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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	308.048	482.741	715.811	0.000	715.811	-	-	-	-	-	-
671803: <i>B-52 AFMC Test Assets</i>	-	4.069	15.654	1.447	0.000	1.447	-	-	-	-	-	-
671805: <i>B-52 VLF/LF Modernization</i>	-	10.000	12.976	9.187	0.000	9.187	-	-	-	-	-	-
671807: <i>Advanced Targeting POD Display Upgrade</i>	-	5.397	0.000	0.000	0.000	0.000	-	-	-	-	-	-
671810: <i>B-52 AEHF Integration</i>	-	0.000	5.024	29.690	0.000	29.690	-	-	-	-	-	-
675039: <i>B-52 System Improvements</i>	-	12.050	11.166	0.150	0.000	0.150	-	-	-	-	-	-
675041: <i>Bomber Tactical Data Link</i>	-	2.878	0.000	0.000	0.000	0.000	-	-	-	-	-	-
675055: <i>GPS-IU</i>	-	1.986	0.000	0.693	0.000	0.693	-	-	-	-	-	-
675056: <i>B-52 Radar Modernization Program (RMP)</i>	-	93.702	157.792	162.862	0.000	162.862	-	-	-	-	-	-
675057: <i>B-52 Low Cost Improvement (LCI)</i>	-	2.607	2.600	0.058	0.000	0.058	-	-	-	-	-	-
675129: <i>B-52 CERP</i>	-	175.359	273.020	484.068	0.000	484.068	-	-	-	-	-	-
675160: <i>B-52 Crypto Modernization</i>	-	0.000	4.509	17.453	0.000	17.453	-	-	-	-	-	-
675165: <i>B-52 Quad Crew</i>	-	0.000	0.000	10.203	0.000	10.203	-	-	-	-	-	-

Note
 This program, BA 7, PE 0101113F, project 675055, Global Positioning System Interface Unit (GPS-IU), is a new start.

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.

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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 (DMS) 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 to include 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 programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY20 \$14.818M was expended for civilian pay expenses in this program element, and in FY21 \$20.915M 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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	323.624	520.023	568.349	0.000	568.349
Current President's Budget	308.048	482.741	715.811	0.000	715.811
Total Adjustments	-15.576	-37.282	147.462	0.000	147.462
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-42.282			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	5.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-4.982	0.000			
• SBIR/STTR Transfer	-10.594	0.000			
• Other Adjustments	0.000	0.000	147.462	0.000	147.462

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

Project: 675039: *B-52 System Improvements*
 Congressional Add: *AFGSC Innovation Hub*

	FY 2020	FY 2021
	2.000	5.000
Congressional Add Subtotals for Project: 675039	2.000	5.000
Congressional Add Totals for all Projects	2.000	5.000

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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>	
<u>Change Summary Explanation</u> Change Summary Explanation FY20: = -\$10.594 Small Business Innovative Research (SBIR) and -\$4.982M for reprogramming actions (OMNIBUS; Full Combat Mission Training and LCMC) FY21: Program increase - global strike innovation hub 5,000; Congressional Marks for ATP display upgrade delay -5,000; RMP MSB slip -10,900; CERP excess to need -25,500; Undistributed Reduction - Excess to Need -882 FY22: Increase \$147.462M - Test Assets (-\$2.816M), CERP (+\$156.550M), RMP (-\$24.590M), Low Cost Improvements (-\$2.598M), VLF/LF (+\$0.220M), AEHF (-\$7.753M), Quad Crew (FY22 New Start) (+\$10.303M), GPS-IU (+\$0.693M), Crypto Mod (+\$17.453M)		

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
671803: B-52 AFMC Test Assets	-	4.069	15.654	1.447	0.000	1.447	-	-	-	-	-	-
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) of identified B-52 Test Aircraft. Funds include cost of one Test Aircraft #60-036 Programmed Depot Maintenance (PDM) performed at Tinker AFB OK.

Costs include any analysis, documentation, and related expenses necessary to establish a program of record and support the B-52 weapon system. Additionally, other costs include 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 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 continue aircrew safety and mission effectiveness.

Funds may be used to address emerging and short-notice Diminishing manufacturing and material shortage (DMSMS) issues

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 AFMC Test Aircraft Asset Support	4.069	15.654	1.447	0.000	1.447
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 2021 Plans: FY21 funding reallocated within B-52 to higher Air Force priorities. No induction in FY21 and next induction planned for 2QFY24.					
FY 2022 Base 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 2022 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force	Date: May 2021
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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>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
N/A					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> FY22 funding is higher than FY21 after reallocation to higher Air Force priorities. FY22 funding supports test aircraft manpower, BMDAS and facilities.					
Accomplishments/Planned Programs Subtotals	4.069	15.654	1.447	0.000	1.447

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

N/A

Remarks

D. Acquisition Strategy

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

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force **Date:** May 2021

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>
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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	
PDM Jet Induction	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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	2020	4	2026
PDM Jet Induction	2	2024	3	2025

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

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
671805: B-52 VLF/LF Modernization	-	10.000	12.976	9.187	0.000	9.187	-	-	-	-	-	-
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 emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issue, to resolve emerging safety of flight, accommodate technology insertion and fulfill 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. Funds may be used to procure, test, and field terminals.

DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 Very Low Frequency/Low Frequency (VLF/LF)	10.000	12.976	9.187	0.000	9.187
Description: Provides secure, survivable, receive-only strategic nuclear communication for the B-52					
FY 2021 Plans: Continue EMD phase to support fielding decision. Accomplish Preliminary Design Review (PDR) 2QFY21 and Critical Design Review (CDR) 3QFY21.					
FY 2022 Base Plans: Continue EMD phase to support fielding decision. Accomplish kit #1 delivery (3QFY22) and A/C mod (4QFY22) for test.					
FY 2022 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force	Date: May 2021
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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
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Continue EMD phase to support fielding decision. Accomplish DT/OT (1QFY23), A/C 2 Mod (3QFY23, and Milestone C (3QFY23).					
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Funding decreased from FY21 to FY22. No change to programmatic approach as funding is sufficient to support EMD efforts in FY22.					
Accomplishments/Planned Programs Subtotals	10.000	12.976	9.187	0.000	9.187

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 B05200: BP11 Production	0.000	0.000	20.137	-	20.137	-	-	-	-	-	-

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

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
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Risk Reduction	TBD	Not specified. : TBD	-	0.091		0.320	Mar 2021	0.290	Mar 2022	-		0.290	-	-	-
VLF/LF EMD	SS/CPFF	Various : Oklahoma, OK	-	7.324		10.419	Jan 2021	3.808	Jan 2022	-		3.808	-	-	-
Subtotal			-	7.415		10.739		4.098		-		4.098	-	-	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	-	1.896	Jul 2020	1.154	Jul 2021	1.285	Jul 2022	-		1.285	-	-	-
VLF/LF Trainers	Allot	Not specified. : TBD	-	-		-		2.760		-		2.760	-	-	-
VLF/LF ECO	C/CPAF	Not specified. : TBD	-	0.663		0.650		0.605		-		0.605	-	-	-
Subtotal			-	2.559		1.804		4.650		-		4.650	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	-	0.026	Mar 2020	0.033	Feb 2021	0.039	Feb 2022	-		0.039	-	-	-
VLF/LF Certifications	TBD	Not specified. : TBD	-	-		0.400	May 2021	0.400	May 2022	-		0.400	-	-	-
Subtotal			-	0.026		0.433		0.439		-		0.439	-	-	N/A

			Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	10.000	12.976	9.187	-	9.187	-	-	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force **Date:** May 2021

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>
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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 VLF/LF Modernization</i>																												
EMD																												
MS C																												
IOC																												
Procurement																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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	2	2020	3	2023
MS C	3	2023	3	2023
IOC	4	2024	4	2024
Procurement	4	2023	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force										Date: May 2021		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671807 / Advanced Targeting POD Display Upgrade			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
671807: <i>Advanced Targeting POD Display Upgrade</i>	-	5.397	0.000	0.000	0.000	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The B-52 Advanced Targeting Pod (ATP) Display Upgrade project consists of a separate display and processor upgrade with a 10 gigabyte Ethernet connection. The current targeting pod display is outdated and experiencing a high failure rate and obsolescence issues. Additionally, the current monitor does not support current and emerging video resolution improvements of the fielded Sniper and LITENING ATPs. The Sniper and LITENING advanced targeting pods are capable of transmitting HD color and video at a much higher resolution than the current monochrome monitor. This upgrade will improve situational awareness and combat lethality. In FY21 the program will complete TMRR, then terminate the investment program (due to lack of funding) and then switch gears focusing on sustaining the current capability for the Multi-Functional Color Display (MFCD).

Costs include 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 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 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 continue aircrew safety and mission effectiveness.

Funds may be used for engineering, manufacturing, and development activities.

Funds may be used to address emerging and short-notice Diminishing manufacturing and material shortage (DMSMS) issues.

Program was cancelled in FY21 to posture program for a sustainment-focused solution with legacy display.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 Advanced Targeting Pod Display Upgrade	5.397	0.000	0.000	0.000	0.000
Description: B-52 Advanced Targeting Pod Monitor Upgrade with 10 Gig Ethernet connection. The current monitor does not support current and emerging video resolution improvements of the fielded Sniper and LITENING ATPs. The Sniper and LITENING advanced targeting pods are capable of transmitting HD color and video at a much higher resolution than the current monochrome monitor. This upgrade will improve situational					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671807 / Advanced Targeting POD Display Upgrade

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
awareness and combat lethality. In FY21 the program will complete TMRR and prepare the program for a sustainment based solution for the MFCD.					
FY 2021 Plans: Program funding in FY21 is located in BPAC 675039. 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.					
FY 2022 Base Plans: N/A					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	5.397	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• APAF 05 B05200: <i>Advanced Target Pod MFCD Production</i>	-	-	0.000	-	0.000	-	-	-	-	-	-
• APAF 06 000999: <i>Initial Spares</i>	-	-	-	-	-	-	-	-	-	-	-

Remarks

D. Acquisition Strategy
In FY21, the program will posture for a sustainment approach for the legacy Multi-Function Color Display (MFCD).

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671807 / Advanced Targeting POD Display Upgrade

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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

ATP Display Upgrade																												
TMRR	[REDACTED]																											
Integration Studies	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / <i>B-52 Squadrons</i>	Project (Number/Name) 671807 / <i>Advanced Targeting POD Display Upgrade</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>ATP Display Upgrade</i>				
TMRR	2	2020	3	2021
Integration Studies	1	2020	2	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force										Date: May 2021		
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
671810: B-52 AEHF Integration	-	0.000	5.024	29.690	0.000	29.690	-	-	-	-	-	-
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 emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issues. 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 may be used to conduct Technology Maturation and Risk Reduction (TMRR) activities and procure, test, and field the latest terminals.

DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

Funds may be used to resolve emerging safety of flight, accommodate technology insertion of this system and related communications systems, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

In order to maintain currency with the latest aircraft configuration, the B-52 Systems Improvements projects will update existing trainers or use Computer-Based Training (CBT) to add any new systems improvement functionality to meet user training requirements and update/maintain the Systems Integration Lab (SIL) for the Weapon System Trainers (WSTs).

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 AEHF Integration	0.000	5.024	29.690	0.000	29.690
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 and Tactical Relay (MILSTAR) and its Ultra High Frequency (UHF) SATCOM capability (MILSTAR is nearing system end of life) on the B-52. The AEHF					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force	Date: May 2021
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671810 / B-52 AEHF Integration
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Integration effort will integrate the radio, antenna and system components required to provide two-way EHF communication for the B-52.					
FY 2021 Plans: Continue risk reduction activities and program planning efforts. Program held an Acquisition Strategy Panel (ASP) review on 30 Mar 21 and received approval to continue risk reduction efforts to System Requirements Review (SRR) and releasing Request for Proposal (RFP) to get the program through Preliminary Design Review (PDR).					
FY 2022 Base Plans: Begin Engineering Manufacturing and Development (EMD) phase in 3QFY22.					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: Increase in FY22 due to ramp up to PDR and Milestone B for initiation of the program's EMD phase.					
Accomplishments/Planned Programs Subtotals	0.000	5.024	29.690	0.000	29.690

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

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).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671810 / B-52 AEHF Integration
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Risk Reduction	C/CPAF	various : various	-	-		4.824	Mar 2021	26.999	Nov 2021	-		26.999	-	-	-
Subtotal			-	-		4.824		26.999		-		26.999	-	-	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Other Government Services	C/CPAF	Not specified. : TBD	-	-		0.100	Jul 2021	0.929	Jul 2022	-		0.929	-	-	-
Subtotal			-	-		0.100		0.929		-		0.929	-	-	N/A

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
A&AS, Travel, Support	Various	various : various	-	-		0.100	Sep 2021	1.762	Sep 2022	-		1.762	-	-	-
Subtotal			-	-		0.100		1.762		-		1.762	-	-	N/A

			Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-	5.024	29.690	-	29.690	-	-	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 671810 / B-52 AEHF Integration
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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

EMD	
TMRR Activities	
Milestone B	
EMD	
Flight Test	
Milestone C	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force **Date:** May 2021

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>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
EMD				
TMRR Activities	1	2020	3	2022
Milestone B	3	2022	3	2022
EMD	4	2022	4	2025
Flight Test	1	2025	2	2025
Milestone C	1	2026	1	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	12.050	11.166	0.150	0.000	0.150	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2020, PE 0101113F, B-52 Squadrons, Project 675039, B-52 System Integration efforts were transferred to PE 0101113F, B-52 Squadrons, Project 671805, B-52 VLF/LF Modernization, Project 671803, B-52 Test Support, and Project 671807 Advanced Target POD MFCD in order to provide a separate BPACs for FY19 new start effort.

In FY 2021 (\$11.166M) - Project 671807 Advanced Target POD MFCD funding is shown in B-52 Squadrons, Project 675039. (\$6.116M), Congressional Add AFGSC Innovation Hub (\$5.000M), B-52 System Integration (\$0.050M)

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 development of an Analysis of Alternative (AoA), studies and analysis, 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.

Funds may be used to address emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issues.

Costs include any analysis, documentation, and related expenses necessary to establish a POR and support the B-52 weapon system. Additionally, other costs include 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 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 continue aircrew safety and mission effectiveness.

B-52 Mission Data Recorder: Provides permanent crash survivable flight data recorder information to meet Military Flight Operational Quality Assurance (MFOQA) and other regulatory requirements. Produces digital recordings enhancing aircrew mission reconstruction and weapon release validation.

B-52 AFGSC Innovation Hub supports Air Force efforts to take innovative approaches to B-52 modernization.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force	Date: May 2021
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
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B-52 Quad Crew Initiative (ALQ-172 Enhancement): Modernization to the B-52 Electronic Warfare systems is critical for situational awareness, self-protection and survivability in a contested environment. Program will better integrate the Line Replaceable Units (LRUs) and provide more inherent capabilities to the ALQ-172 system allowing it to be more fully automated. The planned automation and integration plan will remove the need for a sole function Electronic Warfare Officer (EWO) on the B-52.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 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 2021 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 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 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: Negligible increase from FY21 to FY22</p>	0.050	0.050	0.150	0.000	0.150
<p>Title: Mission Data Recorder</p> <p>Description: Provides permanent crash survivable flight data recorder information to meet Military Flight Operational Quality Assurance (MFOQA) and other regulatory requirements. Produces digital recordings enhancing aircrew training/operational mission.</p> <p>FY 2021 Plans: N/A</p> <p>FY 2022 Base Plans: NA</p> <p>FY 2022 OCO Plans:</p>	10.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
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N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: N/A					

<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. In FY21, B-52 ATP Display Upgrade (BPAC 671807) was budgeted \$6.116M, but the funding was misaligned to B-52 System Improvement (BPAC 675039).</p> <p>FY 2021 Plans: Conclude TMRR development activities and prepare the program for a sustainment solution for the B-52 ATP Monitor Upgrade. As a result, the majority of FY21 funding was realigned within B-52 Squadrons.</p> <p>FY 2022 Base Plans: N/A</p> <p>FY 2022 OCO Plans: No activity in FY22.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: N/A</p>	0.000	6.116	0.000	0.000	0.000
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Accomplishments/Planned Programs Subtotals	10.050	6.166	0.150	0.000	0.150
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	FY 2020	FY 2021
<p>Congressional Add: AFGSC Innovation Hub</p> <p>FY 2020 Accomplishments: Support future investments such as Agile PODs, Future Comm Data Links, Hypersonic Kill Chain Research & Development</p> <p>FY 2021 Plans: Continue to support future investments such as Agile PODs, Future Comm Data Links, Hypersonic Kill Chain Research & Development</p>	2.000	5.000
Congressional Adds Subtotals	2.000	5.000

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force	Date: May 2021
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 B05200: B-52	5.460	0.470	0.476	-	0.476	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

MDR held an Acquisition Strategy Panel (ASP) review 13 Apr 20. MDR is the permanent integration of a fielded temporary modification (Digital B-52 Recorder Instrumentation Enhancement for the Reserves (DBRIEFR) System). Program's EMD phase is fully funded and it will be fielded as a buy-to-budget.

The B-52 Quad Crew program will utilize the B-1/B-52 Flexible Acquisition and Sustainment Contract to award studies and development effort to the Original Equipment Manufacturer. 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.

ATP Display Upgrade was cancelled in FY21 and will conclude TMRR efforts to transition into a sustainment-focused solution with the legacy display.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	-	0.000	Jul 2020	0.000	Dec 2020	0.000	Jan 2022	-		0.000	-	-	-
Low Cost Mods TBD BPAC 675057	TBD	TBD : Oklahoma City, OK	-	0.000	Jul 2020	-		0.000	Jan 2022	-		0.000	-	-	-
Mission Data Recorder	C/CPFF	SwRI : Midwest City, OK	-	10.000	Jul 2020	-		0.000	Jan 2022	-		0.000	-	-	-
IR Missile Warning System	C/CPAF	NA : TBD	-	0.000	Jul 2020	-		0.000	Jan 2022	-		0.000	-	-	-
AFGSC Innovation Hub	C/CPAF	TBD : Barksdale, LA	-	2.000	Nov 2020	5.000		0.000	Jan 2022	-		0.000	-	-	-
Quad Crew	TBD	TBD : Oklahoma City, OK	-	0.000	Jul 2020	-		0.000	Jan 2022	-		0.000	-	-	-
Advanced Targeting POD Display Upgrade	TBD	TBD : Oklahoma City, OK	-	0.000	Jul 2020	6.116	Dec 2020	0.000	Jan 2022	-		0.000	-	-	-
Subtotal			-	12.000		11.116		0.000		-		0.000	-	-	N/A

Remarks

TBD

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 : NV	-	0.050	Mar 2020	0.050	Jan 2021	0.150	Jan 2022	-		0.150	-	-	-
B-52 Centralized Support, Travel - 675039	Various	Various : TBD	-	0.000	Mar 2020	0.000	Jan 2021	0.000	Jan 2022	-		0.000	-	-	-
Subtotal			-	0.050		0.050		0.150		-		0.150	-	-	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force **Date:** May 2021

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>
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FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
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

Systems Improvements	
System Improvements Studies and Analysis, etc. (Began 2Q16)	
AFGSC Innovation Hub	
Industry Collaboration Efforts	
Mission Data Recorder	
EMD Integration effort for Mission Data Recorder	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force **Date:** May 2021

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>
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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	2020	4	2026
<i>AFGSC Innovation Hub</i>				
Industry Collaboration Efforts	1	2021	4	2021
<i>Mission Data Recorder</i>				
EMD Integration effort for Mission Data Recorder	4	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675041: Bomber Tactical Data Link	-	2.878	0.000	0.000	0.000	0.000	-	-	-	-	-	-
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 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 LRUs. 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.

Funds may be used to address emerging and short-notice DMSMS issues. As the TDL upgrade brings additional capability to the B-52, emerging security requirements (JRE 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 testing and fielding terminals.

DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Additionally, implementation requirements and standards are defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

Funds may be used to procure, test, and field terminals. DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative. Funds may 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. In order to maintain currency with the latest aircraft configuration, the B-52 Systems Improvements projects will update existing trainers or use Computer-Based Training (CBT) to add any new systems improvement functionality to meet user training requirements and update/maintain the Systems Integration Lab (SIL) for the Weapon System Trainers (WSTs).

Funds may be used to resolve emerging safety of flight and DMS issues, accommodate technology insertion, and fulfill FAA (or other) mandates necessary to ensure continued aircrew safety and mission effectiveness.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Bomber Tactical Data Link	2.878	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675041 / Bomber Tactical Data Link
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B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>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 CONECT subsystem.</p> <p>FY 2021 Plans: N/A</p> <p>FY 2022 Base Plans: N/A</p> <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: N/A</p>					
Accomplishments/Planned Programs Subtotals	2.878	0.000	0.000	0.000	0.000

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item B05200: BP11 Production	11.934	11.164	25.841	-	25.841	-	-	-	-	-	-
• APAF 06 000999: Initial Spares	2.381	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 Acquisition Decision Memorandum (ADM) for revised Acquisition Program Baseline (APB) on 31 Jan 21. Objective and thresholds for Milestone C and Initial Operational Capability were updated, and removed the Full Rate Production (FRP) schedule parameter in the APB.

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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	2020	2	2022
Milestone C	2	2022	2	2022
Production and Install	2	2022	4	2025
IOC	1	2024	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675055: GPS-IU	-	1.986	0.000	0.693	0.000	0.693	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0101113F, project 675055, Global Positioning System Interface Unit (GPS-IU), is a new start.

A. Mission Description and Budget Item Justification

Global Positioning System Interface Unit (GPS-IU) is considered an 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. The GPS-IU acts as a controller for a MIL-STD-1553 data bus communications path. The major areas of support include GPS interface control and monitoring, targeting pod functions, navigation displays for the Pilot and Copilot stations, and Identification Friend or Foe (IFF) control functions.

Originally developed with a 33MHz processor with 4MB of Static Random Access Memory (SRAM), the GPS-IU has become overloaded as more software has been added to the B-52. Currently operating at 86 percent throughput capacity and at 90 percent memory capacity, exceeding the designated safety threshold of 95 percent memory load in 2019. The GPS-IU is also facing parts obsolescence issues. 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, including two Ethernet Ports and two connectors on the face-plate for future growth.

GPS-IU requires upgrading to incorporate any other GPS dependent capabilities on the B-52 platform. B-52 fleet will have the capability to carry additional GPS dependent weapons and targeting pods, and the increased capacity to incorporate future GPS-dependent capabilities beyond 2018.

The GPS-IU upgrade program will provide increased throughput and memory capacity by replacing the current GPS IU Line Replaceable Unit (LRU). The new LRU will contain the necessary associated electronics to allow for increased processor throughput, more memory, and sustainable electronic packages. The new LRU contains 7 Circuit Card Assemblies (CCA) which include a Backplane CCA, Front panel CCA, Power Supply CCA, Ethernet Switch CCA, Single Board Computer CCA with 1553/429 daughter card, Graphics card CCA and I/O CCA. The I/O card combines the functions of three of the legacy IU Circuit Cards (Discrete Inputs Analog, Audio Video (DAAV), Discrete Outputs (DOA) and Serial Busses functionality) The Backplane and Motherboard will require an upgrade to integrate these new CCAs. This upgrade will improve system reliability while also addressing Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues that exists for the legacy GPS-IU.

Funds may be used to address emerging and short-notice DMSMS, Development Testing (DT)/ Operational Testing(OT) issues, resolving 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.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675055 / GPS-IU
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DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Global Positioning System Interface Unit (GPS-IU)	1.986	0.000	0.693	0.000	0.693
Description: Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace six circuit card assemblies in the GPS IU, the backplane, and the chassis.					
FY 2021 Plans: N/A					
FY 2022 Base Plans: FY22 funding will support continued EMD effort and test activities.					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: FY22 increase supports EMD effort/test activities due to program schedule delay. No previous FY21 RDT&E funding.					
Accomplishments/Planned Programs Subtotals					0.693

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 06 Line Item	6.730	12.014	0.000	-	0.000	-	-	-	-	-	-
B05200: BP11 Production											
• APAF 06 000999: Initial Spares	-	-	7.863	-	7.863	-	-	-	-	-	-

Remarks

FY20 funds supports Environmental and Laboratory System Integration Testing (LSIT) and developmental/operational flight test.

Due to late delivery of components for testing, the EMD schedule slipped approximately 16 months. Program re-baselined in 3QFY21.

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 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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675055 / GPS-IU
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FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
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	
DT/OT	
MS C	
Production Contract Award	
Production, Assy, & Installs	
RAA/IOC	
FOC	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force **Date:** May 2021

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>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>GPS-IU</i>				
EMD	1	2020	1	2023
DT/OT	3	2022	4	2022
MS C	4	2022	4	2022
Production Contract Award	1	2023	1	2023
Production, Assy, & Installs	1	2023	2	2025
RAA/IOC	2	2024	2	2024
FOC	2	2025	2	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force										Date: May 2021		
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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675056: B-52 Radar Modernization Program (RMP)	-	93.702	157.792	162.862	0.000	162.862	-	-	-	-	-	-
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 will be increasingly difficult to sustain due to diminished manufacturing sources and obsolescent technologies; the current failure rate of the APQ-166 places long-duration missions at risk. This modernization program will encompass the radar antenna array, 12 individual LRUs, 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 EMD kits on two B-52H test aircraft to support Developmental/Operational Test and Evaluation.

This upgrade will affect all three Weapon System Trainers (WST), the WST Training Systems Integration Laboratory (SIL), and both B-52H Offensive Station Maintenance Trainers (OSMTs), and the Bombing-Navigation System Maintenance Trainers (BNSMTs) in addition to an existing desktop trainer. 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 emerging and short-notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues. DMSMS efforts to include removal of end-of-life/obsolete software/hardware within the weapons system, simulators systems, and MOSA implementation. Additionally, funds may be used to resolve emerging safety of flight mandates necessary to ensure continued aircrew safety and nuclear/conventional mission effectiveness.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Radar Modernization Program	93.702	157.792	162.862	0.000	162.862
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.					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
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)

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p><i>FY 2021 Plans:</i> Preliminary Design Review (PDR) accomplished in 1QFY21. Program will continue integration/technical design with OEM and subcontractors, Milestone B, and EMD contract award in mid-FY21 followed by preparations for weapon system level Critical Design Review (CDR) in early FY22.</p> <p><i>FY 2022 Base Plans:</i> Continue preparing for and conduct weapon system level CDR in early FY22 followed by fabrication, qualification, and delivery of subsystem lab/aircraft kits; 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 beginning in late FY22/early FY23 timeframe.</p> <p><i>FY 2022 OCO Plans:</i> NA</p> <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Increase in FY22 over FY21 due to ramp-up in EMD efforts to accomplish CDR. FY22 will continue to support manpower staffing build up through system CDR, lab/aircraft kit purchases, and follow-on hardware/software integration activities in preparation for test jet installation by late FY22/early FY23 timeframe</p>					
Accomplishments/Planned Programs Subtotals	93.702	157.792	162.862	0.000	162.862

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• APAF 05 Lineltem B05200: BP11 Production	0.000	0.000	0.000	-	0.000	-	-	-	-	-	-
• APAF 07 Line Item B05200: Post Production Support	0.000	0.098	0.000	-	0.000	-	-	-	-	-	-
• APAF 06 000999: Initial Spares	0.118	0.197	0.000	-	0.000	-	-	-	-	-	-

Remarks
FY22 funding for B-52 RMP is \$172.058M: RMP BPAC 675056 (\$162.862M) and Crypto Mod BPAC 675160 (\$9.196M).

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
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>

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 OEM is executing ongoing contract work with the subsystem suppliers, integration, acquisition planning, and risk reduction activities leading to a completion of system PDR in 1QFY21 followed by Milestone B and EMD contract award in 3QFY21.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

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)
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Product Development	C/CPAF	Not specified. : TBD	-	0.000	Jul 2020	64.408	Jun 2021	129.660	Dec 2021	-		129.660	-	-	-
Risk Reduction	C/CPAF	Not specified. : TBD	-	78.342	Mar 2020	73.951	Jan 2021	13.600	Dec 2021	-		13.600	-	-	-
Subtotal			-	78.342		138.359		143.260		-		143.260	-	-	N/A

Remarks
FY 2021 Cost has been reduced from \$84.851 million to \$73.951 million to account for a \$10.900 million Congressional mark.

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Support	C/CPAF	Not specified. : TBD	-	1.249	Mar 2020	-		-		-		-	-	-	-
Subtotal			-	1.249		-		-		-		-	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		4.605	Jan 2021	2.094	Dec 2021	-		2.094	-	-	-
Test RMP BPAC 675056	C/CPAF	Not specified. : TBD	-	0.300	Mar 2020	0.406	Feb 2021	0.500	Dec 2021	-		0.500	-	-	-
Studies RMP Development	C/CPAF	Not specified. : TBD	-	0.555	Mar 2020	1.800	Mar 2021	-		-		-	-	-	-
Subtotal			-	0.855		6.811		2.594		-		2.594	-	-	N/A

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Management Services	C/CPAF	Not specified. : TBD	-	0.000	Mar 2020	-		-		-		-	-	-	-
Management Support, A&AS, PMA	Various	Not specified. : TBD	-	7.443	Mar 2020	5.127	Mar 2021	17.008	Dec 2021	-		17.008	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
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)

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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>Radar Modernization Program</i>																												
Risk Reduction																												
MS B																												
EMD																												
Developmental Testing																												
MS-C																												
Production Installs																												
IOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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	2020	3	2021
MS B	3	2021	3	2021
EMD	3	2021	4	2025
Developmental Testing	1	2023	1	2025
MS-C	4	2024	4	2024
Production Installs	1	2026	4	2026
IOC	4	2026	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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)
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675057: B-52 Low Cost Improvement (LCI)	-	2.607	2.600	0.058	0.000	0.058	-	-	-	-	-	-
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. Additionally, develop and integrate emerging technologies for specialized B-52 missions to include Intelligence Surveillance and Reconnaissance (ISR), Targeting and Weapons. Additionally, this funding also includes future prototyping efforts, DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, and common open system architecture that is sustainable and cyber-resilient. Additionally, implementation requirements and standards are defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative. Funds may be used to address emerging and short-notice DMSMS issues. Funds may be used to resolve emerging safety of flight and DMS issues, accommodate technology insertion, and fulfill Federal Aviation Agency (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 Low Cost Improvements	2.607	2.600	0.058	0.000	0.058
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 2021 Plans: FY21 activities supported emerging and advanced technologies to include the government-developed Bomber Modular Data Acquisition System used to capture/record aircraft bus parameters, analog signals, discrete signals, and videos from cockpit displays and over the shoulder cameras.					
FY 2022 Base 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 2022 OCO Plans: NA					
FY 2021 to FY 2022 Increase/Decrease Statement:					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force	Date: May 2021
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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)
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Funds reduced to support higher B-52 priorities.					
Accomplishments/Planned Programs Subtotals	2.607	2.600	0.058	0.000	0.058

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF 05 Line item B05200: BP11 Production	2.412	2.457	8.925	-	8.925	-	-	-	-	-	-

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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
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>

FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
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>Low Cost Improvements</i>	
Low Cost Improvements Studies and Analyses	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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	2	2021	4	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675129 / B-52 CERP			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675129: B-52 CERP	-	175.359	273.020	484.068	0.000	484.068	-	-	-	-	-	-
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 MTA effort as outlined in the program's acquisition strategy.

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 sustainment program will replace the current TF33-PW-103 engine with jet 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 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 for the engine throttles and engine health monitoring subsystem must also be developed, modified and/or upgraded in conjunction with the aircraft modifications. This upgrade will also require corresponding modification of the Weapon System Trainers (WST). As B-52 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 components require to install on rapid prototype aircraft.

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 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 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.

DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP

BY (FY22) funding totals include 484.068M requested for the Pacific Defense Initiative.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 CERP	175.359	273.020	484.068	0.000	484.068
Description: This sustainment program will replace the current TF33-PW-103 engine with jet 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.					
FY 2021 Plans: Continue CERP RVP, Rapid Prototyping Phase 1 efforts, selection of the engine vendor, and Virtual System Prototype Increment 1 delivery.					
FY 2022 Base Plans: Continue CERP RVP, Rapid Prototype Phase 1 toward delivery of Virtual System Prototype (VSP) Increment 2. Begin CERP Rapid Physical Prototyping (RPP), award Rapid Prototype Phase 2 contract, transitioning the VSP to physical prototypes.					
FY 2022 OCO Plans: NA					
FY 2021 to FY 2022 Increase/Decrease Statement: Increase from FY21 to FY22 due to Rapid Prototype Phase 2 contract, engine contract, and long lead components for two prototype aircraft.					
Accomplishments/Planned Programs Subtotals					
	175.359	273.020	484.068	0.000	484.068

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• APAF 05 0101113F: B-52 SQUADRONS	-	-	-	-	-	-	-	-	-		

Remarks

D. Acquisition Strategy

Acquisition strategy and FY16 NDAA Middle Tier of Acquisition (MTA) Section 804 authority approved Sept 2018. B-52 CERP has two planned MTA efforts: Rapid Virtual Prototyping (RVP) and Rapid Physical Prototyping (RPP). CERP RVP includes risk reduction activities and executing Rapid Prototyping Phase 1 (RP1) activities. RP1 is sole source prototype aircraft development with the aircraft integrator (Boeing). Competitive engine selection is government led and the engine vendor is a

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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

directed sub-contractor. Engines are government furnished material (GFM) to Boeing. CERP RVP delivers the Virtual System Prototypes. CERP RPP includes the follow-on Rapid Prototype Phase 2 (RP2) contract with Boeing for physical prototyping efforts, which delivers two prototype aircraft.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675129 / B-52 CERP
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Systems Improvements Studies and Analysis	SS/ Various	The Boeing Co : Oklahoma City, OK	-	0.110	Feb 2020	-		-		-		-	-	-	-
Rapid Prototyping Phase 1 Contract Award	SS/CPIF	The Boeing Co : Oklahoma City, OK	-	114.153	Feb 2020	151.231	Feb 2021	142.940	Jan 2022	-		142.940	-	-	-
Engine Contract Award	C/FFP	TBD : TBD, OK	-	-		5.700	Jun 2021	30.694	Mar 2022	-		30.694	-	-	-
Rapid Prototyping Material	SS/CPIF	The Boeing Co : Oklahoma City, OK	-	-		55.016	Mar 2021	244.432	Jan 2022	-		244.432	-	-	-
Rapid Prototyping Phase 2 Contract Award	SS/CPIF	The Boeing Co : Oklahoma City, OK	-	-		-		19.736	Mar 2022	-		19.736	-	-	-
Subtotal			-	114.263		211.947		437.802		-		437.802	-	-	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Documentation - Technical Support	MIPR	Booz Allen Hamilton : OKC, OK	-	3.034	Jul 2020	4.271	May 2021	3.820	Jun 2022	-		3.820	-	-	-
SIBR/FFRDC	Allot	Not specified. : TBD	-	7.287	Mar 2020	7.541	Jan 2021	16.052	Jan 2022	-		16.052	-	-	-
Reprogramming	Allot	Not specified. : TBD	-	34.000	Jul 2020	-		-		-		-	-	-	-
Subtotal			-	44.321		11.812		19.872		-		19.872	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	-	1.960	Feb 2020	12.500	Feb 2021	7.616	Jan 2023	-		7.616	-	-	-
Mock Up A/C and AMARG	PO	AMARG : Tuscon/ Wichita	-	1.620	Aug 2020	1.000	May 2021	0.500		-		0.500	-	-	-
96th Test Wing	PO	SEEK EAGLE : Eglin AFB, FL	-	0.119	May 2020	-		0.325	Oct 2021	-		0.325	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force **Date:** May 2021

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>
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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>	
System Requirement Phase	
Virtual Power Pod Prototype	
Prototype Development Phase 1	
Virtual System Prototype Increment 1	
Prototype Development Phase 2	
Virtual System Prototype Increment 2	
Physical System Prototype 1	
Physical System Prototype 2	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force **Date:** May 2021

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>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>B-52 CERP</i>				
System Requirement Phase	1	2020	4	2020
Virtual Power Pod Prototype	1	2020	1	2020
Prototype Development Phase 1	2	2020	2	2022
Virtual System Prototype Increment 1	4	2021	4	2021
Prototype Development Phase 2	3	2022	4	2026
Virtual System Prototype Increment 2	2	2022	2	2022
Physical System Prototype 1	2	2025	2	2025
Physical System Prototype 2	3	2025	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675160: B-52 Crypto Modernization	-	0.000	4.509	17.453	0.000	17.453	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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.

In order to maintain currency with the latest aircraft configuration, the B-52 Systems Improvements projects will update existing trainers or use Computer-Based Training (CBT) to add any new systems improvement functionality to meet user training requirements and update/maintain the Systems Integration Lab (SIL) for the Weapon System Trainers (WSTs).

Funds may be used to resolve emerging safety of flight and short-notice diminishing manufacturing and material shortage (DMSMS) source issues, improve related communications systems, modify the SIL to update to the current configuration, accommodate technology insertion and fulfill Federal Aviation Administration (FAA) or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

DMS efforts to include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 Crypto Modernization	0.000	4.509	8.257	0.000	8.257
Description: Upgrades aircraft with MUOS capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability.					
FY 2021 Plans: Continue EMD contract efforts that include finishing the SIL build, IQT, FQT, and parts ordering for EMD aircraft mods.					
FY 2022 Base Plans: Crypto Modernization Program: Continue EMD phase to support DT/OT and MS-C documentation creation. Accomplish A/C mod #1 (2QFY22), DT/OT (4QFY22), and A/C mod #2 (4QFY22).					
FY 2022 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force	Date: May 2021
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
NA					
FY 2021 to FY 2022 Increase/Decrease Statement: Funding increase from FY21 to FY22 due to ramp up in Engineering and Manufacturing Development(EMD) effort beginning with test aircraft modification, followed by completion of developmental and operational testing (DT/OT) to support Milestone C decision.					
Title: B-52 Radar Modernization Program	-	0.000	9.196	0.000	9.196
Description: Radar Modernization Program (RMP): Product Development and Integration - Continue software code development/integration; installation/checkout of sub-systems in B-52 System Integration Lab (SIL) for the B-52 RMP. FY22 funding of \$9.196M to be awarded Jan 2022.					
FY 2021 Plans: N/A					
FY 2022 Base Plans: Radar Modernization Program (RMP): Product Development and Integration - Continue software code development/integration; installation/checkout of sub-systems in B-52 System Integration Lab (SIL) for the B-52 RMP. FY22 funding of \$9.196M to be awarded Jan 2022.					
FY 2022 OCO Plans: N/A					
FY 2021 to FY 2022 Increase/Decrease Statement: N/A					
Accomplishments/Planned Programs Subtotals	0.000	4.509	17.453	0.000	17.453

C. Other Program Funding Summary (\$ in Millions)										
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To Complete Total Cost</u>
• APAF 05 Line item B05200: BP11 Production	0.000	0.000	3.452	0.000	3.452	-	-	-	-	-

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

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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>
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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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 : OKC, OK	-	0.000		1.587	Mar 2021	6.312	Jan 2022	-		6.312	-	-	-
Radar Modernization Program: Product Development and Integration	SS/CPIF	OEM : TBD	-	-		-		9.196	Jan 2022	-		9.196	-	-	-
Subtotal			-	0.000		1.587		15.508		-		15.508	-	-	N/A

Remarks
Radar Modernization Program (RMP): Product Development and Integration - Continue software code development/integration; installation/checkout of subsystems in B-52 System Integration Lab (SIL) for the B-52 Radar Modernization Program. \$9.428M to be awarded Jan 2022.

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	-	0.000		1.000	May 2021	0.545	May 2022	0.000		0.545	-	-	-
Subtotal			-	0.000		1.000		0.545		0.000		0.545	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	-		1.300	-	-	-
Subtotal			-	-		1.792		1.300		-		1.300	-	-	N/A

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	-		0.100	-	-	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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	2020	1	2023
PDR	1	2020	1	2020
CDR	4	2020	4	2020
IQT/FQT	3	2021	3	2021
DT/OT	2	2022	4	2022
MS C	1	2023	1	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
675165: B-52 Quad Crew	-	0.000	0.000	10.203	0.000	10.203	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Establish risk reduction activity to support B-52 Quad Crew aircraft and subsystems development and integration effort. Risk reduction efforts includes ALQ-172 subsystem associated associated aircraft integration to move functionality to the B-52 navigator crew stations.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: B-52 Quad Crew	0.000	0.000	10.203	0.000	10.203
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 2021 Plans: NA					
FY 2022 Base Plans: Establish risk reduction activity to support B-52 Quad Crew aircraft and subsystems development and integration effort. Risk reduction efforts includes ALQ-172 subsystem associated aircraft integration to move functionality to the B-52 navigator crew stations					
FY 2022 OCO Plans: NA					
FY 2021 to FY 2022 Increase/Decrease Statement: FY22 New Start					
Accomplishments/Planned Programs Subtotals	0.000	0.000	10.203	0.000	10.203

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

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• APAF 06 0101113F: B-52 SQUADRONS	-	-	-	-	-	-	-	-	-		

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Air Force **Date:** May 2021

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>
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D. Acquisition Strategy

The Milestone Decision Authority (MDA) for B-52 Quad Crew is AFLCMC/WB 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. Additionally, the program will also utilize existing sustainment contracts for studies and development ALQ-172 functionally to support the transition to the B-52 Quad Crew. The OEM will be responsible for the of the integration of the ALQ-172 which will be provided as Government Furnished Equipment.

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
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	2	2022	2	2024
MS B	2	2022	2	2022
MS C	2	2024	2	2024
Production	3	2024	4	2026