and Technology (S&T) Strategy.			
Accomplishments/Planned Programs Subtotals	73.226	79.901	88.672

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

N/A