

UNCLASSIFIED

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 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>
--	---

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	-	6.527	7.448	0.449	0.000	0.449	1.551	1.581	1.610	1.639	Continuing	Continuing
675136: <i>Target Systems Development</i>	-	4.588	3.478	0.449	0.000	0.449	1.551	1.581	1.610	1.639	Continuing	Continuing
675336: <i>QF-16 AST Budget Authority</i>	-	1.939	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675366: <i>QF-16</i>	-	0.000	3.970	0.000	0.000	0.000	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. Enables analysis, development and prototyping of threat emulations/simulations, and presentation of evolving threat scenarios and target area environments to prepare for emerging weapons development activities. 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 Full-scale Aerial Targets, Subscale Aerial Targets, and companion Target Control Systems (TCS) weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

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.

UNCLASSIFIED

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 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305116F / <i>Aerial Targets</i>
--	---

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	6.683	7.448	5.491	0.000	5.491
Current President's Budget	6.527	7.448	0.449	0.000	0.449
Total Adjustments	-0.156	0.000	-5.042	0.000	-5.042
• 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	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-0.156	0.000	-5.042	0.000	-5.042

Change Summary Explanation

The FY21 funding request was reduced by \$5.042 million to account for the availability of prior year execution balances.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
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>			
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
675136: <i>Target Systems Development</i>	-	4.588	3.478	0.449	0.000	0.449	1.551	1.581	1.610	1.639	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 (IR) devices. Funding supports continued improvement of overall performance enhancement efforts to meet evolving threats. 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 (EA) and IR countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

EA payload upgrade provides new techniques and capabilities critical to subscale and full-scale targets 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 Test and Evaluation (T&E) objectives. Funding supports continued improvement of TCS capabilities to effectively meet the multi-service T&E demands of current and future warfighter weapon systems.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Full-scale Aerial Targets, Subscale Aerial Targets, and companion Target Control Systems (TCS) weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: AFSAT (BQM-167A) Development	1.955	3.037	0.000	0.000	0.000
Description: Provide enhancements to AFSAT (BQM-167A) ability to emulate emerging threats in support of weapon testing. Funding may be utilized for development of follow-on Aerial Target capabilities.					
FY 2020 Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
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>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Continue AFSAT (BQM-167A) improvement efforts to include enhanced payload capability and future weapon testing with realistic threats per LFTE Title 10 requirements. Efforts include Multi-Payload Control (MPC) enhancements to Gas, Aero, Power, and Payload (GAPP) capabilities.</p> <p>FY 2021 Base Plans: N/A</p> <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to higher service priorities.</p>					
<p>Title: Target Control System</p> <p>Description: Provide system enhancements to Advance Airborne Threat Target Control System, (AATTCS) formerly known as Gulf Range Drone Control System (GRDCS), for command and control and tracking of Aerial Targets. Funding may be utilized for development of follow-on Aerial Target capabilities.</p> <p>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.</p> <p>FY 2021 Base Plans: Continue system upgrades to include, but not limited to: AATTCS software updates to support implementing QF-16 and AFSAT enhancements and future TCS capability assessments.</p> <p>FY 2021 OCO Plans: N/A</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding increased due to manpower needs to address capability gaps in TCS.</p>	1.354	0.441	0.449	0.000	0.449
<p>Title: Digital Radio Frequency Memory (DRFM)</p> <p>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.</p> <p>FY 2020 Plans:</p>	1.279	0.000	0.000	0.000	0.000

UNCLASSIFIED

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

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>
--	---	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	4.588	3.478	0.449	0.000	0.449

C. 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 04 Line Item 10TRGT: <i>Target Drones</i>	90.172	130.837	133.273	-	133.273	135.991	138.419	140.918	139.545	Continuing	Continuing
• APAF 06 000999: <i>Initials Spares</i>	0.579	0.589	0.600	-	0.600	0.612	0.623	0.634	0.646	Continuing	Continuing
• APAF 07 000074: <i>War Consumables</i>	4.599	4.012	4.757	-	4.757	4.854	4.940	5.029	5.122	Continuing	Continuing
• APAF 07 Line Item 000075: <i>Other Production Charges</i>	29.247	16.514	16.495	-	16.495	16.778	16.999	17.306	17.622	Continuing	Continuing

Remarks
RDTE, BA 07: Aerial Targets - Includes funding for BPAC 675336, QF-16 AST Budget Authority, as well as BPAC 675366, QF-16.

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.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force	Date: February 2020
---	----------------------------

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>
--	---	--

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

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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 a 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 AATTCS) 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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

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>
--	---	--

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Force Subscale Aerial Target (AFSAT) Product Improvements	SS/FFP	Various : CA	-	1.955	Dec 2019	3.037	Dec 2019	-		-		-	Continuing	Continuing	-
Target Control System	Various	Various: Eglin AFB : FL	-	1.354	Jan 2019	0.437	Nov 2019	0.449	Dec 2020	-		0.449	Continuing	Continuing	-
Digital Radio Frequency Memory (DRFM)	Various	Various : Pt Mugu, CA	-	1.279	Dec 2018	-		-		-		-	Continuing	Continuing	-
Subtotal			-	4.588		3.474		0.449		-		0.449	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Target Control System Program Management Administration (PMA)	Various	Various : Eglin AFB, FL	-	-		0.004		-		-		-	Continuing	Continuing	-
Subtotal			-	-		0.004		-		-		-	Continuing	Continuing	N/A

			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			-	4.588		3.478		0.449		-		0.449	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force **Date:** February 2020

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>
--	---	--

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 GAPP	
TCS: AATTCS Software Release	
TCS: Future Capability Assessment	
TCS: Future TCS	
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM) Hardware	
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM); Software Spiral Upgrade	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force **Date:** February 2020

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 GAPP	2	2020	3	2023
TCS: AATTCS Software Release	1	2019	1	2019
TCS: Future Capability Assessment	1	2019	1	2019
TCS: Future TCS	1	2019	4	2024
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM) Hardware	1	2019	3	2022
EA Pods-Multi Channel Digital Radio Frequency Memory (DRFM); Software Spiral Upgrade	1	2019	3	2022

UNCLASSIFIED

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

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>
--	---	--

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
675336: <i>QF-16 AST Budget Authority</i>	-	1.939	0.000	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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Full-scale Aerial Targets, Subscale Aerial Targets, and companion Target Control Systems (TCS) weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: QF-16 Development Program	1.939	0.000	0.000	0.000	0.000
Description: Provide enhancements to emulate emerging threat in support of weapons testing. Funding may be utilized for development of follow-on Aerial Target capabilities.					
FY 2020 Plans: N/A					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans:					

UNCLASSIFIED

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

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>
--	---	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
N/A					
<i>FY 2020 to FY 2021 Increase/Decrease Statement:</i> N/A					
Accomplishments/Planned Programs Subtotals	1.939	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 04 10TRGT: <i>Target Drones</i>	90.172	130.837	133.273	-	133.273	135.991	138.419	140.918	139.545	Continuing	Continuing
• APAF 06 000999: <i>Initial Spares</i>	0.579	0.589	0.600	-	0.600	0.612	0.623	0.634	0.646	Continuing	Continuing
• APAF 07 000074: <i>War Consumables</i>	4.599	4.012	4.757	-	4.757	4.854	4.940	5.029	5.122	Continuing	Continuing
• APAF 07 000075: <i>Other Production Charges</i>	29.247	16.514	16.495	-	16.495	16.778	16.999	17.306	17.622	Continuing	Continuing

Remarks

RDTE, BA 07: Aerial Targets - Includes BPAC 675136, Target Systems Development, as well as BPAC 675366, QF-16.

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.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force		Date: February 2020
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>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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																												
Q-16 Multi-Payload Control (MPC)																												
Radar Cross Section Study/Analysis																												

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force **Date:** February 2020

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>				
Q-16 Multi-Payload Control (MPC)	4	2019	1	2021
Radar Cross Section Study/Analysis	1	2019	3	2020

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
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>			
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
675366: <i>QF-16</i>	-	0.000	3.970	0.000	0.000	0.000	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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Full-scale Aerial Targets, Subscale Aerial Targets, and companion Target Control Systems (TCS) weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: QF-16 Development Program	0.000	3.970	0.000	0.000	0.000
Description: Provide enhancements to emulate emerging threat(s) in support of weapons testing. Funding may be utilized for development of follow-on Aerial Target capabilities.					
FY 2020 Plans: Continue threat realism improvements for countermeasures and their controls. Complete studies and analysis on QF-16 MPC.					
FY 2021 Base Plans: N/A					
FY 2021 OCO Plans: N/A					
FY 2020 to FY 2021 Increase/Decrease Statement: Funding decreased due to reorganization of major thrust area funding.					
Accomplishments/Planned Programs Subtotals	0.000	3.970	0.000	0.000	0.000

UNCLASSIFIED

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

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)

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u> <u>Base</u>	<u>FY 2021</u> <u>OCO</u>	<u>FY 2021</u> <u>Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 04 Line Item 10TRGT: <i>Target Drones</i>	90.172	130.837	133.273	-	133.273	135.991	138.419	140.918	139.545	Continuing	Continuing
• APAF 06 000999: <i>Initial Spares</i>	0.579	0.589	0.600	-	0.600	0.612	0.623	0.634	0.646	Continuing	Continuing
• APAF 07 000074: <i>War Consumables</i>	4.599	4.012	4.757	-	4.757	4.854	4.940	5.029	5.122	Continuing	Continuing
• APAF 07 Line Item 00075: <i>Other Production Charges</i>	29.247	16.514	16.495	-	16.495	16.778	16.999	17.306	17.622	Continuing	Continuing

Remarks

RDTE, BA07: Aerial Targets - Include BPAC 675136, Target Systems Development, as well as BPAC 675336, QF-16 AST Budget Authority.

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.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force **Date:** February 2020

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>
--	---	---

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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 (MPC)	[REDACTED]

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
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 (MPC)	4	2020	1	2022