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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0604283F I Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.000	0.000	40.000	0.000	40.000	100.006	10.028	0.000	0.000	0.000	150.034
673587: ARSR-4 Replacement - Hawaii	-	0.000	0.000	40.000	0.000	40.000	100.006	10.028	0.000	0.000	0.000	150.034
Quantity of RDT&E Articles	-	-	-	-	-	-	1	-	-	-	-	

Note
 This program, BA 7, PE 0604283F, project 673587, ARSR-4 Replacement Hawaii (ARSR4R-HI), is a new start.

A. Mission Description and Budget Item Justification

This budget line item funds the replacement of the current Hawaii Air Route Surveillance Radar Version 4 (ARSR-4) to include prototype development, test, site preparation, and installation. The replacement radar will address DoD capability gaps driven by new threats and provide dual use for Hawaii for Air Traffic Control (ATC) and weather monitoring. The new system is designated the ARSR-4 Replacement Hawaii (ARSR4R-HI) Long Range Radar (LRR). It is a key component of the USAF's defense of Hawaii as a high priority mission for the DoD and supports NORAD/NORTHCOM and PACAF/INDOPACOM Deterrence Initiatives.

The ARSR4R-HI program develops an integrated Homeland Defense surveillance against air cruise missiles while maintaining the ATC capability required by both the Federal Aviation Administration (FAA) and the Department of Defense (DoD).

The ARSR4R-HI program is established to address the following surveillance shortfalls:

1. Lack of surveillance capabilities to meet today's mission needs such as inability to characterize and classify targets or cover all required airspace.
2. Inability to enhance current system capabilities to meet evolving needs for surveillance and tracking of modern aircraft and threats.
3. Obsolescence associated with 1980s era ARSR-4 equipment and infrastructure leading to excessive sustainment, operations, and maintenance costs.

To address these surveillance shortfalls, development of the ARSR4R-HI system will consist of improved detection performance for modern air threats, mitigate new interference sources, and utilize state of the art surveillance technologies and processing capabilities. The ARSR4R-HI effort will solidify the solution as a non-rotating, multi-panel, phased array radar system which provides persistent surveillance with improved accuracy and detection performance supporting an advanced engagement sequence to counter modern threats with target cueing and fire control quality data.

The FY2024 effort includes integration efforts between the Air Force and FAA systems including architecture development, requirements documents completion, acquisition strategy development, site surveys, requests to industry to identify mature systems data/availability, industry demonstration efforts and development of Request for Proposal.

The ARSR4R-HI consists of one ground based radar, tower, and ground based shelters, and other smaller Government Furnished Equipment (GFE) items. The FAA currently owns the site for the location of the installation.

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This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22, \$0.000M was expended for civilian pay expenses in this program element, and in FY23 \$0.000M is forecasted for civilian pay expenses in this program element.

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.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	40.000	0.000	40.000
Total Adjustments	0.000	0.000	40.000	0.000	40.000
• 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	40.000	0.000	40.000

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
Title: ARSR-4 Replacement Hawaii (ARSR4R-HI)	-	-	40.000
Description: The FY2024 effort includes integration efforts between the AF and FAA systems including architecture development, requirements documents completion, acquisition strategy development, site surveys, requests to Industry to identify mature systems data/availability, industry demonstration efforts, development of Request for Proposal.			
FY 2024 Plans: Activities supported with FY24 funding include, but are not limited to the following: - Will identify DOD/FAA key internal/external stakeholders, and manpower requirements. - Will develop Memorandum of Agreement (MoA) with DOT FAA to codify program roles and responsibilities. - Will complete Requirements Document to include cyber security with key DoD/FAA stakeholders. - Will develop DoD Acquisition Strategy and documents to support the Milestone Decision Authority (MDA) requirements.			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Will conduct Model Based Systems Engineering to develop a Government Reference Architecture (GRA) to optimize open systems architecture of the system chosen. - Will initiate spectrum analysis/approval for this system's spectrum band w/DoD Spectrum Office - Will utilize the GRA to exercise use case scenarios, to determine capability performance in meeting Key Performance Parameters (KPPs) and Key System Attributes (KSAs). - Will initiate interaction with industry to determine mature, open systems architecture solutions that meet requirements. - Will support development of networking architecture approach for Multi Level Security (MLS) data transmissions. - Will define radar interfaces to DoD/FAA Command and Control (C2) Nodes. - Will perform site analysis to support site installation. - Will prepare/release request for information to industry for a mature system meeting requirements, schedule, and open systems architecture. - Will release Request for Proposal (RFP) to conduct a demo of off-the-shelf solutions for a potential fly-off, to include contract awards for demonstrations. - Will prepare Request for Proposal (based on the outcome of the demo flyoff) for development, procurement, testing and installation and check out of the new capability. - Will create and codify a Depot Source of Repair (DSOR) with DoD and FAA. <p>FY 2023 to FY 2024 Increase/Decrease Statement: Program New Start</p>			
Accomplishments/Planned Programs Subtotals	-	-	40.000

D. Other Program Funding Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE 07 0604283F: <i>Battle Mgmt Com & Ctrl Sensor Development</i>	-	-	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Remarks

E. Acquisition Strategy

In order to meet the PACAF/INDOPACOM DoD/FAA urgent mission needs, a Middle Tier Acquisition Rapid Development strategy is planned for the ARSR4R-HI replacement system. The most likely acquisition strategy will include demonstration of two or more capable systems and down select to a single vendor.

Contract types may include, but are not limited to, Prototype Other Transaction Authority, FAR type contracting vehicles, and GSA vehicles. Other activities in support of this acquisition likely to be executed via Military Inter-Departmental Purchase Requests, and Project Orders with various organizations.

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This effort is being maintained in the office of Air Force Program Executive Officer (PEO) Digital. Program support, cost, contracts, logistics, and financial management support is managed by Air Force Life Cycle Management Center Aerospace Management Systems Division (AFLCMC/HBA).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604283F / <i>Battle Management Command and Control (BMC2) Sensor Development ARSR-4 Replacement - Hawaii</i>	Project (Number/Name) 673587 / <i>ARSR-4 Replacement - Hawaii</i>
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
ARSR-4 Replacement Hawaii Vendor Demonstration A	TBD	AFLCMC/HBA, HAFB, MA : TBD	-	-		-		12.150	Dec 2023	-		12.150	0.000	12.150	-
ARSR-4 Replacement Hawaii Vendor Demonstration B	TBD	AFLCMC/HBA, HAFB, MA : TBD	-	-		-		12.150	Dec 2023	-		12.150	0.000	12.150	-
ARSR-4 Replacement Hawaii Site Survey / Preparation	TBD	AFLCMC/HBA, HAFB, MA : TBD	-	-		-		8.209	Jan 2024	-		8.209	0.000	8.209	-
Subtotal			-	-		-		32.509		-		32.509	0.000	32.509	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
System Engineering	MIPR	DOT FAA : Washington, DC	-	-		-		3.000	Nov 2023	-		3.000	0.000	3.000	-
Research/Analysis	MIPR	DOT FAA CAASD / MITRE : Washington, DC	-	-		-		1.200	Nov 2023	-		1.200	0.000	1.200	-
Civilian Direct Cite Authorization	Allot	AFLCMC/FZA : TBD : TBD	-	-		-		1.574	Oct 2023	-		1.574	0.000	1.574	-
Subtotal			-	-		-		5.774		-		5.774	0.000	5.774	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Test and Evaluation	PO	46 TS : Eglin AFB, FL : TBD	-	-		-		0.300	Oct 2023	-		0.300	0.000	0.300	-
Subtotal			-	-		-		0.300		-		0.300	0.000	0.300	N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force		Date: March 2023
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ARSR-4 Replacement Hawaii (ARSR4R-HI)				
ARSR-4 Replacement Hawaii (ARSR4R-HI)	2	2023	4	2026
Requirements Development	2	2023	4	2024
MDA Approval Acq Strategy	4	2023	4	2023
Industry Engagement	3	2023	4	2024
Demonstration RFP/Contract Award	1	2024	1	2024
-- Demonstrations	2	2024	3	2024
-- Down Select w/Prototype Proposal	4	2024	4	2024
-- Prototype Proposal Evaluation	1	2025	1	2025
Prototype Contract Award	1	2025	1	2025
-- Prototype NRE, Site Prep, Delivery, Install, Test	1	2025	4	2026
Capability Validation / Flight Check	1	2027	1	2027