

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons
--	--

COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	453.605	646.811	770.313	0.000	770.313	732.254	567.173	345.651	309.094	Continuing	Continuing
671803: B-52 AFMC Test Assets	-	5.977	1.447	4.369	0.000	4.369	0.000	2.740	2.797	2.859	Continuing	Continuing
671805: B-52 VLF/LF Modernization	-	12.744	9.187	9.000	0.000	9.000	0.000	0.000	0.000	0.000	0.000	30.931
671810: B-52 AEHF Integration	-	12.002	29.690	66.515	0.000	66.515	122.411	108.095	0.069	0.000	0.000	338.782
675039: B-52 System Improvements	-	34.342	12.150	13.150	0.000	13.150	5.190	0.000	0.000	0.000	Continuing	Continuing
675041: Bomber Tactical Data Link	-	2.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.125
675050: CONECT	-	3.867	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.867
675055: GPS-IU	-	0.771	0.693	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.464
675056: B-52 Radar Modernization Program (RMP)	-	163.384	136.862	261.876	0.000	261.876	211.187	123.633	43.211	0.000	0.000	940.153
675057: B-52 Low Cost Improvement (LCI)	-	0.000	0.058	0.702	0.000	0.702	0.000	0.000	0.000	0.000	Continuing	Continuing
675129: B-52 CERP	-	210.045	429.068	395.736	0.000	395.736	373.190	290.310	265.891	271.803	Continuing	Continuing
675160: B-52 Crypto Modernization	-	8.348	17.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.801
675165: B-52 Quad Crew	-	0.000	10.203	18.965	0.000	18.965	0.000	0.000	0.000	0.000	Continuing	Continuing
676039: B-52 Airspace Compliance*	-	0.000	0.000	0.000	0.000	0.000	20.276	42.395	33.683	34.432	Continuing	Continuing

*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2023

A. Mission Description and Budget Item Justification

The B-52H is a long-range bomber capable of delivering the widest variety of nuclear and conventional standoff and direct attack munitions in the Air Force. The Air Force plans to fly the B-52H to 2050.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force **Date:** April 2022

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 0101113F / <i>B-52 Squadrons</i>
--	---

The B-52H modernization efforts are needed to perform current and future wartime missions and to ensure relevance, lethality and survivability. Additionally, modernization projects alleviate aircraft obsolescence issues due to Diminishing Manufacturing Sources and Material Shortages (DMSMS) while at the same time providing improved capabilities to the B-52H weapon system that require significant hardware and software development and testing.

B-52 funding also supports innovation activities including, but not limited to tech demonstrations, studies, analyses, requirements definition, and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 21.218M was expended for civilian pay expenses in this program element, and in FY22 22.899M 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 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	482.741	715.811	0.000	0.000	0.000
Current President's Budget	453.605	646.811	770.313	0.000	770.313
Total Adjustments	-29.136	-69.000	770.313	0.000	770.313
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-81.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	12.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-15.000	0.000			
• SBIR/STTR Transfer	-14.136	0.000			
• Other Adjustments	0.000	0.000	770.313	0.000	770.313

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 675039: *B-52 System Improvements*

Congressional Add: *AFGSC Innovation Hub*

Congressional Add: *B-52 Training Automation*

Congressional Add Subtotals for Project: 675039

Congressional Add Totals for all Projects

	FY 2021	FY 2022
	5.000	10.000
	-	2.000
Congressional Add Subtotals for Project: 675039	5.000	12.000
Congressional Add Totals for all Projects	5.000	12.000

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force</i> / BA 7: <i>Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	

Change Summary Explanation

FY2021 adjustment of -\$15M for Above Threshold Reprogramming FY21_11PA

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

FY2022 10M increase for Global Strike Innovation Hub and 2M increase for B-52 Training Automation. FY2022 55M decrease for B-52 CERP Rapid Prototyping Material Contract Delay and 26M decrease for B-52 Radar Modernization contract delay.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671803 / B-52 AFMC Test Assets			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
671803: B-52 AFMC Test Assets	-	5.977	1.447	4.369	0.000	4.369	0.000	2.740	2.797	2.859	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 AFMC Test Assets project will provide funding for the test aircraft, manpower, and facilities at the Air Force Test Center located at Edwards AFB, California. This project will support the developmental testing and sustainment needs of the B-52 weapon system as well as the procurement and install of the Bomber Modular Data Acquisition System (BMDAS) on identified B-52 Test Aircraft. Funds include Programmed Depot Maintenance (PDM) costs for Test Aircraft performed at Tinker AFB, OK.

Costs include, but are not limited to, any analysis, documentation, and related expenses necessary to establish a program of record and support the B-52 weapon system. Additionally, other costs include Program Management Administration (PMA) and centralized support and initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total cost of ownership).

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate PMA and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 AFMC Test Aircraft Asset Support	5.977	1.447	4.369	-	4.369
Description: B-52 Test Support provides funding for the test aircraft, manpower, BMDAS and facilities at the Air Force Test Center, Edwards AFB and Programmed Depot Maintenance (PDM). This will support the developmental testing and sustainment needs of the B-52.					
FY 2022 Plans: Provide funding for the test aircraft, manpower and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing, facility, BMDAS and sustainment needs of the B-52.					
FY 2023 Base Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force	Date: April 2022
---	-------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671803 / <i>B-52 AFMC Test Assets</i>
--	---	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
B-52 Test Support provides funding for the test aircraft, manpower, BMDAS, and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing and sustainment needs of the B-52.					
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> Funding increased due to tempo and manpower requirements.					
Accomplishments/Planned Programs Subtotals	5.977	1.447	4.369	-	4.369

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

Remarks

D. Acquisition Strategy

Funding sent to Edwards AFB via MIPR for the test aircraft, manpower, BMDAS and facilities at the Air Force Test Center located at Edwards AFB, California.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671803 / <i>B-52 AFMC Test Assets</i>
--	---	---

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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>AFMC Test Aircraft Support</i>	
Test Support	
FY21 PDM Induction	
PDM Jet Induction	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671803 / <i>B-52 AFMC Test Assets</i>
--	---	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>AFMC Test Aircraft Support</i>				
Test Support	1	2021	4	2027
FY21 PDM Induction	2	2021	1	2022
PDM Jet Induction	2	2024	3	2025

Note
B-52 Test Aircraft -036 is planned to be inducted to PDM 2QFY24 and out 3QFY25.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671805 / B-52 VLF/LF Modernization
--	--	--

COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
671805: B-52 VLF/LF Modernization	-	12.744	9.187	9.000	0.000	9.000	0.000	0.000	0.000	0.000	0.000	30.931
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The B-52 Very Low Frequency/Low Frequency (VLF/LF) Modernization program integrates a receive-only, low frequency receiver and antenna subsystem to provide a secure, survivable strategic nuclear communication capability for the B-52. This project will consist of integrating an existing VLF/LF terminal into the B-52. Integration includes Group A wiring, rack and antenna, and the Group B terminal Line Replaceable Unit (LRU).

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

As the VLF/LF provides future communication growth to the B-52, emerging security/certification requirements (nuclear certification, cyber security, program protection, crypto modernization, etc.) as well as other aircraft upgrades may require studies and/or support for potential impact to VLF/LF.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 Very Low Frequency/Low Frequency (VLF/LF)	12.744	9.187	9.000	-	9.000
Description: Provides secure, survivable, receive-only strategic nuclear communication for the B-52					
FY 2022 Plans: Continue Engineering & Manufacturing Development (EMD) phase to support fielding decision. Accomplish kit #1 delivery and A/C mod for test.					
FY 2023 Base Plans: Continue EMD phase to support fielding decision. Accomplish DT/OT, A/C 2 Mod, and Milestone C.					
FY 2022 to FY 2023 Increase/Decrease Statement:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671805 / B-52 VLF/LF Modernization
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding decreased because EMD efforts ramp down in 2023 to support testing (DT/OT), modification of the second aircraft, and Milestone C.					
Accomplishments/Planned Programs Subtotals	12.744	9.187	9.000	-	9.000

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 B05200: BP11 Production	0.000	20.137	16.515	-	16.515	26.240	5.700	6.200	3.200	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Milestone Decision Authority (MDA) approved the 25 January 2019 decision of the B-52 VLF/LF Acquisition Strategy Panel (ASP), which authorized the program to enter into the EMD phase with the Original Equipment Manufacturer (OEM). The program office received a proposal from the OEM on 16 August 2019. The EMD Contract was awarded 22 January 2020. The Acquisition Program Baseline (APB) was signed April 2020.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671805 / B-52 VLF/LF Modernization
--	--	--

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Collins Environmental Study	SS/FFP	Environmental Study : Richardson, TX	-	1.410	Aug 2021	0.290	Mar 2022	-		-		-	Continuing	Continuing	-
VLF/LF EMD	SS/CPFF	Various : Oklahoma, OK	-	9.979	Jan 2021	6.373	Jan 2022	3.138	Oct 2022	-		3.138	Continuing	Continuing	-
Subtotal			-	11.389		6.663		3.138		-		3.138	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
VLF/LF Program Office Support	Various	Various : TBD	-	0.922	Jul 2021	1.285	Jul 2022	0.223	Oct 2022	-		0.223	Continuing	Continuing	-
VLF/LF Trainers	Allot	Not specified. : TBD	-	-		0.000		5.000	Oct 2022	-		5.000	Continuing	Continuing	-
Subtotal			-	0.922		1.285		5.223		-		5.223	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
VLF/LF Test	PO	Not specified. : TBD	-	0.033	Feb 2021	0.039	Feb 2022	0.639	Oct 2022	-		0.639	Continuing	Continuing	-
VLF/LF Certifications	TBD	Not specified. : TBD	-	0.400	May 2021	1.200	May 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	0.433		1.239		0.639		-		0.639	Continuing	Continuing	N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract	
	Project Cost Totals		-	12.744	9.187	9.000	-	9.000	Continuing	Continuing

Remarks

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671805 / <i>B-52 VLF/LF Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-52 VLF/LF Modernization</i>				
EMD	1	2021	3	2023
MS C	3	2023	3	2023
IOC	4	2024	4	2024

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671810 / B-52 AEHF Integration			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
671810: B-52 AEHF Integration	-	12.002	29.690	66.515	0.000	66.515	122.411	108.095	0.069	0.000	0.000	338.782
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Advanced Extremely High Frequency (AEHF) Integration satellite communications (SATCOM) system provides a survivable, low probability of intercept/detection, high bandwidth system that ensures secure intra/inter-flight and two-way command and control communications in the modern anti-access/aerial denial battle space. This communications upgrade replaces the Military Strategic and Tactical Relay (MILSTAR) Ultra High Frequency (UHF) SATCOM capability (MILSTAR is nearing system end of life) on the B-52. The AEHF Integration effort will integrate the radio, antenna and system components required to provide two-way EHF communication for the B-52.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Funds may be used to purchase long-lead parts following completion of Preliminary Design Review (PDR).

As AEHF Integration provides future communication growth to the B-52, emerging security/certification requirements (nuclear certification, cyber security, program protection, crypto modernization, etc.) as well as other aircraft upgrades may require studies and/or support for potential impact to AEHF. Funds will be used to conduct development and test activities.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 AEHF Integration	12.002	29.690	66.515	0.000	66.515
Description: The B-52 Advance Extremely High Frequency (AEHF) Integration SATCOM system provides a survivable, low probability of intercept/detection, high bandwidth system that ensures secure intra/inter-flight and two-way command and control communications in the modern anti-access/aerial denial battle space. This communications upgrade replaces the Military Strategic Tactical Relay (MILSTAR) and its Ultra High Frequency (UHF) SATCOM capability (MILSTAR is nearing system end of life) on the B-52. The AEHF Integration effort will					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671810 / B-52 AEHF Integration

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
integrate the radio, antenna and system components required to provide two-way EHF communication for the B-52.					
<i>FY 2022 Plans:</i> Complete System Requirements Review (SRR) in FY22. Continue Technology Maturation & Risk Reduction (TMRR) activities to support Milestone B in FY23.					
<i>FY 2023 Base Plans:</i> Finish Technology Maturation and Risk Reduction (TMRR) in FY23 which includes preliminary designs for environment control systems needed in two aircraft locations and AEHF component locations in preparation for Preliminary Design Review (PDR). Evaluate Engineering and Manufacturing Development (EMD) proposal, complete Milestone B, and negotiate and award EMD contract in preparation for Critical Design Review (CDR).					
<i>FY 2023 OCO Plans:</i> N/A					
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> Funding increased to complete TMRR efforts which include delivering preliminary designs and preparing for a Milestone B decision. After Milestone B, funding will support ramp up and initial execution of EMD which includes ordering AEHF kits for EMD. Moreover, contractor staffing will increase significantly to support required EMD activities.					
Accomplishments/Planned Programs Subtotals	12.002	29.690	66.515	0.000	66.515

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 B05200: B-52	0.000	0.000	0.000	0.000	0.000	16.850	47.850	51.700	64.788	0.000	181.188

Remarks

D. Acquisition Strategy

The Milestone Decision Authority (MDA) for B-52 AEHF Integration is the Air Force Program Executive Officer (AFPEO) for Nuclear Command, Control, and Communications (NC3). The program will utilize the B-1/B-52 Flexible Acquisition and Sustainment Contract to award Risk Reduction studies, Program Planning activities, and the EMD effort to the Original Equipment Manufacturer (OEM). The OEM will be responsible for the integration of the AEHF terminal, which will be provided as Government Furnished Equipment (GFE).

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022				
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671810 / B-52 AEHF Integration								
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
Risk Reduction	SS/CPFF	The Boeing Company : Oklahoma City, OK	-	11.962	Mar 2021	27.958	Dec 2021	19.398	Oct 2022	-		19.398	Continuing	Continuing	-	
EMD Contract	SS/CPIF	The Boeing Company : Oklahoma City, OK	-	-		-		38.190	Apr 2023	-		38.190	Continuing	Continuing	-	
Subtotal			-	11.962		27.958		57.588		-		57.588	Continuing	Continuing	N/A	
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
Weapon Trainer Support	C/CPAF	Not specified. : TBD	-	-		-		2.170	Apr 2023	-		2.170	Continuing	Continuing	-	
Subtotal			-	-		-		2.170		-		2.170	Continuing	Continuing	N/A	
Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
Government Test	Various	Various : TBD	-	-		-		0.257	Oct 2022	-		0.257	Continuing	Continuing	-	
Subtotal			-	-		-		0.257		-		0.257	Continuing	Continuing	N/A	
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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	
Program Office Support (A&AS, Travel)	C/CPAF	Not specified. : TBD	-	0.040	Sep 2021	1.732	Sep 2022	6.500	Sep 2023	-		6.500	Continuing	Continuing	-	
Subtotal			-	0.040		1.732		6.500		-		6.500	Continuing	Continuing	N/A	

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671810 / <i>B-52 AEHF Integration</i>
--	---	---

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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>B-52 AEHF Integration</i>	
TMRR Activities	
Milestone B	
EMD	
Flight Test	
Milestone C	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671810 / <i>B-52 AEHF Integration</i>
--	---	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-52 AEHF Integration</i>				
TMRR Activities	1	2021	3	2023
Milestone B	2	2023	2	2023
EMD	3	2023	2	2026
Flight Test	2	2025	1	2026
Milestone C	2	2026	2	2026

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675039 / B-52 System Improvements			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	34.342	12.150	13.150	0.000	13.150	5.190	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

B-52 System Improvements is a comprehensive project to facilitate future capabilities and ensure the B-52's viability in performing current and future wartime missions. The scope of work may include, but not limited to, the development of an Analysis of Alternative (AoA), studies and analyses, a Capability Development Document (CDD), and/or any other analyses or documentation necessary to establish a Program of Record (POR). Additionally, this project may include airborne integration experiments or demonstrations of emerging technologies. Support of the platform integration efforts are necessary to identify and resolve challenges associated with integrating multiple programs and activities planned for the B-52 fleet.

Costs include any analysis, documentation, and related expenses necessary to establish a POR and support the B-52 weapon system. Additionally, other costs include, but are not limited to Program Management Administration (PMA), civilian pay expenses, rapid technology insertion, centralized support and initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total cost of ownership), emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), safety of flight issues and to fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This project also supports the Air Force Global Strike Command (AFGSC) Innovation Hub. The B-52 AFGSC Innovation Hub supports Air Force efforts to take innovative approaches to B-52 modernization. This effort includes the Commercial Capabilities Integration Hub (CCIH) which is a local partnership program established to search for commercial/industrial products and services broader than the traditional major defense companies in order to tap into the American innovative talent often overlooked and underutilized. Also, technical scouting of capability solutions nationwide will focus on finding best of breed solutions to meet AFGSC needs to organize, train, and equip military capabilities to support Combatant Command needs to support the Joint Warfighting Concept and National interests. Funds maybe utilized in demonstrations of applicable technologies.

Funding also supports studies, analysis, and tests of aircraft systems' hardness to Chemical, Biological, Radiological, and Nuclear (CBRN) weapons effects, such as Low Level Continuous Wave (LLCW) and High Altitude Electromagnetic Pulse (HEMP) Survivability tests. It upgrades mission critical systems to survive in CBRN environments.

Systems Improvement is permitted to fund modernization program SW merges into the operational flight program.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Title: B-52 Systems Improvements</p> <p>Description: Initiate Analysis of Alternatives, modeling, simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.</p> <p>FY 2022 Plans: Continue Analysis of Alternatives, modeling, simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.</p> <p>FY 2023 Base Plans: Continue Analysis of Alternatives, modeling, simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: N/A</p>	28.912	0.150	0.150	-	0.150
<p>Title: Advanced Targeting Pod Display Upgrade</p> <p>Description: B-52 Advanced Targeting Pod (ATP) Display Upgrade project was meant to replace the legacy monitor to resolve supportability and obsolescence issues, as well as support video resolution improvements of the fielded Sniper and LITENING ATPs. The Sniper and LITENING ATPs are capable of transmitting HD color and video at a much higher resolution than the current monochrome monitor.</p> <p>FY 2022 Plans: N/A</p> <p>FY 2023 Base Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: N/A</p>	0.430	0.000	0.000	-	0.000
<p>Title: Quad Crew</p> <p>Description: The B-52 Quad Crew effort transitions Electronic Warfare display functionality to the existing B-52 navigator stations, reducing the aircrew from five to four crew members.</p>	0.000	-	8.000	-	8.000

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force	Date: April 2022
---	-------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
--	--	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>FY 2023 Base Plans: Continue Quad Crew Engineering and Manufacturing Design (EMD) and testing activities, procure hardware, and prepare for Developmental and Operational Test. \$18.965M FY23 Quad Crew funding is in BPAC 675165. \$8M FY23 Quad Crew funding is in BPAC 675039 due to a database error.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to ramp up in EMD activities and to support hardware purchases.</p>					
<p>Title: Advanced Concept Demonstration</p> <p>Description: Effort supports a classified Proof of Concept demonstration on the B-52.</p> <p>FY 2023 Base Plans: Support a proof of concept demonstration on the B-52 for a new classified initiative.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: N/A</p>	0.000	-	5.000	-	5.000
Accomplishments/Planned Programs Subtotals	29.342	0.150	13.150	-	13.150

	FY 2021	FY 2022
<p>Congressional Add: AFGSC Innovation Hub</p> <p>FY 2021 Accomplishments: Continue to support future investments such as Agile Pods, Future Comm Data Links, and Hypersonic Kill Chain Research and Development</p> <p>FY 2022 Plans: Continue to support future investments such as Agile Pods, Future Comm Data Links, and Hypersonic Kill Chain Research and Development.</p>	5.000	10.000
<p>Congressional Add: B-52 Training Automation</p> <p>FY 2022 Plans: Support updates to B-52 trainers, including automation activities.</p>	-	2.000
Congressional Adds Subtotals	5.000	12.000

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

N/A

Remarks

\$18.965M FY23 Quad Crew funding is in BPAC 675165. \$8M FY23 Quad Crew funding is in BPAC 675039 due to a database error.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
3600 / 7	PE 0101113F / <i>B-52 Squadrons</i>	675039 / <i>B-52 System Improvements</i>

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

Other program funding of 3010 BP11 is placed in Low Cost Mods (99999X) P-Doc totaling 11.130M (FY23-FY27).

D. Acquisition Strategy

The Acquisition Strategy for Quad Crew is addressed under BPAC 675165.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
--	--	---

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Improvements Studies and Analysis	SS/ Various	The Boeing Company, 559 SMXS/MXDPBA : Oklahoma City, OK	-	3.600	Dec 2020	0.100	Jan 2022	0.100	Jan 2023	-		0.100	Continuing	Continuing	-
AFGSC Innovation Hub	C/CPAF	Radiance, SBCC, Outerlink : Barksdale, LA	-	5.000	Feb 2021	10.000	Apr 2022	-		-		-	Continuing	Continuing	-
Agile Pod	C/CPFF	JACOBS, KeyW Corp : Tinker, OK	-	3.635	Sep 2021	-		-		-		-	Continuing	Continuing	-
HEMP	TBD	The Boeing Company : Tinker, OK	-	1.000	Sep 2021	-		-		-		-	Continuing	Continuing	-
Advanced Targeting POD Display Upgrade	TBD	TBD : Oklahoma City, OK	-	0.430	Dec 2020	-		-		-		-	0.000	0.430	-
B-52 Training Automation	TBD	TBD : Oklahoma City, OK	-	-		2.000	Jun 2022	-		-		-	Continuing	Continuing	-
Quad Crew	TBD	Not Specified : Oklahoma City, OK	-	-		-		8.000	Apr 2023	-		8.000	Continuing	Continuing	-
Proof of Concept Demonstration	TBD	Not Specified: TBD : Tinker, OK	-	-		-		5.000	Jan 2023	-		5.000	Continuing	Continuing	-
Subtotal			-	13.665		12.100		13.100		-		13.100	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
B-52 Centralized Support, Program Management Administration, TDY, A&AS Contractor Support - 675039	Various	TBD : OK	-	20.427	Jan 2021	0.050	Jan 2022	0.040	Jan 2023	-		0.040	Continuing	Continuing	-
B-52 Centralized Support, Travel - 675039	Various	Various : TBD	-	0.250	Jan 2021	-		0.010	Jan 2023	-		0.010	Continuing	Continuing	-
Subtotal			-	20.677		0.050		0.050		-		0.050	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675039 / <i>B-52 System Improvements</i>
--	---	--

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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>Systems Improvements</i>	
System Improvements Studies and Analysis, etc. (Began 2Q16)	
<i>AFGSC Innovation Hub</i>	
Industry Collaboration Efforts	
<i>B-52 Training Automation</i>	
Training System Automation	
<i>Proof of Concept Demonstration</i>	
Proof of Concept	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675039 / <i>B-52 System Improvements</i>
--	---	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Systems Improvements</i>				
System Improvements Studies and Analysis, etc. (Began 2Q16)	1	2021	4	2026
<i>AFGSC Innovation Hub</i>				
Industry Collaboration Efforts	1	2021	4	2023
<i>B-52 Training Automation</i>				
Training System Automation	3	2022	2	2023
<i>Proof of Concept Demonstration</i>				
Proof of Concept	1	2023	4	2024

Note

Quad Crew schedule shown in BPAC 675165.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675041 / Bomber Tactical Data Link
--	--	--

COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675041: <i>Bomber Tactical Data Link</i>	-	2.125	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.125
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Combat Network Communications Technology (CONNECT) Capability Development Document (CDD), dated 18 March 2004, captures the requirements for a Tactical Data Link (TDL) capability on the B-52. The B-52 TDL provides low latency, jam-resistant situational awareness and command and control (C2) communications needed to support in-theater operations and missions. This project will consist of integrating an existing off-the-shelf TDL terminal into the B-52. Integration includes Group A wiring, rack and antennae, and the Group B terminal, blanking unit and notch filter Line Replaceable Units (LRU). The TDL terminal will be fully integrated with CONNECT. This TDL capability allows the warfighter to utilize this capability by maintaining situational awareness, avoiding threats, and employing an array of weapons.

As the TDL upgrade brings additional capability to the B-52, emerging security requirements (Joint-Range Extension messaging, crypto modernization, etc.) as well as other aircraft upgrades may require study/support for potential impact to the CONNECT and TDL system. Funds may also be used for Engineering Development Models (EDMs) as well as System Integration Laboratory (SIL) terminals.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Bomber Tactical Data Link	2.125	0.000	0.000	-	0.000
Description: The TDL will provide low latency, jam-resistant situation awareness and command/control needed to support in-theater operations/missions via a line-of-sight (LOS) Link 16 capability. The program will consist of integrating an existing off-the-shelf Link 16 terminal into the B-52. This will include Group A wiring, rack and antennae and the Group B terminal, blanking unit and notch filter LRUs. The terminals will be installed inside the fuselage of the aircraft and external antennas will be mounted on the fuselage. The TDL terminal and LOS capability will be integrated with the rest of the CONNECT subsystem.					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675041 / Bomber Tactical Data Link
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<i>FY 2022 Plans:</i> N/A					
<i>FY 2023 Base Plans:</i> N/A					
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> N/A					
Accomplishments/Planned Programs Subtotals	2.125	0.000	0.000	-	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line Item B05200: BP11 Production	11.164	15.841	32.357	-	32.357	29.159	27.100	12.188	7.400	0.000	135.209
• APAF 06 000999: Initial Spares	2.495	-	-	-	-	-	-	-	-	0.000	2.495

Remarks

D. Acquisition Strategy
 The Milestone Decision Authority (MDA) approved the 28 October 2016 decision of the B-52 TDL Acquisition Strategy Panel (ASP), which authorized the program to enter into the EMD phase with the Original Equipment Manufacturer (OEM).

 MDA approved the Acquisition Decision Memorandum (ADM) for the revised Acquisition Program Baseline (APB) on 31 Jan 21. The revised APB includes updates for the objective and thresholds for Milestone C and Initial Operational Capability and removes the Full Rate Production (FRP) schedule parameter in the APB.

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675041 / <i>Bomber Tactical Data Link</i>
--	---	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Bomber Tactical Data Link</i>				
EMD	1	2021	2	2022
Milestone C	3	2022	3	2022
IOC	2	2024	2	2024

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675050 / CONECT			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675050: CONECT	-	3.867	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.867
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52H Combat Network Communication Technology (CONECT) acquisition project supports nuclear and conventional operations by upgrading the B-52H fleet with data and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. This CONECT modification includes procurement of 74 aircraft kits + 2 Engineering and Manufacturing Development (EMD) kits that will be installed in conjunction with Programmed Depot Maintenance (PDM). Ground station mission planning hardware, support equipment, initial spares, and Interim Contractor Support (ICS) will be procured. Additional initial support/readiness efforts will develop and upgrade B-52H training devices with CONECT functionality. The CONECT training device upgrades provide full CONECT functionality to support aircrew training. The Aircrew Training Devices (ATDs) include three B-52H Weapon System Trainers (WST) and two Offensive Station Mission Trainers (OSMT), and the upgrades will also be installed in the Systems Integration Lab (SIL). The Other Government Cost line includes, but is not limited to, Diminishing Manufacturing Sources and Material Shortages (DMSMS) costs to maintain the production configuration through the identification, review, and monitoring of items with high obsolescence risk potential, classification of identified items according to criticality, identification of alternatives, and implementation of resolutions. Resolutions may include non-recurring engineering (NRE) and/or replacement costs for DMSMS components, bridge buys of DMSMS components until NRE can be completed or Life of Type buys, whichever is most appropriate. Included in the Support Equipment line is the planning for establishment of an organic Depot capability, stand-up of the depot, procurement of depot equipment and procurement of the CONECT Ground Station (CGS).

Funds may be used for, but are not limited to, civilian pay expenses, and to address emerging and short-notice DMSMS issues. Funds may also be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

As the CONECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to Intelligence Broadcast Receiver, Joint Range Extension messages, crypto modernization, etc.) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 Identification, Identification Friend or Foe, etc.) may require study for potential impacts to CONECT. In order to maintain currency with the latest aircraft configuration, the CONECT project will update existing trainers (using stimulate, simulate, and/or computer-based training) to add CONECT functionality to meet user-training requirements, and update and maintain the SIL for the WSTs. In order to assist PDM during after-install checkout and Barksdale AFB and Minot AFB units with maintenance checkout and operational training, a CONECT Ground Station is being developed.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675050 / CONECT

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 CONECT	3.867	0.000	0.000	-	0.000
Description: B-52H CONECT supports nuclear and conventional operations by upgrading the B-52H fleet with data and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations.					
FY 2022 Plans: N/A					
FY 2023 Base Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	3.867	0.000	0.000	-	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line Item B05200: BP11 Production	0.000	15.737	17.015	-	17.015	-	-	-	-	0.000	32.752
• APAF 06 000999: Initial Spares	-	-	-	-	-	-	-	-	-	0.000	0.000
• APAF 07 Line Item B05200: Post Production Support	0.936	3.602	5.883	-	5.883	-	-	-	-	0.000	10.421

Remarks
The B-52 CONECT program is a valid requirement per the Capability Development Document (CDD) signed in 2004 and is in the President's budget.

D. Acquisition Strategy
The B-52 CONECT EMD prime contract is a sole source to Boeing Defense, Space & Security (DSS) in Oklahoma City, OK. Boeing DSS designs, develops, tests and procures necessary equipment from their subcontractors; additionally, they develop engineering drawings, logistic, and technical data. Advanced Training Consulting is the current contractor for the trainer update to integrate CONECT into the existing trainers.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675050 / <i>CONNECT</i>
--	---	---

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

CONNECT	
FOC	■

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675050 / <i>CONNECT</i>
--	---	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CONNECT				
FOC	1	2022	1	2022

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675055 / GPS-IU			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675055: GPS-IU	-	0.771	0.693	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.464
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Global Positioning System Interface Unit (GPS-IU) is considered a FY22 new start due to program schedule delays. The GPS-IU integrates GPS Position, Navigation and Timing (PNT) data into navigation, communications, and weapons systems on board the B-52. GPS-IU requires upgrading to incorporate any other GPS dependent capabilities on the B-52 platform. The upgrade will improve system reliability and address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues on subcomponents of the GPS-IU. The modified GPS-IU will retain the existing functions and interfaces of the legacy GPS-IU, and provide additional interfaces to allow for future growth requirements. The B-52 fleet will also have the capability to carry additional GPS dependent weapons and targeting pods and increase processor throughput and memory capacity.

Funds may be used to address requirements including, but not limited to, emerging and short-notice DMSMS for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Global Positioning System Interface Unit (GPS-IU)	0.771	0.693	-	-	-
Description: Global Positioning System Interface Unit (GPS-IU) Upgrade will replace six circuit card assemblies in the GPS-IU, the backplane, and the chassis.					
FY 2022 Plans: FY22 funding will complete EMD and test activities.					
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to planned completion of EMD.					
Accomplishments/Planned Programs Subtotals	0.771	0.693	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force	Date: April 2022
---	-------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675055 / <i>GPS-IU</i>
--	---	--

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 Line Item B05200: <i>BP11 Production</i>	12.014	7.863	22.827	-	22.827	21.700	0.600	-	-	0.000	65.004
• APAF 06 000999: <i>Initial Spares</i>	-	0.000	1.580	-	1.580	-	-	-	-	0.000	1.580

Remarks

Due to late delivery of components for testing, the EMD schedule slipped and is projecting MS C in 3QFY23.

D. Acquisition Strategy

The GPS-IU Modernization program began development in the Technology Maturation and Risk Reduction (TMRR) phase via a sole source contract to Boeing Defense, Space & Security (DSS) in Oklahoma City, OK. Program is currently in the Engineering and Manufacturing Development (EMD) phase via a sole source contract to Boeing DSS, awarded 4QFY18. Deliverables include software, eight modernized prototypes, logistics support, ground and flight test support, and engineering drawings. Milestone B was approved June 2018.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675055 / GPS-IU
--	--	---

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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

GPS-IU	
EMD	[REDACTED]
DT/OT	[REDACTED]
MS C	[REDACTED]

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675055 / <i>GPS-IU</i>
--	---	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>GPS-IU</i>				
EMD	1	2021	1	2024
DT/OT	2	2023	3	2023
MS C	3	2023	3	2023

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675056: B-52 Radar Modernization Program (RMP)	-	163.384	136.862	261.876	0.000	261.876	211.187	123.633	43.211	0.000	0.000	940.153
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Radar Modernization Program (RMP) supports nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. The APQ-166 system is 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, 12 individual Line Replaceable Units (LRU), radar control panel, radome, and Group A allocation that comprise the entire radar system. RMP will take advantage of advances in technology and on-going development efforts to acquire, to the maximum extent possible, previously developed Radar systems 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. RMP will allow the operational command (AF Global Strike Command) to fully utilize the capabilities of the B-52H aircraft to employ an array of nuclear and conventional weapons and to perform mission-essential navigation and weather avoidance functions. In addition, applicable training devices for the new radar subsystem must also be developed, modified and/or upgraded in conjunction with the aircraft modifications. This modification includes the installation of Engineering and Manufacturing Development (EMD) kits on two B-52H test aircraft to support Developmental/Operational Test and Evaluation.

This upgrade will affect B-52 training devices and will provide the ability to connect / operate in a common environment that provides realistic high-end combat training to meet future standards. Funds may be used to address all three Weapon System Trainers (WST), the WST Training Systems Integration Laboratory (SIL), both B-52H Offensive Station Maintenance Trainers (OSMTs), the Bombing-Navigation System Maintenance Trainers (BNSMTs), a desktop trainer, as well as a Family of Systems (FoS) concept that includes Handheld/Wearable and Point-of-Use Devices, Medium-Fidelity Deployable Devices and High-Fidelity Devices covering the entire training spectrum. This program also upgrades one B-52 SIL with radar functionality, and builds a new Radar Development Lab and a new Radar SIL. As the RMP upgrade brings additional capability to the B-52, it includes emerging security/certification requirements (nuclear certification, cyber security, program protection, simulator common standards, etc.) in addition to increased radar integration (advanced targeting pod, Combat Network Communication Technology (CONNECT), Tactical Data Link (TDL), offensive avionics system, GPS Integration Unit (GPS-IU) mission planning, modular open system architecture (MOSA) considerations, crew vehicle interfaces, Electronic Warfare System, and B-52 Software Block (BSB), etc).

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), safety of flight issues, and associated components in the RMP configuration baseline. DMSMS efforts to include removal of end-of-life/obsolete software/hardware within the weapons system, simulators systems, and MOSA implementation. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force	Date: April 2022
---	-------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)
--	--	---

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 \$8.739M was expended for civilian pay expenses in this program element, and in FY22 \$9.619M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Title: Radar Modernization Program</p> <p>Description: Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. Development and production of new systems to replace the legacy equipment and to be installed on all 76 B-52H aircraft.</p> <p>FY 2022 Plans: Prepared for and conducted weapon system level Critical Design Review (CDR) in Feb 22 followed by fabrication, qualification, and delivery of subsystem lab/aircraft kits; initial version software code development/integration; installation/checkout of subsystems in B-52 System Integration Lab (SIL); and preparations for aircraft kit installation on the first of two test jets.</p> <p>FY 2023 Base Plans: Continue fabrication, qualification, and delivery of EMD subsystem units; complete System Integration Labs (SIL) fabrication, installation/checkout; continue software code development; initiate hardware/software integration SIL tests; develop training course material and tech pubs; begin test aircraft modification; prepare for first test aircraft post-mod/checkout and ground test and second test aircraft modification.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to an acceleration of activities which require additional FY23 resources over those in FY22. The cross-functional Cost Review Board supporting Milestone B increased resources in FY23 to account for additional contractor and government activities required to develop and test software as well as prepare RMP's first test aircraft for flight test. These activities support the program's MS C Decision Point #1 which initiates LRIP at the earliest opportunity.</p>	163.384	136.862	261.876	-	261.876
Accomplishments/Planned Programs Subtotals	163.384	136.862	261.876	-	261.876

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)

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

Line Item	FY 2021	FY 2022	FY 2023	FY 2023	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APAF 05 Lineltem B05200: BP11 Production	0.000	0.000	0.000	-	0.000	115.470	209.485	239.992	244.258	Continuing	Continuing
• APAF 07 Line Item B05200: Post Production Support	0.098	0.000	0.000	-	0.000	0.106	0.109	0.110	0.112	Continuing	Continuing
• APAF 06 000999: Initial Spares	0.197	0.000	0.000	-	0.000	0.213	0.217	0.220	0.225	Continuing	Continuing

Remarks

FY21 BA received and executed was 157.792M in accordance with congressional mark realized in FY21.

FY22 funding for B-52 RMP is 146.058M: RMP BPAC 675056 (136.862M) and Crypto Mod BPAC 675160 (9.196M). RMP and Crypto Mod are two distinct development efforts. An accounting error resulted in 9.196M of FY22 RMP funding being misaligned under Crypto Mod.

D. Acquisition Strategy

The Milestone Decision Authority approved the B-52 RMP Acquisition Strategy (AS) on 13 March 2018. Per the AS, the OEM completed radar and other supplier selections in June 2019. The team completed System PDR in October 2020, Milestone B in June 2021, awarded the EMD contract in June 2021, and conducted System CDR in February 2022.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)
--	--	---

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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/CPFF	The Boeing Company : Oklahoma City, OK	-	60.726	Jun 2021	15.108	Dec 2021	8.800	Dec 2022	-		8.800	Continuing	Continuing	-
Engineering & Manufacturing Development (EMD) Phase	SS/CPPIF	The Boeing Company : Oklahoma City, OK	-	54.300	Jun 2021	100.016	Nov 2021	213.159	Nov 2022	-		213.159	Continuing	Continuing	-
Risk Reduction	C/CPFF	The Boeing Company : Oklahoma City, OK	-	27.681	Jan 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			-	142.707		115.124		221.959		-		221.959	Continuing	Continuing	N/A

Remarks
FY 2021 Cost has been reduced from \$149.259 million to \$138.359 million to account for a \$10.900 million Congressional mark.

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Weapon Trainer Support	C/CPAF	AFLCMC/WNS : WPAFB, OH	-	-		-		4.160	Mar 2023	-		4.160	Continuing	Continuing	-
557th Software Development	PO	557th SWES : Tinker AFB, OK	-	-		3.686	Dec 2021	3.464	Dec 2022	-		3.464	Continuing	Continuing	-
Direct Cite Civilian Pay	Various	AFLCMC/FZA : WPAFB, OH	-	8.739	Oct 2020	9.619	Oct 2021	8.450	Oct 2022	-		8.450	Continuing	Continuing	-
Subtotal			-	8.739		13.305		16.074		-		16.074	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675056 / B-52 Radar Modernization Program (RMP)
--	--	---

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Edwards AFTC	PO	Edwards AFB : Edwards AFB, CA	-	-		4.172	Dec 2021	19.179	Dec 2022	-		19.179	Continuing	Continuing	-
47th CTS Cyber Test	PO	47th CTS : Eglin AFB, FL	-	-		0.161	Dec 2021	0.164	Dec 2022	-		0.164	Continuing	Continuing	-
Test RMP BPAC 675056	PO	Not specified. : TBD	-	5.011	Feb 2021	0.000	Dec 2021	-		-		-	Continuing	Continuing	-
Studies RMP Development	PO	Not specified. : TBD	-	1.800	Mar 2021	-		-		-		-	Continuing	Continuing	-
Subtotal			-	6.811		4.333		19.343		-		19.343	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Program Management Administration, A&AS Support, Centralized Support, TDY, OGC	Various	Various : Various	-	5.127	Mar 2021	4.100	Dec 2021	4.500	Dec 2022	-		4.500	Continuing	Continuing	-
Subtotal			-	5.127		4.100		4.500		-		4.500	Continuing	Continuing	N/A

Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	163.384	136.862	261.876	-	261.876	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675056 / <i>B-52 Radar Modernization Program (RMP)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Radar Modernization Program</i>				
Risk Reduction	1	2021	3	2021
MS B	3	2021	3	2021
EMD	3	2021	1	2027
Developmental Testing	4	2023	4	2026
MS-C	4	2024	4	2024
IOC	2	2027	2	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675057: B-52 Low Cost Improvement (LCI)	-	0.000	0.058	0.702	0.000	0.702	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program will include projects to facilitate future B-52 capabilities. Scope of work may involve, but is not limited to, Avionics, Navigation, Situational Awareness (SA) and Defensive Systems. Develop and integrate emerging technologies for specialized B-52 missions to include Intelligence Surveillance and Reconnaissance (ISR), Targeting and Weapons, future prototyping efforts, Diminishing Manufacturing Sources and Material Shortages (DMSMS) efforts to include removal of end-of-life software/hardware within simulators systems, and common open system architecture that is sustainable and cyber-resilient. Funds may be used to address requirements including, but not limited to, emerging and short-notice DMSMS for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 Low Cost Improvements	0.000	0.058	0.702	-	0.702
Description: Develop and integrate emerging technologies for specialized B-52 missions to include ISR, targeting, and weapons. This includes performing demonstrations and experimentation of emerging and advanced technologies, as well as supporting external agency projects of the technology in a relevant environment.					
FY 2022 Plans: Develop and integrate emerging technologies for specialized B-52 missions to include ISR, targeting, and weapons. This includes performing demonstrations and experimentation of emerging and advanced technologies, as well as supporting external agency projects of the technology in a relevant environment.					
FY 2023 Base Plans: Integrate secure communications pod onto the B-52. Perform demonstrations and experiment with emerging and advanced technologies and external agency technology projects in relevant environment.					
FY 2022 to FY 2023 Increase/Decrease Statement:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding increased due to the plan to integrate and demonstrate an emerging new capability pod on the B-52.					
Accomplishments/Planned Programs Subtotals	0.000	0.058	0.702	-	0.702

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line item B05200: BP11 Production	0.000	8.925	0.528	-	0.528	2.575	2.622	2.675	2.730	Continuing	Continuing

Remarks

D. Acquisition Strategy

Studies and analyses will be conducted by various Air Force Life Cycle Management Center and Air Force Global Strike Command organizations.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

Low Cost Improvements	
Low Cost Improvements Studies and Analyses	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675057 / <i>B-52 Low Cost Improvement (LCI)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Low Cost Improvements</i>				
Low Cost Improvements Studies and Analyses	1	2022	4	2023

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>				Project (Number/Name) 675129 / <i>B-52 CERP</i>			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675129: <i>B-52 CERP</i>	-	210.045	429.068	395.736	0.000	395.736	373.190	290.310	265.891	271.803	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

B-52 Commercial Engine Replacement Program (CERP) name was revised to B-52 CERP Rapid Virtual Prototyping (RVP) to differentiate from the future Middle Tier of Acquisition (MTA) effort as outlined in the program's acquisition strategy. B-52 CERP will be transitioning from an MTA to a Major Capability Acquisition program at the completion of the RVP MTA.

A. Mission Description and Budget Item Justification

The B-52 Commercial Engine Replacement Program (CERP) supports nuclear and conventional operations by replacing the current TF33-PW-103 engine on the B-52H aircraft. The TF33-PW-103 engine is increasingly difficult to sustain due to diminished manufacturing sources and obsolescent technologies; the AF Propulsion Directorate projects the engine will become unsustainable by 2030. This program will replace the current TF33-PW-103 engine with new military derivative commercial Rolls-Royce F130 engines of similar size, weight, and thrust characteristics. Along with the new engines, CERP will replace associated subsystems, such as engine struts and nacelles, the electrical power generation system, and cockpit displays. The development, production and installation of new engines and related subsystems will replace the legacy equipment on all 76 B-52H aircraft. B-52 CERP will take advantage of advances in technology and on-going development efforts to acquire engines and integrate them into the B-52. The use of new technology will increase both the overall reliability/maintainability of the propulsion system and produce additional electrical power generation capabilities for emerging requirements. The B-52 CERP will allow the operational command (Air Force Global Strike Command) to fully utilize the capabilities of the B-52H aircraft to employ an array of nuclear and conventional weapons while saving fuel and extending the range/loiter capabilities of the aircraft. In addition, applicable training devices must also be developed, modified and/or upgraded in conjunction with the aircraft modifications. This upgrade will also require corresponding modification of a B-52 Weapon System Trainer (WST). As CERP brings additional capability to the B-52, emerging security/certification requirements (nuclear hardening, cyber security, program protection, etc.) will also need to be addressed. Several concurrent aircraft upgrades during the CERP may necessitate the construction of facilities or facility upgrades/modification. In addition, it may necessitate studies be performed to determine optimal engine installation and deployment options.

Additionally, funds will be used to procure long lead components for test aircraft to include engines and all required associated components in the CERP configuration baseline.

Cost includes any other analysis or documentation and related expenses necessary to establish a program of record and support the B-52 Weapon System. Cost includes Program Management Administration (PMA) costs, centralized support and initiatives for digital engineering and anticipated weapon system enhancements, to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total cost of ownership.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP
--	--	--

accommodate PMA and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

The total cost of the B-52 CERP Rapid Virtual Prototyping (RVP) Middle Tier of Acquisition effort is \$1,301.7 million, including RDT&E and procurement of prototype units. The B-52 CERP RVP MTA is fully funded across the Future Years Defense Program.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 12.479M was expended for civilian pay expenses in this program element, and in FY22 13.280M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Title: B-52 CERP</p> <p>Description: This program will replace the current TF33-PW-103 engine with new military derivative commercial Rolls-Royce F130 engines of similar size, weight, and thrust characteristics. The development, production and installation of new engines and related subsystems will replace the legacy equipment on all 76 B-52H aircraft. B-52 CERP will take advantage of advances in technology and on-going development efforts to acquire engines and integrate them into the B-52. The program delivered the Virtual System Prototype (VSP) Increment 1 in September 2021, one month ahead of the guardrail trigger.</p> <p>FY 2022 Plans: Continue CERP Rapid Virtual Prototyping (RVP) MTA and the Rapid Prototype Phase 1 (RP1) contract. Continue development of the Virtual System Prototype (VSP) Increment 2. Continue preliminary design and Rapid Prototype Material (RPM - long lead material) contract.</p> <p>FY 2023 Base Plans: Continue CERP Rapid Virtual Prototyping (RVP) MTA and Rapid Prototype Phase 1 (RP1) contract and deliver Virtual System Prototype (VSP) Increment 2. Complete system preliminary design and begin system critical design. Continue Rapid Prototype Material (RPM - long lead material) contract and complete engine critical design on engine contract. Plan to begin ordering test aircraft hardware. Finally, complete the RVP MTA, accomplish Milestone B, and enter into the Engineering and Manufacturing Development (EMD) phase.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to updates made to the acquisition program plan which resulted in moving a portion of the test aircraft hardware order into FY24.</p>	210.045	429.068	395.736	-	395.736
Accomplishments/Planned Programs Subtotals	210.045	429.068	395.736	-	395.736

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force	Date: April 2022
---	-------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675129 / <i>B-52 CERP</i>
--	---	---

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 0101113F: <i>B-52 SQUADRONS</i>	-	-	-	-	-	-	230.402	694.039	706.129	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition strategy and FY16 NDAA Middle Tier of Acquisition (MTA) Section 804 authority approved Sept 2018. B-52 CERP currently has two planned MTA efforts: RVP and Rapid Physical Prototype (RPP). CERP RVP includes risk reduction activities and executing RP1 activities. RP1 is sole source prototype aircraft development with the aircraft integrator (Boeing). Rolls-Royce is the military derivative commercial engine vendor and also a directed sub-contractor to Boeing. Engines are government furnished material (GFM) to Boeing. CERP RVP delivers the Virtual System Prototype in two increments. Currently the CERP RPP includes the follow-on RP2 and RPM contracts with Boeing for physical prototyping efforts, which delivers two prototype test aircraft. However, B-52 CERP was directed by the Milestone Decision Authority to transition from an MTA strategy to a Major Capability Acquisition with an Engineering and Manufacturing Development (EMD) contract following the completion of RVP MTA and Milestone B approval.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP
--	--	--

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Rapid Prototyping Phase 1 Contract	SS/CPPIF	The Boeing Co : Oklahoma City, OK	-	93.895	Feb 2021	224.767	Jan 2022	151.207	Jan 2023	-		151.207	Continuing	Continuing	-
Engine Contract	C/FFP	Rolls-Royce : Indianapolis, IN	-	25.490	Sep 2021	50.975	Jan 2022	20.109	Dec 2022	-		20.109	Continuing	Continuing	-
Rapid Prototyping Material 0	SS/CPFF	The Boeing Co : Oklahoma City, OK	-	34.902	Mar 2021	90.773	Jan 2022	109.489	Nov 2022	-		109.489	Continuing	Continuing	-
Rapid Prototyping Material 1	SS/CPFF	The Boeing Co : Oklahoma City, OK	-	1.530	Oct 2021	31.125	Mar 2022	55.478	Nov 2022	-		55.478	Continuing	Continuing	-
Engineering & Manufacturing Development (EMD) Phase	C/CPPIF	The Boeing Co : Oklahoma City, OK	-	-		-		5.000	Aug 2023	-		5.000	Continuing	Continuing	-
Subtotal			-	155.817		397.640		341.283		-		341.283	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Documentation - Technical Support	MIPR	Booz Allen Hamilton : OKC, OK	-	4.548	May 2021	4.000	Jun 2022	7.600	Jun 2023	-		7.600	Continuing	Continuing	-
557th	PO	557th : Tinker AFB, OK	-	0.454	Jun 2021	0.454	Jun 2022	0.469	Jun 2023	-		0.469	Continuing	Continuing	-
Direct Cite Authorization for CERP Civilian Personnel	Allot	AFLCMC/FZA : TBD	-	12.479	Oct 2020	13.280	Oct 2021	14.000	Oct 2022	-		14.000	Continuing	Continuing	-
Subtotal			-	17.481		17.734		22.069		-		22.069	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Edwards AFTC	PO	Edwards AFB : Edwards AFB, CA	-	28.009	Feb 2021	3.000	Mar 2022	8.930	Dec 2022	-		8.930	Continuing	Continuing	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP
--	--	--

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Digital Engineering	Various	Various : TBD	-	4.150	Aug 2021	1.930	Mar 2022	8.690	Apr 2023	-		8.690	Continuing	Continuing	-
Mock Up A/C and AMARG	Various	Various : TBD	-	3.424	May 2021	0.667	May 2022	-		-		-	Continuing	Continuing	-
AEDC	PO	AEDC/ Flight Systems CTF : Arnold AFB, TN	-	-		0.000	May 2022	4.000	Dec 2022	-		4.000	Continuing	Continuing	-
47th CTS Cyber Test	PO	47th CTS : Edwards AFB, CA	-	0.131	Sep 2021	0.202	Aug 2022	0.202	Jul 2023	-		0.202	Continuing	Continuing	-
AFSEO	PO	AFSEO : Eglin AFB, FL	-	-		0.047	Apr 2022	0.050	Nov 2022	-		0.050	Continuing	Continuing	-
AFOTEC	MIPR	AFOTEC : Edwards AFB, CA	-	0.340	Sep 2021	0.195	Apr 2022	0.440	Dec 2022	-		0.440	Continuing	Continuing	-
Subtotal			-	36.054		6.041		22.312		-		22.312	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Program Management Administration, A&AS Support, Centralized Support, TDY, OGC	Various	Various : Various	-	0.693	Jan 2021	7.653	Mar 2022	10.072	Jan 2023	-		10.072	Continuing	Continuing	-
Subtotal			-	0.693		7.653		10.072		-		10.072	Continuing	Continuing	N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	210.045	429.068	395.736	-	395.736	Continuing	Continuing	N/A

Remarks

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675129 / <i>B-52 CERP</i>
--	---	---

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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>B-52 CERP</i>	
Rapid Prototype Phase 1 Contract	
Virtual System Prototype Increment 1	
Rapid Prototype Material Contract	
Engine Contract	
Virtual System Prototype Increment 2	
Milestone B	
Engineering and Manufacturing Development	
Developmental Testing	

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675129 / <i>B-52 CERP</i>
--	---	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-52 CERP</i>				
Rapid Prototype Phase 1 Contract	1	2021	1	2024
Virtual System Prototype Increment 1	4	2021	4	2021
Rapid Prototype Material Contract	2	2021	4	2027
Engine Contract	4	2021	4	2027
Virtual System Prototype Increment 2	4	2023	4	2023
Milestone B	4	2023	4	2023
Engineering and Manufacturing Development	4	2023	4	2027
Developmental Testing	1	2027	4	2027

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675160 / B-52 Crypto Modernization			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675160: B-52 Crypto Modernization	-	8.348	17.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.801
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

B-52 Crypto Modernization upgrades aircraft with Mobile User Objective System (MUOS) capable ARC-210 radio systems to prevent loss of beyond line of sight (BLOS) voice and data communications capability. The program will ensure the B-52 meets National Security Agency (NSA) mandates and DoD mandates and directives.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element, and in FY22 0M is forecasted for civilian pay expenses in this program element.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 Crypto Modernization	8.348	8.257	0.000	-	0.000
Description: Upgrades aircraft with MUOS capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability.					
FY 2022 Plans: Continue Engineering and Manufacturing Development (EMD) phase to support DT/OT and Milestone C documentation creation and accomplish A/C mod #1.					
FY 2023 Base Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to planned completion of EMD.					
Title: B-52 Radar Modernization Program	-	9.196	-	-	-
Description: Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
aircraft. Development and production of new systems to replace the legacy equipment and to be installed on all 76 B-52H aircraft.					
<i>FY 2022 Plans:</i> Prepared for and conducted weapon system level Critical Design Review (CDR) in Feb 22 followed by fabrication, qualification, and delivery of subsystem lab/aircraft kits; initial version software code development/integration; installation/checkout of subsystems in B-52 System Integration Lab (SIL); and preparations for aircraft kit installation on the first of two test jets.					
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> Funding decreased because the 9.196M FY22 funding for RMP was misaligned under the Crypto Mod BPAC due to an accounting error. There is no RMP funding in FY23 under the Crypto Mod BPAC.					
Accomplishments/Planned Programs Subtotals	8.348	17.453	0.000	-	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APAF 05 Line item B05200: BP11 Production	0.000	3.452	37.567	0.000	37.567	33.662	23.270	5.240	4.740	0.000	107.931

Remarks
EMD contract awarded Dec 2018. EMD Contract re-baselined Mar 2020.

FY22 funding for B-52 Crypto Mod is \$8.257M. An accounting error resulted in 9.196M of FY22 funding for RMP (BPAC 675056) being misaligned under Crypto Mod (BPAC 675160). RMP and Crypto Mod are two distinct development efforts.

D. Acquisition Strategy
The Milestone Decision Authority (MDA) approved the 31 January 2018 decision of the B-52 Crypto Modernization Acquisition Strategy Panel (ASP), which authorized the program to enter into the EMD phase with the Original Equipment Manufacturer (OEM). The program office awarded a contract to the OEM on 20 December 2018. EMD efforts are underway and scheduled to be complete by FY23. Once complete, the program office will brief the updated ASP and Milestone C for production and fielding for approval from the MDA.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization
--	--	--

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Crypto Modernization: Development and Integration Activities	SS/CPIF	OEM : Oklahoma City, OK	-	5.426	Mar 2021	6.312	Jan 2022	-		-		-	Continuing	Continuing	-
Radar Modernization Program: Engineering & Manufacturing Development (EMD) Phase	SS/CPIF	OEM : Oklahoma City, OK	-	-		9.196	Nov 2021	-		-		-	Continuing	Continuing	-
Subtotal			-	5.426		15.508		-		-		-	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Program Administration	MIPR	Not specified. : TBD	-	1.000	May 2021	0.545	May 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	1.000		0.545		-		-		-	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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 Support	PO	Various : TBD	-	1.792	Mar 2021	1.300	Feb 2022	-		-		-	0.000	3.092	-
Subtotal			-	1.792		1.300		-		-		-	0.000	3.092	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Travel	Various	Not specified. : TBD	-	0.130	Jan 2021	0.100	Jan 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	0.130		0.100		-		-		-	Continuing	Continuing	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675160 / <i>B-52 Crypto Modernization</i>
--	---	---

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	8.348	17.453	-	-	-	Continuing	Continuing	N/A

Remarks
 Crypto Mod and RMP are two distinct development efforts. An accounting error resulted in 9.196M of FY22 RMP (BPAC 675056) funding being misaligned under Crypto Mod (BPAC 675160).

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675160 / <i>B-52 Crypto Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Crypto Modernization</i>				
EMD	1	2021	3	2023
IQT/FQT	3	2021	3	2022
DT/OT	4	2022	2	2023
MS C	3	2023	3	2023

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675165 / B-52 Quad Crew			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675165: B-52 Quad Crew	-	0.000	10.203	18.965	0.000	18.965	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Modernization to the B-52 Electronic Warfare systems is critical for situational awareness, self-protection and survivability in a contested environment. The Quad Crew Program will better integrate the ALQ-172 Line Replaceable Units (LRUs) capability and provide more inherent capabilities allowing it to be more fully automated. The planned automation and integration will remove the need for a sole function Electronic Warfare Officer (EWO) on the B-52.

The Quad Crew Program supports reduction in B-52 crew size by automating Electronic Warfare Officer duties and relocating control/monitor functions to the Navigator Station. The Quad Crew program also includes expansion of frequency band capability within the ALQ-172 to absorb antiquated systems and manual jammers that current require an additional crew member. To allow movement of this capability, there will be modifications to hardware and infrastructure on the B-52H and layouts of the down stairs crew stations.

Funds may be used to address requirements including, but not limited to, emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) for both aircraft and associated training systems, Development Testing (DT)/ Operational Testing (OT), and safety of flight issues. Additionally, funds may accommodate Program Management Administration (PMA) and support, civilian pay expenses, rapid technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

Milestone/Development Status
 Materiel Development Decision (MDD) July 2021
 Acquisition Strategy (AS) Approved August 2021

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: B-52 Quad Crew	0.000	10.203	18.965	-	18.965
Description: The B-52 Quad Crew effort transitions Electronic Warfare display functionality to the existing B-52 navigator stations, reducing the aircrew from five to four crew members.					
FY 2022 Plans: Award the B-52 Quad Crew Engineering and Manufacturing Development (EMD) contract and begin the development effort to integrate the ALQ-172 Line Replaceable Units.					
FY 2023 Base Plans:					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675165 / B-52 Quad Crew
--	--	---

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue Quad Crew EMD design and testing activities, procure hardware, and prepare for Developmental and Operational Test.					
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> Funding increased due to ramp up in EMD activities and to support hardware purchases.					
Accomplishments/Planned Programs Subtotals	0.000	10.203	18.965	-	18.965

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 06 0101113F: B-52 SQUADRONS	-	-	-	-	-	27.552	41.718	42.808	64.461	Continuing	Continuing

Remarks
8M FY23 Quad Crew funding is in BPAC 675039 due to a database error. Total FY23 funding for Quad Crew is 26.965M (8M in BPAC 675039 and 18.965M in BPAC 675165).

D. Acquisition Strategy
The Milestone Decision Authority (MDA) for B-52 Quad Crew is PEO ACS and the program will utilize the B-1/B-52 Flexible Acquisition and Sustainment Contract to award studies and development effort to the Original Equipment Manufacturer (OEM). Additionally, the program will also utilize existing sustainment contracts for studies and development of ALQ-172 functionally to support the transition to the B-52 Quad Crew. The OEM will be responsible for the integration of the ALQ-172 which will be provided as Government Furnished Equipment. The Electronic Warfare & Avionics Division will work with B-52 Division for final integration and test.

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675165 / B-52 Quad Crew
--	--	---

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

QUAD CREW	
EMD	[REDACTED]

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force	Date: April 2022
--	-------------------------

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 675165 / <i>B-52 Quad Crew</i>
--	---	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
QUAD CREW				
EMD	4	2022	4	2024