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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605223F / <i>Advanced Pilot Training</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	100.168	236.840	340.373	248.669	0.000	248.669	206.417	119.356	34.039	3.101	0.000	1,288.963
655340: <i>Advanced Trainer Replacement T-X</i>	100.168	236.840	340.373	248.669	0.000	248.669	206.417	119.356	34.039	3.101	0.000	1,288.963
Quantity of RDT&E Articles	2	3	-	-	-	-	-	-	-	-		

Program MDAP/MAIS Code: 436

Note

Prior Years Funding \$4.994M was executed in PE 0604233F.

A. Mission Description and Budget Item Justification

The Advanced Pilot Training (APT) program will replace the Air Education Training Command's (AETC) aging T-38C fleet with new aircraft, Ground Based Training System (simulators, training devices, computer based training systems, academics, etc.), Maintenance Training System, and support infrastructure currently used in the fighter/bomber advanced Specialized Undergraduate Pilot Training track as well as in the Introduction to Fighter Fundamentals program. The APT program acquisition strategy was approved by OSD (AT&L) in early FY 2017 (December 2016). At the same time, the APT Team completed their Development Request for Proposal (RFP) Release Defense Acquisition Board and subsequently released the RFP to industry on 30 December 2016. The Program completed source selection evaluations and Milestone B in September 2018 and awarded a Fixed Price Incentive Firm (FPIF) Indefinite Delivery/Indefinite Quantity contract to The Boeing Company on 27 September 2018.

Funding contained in this platform's documentation directly aids AETC flying training enterprise to continue its overall Future Years Defense Program pilot production increase starting in FY 2020, thus reducing the USAF Pilot Shortage.

The FY 2021 funding request was reduced by \$14.842 million to account for the availability of prior year execution balances.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver the APT weapon system capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605831F.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	245.465	348.473	263.883	0.000	263.883
Current President's Budget	236.840	340.373	248.669	0.000	248.669
Total Adjustments	-8.625	-8.100	-15.214	0.000	-15.214
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-8.100			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-8.625	0.000			
• Other Adjustments	0.000	0.000	-15.214	0.000	-15.214

Change Summary Explanation

FY19: -\$8.625 million due to Small Business Innovative Research transfer

FY20: -\$8.1 million due to congressional directed reductions for "forward financed".

FY21: -\$14.842 million to account for the availability of prior year execution balances; remaining reduction amount due to economic adjustment.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Title: Advanced Pilot Training (APT) Program	236.840	340.373	248.669
Description: The Advanced Pilot Training (APT) program has an approved acquisition strategy, completed Milestone B, and has progressed into the Engineering and Manufacturing Development (EMD) phase. In FY19 the APT program conducted the Aircraft Preliminary Design Review (PDR) and Critical Design Review (CDR) as well as the Ground Based Training System PDR. This effort includes studies, analysis, acquisition documentation, and market research activities to reduce risk and support the acquisition strategy and engineering and manufacturing development. It also includes Program Management Administration (PMA) such as travel, Other Government Costs (OGC), and Advisory and Assistance Services (A&AS).			
FY 2020 Plans: Program plans to conduct a GBTS CDR, close the Aircraft CDR, and continue developmental test and evaluation activities. Plans also include PMA such as travel, OGC's, and A&AS.			
FY 2021 Plans: Program plans to continue developmental test & evaluation, accept delivery of two engineering manufacturing test aircraft and multiple ground training devices. Plans also include PMA such as travel, OGC's and A&AS.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Funding decreased due to the completion of GBTS CDR and ramp down of major design activities.			
Accomplishments/Planned Programs Subtotals	236.840	340.373	248.669

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• APAF 03 Line Item APT000: <i>Advanced Trainer Replacement T-X</i>	-	-	-	-	-	298.791	280.503	386.932	780.121	5,683.602	7,429.949
• APAF 06 Line Item APT000: <i>Advanced Trainer Replacement T-X</i>	-	-	-	-	-	29.878	28.500	37.765	61.258	488.058	645.459
• APAF 07 Line Item 000075: <i>Other Production Charges</i>	-	-	-	-	-	-	19.653	67.845	78.331	152.990	318.819
• OPAF 04 Line Item 845010: <i>Base Procured Equipment</i>	-	-	0.300	-	0.300	4.596	4.195	3.396	3.458	0.000	15.945
• MILCON PE 0804701F: <i>T-X (Advanced Pilot Trainer) Procurement</i>	-	31.600	23.400	-	23.400	-	51.184	15.614	32.916	0.000	154.714

Remarks

E. Acquisition Strategy
 This Advanced Pilot Training (APT) Program will develop, test, acquire, and sustain an affordable, agile, and integrated APT System consisting of 351 aircraft, Ground Based Training System, Maintenance Training System, support, infrastructure, and personnel to meet Air Education and Training Command's initial need date of FY 2024.

The APT program's acquisition strategy leveraged market conditions by competing and awarding development, production, and initial sustainment in a single contract award. The program completed source selection evaluations and Milestone B in September 2018 and awarded a Fixed Price Incentive Firm Indefinite Delivery/Indefinite Quantity contract to The Boeing Company on 27 September 2018 to provide for development, integration, and testing needed to meet existing APT requirements. Additional contract options are available for Low Rate Initial Production, Full Rate Production and initial sustainment transition. The Maintenance Training System will be procured under a separate contractual vehicle.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 5				PE 0605223F / Advanced Pilot Training				655340 / Advanced Trainer Replacement T-X							
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Pilot Training Contracts	Various	Various : TBD	75.608	215.260	Nov 2018	312.540	Nov 2019	208.023	Nov 2020	-		208.023	284.140	1,095.571	1,095.571
Subtotal			75.608	215.260		312.540		208.023		-		208.023	284.140	1,095.571	N/A
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Pilot Training Mission Support	Various	Various : Various	4.371	2.921	Jan 2019	2.606	Mar 2020	4.110	Jun 2021	-		4.110	1.840	15.848	-
Subtotal			4.371	2.921		2.606		4.110		-		4.110	1.840	15.848	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Pilot Training Test Support	Various	Edwards AFB : Edwards AFB, CA	1.475	8.862	Jan 2019	12.325	Jan 2020	22.140	Jan 2021	-		22.140	45.785	90.587	-
Subtotal			1.475	8.862		12.325		22.140		-		22.140	45.785	90.587	N/A
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Pilot Training A&AS	Various	AFLCMC : Dayton, OH	12.308	4.837	Mar 2019	6.206	Mar 2020	6.561	Mar 2021	-		6.561	16.500	46.412	-
Advanced Pilot Training PMA, Other Government Costs	Various	AFLCMC : Dayton, OH	6.406	4.960	Oct 2018	6.696	Oct 2019	7.835	Oct 2020	-		7.835	14.648	40.545	-
Subtotal			18.714	9.797		12.902		14.396		-		14.396	31.148	86.957	N/A

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Appropriation/Budget Activity 3600 / 5				R-1 Program Element (Number/Name) PE 0605223F / <i>Advanced Pilot Training</i>				Project (Number/Name) 655340 / <i>Advanced Trainer Replacement T-X</i>				
	Prior Years	FY 2019		FY 2020		FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	100.168	236.840		340.373		248.669	-	248.669	362.913	1,288.963	N/A	

Remarks
 Prior years amounts under Program 0604233F, Specialized Undergraduate Flight Training.
 Advanced Pilot Training Studies and Analysis: \$0.935M
 Advanced Pilot Training PMA Government Costs: \$1.383M
 Advanced Pilot Training A&AS: \$2.676M

FINANCIAL PERFORMANCE: APT is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, however, the APT EMD contract is a FPIF contract with progress payments. Twenty percent of incurred costs are withheld until the end of the contract, when they are liquidated. Mandatory funding obligations and progress payment withholds will cause the program to lag traditional expenditure benchmarks, painting an inaccurate portrait of overall program health.

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0605223F / <i>Advanced Pilot Training</i>	Project (Number/Name) 655340 / <i>Advanced Trainer Replacement T-X</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Advanced Pilot Training</i>				
Engineering and Manufacturing Development (EMD) Phase	1	2019	3	2022
Aircraft Preliminary Design Review (PDR)	4	2019	4	2019
Aircraft Critical Design Review (CDR)	4	2019	4	2019
Ground Based Training Simulator (GBTS) Preliminary Design Review (PDR)	4	2019	4	2019
Ground Based Training Simulator (GBTS) Critical Design Review (CDR)	2	2020	2	2020
Development, Test and Evaluation	3	2019	2	2022
Milestone C	3	2022	3	2022
Operational Test Readiness Review (OTRR)	2	2023	3	2023
Initial Operational Test & Evaluation (IOT&E)	3	2023	2	2024