

UNCLASSIFIED

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

Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1203873SF / <i>Ballistic Missile Defense Radars</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	-	0.000	0.000	28.179	0.000	28.179	16.084	7.941	0.000	0.000	Continuing	Continuing
674820: <i>Sensor Development</i>	-	0.000	0.000	28.179	0.000	28.179	16.084	7.941	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In FY 2021, PE 1203873F, Ballistic Missile Defense Radars efforts were transferred to Appropriation 3620, Research, Development, Test & Evaluation, Space Force, PE 1203873SF, Ballistic Missile Defense Radars from Appropriation 3600, Budget Activity 7 due to the creation of a new Appropriation for Space Force.

COBRA DANE (CD) is a 40+ year old radar located on Eareckson AS, AK (Shemya Island, AK), executing two missions: Missile Defense (MD) and Space Domain Awareness(SDA). SDA mission supports New Foreign Launches (NFLs) and Space Catalog maintenance to include space debris tracking. CD will acquire through design, development, Integration, and test a modern architecture to enhance mission capability providing Warfighter and Stakeholder customers direct operational benefit. CD utilizes Federally Funded Research and Development Centers (FFRDC), Systems Engineering and Integration (SE&I), University Affiliated Research Center (UARC) and Assistance and Advisory Services (A&AS) Contractors to support programmatic and technical activities. Activities include studies and analysis to support both current program planning and execution and future program planning. Specifically, the Automated Data Processing Equipment (ADPE) Rehost program upgrades the CD system's radar back end mission data processing, radar management and control, and signal processing capabilities to a modern architecture that facilitates long term mission resiliency, cyber security, system viability, high operational availability, and rapid hardware and software development and deployment capability. FY17 Above Threshold Reprograming (ATR) RDT&E funds were provided to the Missile Defense Agency (MDA) to accelerate the joint Air Force and MDA modernization program of the CD radar which opens the door for a non-traditional acquisition approach using an Other Transaction Authority (OTA) agreement through the OSD Defense Innovation Unit (DIU) Organization. This program element may include necessary civilian pay expenses required to manage, execute, and deliver COBRA DANE's weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605831F. In addition to funds being used to modernize this back end of the radar, these funds will also be used for out-year planning of front end component modernization including enhancement of communication elements.

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 3620F: <i>Research, Development, Test & Evaluation, Space Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 1203873SF / <i>Ballistic Missile Defense Radars</i>
---	--

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	28.179	-	28.179
Total Adjustments	0.000	0.000	28.179	-	28.179
• 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	0.000	0.000	28.179	-	28.179

Change Summary Explanation

FY 2021: Transfer of funds to Space Force

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2019	FY 2020	FY 2021
Title: ADPE Rehost Upgrade, Phase II	0.000	0.000	28.179
Description: The Automated Data Processing Equipment (ADPE) Rehost Phase II continues evolutionary, non-traditional prototype development funded under FY17 Congressional ATR and FY18 Missile Defense Agency funds to deliver an operational capability. FY20 funds extend the prototype development toward integration, complete a System Integration Lab and transition to operationalize prototypes procured using non-traditional acquisition methods which will evolve the COBRA DANE radar back end mission data processing, radar management and control, and signal processing capabilities to a modern open architecture. This architecture will facilitate long term mission resiliency, cyber security, system viability, high operational availability, and rapid hardware and software development and deployment capability. In addition to funds being used to modernize the back end of the radar, these funds may also be used for planning of front end component modernization including enhancement of communication elements.			
FY 2020 Plans: N/A			
FY 2021 Plans: Planned projects include software lab evolution and development support, continued development of system hardware and software, system integration and spiral development and testing. Initial limited capability deployments to the site to include integration hardware support. In addition to funds being used to modernize the back end of the radar, these funds may also be			

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force		Date: February 2020		
Appropriation/Budget Activity 3620F: <i>Research, Development, Test & Evaluation, Space Force I BA 7: Operational Systems Development</i>		R-1 Program Element (Number/Name) PE 1203873SF / <i>Ballistic Missile Defense Radars</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
used for planning enhancements of communication elements. This program element may include necessary civilian pay expenses required to manage, execute, and deliver COBRA DANE's weapon system capability.				
FY 2020 to FY 2021 Increase/Decrease Statement: N/A				
Accomplishments/Planned Programs Subtotals		0.000	0.000	28.179
D. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
E. Acquisition Strategy This acquisition strategy will continue to use a non-traditional approach to modernize and enhance existing capabilities adding a deployment phase to one of the program's currently awarded efforts through the Defense Innovation Unit (DIU) Other Transaction Authority (OTA) Agreement. This approach will provide an extension of system service life to ensure warfighter capability thru at least 2030. This evolutionary migration to a current open system approach also provides foundation for adaptable system sustainment and addition of future capabilities.				

UNCLASSIFIED

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)							
3620F / 7				PE 1203873SF / Ballistic Missile Defense Radars					674820 / Sensor Development							
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	
Product Development	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-	
ADPE Phase II, Development; S/W & H/W integration	TBD	Various : TBD	-	0.000		0.000		22.653	Jan 2021	-		22.653	Continuing	Continuing	-	
Subtotal			-	0.000		0.000		22.653		-		22.653	Continuing	Continuing	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	
Support (integration)	C/CPAF	various : TBD	-	-		0.000		1.680	Feb 2021	-		1.680	Continuing	Continuing	-	
Subtotal			-	-		0.000		1.680		-		1.680	Continuing	Continuing	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	
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		-		0.300	Feb 2021	-		0.300	Continuing	Continuing	-	
Subtotal			-	-		-		0.300		-		0.300	Continuing	Continuing	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	
Management Services	C/CPAF	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-	
Program Management Support	TBD	Various : TBD	-	-		0.000		3.546	Jan 2021	-		3.546	Continuing	Continuing	-	
Subtotal			-	-		0.000		3.546		-		3.546	Continuing	Continuing	N/A	

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3620F / 7	R-1 Program Element (Number/Name) PE 1203873SF / <i>Ballistic Missile Defense Radars</i>	Project (Number/Name) 674820 / <i>Sensor 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

<i>ADPE Rehost Phase II</i>	
Prototype Phase I completion MDA Funded RDT&E	
Prototype Phase 2 Requirements, Infrastructure & Early Development	
Phase 2 Hardware/Software Development	
Phase 2 Systems Integration & Test	
Phase 2 Operational Assessment	
BMC3 Comm Modernization	
Beam Steering Group Modernization	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3620F / 7	R-1 Program Element (Number/Name) PE 1203873SF / <i>Ballistic Missile Defense Radars</i>	Project (Number/Name) 674820 / <i>Sensor Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>ADPE Rehost Phase II</i>				
Prototype Phase I completion MDA Funded RDT&E	1	2019	1	2020
Prototype Phase 2 Requirements, Infrastructure & Early Development	3	2020	3	2022
Phase 2 Hardware/Software Development	3	2020	4	2023
Phase 2 Systems Integration & Test	1	2021	4	2023
Phase 2 Operational Assessment	3	2022	4	2023
BMC3 Comm Modernization	3	2022	4	2023
Beam Steering Group Modernization	4	2022	4	2024