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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force **Date:** February 2019

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	20.944	6.683	7.448	0.000	7.448	5.491	1.554	1.584	1.613	Continuing	Continuing
675136: <i>Target Systems Development</i>	-	7.418	4.698	3.478	0.000	3.478	5.491	1.554	1.584	1.613	Continuing	Continuing
675336: <i>QF-16 AST Budget Authority</i>	-	0.000	1.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675366: <i>QF-16</i>	-	13.526	0.000	3.970	0.000	3.970	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Full-scale Aerial Targets assure warfighters' weapon systems perform effectively against real-world enemy fighters and cruise missiles. Aerial Targets support adherence to Public Law Title 10, Section 2366, which requires major systems and munitions programs to conduct live fire survivability and lethality testing before full-rate production. Targets are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Targets are required for developmental/operational testing for all air-to-air and surface-to-air missiles, and for the F-22A, F-35, F-18, F-16, F-15, and other aircraft. Funding supports simulator development and improvements on the QF-16 Full Scale Aerial Target, BQM-167A Subscale Aerial Target, and updates of Target Control Systems and specialized Target Payload Subsystems for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems. Development is required to evolve aerial targets and target control capabilities to meet current and future threats. Air Force is the Executive Agent for full scale aerial targets.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Aerial Targets weapon system capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F, and 0605833F.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force				Date: February 2019	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0305116F I Aerial Targets			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	21.295	8.383	7.448	0.000	7.448
Current President's Budget	20.944	6.683	7.448	0.000	7.448
Total Adjustments	-0.351	-1.700	0.000	0.000	0.000
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-1.700			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.351	0.000			
• Other Adjustments	0.000	0.000	0.000	0.000	0.000
Change Summary Explanation					
FY 2019: Congressional mark of -\$1.7M for "EA pods under execution"					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force									Date: February 2019			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675136 / Target Systems Development			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675136: Target Systems Development	-	7.418	4.698	3.478	0.000	3.478	5.491	1.554	1.584	1.613	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Full-scale Aerial Targets, Subscale Aerial Targets, and companion Target Control Systems (TCS) assure the effectiveness and currency of warfighter weapon systems to combat real-world enemy fighters and cruise missiles. The BQM-167A Air Force Subscale Aerial Target (AFSAT) is a reusable jet-powered target aircraft measuring approximately 20 feet long with a mission to simulate threat aircraft for testing and evaluation of surface-to-air, ship-to-air, or air-to-air missiles. The target accomplishes this mission through the use of optional payloads including chaff and flare, electronic attack, and infrared devices. Funding supports continued improvement of overall performance enhancement efforts. Funding supports development, improvements, and updates of target control systems and specialized target payload subsystems for requirements to include but not limited to missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.												
Electronic Attack (EA) payload upgrade provides new techniques and capabilities critical to subscales and full-scales to realistically emulate current and emerging foreign threat systems in support of weapons testing.												
TCS provides a myriad of sub-systems that, together, deliver the capability to control and track mission aerial targets (full-scale and subscale) and to track a mix of other critical mission participants (to include relay platforms, shooters, and the missile system under test). In this role, TCS ensures an optimum integrated aerial target environment that enhances both weapon system assessments and companion aircrew skills, and the full safety of mission participants throughout the conduct and fulfillment of T&E objectives. Funding supports continued improvement (modernization) of TCS capabilities to effectively meet the multi-service test and evaluation (T&E) demands of current and future warfighter weapon systems.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: AFSAT (BQM-167A) Development									0.000	2.024	3.037	
Description: Provide enhancements to AFSAT (BQM-167A) ability to emulate emerging threats in support of weapon testing.												
FY 2019 Plans: Continue AFSAT (BQM-167A) improvement efforts to include enhanced payload capability.												
FY 2020 Plans: Continue ASFAT (BQM-167A) improvement efforts to include enhanced payload capability and future weapon testing with realistic threats per LFTE Title 10 requirements. Efforts include enhancements to gas, aero, power, and payload capabilities.												
FY 2019 to FY 2020 Increase/Decrease Statement:												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force								Date: February 2019			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675136 / Target Systems Development			
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020	
Funding increased due to AFSAT (BQM-167A) related Multi-Payload Control (MPC) enhancement efforts.											
Title: Target Control System								3.013	1.404	0.441	
Description: Provide system modernization enhancements to Target Control System Gulf Range Drone Control System, (GRDCS) for command and control and tracking of Aerial Targets.											
FY 2019 Plans: Continue system modernization enhancements to include but not limited to GRDCS software updates to support implementing QF-16 and AFSAT enhancements and future TCS capability assessment.											
FY 2020 Plans: Continue system modernization enhancements to include but not limited to GRDCS software updates to support implementing QF-16 and AFSAT enhancements and future TCS capability assessments.											
FY 2019 to FY 2020 Increase/Decrease Statement: Funding decreased due to completion of the TCS 2025 Capabilities-Based Assessment (CBA).											
Title: Digital Radio Frequency Memory (DRFM)								4.405	1.270	0.000	
Description: Develop, improve, and update specialized target payload subsystems both software and hardware for requirements to emulate evolving adversary EA, IR, and radar tactics and techniques. These efforts are continuous as new threat intelligence surfaces, and are level of effort projects based on available funding.											
FY 2019 Plans: Continue efforts to upgrade existing and develop new EA pod hardware and software used on QF-16 and subscales to emulate evolving adversary EA tactics and techniques.											
FY 2020 Plans: N/A											
FY 2019 to FY 2020 Increase/Decrease Statement: Funding decreased due to FY20 prioritization of efforts.											
Accomplishments/Planned Programs Subtotals								7.418	4.698	3.478	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 04 Line Item	105.841	100.953	130.837	-	130.837	133.454	136.127	138.600	141.095	Continuing	Continuing
10TRGT: Target Drones											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets	Project (Number/Name) 675136 / Target Systems Development	

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 06 000999: <i>Initials Spares</i>	0.596	0.579	0.589	-	0.589	0.601	0.613	0.624	0.635	Continuing	Continuing
• APAF 07 000074: <i>War Consumables</i>	4.560	4.599	4.012	-	4.012	4.764	4.859	4.947	5.036	Continuing	Continuing
• APAF 07 Line Item 000075: <i>Other Production Charges</i>	19.780	24.269	16.514	-	16.514	16.517	16.795	17.021	17.327	Continuing	Continuing

Remarks

APAF, BA 04: Target Drones 10TRGT - Full Scale and Subscale Aerial Targets assure warfighters' weapon systems will perform effectively against real-world enemy fighters and cruise missiles. Adheres to Public Law title 10, Section 2366 "Live fire/Lethality" developmental/operational test requirements.

APAF, BA 06: Initial Spares/Repair Parts - Aircraft Initial Spares are required to fill the initial pipeline or inventory for all new aircraft systems, including modifications, support equipment, and other production categories. Initial spares include peculiar repairable and consumable components, assemblies, and sub-assemblies that must be available for issues at all levels of supply in time to support newly fielded end items.

APAF, BA 07: War Consumables - AFSAT Rocket-Assisted Take-Off (RATO) requirements executed at Hill AFB. A RATO is used in the initial launch phase to obtain appropriate speed and altitude.

APAF, BA 07: Other Production Charges - ALQ-167 and/or DLQ-9 Electronic Attack (EA) payloads for target drones including support equipment. Payloads emulate threat aircraft electronic countermeasures and jamming capabilities.

D. Acquisition Strategy

The AFSAT acquisition strategy is sole source follow-on with fixed price and time and materials contracts. The Target Control System acquisition strategy includes several small projects to provide enhancements to Target Control System (to include GRDCS) and will be accomplished with other government agencies and contracts as needed. EA Payloads acquisition strategy includes several small projects managed by the US Navy program office to provide enhancements to the target payloads for subscale and full-scale targets.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675136 / Target Systems Development					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Air Force Subscale Aerial Target (AFSAT) Product Improvements	SS/FFP	Various : CA	-	0.000		2.024	May 2019	3.017	Jan 2020	0.000		3.017	Continuing	Continuing	-
Target Control System	Various	Various: Eglin AFB : FL	-	3.013	Jan 2018	1.401	Jan 2019	0.437	Nov 2019	0.000		0.437	Continuing	Continuing	-
Digital Radio Frequency Memory (DRFM)	Various	Various : Pt Mugu, CA	-	4.405	Dec 2018	1.270	Dec 2018	-		-		-	Continuing	Continuing	-
Subtotal			-	7.418		4.695		3.454		0.000		3.454	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Air Force Subscale Aerial Target (AFSAT) Program Management Administration (PMA)	Various	Various : Eglin AFB, FL	-	-		-		0.020		-		0.020	Continuing	Continuing	-
Target Control System Program Management Administration (PMA)	Various	Various : Eglin AFB, FL	-	0.000		0.003		0.004		-		0.004	Continuing	Continuing	-
Subtotal			-	0.000		0.003		0.024		-		0.024	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	7.418		4.698		3.478		0.000		3.478	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force																Date: February 2019			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0305116F / Aerial Targets								675136 / Target Systems Development			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Target Systems Development																												
BQM-167A: AFSAT Multi-Payload Control																												
TCS: GRDCS Software Version 62																												
TCS: Future Capability Assessment																												
TCS: Modernization																												
EA Pods-Multi Channel Digital Radio																												
Frequency Memory (DRFM) Software Spiral Upgrade																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675136 / <i>Target Systems Development</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Target Systems Development</i>				
BQM-167A: AFSAT Multi-Payload Control	4	2019	4	2021
TCS: GRDCS Software Version 62	1	2018	1	2019
TCS: Future Capability Assessment	1	2018	1	2019
TCS: Modernization	1	2018	4	2024
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM) Software Spiral Upgrade	1	2018	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675336 / QF-16 AST Budget Authority			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675336: QF-16 AST Budget Authority	-	0.000	1.985	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note This BPAC is an administrative continuation of BPAC 675366: QF-16, and encompasses the same efforts.												
A. Mission Description and Budget Item Justification Full-scale Aerial Targets ensure warfighters' weapon systems perform effectively against real-world enemy fighters and cruise missiles. Aerial Targets support adherence to Public Law Title 10, Section 2366, which requires major systems and munitions programs to conduct live fire survivability and lethality testing before full-rate production. Targets are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Targets are required for developmental/operational testing for all air-to-air and surface-to-air missiles, and for the F-22A, F-35, F-18, F-16, F-15 aircraft, and other aircraft. Funding supports simulator development and improvements on the QF-16 Full Scale Aerial Target, and updates of Target Control Systems and specialized target payload subsystems for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems. Development is required to evolve QF-16 threat capabilities to meet current and future threats identified by OSD.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: QF-16 Development Program									0.000	1.985	0.000	
Description: Provide enhancements to emulate emerging threat in support of weapons testing.												
FY 2019 Plans: FY19 funds continue threat realism improvements to improve countermeasures and their control. Conduct studies and analysis on QF-16 Multi Payload control (MPC). FY18 and FY20 funds for this project are located in Project 675366.												
FY 2020 Plans: N/A												
FY 2019 to FY 2020 Increase/Decrease Statement: Funds decreased due to being incorporated correctly into Project 675366.												
Accomplishments/Planned Programs Subtotals									0.000	1.985	0.000	

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets	Project (Number/Name) 675336 / QF-16 AST Budget Authority	

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 04 10TRGT: <i>Target Drones</i>	105.841	100.953	130.837	-	130.837	133.454	136.127	138.600	141.095	Continuing	Continuing
• APAF 06 000999: <i>Initial Spares</i>	0.596	0.579	0.589	-	0.589	0.601	0.613	0.624	0.635	Continuing	Continuing
• APAF 07 000074: <i>War Consumables</i>	4.560	4.599	4.012	-	4.012	4.764	4.859	4.947	5.036	Continuing	Continuing
• APAF 07 000075: <i>Other Production Charges</i>	19.780	24.269	16.514	-	16.514	16.517	16.795	17.021	17.327	Continuing	Continuing

Remarks

APAF, BA 04: Target Drones 10TRGT - Full Scale and Subscale Aerial Targets assure warfighter's weapon systems will perform effectively against real-world enemy fighters and cruise missiles. Adheres to Public Law title 10, Section 2366 "Live fire/Lethality" developmental/operational test requirements.

APAF, BA 06: Initial Spares/Repair Parts - Aircraft Initial Spares are required to fill the initial pipeline or inventory for all new aircraft systems, including modifications, support equipment, and other production categories. Initial spares include peculiar repairable and consumable components, assemblies, and sub-assemblies that must be available for issues at all levels of supply in time to support newly fielded end items.

APAF, BA 07: War Consumables - AFSAT Rocket-Assisted Take-Off (RATO) requirements executed at Hill AFB. A RATO is used in the initial launch phase to obtain appropriate speed and altitude.

APAF, BA 07: Other Production Charges - ALQ-167 and/or DLQ-9 Electronic Attack (EA) payloads for target drones including support equipment. Payloads emulate threat aircraft electronic countermeasures and jamming capabilities.

D. Acquisition Strategy

The QF-16 was a competitive contract award, including fixed price incentive development contract with fixed priced production options (Lots 1-5). Planning is in progress to award a sole source follow-on production and sustainment contract to the incumbent for Lots 6-8.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675336 / QF-16 AST Budget Authority					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
QF-16 Multi-Payload Control	C/Various	The Boeing Company : Saint Louis, MO	-	-		1.985	Aug 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	-		1.985		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		1.985		-		-		-	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force						Date: February 2019					
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)			
3600 / 7				PE 0305116F / Aerial Targets				675336 / QF-16 AST Budget Authority			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
QF-16 Development																												
QF-16 Multi-Payload Control																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675336 / <i>QF-16 AST Budget Authority</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>QF-16 Development</i>				
QF-16 Multi-Payload Control	1	2019	1	2021

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Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675366 / QF-16			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675366: QF-16	-	13.526	0.000	3.970	0.000	3.970	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Full-scale Aerial Targets ensure warfighters' weapon systems perform effectively against real-world enemy fighters and cruise missiles. Aerial Targets support adherence to Public Law Title 10, Section 2366, which requires major systems and munitions programs to conduct live fire survivability and lethality testing before full-rate production. Targets are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Targets are required for developmental/operational testing for all air-to-air and surface-to-air missiles, and for the F-22A, F-35, F-18, F-16, F-15 and other aircraft. Funding supports simulator development and improvements on the QF-16 Full Scale Aerial Target, and updates of Target Control Systems and specialized target payload subsystems for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems. Development is required to evolve QF-16 threat capabilities to meet current and future threats identified by OSD.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2018	FY 2019	FY 2020
Title: QF-16 Development Program	13.526	0.000	3.970
Description: Provide enhancements to emulate emerging threat in support of weapons testing.			
FY 2019 Plans: FY19 funds are in Project 675336, which was an administrative extension of this project. FY19 funds continue threat realism improvements for countermeasures and their control. Conduct studies and analysis on QF-16 Radar Cross Section (RCS) and Multi Payload Control (MPC).			
FY 2020 Plans: Continue threat realism improvements for countermeasures and their controls. Complete studies and analysis on QF-16 MPC.			
FY 2019 to FY 2020 Increase/Decrease Statement: Funds increased due to additional efforts for the QF-16 MPC project.			
Accomplishments/Planned Programs Subtotals			3.970

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 04 Line Item	105.841	100.953	130.837	-	130.837	133.454	136.127	138.600	141.095	Continuing	Continuing
10TRGT: <i>Target Drones</i>											
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675366 / <i>QF-16</i>	

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
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• APAF 07 Line Item 00075: <i>Other Production Charges</i>	19.780	24.269	16.514	-	16.514	16.517	16.795	17.021	17.327	Continuing	Continuing

Remarks

APAF, BA 04: Target Drones 10TRGT - Full Scale and Subscale Aerial Targets assure warfighter's weapon systems will perform effectively against real-world enemy fighters and cruise missiles. Adheres to Public Law title 10, Section 2366 "Live fire/Lethality" developmental/operational test requirements.

APAF, BA 06: Initial Spares/Repair Parts - Aircraft Initial Spares are required to fill the initial pipeline or inventory for all new aircraft systems, including modifications, support equipment, and other production categories. Initial spares include peculiar repairable and consumable components, assemblies, and sub-assemblies that must be available for issues at all levels of supply in time to support newly fielded end items.

APAF, BA 07: War Consumables - AFSAT Rocket-Assisted Take-Off (RATO) requirements executed at Hill AFB. A RATO is used in the initial launch phase to obtain appropriate speed and altitude.

APAF, BA 07: Other Production Charges - ALQ-167 and/or DLQ-9 Electronic Attack (EA) payloads for target drones including support equipment. Payloads emulate threat aircraft electronic countermeasures and jamming capabilities.

D. Acquisition Strategy

The QF-16 was a competitive contract award, including fixed price incentive development contract with fixed priced production options (Lots 1-5). Planning is in progress to award a sole source follow-on production and sustainment contract to the incumbent for Lots 6-8.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0305116F / Aerial Targets				Project (Number/Name) 675366 / QF-16					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Drone Peculiar Equipment	C/Various	The Boeing Company : Saint Louis, MO	-	13.526	Jun 2019	-		-		-		-	Continuing	Continuing	-
QF-16 Multi-Payload Control	Various	The Boeing Company : Saint Louis, MO	-	-		-		3.970	Nov 2019	-		3.970	Continuing	Continuing	-
Subtotal			-	13.526		-		3.970		-		3.970	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	13.526		0.000		3.970		-		3.970	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force	Date: February 2019
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675366 / <i>QF-16</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<i>QF-16 Development</i>																												
QF-16 Multi-Payload Control																												
Electronic Flight Termination System / Loss of Carrier																												
Future F-16 Block Studies and Development																												
Radar Cross Section Study/Analysis																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>	Project (Number/Name) 675366 / <i>QF-16</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>QF-16 Development</i>				
QF-16 Multi-Payload Control	1	2019	1	2021
Electronic Flight Termination System / Loss of Carrier	1	2018	2	2018
Future F-16 Block Studies and Development	1	2018	3	2018
Radar Cross Section Study/Analysis	1	2019	3	2020