Selected Acquisition Report (SAR)

B-52 Radar Modernization Program (RMP) (B-52 RMP)

FY 2024 President's Budget

Defense Acquisition Visibility Environment (DAVE)

Table of Contents

Common Acronyms and Abbreviations

$B - Billions of Dollars
$K - Thousands of Dollars
$M - Millions of Dollars
ACAT - Acquisition Category
Acq O&M - Acquisition-Related Operations and Maintenance
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FMS - Foreign Military Sales
FOC - Full Operational Capability
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
Inc - Increment
IOC - Initial Operational Capability
JROC - Joint Requirements Oversight Council
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
O&S - Operating and Support
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
PAUC - Program Acquisition Unit Cost
PB - President's Budget

PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
U.S. - United States
UCR - Unit Cost Reporting
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

B-52 Radar Modernization Program (B-52 RMP)

DoD Component

Air Force

Responsible Office

Program Manager

Name: Mr. James “Chris” Baird
Date Assigned: June 24, 2021
Address: 2690 Loop Road West
Wright-Patterson AFB, OH 45433-7424
Phone: (937) 713-6426

Mission and Description

The B-52 Radar Modernization Program (RMP) supports nuclear and conventional operations by upgrading or replacing, in whole or in part, the current APQ-166 radar Line Replaceable Units (LRU) on the B-52 aircraft. The APQ-166 system will be increasingly difficult to sustain due to diminished manufacturing sources and obsolescent technologies; the current failure rate of the APQ-166 places long-duration missions at risk. This modernization program will encompass the radar antenna array and up to 14 individual LRUs that comprise the entire radar system. The RMP will provide the development, production, and installation of new components and systems to replace the legacy equipment, which will be installed on all 76 B-52 aircraft. The B-52 RMP will take advantage of advances in technology and ongoing development efforts to acquire, to the maximum extent possible, off-the-shelf components and integrate them into the B-52. The use of new technology will increase both the overall reliability of the radar system and the capabilities for new missions. The B-52 RMP will allow the operational command (Air Force Global Strike Command) to fully utilize the capabilities of the B-52 aircraft to employ an array of weapons and to perform mission-essential navigation and weather avoidance functions. In addition, all the applicable training devices which process radar data or represent the radar subsystem will also be modified and upgraded in conjunction with the aircraft modifications. This upgrade will affect all B-52 training devices and will provide the ability to connect and operate in a common environment that provides realistic high-end combat training to meet future standards. Upgraded devices include the Bombing-Navigation System Maintenance Trainers, the desktop trainer, the Mission Employment Trainer, and a Family-of-Systems concept that includes handheld/wearable and point-of-use devices, medium-fidelity deployable devices and high-fidelity devices covering the entire training spectrum.

Executive Summary

B-52 RMP

Program Highlights Since Last Report

The program completed its System-level Critical Design Review on February 25, 2022. The program's System-level developmental testing is planned to begin in a laboratory environment in September 2023 in parallel with the software development effort. The program's System-level developmental testing in an open-air test environment is planned to begin in November 2024 at Edwards Air Force Base, California. The program's current estimates for all Acquisition Program Baseline (APB) schedule events are within the Objective and Threshold dates, including the December 2024 date for Milestone C Decision Point #1.

The program received a $21.7M Congressional mark in FY 2023 and the team is working to minimize the impact. The program's current cost estimates, based on the FY 2022 Non-Advocate Cost Assessment (NACA), are within APB Objective and Threshold values. However, a separate FY 2022 Program Office Estimate (POE) indicated the program will exceed the APB Thresholds in RDT&E and Operating and Support Costs due to different estimate assumption use. The Program Team and Cost Estimators will review all assumptions in the FY 2023 POE and FY 2023 NACA to ensure consistency in approach. They expect several assumptions to either be actuals or of greater fidelity before these new cost estimates. For these reasons, the Program Team considers these to be potential breaches, and both will be closely tracked until either resolved with the FY 2023 estimates or declared a breach at that time.

The B-52 RMP is not using a Modular Open Systems Approach because it is not practical and is cost-prohibitive to re-design off-the-shelf subsystems; however, the program is implementing Open System Architecture attributes for information distribution, video standards, display solutions, and imagery storage and transmission.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation

Date	Significant Development Description
Feb - 2022	The program team completed the System Critical Design Review.
Jun - 2021	The program entered EMD via the Milestone B Acquisition Decision Memorandum.
Oct - 2020	The program team completed the System Preliminary Design Review.
Jul - 2019	The prime contractor completed subsystem supplier selections.
Oct - 2018	The program team completed the System Functional Review.
Aug - 2018	The program team completed the System Requirements Review.
Mar - 2018	The Joint Requirements Oversight Council approved the Capability Development Document.

Schedule

B-52 RMP

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Preliminary Design Review	Oct 2020	Oct 2020	Oct 2020	Oct 2020	
Milestone B	Jun 2021	Jun 2021	Jun 2021	Jun 2021	
Critical Design Review	Nov 2021	Nov 2021	May 2022	Feb 2022	
Milestone C Decision Point #1	Mar 2024	Mar 2024	Mar 2025	Dec 2024	
Milestone C Decision Point #2	Sep 2024	Sep 2024	Sep 2025	Jun 2025	
Initial Operational Capability	Sep 2026	Sep 2026	Sep 2027	May 2027	
Full-Rate Production	Dec 2026	Dec 2026	Dec 2027	May 2027	

Schedule Note

- Milestone C Decision Point #1 current estimate changed from September 2024 to December 2024. Milestone C Decision Point #2 current estimate changed from March 2025 to June 2025. Initial Operational Capability and Full Rate Production changed from March 2027 to May 2027. All four of these changes are due to supply chain (parts) delays and material availability constraints for equipment planned for laboratories and the environmental qualification program. Boeing is working aggressively to mitigate impacts, and dates for all acquisition events are within APB Threshold and Objective windows.
- Milestone C Decision Point #1 is for approval to buy the first production lot and comply with Milestone C requirements with the following criteria:
  - Manufacturing Readiness Assessment conducted. Manufacturing Readiness Level seven achieved.
  - Hardware maturity demonstrated through:
    - Environmental testing, Electromagnetic (EM) Interference, EM Compatibility, and safety-of-flight testing completed.
    - Hardware interfaces demonstrated in ground testing.
    - Capability to create high-resolution Synthetic Aperture Radar map demonstrated during flight testing.
    - Developmental Testing (DT) interim technical report and Operational Testing (OT) periodic report completed.
    - Statutory documents for Milestone C completed.
- Milestone C Decision Point #2 is for approval of remaining program production with the following specific entrance criteria:
  - Production Readiness Review conducted.
  - System flight testing conducted and documented in DT interim technical report.
  - Operational assessment documented in OT periodic report.

Performance

B-52 RMP

Performance Characteristics					
Milestone Baseline	**Current Baseline Objective/Threshold**		**Demonstrated Performance**	**Current Estimate/Actual**	**Deviation**
(KPP) - Reliability					
Total system installed performance shall provide 1000 hours Mean Time Between Critical Failure (MTBCF) at IOC.	Total system installed performance shall provide 1000 hours Mean Time Between Critical Failure (MTBCF) at IOC.	300 hours MTBCF at IOC.	TBD	Total system installed performance shall provide 1,000 hours Mean Time Between Critical Failure (MTBCF) at IOC.	
(KPP) - Sustainment, Materiel Availability					
RMP shall have an A(m) of 84% or higher at FOC.	RMP shall have an A(m) of 84% or higher at FOC.	(T=O) RMP shall have an A(m) of 84% or higher at FOC.	TBD	RMP shall have an A(m) of 84% or higher at FOC.	
(KPP) - Sustainment, Operational Availability					
RMP shall have and A(o) of 95% or higher at FOC.	RMP shall have and A(o) of 95% or higher at FOC.	(T=O) RMP shall have and A(o) of 95%or higher at FOC.	TBD	RMP shall have and A(o) of 95% or higher at FOC.	
(KPP) - System Survivability, Cyber Security					
RMP shall be protected against any level actor through prevention, mitigation, and recovery of system capabilities in response to Cybersecurity/Electronic Warfare by actively managing system configuration to protect and counter vulnerabilities at tactically relevant rates.	RMP shall be protected against any level actor through prevention, mitigation, and recovery of system capabilities in response to Cybersecurity/Electronic Warfare by actively managing system configuration to protect and counter vulnerabilities at tactically relevant rates.	(T=O) RMP shall be protected against any level actor through prevention, mitigation, and recovery of system capabilities in response to Cybersecurity/Electronic Warfare by actively managing system configuration to protect and counter vulnerabilities at tactically relevant rates.	TBD	RMP shall be protected against any level actor through prevention, mitigation, and recovery of system capabilities in response to Cybersecurity/Electronic Warfare by actively managing system configuration to protect and counter vulnerabilities at tactically relevant rates.	

(KPP) - System Survivability, Electromagnetic Spectrum					
None - See CDD	None - See CDD	None - See CDD	none	None - See CDD	
(KPP) - System Survivability, Nuclear Hardness					
Sufficient hardening to survive HEMP and nuclear radiation effects.	Sufficient hardening to survive HEMP and nuclear radiation effects.	(T=O) Sufficient hardening to survive HEMP and nuclear radiation effects.	TBD	Sufficient hardening to survive HEMP and nuclear radiation effects.	

Requirement Reference

B-52 RMP CDD Validated by: JROC, March 12, 2018

Acquisition Budget Estimate
B-52 RMP

Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	**Base Year**	**Objective (BY$M)**	**Objective (BY$M)**	**Threshold (BY$M)**	**BY$M**	**TY$M**	**Deviation**
RDT&E	2021	1,157.1	1,157.1	1,272.8	**1,283.8**	1,374.5	**Yes**
Procurement	2021	885	885	973.5	954.8	1,151.8	
MILCON	2021						
Acq. O&M	2021						
Total		2,042.1			2,238.6	2,526.3	2,042.1
PAUC	2021	26.870	26.870	29.557	29.455	33.241	
APUC	2021	11.959	11.959	13.155	12.903	15.565	

Budget Note

The Service Acquisition Executive endorsed the Service Cost Position, dated May 12, 2021, to use as the APB. The Budget Estimate used the program's FY 2022 POE rather than the FY 2024 President's Budget (PB). The Cost and Economics Division of the Air Force Life Cycle Management Center approved the program's 2022 POE, dated July 29, 2022. The program received a $21.7M Congressional mark in FY 2023 and the team is working to minimize the impact. Other changes in Budget Estimates compared to the previous SAR are due to different estimate assumption use.

Cost Deviation Explanation

RDT&E The program's current cost estimate, based on the FY 2022 Non-Advocate Cost Assessment (NACA), dated April 13, 2022, is within APB Objective and Threshold values for all cost categories. However, the FY 2022 Program Office Estimate (POE) indicated the program will exceed the APB Threshold in RDT&E due to different estimate assumption use. The Program Team and Cost Estimators will review all assumptions in the FY 2023 NACA and POE to ensure consistency in approach. They expect several assumptions to either be actuals or of greater fidelity before these new cost estimates. For these reasons, the program team considers this to be a potential breach, and it will be tracked until either resolved with the new FY 2023 estimates or declared a breach at that time.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	2	2
Procurement	74	74
O&M-Acquired	--	--

Quantity Note

Quantities in the Development Phase include two B-52 aircraft in FY 2021 dedicated to RMP flight testing. After RMP testing is complete, these two aircraft will become operational aircraft. Additionally, development includes FY 2028-FY 2030 RDT&E funding for RMP kit buys and installation on two separate B-52 test aircraft based at Edwards Air Force Base California.

In the Production and Deployment Phase, the 74 B-52 aircraft quantity includes 72 operational aircraft plus the two Edwards AFB test jets. For the Operating & Support Phase, 74 B-52 RMP-outfitted aircraft are included in O&S Cost assumptions.

Unit Cost
B-52 RMP

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2021	**Current UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	2,042.1	2,238.6	
Quantity	76	76	
Unit Cost	26.870	29.455	9.62%
Average Procurement Unit Cost			
Cost	885.0	954.8	
Quantity	74	74	
Unit Cost	11.959	12.903	7.89%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2021	**Original UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	2,042.1	2,238.6	
Quantity	76	76	
Unit Cost	26.870	29.455	9.62%
Average Procurement Unit Cost			
Cost	885.0	954.8	
Quantity	74	74	
Unit Cost	11.959	12.903	7.89%

Cost Growth Details

Unit Cost Note

Baseline cost information sourced from Milestone B SCP dated March 31, 2021 with SCP Memo Addendum dated May 12, 2021. The budget estimate in this report that feeds into the Unit Cost section reflects the FY 2022 Program Office Estimate.

Actions Taken or Proposed to Control Future Cost Growth

The differences in the baseline and the current estimate are due to different cost estimates used for the current values. The program's current cost estimate, based on the FY 2022 Non-Advocate Cost Assessment (NACA), dated April 13, 2022, is within APB Objective and Threshold values for all cost categories. However, the FY 2022 Program Office Estimate (POE) indicated the program will exceed the APB Threshold in RDT&E due to different estimate assumption use. The Program Team and Cost Estimators will review all assumptions in the FY 2023 NACA and POE to ensure consistency in approach. They expect several assumptions to either be actuals or of greater fidelity before these new cost estimates. For these reasons, the program team considers this to be a potential breach, and it will be tracked until either resolved with the new FY 2023 estimates or declared a breach at that time.

Risks

B-52 RMP

Risk and Sensitivity Analysis

Risk and Sensitivity Analysis

Current Procurement Cost (December - 2022)

1. There are no known risks identified with this program at this time.

Original Baseline Estimate (June - 2021)

1. Radome Latch Loads: If predicted latch loads are real, then changes to the latch and/or attachment hardware will be necessary causing minor cost impact. Managed as likelihood of four, consequence of two in risk management program. Mitigation plan--program will test a sample of latch attachments to determine actual load capability.
2. Test Aircraft Availability: If required test aircraft are not available to support Developmental and Operational Testing, then the test program could be extended to validate system requirements. Managed as likelihood of three, consequence of three in risk management program. Mitigation plan--program is planning for two test aircraft. B-52 Platform Integration Team is working to obtain required test aircraft while ensuring aircraft availability for the B-52 fleet.
3. Software Integration Laboratory/Radome Integrated Test: If radio-frequency issues occur during Flight Test, then design re-work and delay to Production is possible. Managed as likelihood of three, consequence of three in risk management program. Mitigation plan--integration testing of the radome and radar together will be performed in the radar Software Integration Laboratory.
4. Nuclear Hardening: If baseline components cannot be nuclear hardened through industry hardening standards, then redesign may be required to meet KPP. Managed as likelihood of two, consequence of four in risk management program. Mitigation plan--program will ensure subsystems meet B-52 radiation hardening requirements per assessments of suppliers (i.e., radar, displays, controllers, etc) when they are selected.
5. Safety Criticality: If the Displays & Sensor System Processor development process does not comply with military requirements, then air worthiness certification may be denied resulting in added rework and test delays. Managed as likelihood of three, consequence of three in risk management program. Mitigation plan--close coordination between contractor and USAF established before design start and team will continue to monitor design requirements.
6. Software Schedule: If software functions are not implemented by planned increments (s/w drops), then flight testing will be delayed. Managed as likelihood of three, consequence of four in risk management program. Mitigation plan--program will use Agile Software Process to rapidly qualify software in the Software Integration Laboratory. B-52 Crew Working Group will mitigate risks, issues, and complexity and obtain operational feedback. Contract Incentive Fee Plan will focus on delivering high quality (low defect) and on-time software in laboratories and flight test.
7. Combat Network Communications Technology Equipment for Software Integration Laboratory: If Combat Network Communications Technology equipment is unavailable in required quantities then testing will be extended and program delays will occur. Managed as likelihood of three, consequence of four in risk management program. Mitigation plan--equipment will be shared from other laboratories and/or emulations will be utilized.

Current Baseline Estimate (December - 2022)

1. Software Schedule: If software functions are not implemented by planned increments (software drops), then flight testing will be delayed, which will then indirectly drive an increase to the overall program cost. Managed as likelihood of three, consequence of four in risk management program. Mitigation plan—software development mitigation actions were ongoing in pre-EMD and continue in EMD to reduce the need for additional software drops. Agile Software development process in Software Integration Laboratory to qualify software and reduce integration cycle-time and re-work. Program will leverage several fielded radar modes from F-15 and F-18 with no need for flying testbed support. Modes will be fully qualified in contractor laboratory.

Significant Schedule Risks

Significant Schedule Risks
Current Estimate (December - 2022)

1. Software Schedule: If software functions are not implemented by planned increments (software drops), then flight testing will be delayed. Managed as the likelihood of three, consequence of four in risk management program. Mitigation plan—software development mitigation actions were ongoing in pre-Engineering and Manufacturing Development (EMD) and continue in EMD to reduce the need for additional software drops. Agile Software development process in Software Integration Laboratory to qualify software and reduce integration cycle-time and re-work. The program will leverage several fielded radar modes from F-15 and F/A-18 with no need for flying testbed support. Modes will be fully qualified in contractor laboratory.

Milestone B (June - 2021)

1. Test Aircraft Availability: If required test aircraft are not available to support Developmental and Operational Testing, then the test program could be extended to validate system requirements. Managed as likelihood of three, consequence of three in risk management program. Mitigation plan--program is planning for two test aircraft. B-52 Platform Integration Team is working to obtain required test aircraft while ensuring aircraft availability for the B-52 fleet.
2. Software Integration Laboratory/Radome Integrated Test: If radio-frequency issues occur during Flight Test, then design re-work and delay to Production is possible. Managed as likelihood of three, consequence of three in risk management program. Mitigation plan--integration testing of the radome and radar together will be performed in the radar Software Integration Laboratory.
3. Nuclear Hardening: If baseline components cannot be nuclear hardened through industry hardening standards, then redesign may be required to meet KPP. Managed as likelihood of two, consequence of four in risk management program. Mitigation plan--program will ensure subsystems meet B-52 radiation hardening requirements per assessments of suppliers (i.e., radar, displays, controllers, etc) when they are selected.
4. Safety Criticality: If the Displays & Sensor System Processor development process does not comply with military requirements, then air worthiness certification may be denied resulting in added rework and test delays. Managed as likelihood of three, consequence of three in risk management program. Mitigation plan--close coordination between contractor and USAF established before design start and team will continue to monitor design requirements.
5. Software Schedule: If software functions are not implemented by planned increments (software drops), then flight testing will be delayed. Managed as likelihood of three, consequence of four in risk management program. Mitigation plan--program will use Agile Software Process to rapidly qualify software in the Software Integration Laboratory. B-52 Crew Working Group will mitigate risks, issues, and complexity and obtain operational feedback. Contract Incentive Fee Plan will focus on delivering high quality (low defect) and on-time software in laboratories and flight test.
6. Combat Network Communications Technology Equipment for Software Integration Laboratory: If Combat Network Communications Technology equipment is unavailable in required quantities, then testing will be extended and program delays will occur. Managed as likelihood of three, consequence of four in risk management program. Mitigation plan--equipment will be shared from other laboratories and/or emulations will be utilized.
7. Software Integration Laboratory Availability: If there are delays in other B-52 programs Software Integration Laboratory activities then there will be program schedule delays. Managed as likelihood of three, consequence of three in risk management program. Mitigation plan--program will establish early & constant communication with B-52 Platform Integration Team and design shared racks and benches for utilization across multiple programs.

Technologies and Systems Engineering

Significant Technical Risks
Current Estimate (December - 2022)

1. There are no known risks identified with this program at this time.

Low Rate Initial Production

B-52 RMP

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	6/10/2021	6/10/2021
Approved Quantity	28	28
Reference	Milestone B ADM	Milestone B ADM
Start Year	2024	2025
End Year	2026	2028

Rationale if quantity exceeds 10% of the total number of articles to be procured:

In the program's Milestone B Acquisition Decision Memorandum, the Service Acquisition Executive approved the following updates in the RMP acquisition strategy:

“The program's elimination of advanced procurement (AP) results in the need to use same-year funding for long-lead and kit procurement. This change affected the program's Milestone C (MS C) strategy and resulted in a need to increase LRIP quantities to avoid a break in the production line.

The program will split the MS C event into two separate decision points. The reason for this split is to enable procurement of the initial lot in time to support the production line stand-up required to meet the FY 2026 IOC date.

The program would need to purchase long-lead items in FY 2024 to meet the number of assets required by the IOC date. The two Milestone C decision points allow the use of procurement funds in support of the program timeline and also mitigates risk.

The LRIP quantity increased from 11 aircraft (15% of total quantities) to 28 aircraft (38% of total quantities). This is due to the elimination of AP. In the prior approved acquisition strategy, the inclusion of AP in the production strategy enabled Lot 2 procurement to occur after the Full Rate Production decision.”

Contracts & Efforts

Contract Data	
Contract Number	FA8628-21-F-1006
Effort Number	
Modification Number	P00029
Award Date	06/14/2021
Definitization Date	01/31/2022
Order Number	
CAGE Code/CAGE Legal Name	1N929/The Boeing Company - Defense, Space and Security
Contract Title	B-52 Radar Modernization Program - EMD
Contract Address	Oklahoma City, OK
Contracting Office	AFLCMC/WBD, B-52 Division
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Cost-Plus-Incentive-Fee
Modification Date	December 09, 2022
Work Start Date	June 15, 2021
Technical Data Rights	Government Purpose License Rights to Technical Data--Noncommercial Items & Software
Work Completed	25.38%

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$523.4	$523.6	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
$617.8	$721.2	
Initial Quantity	Current Quantity	Delivered Quantity
2	2	0
BAC	BCWP	ACWP
$648.1	$164.5	$191.4
BCWS	Cost Variance	Schedule Variance
$171.3	-$26.9	-$6.8

Contract Note:
As reported in the previous SAR, the program team definitized the Engineering and Manufacturing Development Undefinitized Contract Action at a total negotiated price of $523.4M. There are two Engineering Change Proposals that were awarded as Unpriced Change Orders in CY 2022. The program plans to definitize these efforts in CY 2023 and will add them to the Current Target Price at that time.

Factors Contributing to Cost Variance:
The unfavorable cumulative cost variance is due to unexpected material processing to qualify the radome and additional resources to rework a new mission computer chassis and modify circuit boards to resolve issues discovered during integration testing. Due to late laboratory hardware delivery, the software team has not been able to complete work as efficiently as planned. Additional effort was also needed to complete the System-level Critical Design Review (CDR) entry criteria documents and drawings to conduct CDR on schedule.

Factors Contributing to Schedule Variance:
The unfavorable cumulative schedule variance is due primarily to radar supplier and sub-supplier late material deliveries caused by design complexity and global supply chain issues and delays.

Contract Data	
Contract Number	FA8628-19-F-1003
Effort Number	
Modification Number	P00073
Award Date	06/27/2019
Definitization Date	12/19/2019
Order Number	
CAGE Code/CAGE Legal Name	1N929/The Boeing Company - Defense, Space and Security
Contract Title	B-52 RMP Phase 2B Suppliers Integration
Contract Address	Oklahoma City, OK
Contracting Office	AFLCMC/WBD, B-52 Division
Supported Phase	Development
Contract Strategy	FAR 15 (Negotiated)
Contract Type	Cost-Plus-Fixed-Fee
Modification Date	December 22, 2022
Work Start Date	June 27, 2019
Technical Data Rights	Government Purpose License Rights to Technical Data--Noncommercial Items & Software
Work Completed	83.89%

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$130	$194.6	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
$180.9	$185.1	
Initial Quantity	Current Quantity	Delivered Quantity
0	0	0
BAC	BCWP	ACWP
$175.7	$147.4	$158.4
BCWS	Cost Variance	Schedule Variance
$160.5	-$11	-$13.1

Contract Note:
As reported in the previous SAR, the difference between the Initial Contract Price Target and the Current Contract Price Target is due to the definitizing the Undefinitized Contract Action, awarding five Contract/Engineering Change Proposals, covering material and labor overruns, and exercising four option Contract Line Item Numbers.

Factors Contributing to Cost Variance:
The unfavorable cumulative cost variance is due to the contractor attempting to design and build a system integration laboratory using 30-year old drawings and needing to complete many drawing revisions and extra effort interacting with suppliers to determine and order replacement parts because of obsolescence and engineering changes.

Factors Contributing to Schedule Variance:
The unfavorable cumulative schedule variance is due to the radar supplier experiencing delays completing the technical design and material deliveries to build and test the radar qualification unit. Additional unfavorable schedule variance is due to the contractor reconciling earned value tracking with control account changes the radar supplier made and impacting earned value alignment.

Deliveries and Expenditures

B-52 RMP

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	2	0.00%
Production	0	0	74	0.00%
Total Program Quantity Delivered	0	0	76	0.00%

Expended and Appropriated (TY $M)

Years Appropriated to date: 7

Total Years Appropriated Funding (Current Baseline): 14

Percent Years Appropriated: 50.00%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 27.53%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 25.01%

Total Acquisition Cost: $2,526.3

Deliveries and Expenditures Note

Development kits quantities were funded and delivered in FY 2022. The program's elimination of advanced procurement (AP) results in the need to use same-year funding for long-lead and kit procurement. This change affected the program's Milestone C (MS C) strategy and resulted in a need to increase LRIP quantities to avoid a break in the production line.

The program will split the MS C event into two separate decision points. The reason for this split is to enable procurement of the initial lot in time to support the production line stand-up required to meet the FY 2026 IOC date.

Operating and Support Costs

B-52 RMP

O&S Cost Breakdown:

Category (BY2021$ Million)	B-52 RMP
Unit-Level Manpower	$0.0
Unit Operations	$0.0
Maintenance	$305.1
Sustaining Support	$72.1
Continued System Improvements	$64.7
Other	$0.0
Total	$441.9

Cost Estimate Source: CCP dated July 29, 2022
Note: This cost estimate reflects the FY 2022 Program Office Estimate.

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
Base Year: 2021	Objective (BY$M)	Threshold (BY$M)	Current Estimate (BY$M)	Current Estimate (TY$M)	Deviation
Total O&S	$391.8	$431	**$441.8**	$678.5	Yes

Note: The differences in the baseline and the current estimate are due to different cost estimates used for the current values. The Air Force conducted two cost estimates on B-52 RMP in FY 2022, a NACA and a POE, as referenced previously in this SAR. Using RMP's Base Year of 2021, the NACA estimate was $386.2M for O&S, below the APB Threshold value of $431.0M. However, due to different assumptions on repair cost factors, the POE value was $441.9M for O&S. The POE value is $10.9M (2.5%) above the APB Threshold for O&S. The program team and cost estimators will review repair cost factors before the FY 2023 NACA and POE to ensure consistency, and they expect greater fidelity in the FY 2023 cost estimates. For this reason, the program team considers this to be a potential breach, and it will be tracked until either resolved with the FY 2023 estimate or declared a breach at that time.

Operating and Support Cost Deviation Explanation

The Air Force conducted two cost estimates on B-52 RMP in FY 2022, a NACA and a POE, as referenced previously in this SAR. Using RMP's Base Year of 2021, the NACA estimate was $386.2M for O&S, below the APB Threshold value of $431.0M. However, due to different assumptions on repair cost factors, the POE value was $441.9M for O&S. The POE value is $10.9M (2.5%) above the APB Threshold for O&S. The program team and cost estimators will review repair cost factors before the FY 2023 NACA and POE to ensure consistency, and they expect greater fidelity in the FY 2023 cost estimates. For this reason, the program team considers this to be a potential breach, and it will be tracked until either resolved with the FY 2023 estimate or declared a breach at that time.

Operating and Support Costs - Disposal and Unitized Costs

B-52 RMP

Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:

Sustainment Factors	System Name: Radar Modernization Program	Antecedent System Name: APQ-166Cost Estimate
Quantity to Sustain	74	
Unit of Measure	TAI	
Unit Expected Service Life	25	

Base Year: 2021

Annual Unitized O&S Cost by Category Base Year $ Unit:($M)	System Name: Radar Modernization Program	Antecedent System Name: APQ-166Cost Estimate
Unit-Level Manpower	$0.0	
Unit Operations	$0.0	
Maintenance	$0.19	
Sustaining Support	0.05	
Continued System Improvements	$0.04	
Other	$0.0	$0.49
Total O&S	$0.28	$0.49

Disposal/Demilitarization Cost Estimate

(BY2021$M)	System Name: Radar Modernization Program	Antecedent System Name: APQ-166Cost Estimate
Total Disposal	$0.0	

Cost Estimate Source - Disposal	
Type:	Independent Cost Estimate
Approval Authority and Date:	FCZ Cost Cheif 07/28/2022
Disposal Cost Note:	
RMP is a permanent part of the B-52 and disposal costs are covered by the overall aircraft.	

Additional O&S Estimate Assumptions:
None
Sustainment Strategy:
The program is planning for Interim Contractor Support up to 4 years following Initial Operating Capability. A two-level maintenance concept is planned: organic organizational and depot level, and organic supply is planned. A Depot Source of Repair (DSOR 18-084F) is complete, which determined hardware will be repaired at Warner-Robins Air Logistics Complex (ALC) and software at Oklahoma City ALC. The program will leverage the F-15E Active Electronically-Scanned Array radar depot/Public Private Partnership. Technical Data is needed for Organic Maintenance, Depot Activation and Depot Installation. A Special Licensing Agreement signed with Boeing on 7 February 2023 established rights to data not otherwise covered by Unlimited Rights, Limited rights, or Government Purpose Rights for installations, organic maintenance, and B-52 repair.
Antecedent Estimate Assumptions:
Average Annual Cost through CY 2045