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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101113F I B-52 Squadrons							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	107.936	325.264	325.974	0.000	325.974	515.207	534.212	528.840	401.870	Continuing	Continuing
671803: B-52 AFMC Test Assets	-	0.000	0.000	4.069	0.000	4.069	15.682	4.269	4.270	0.000	0.000	28.290
671805: B-52 VLF/LF Modernization	-	0.000	0.000	10.000	0.000	10.000	13.000	8.980	20.604	0.000	0.000	52.584
671807: Advanced Targeting POD Display Upgrade	-	0.000	0.000	9.747	0.000	9.747	12.307	0.000	0.000	0.000	0.000	22.054
671810: B-52 AEHF Integration*	-	0.000	0.000	0.000	0.000	0.000	2.500	2.500	2.500	20.766	Continuing	Continuing
675039: B-52 System Improvements	-	12.047	75.230	10.050	0.000	10.050	0.050	0.050	0.050	0.000	Continuing	Continuing
675041: Bomber Tactical Data Link	-	5.529	32.427	2.878	0.000	2.878	0.000	0.000	0.000	0.000	0.000	40.834
675048: 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)	-	14.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.417
675050: CONECT	-	4.989	11.138	0.001	0.000	0.001	0.000	0.003	0.002	0.000	0.000	16.133
675055: GPS-IU	-	15.223	37.030	1.985	0.000	1.985	0.000	0.000	0.000	0.000	0.000	54.238
675056: B-52 Radar Modernization Program (RMP)	-	13.954	56.864	109.278	0.000	109.278	169.000	187.734	177.356	111.204	Continuing	Continuing
675057: B-52 Low Cost Improvement (LCI)	-	0.105	2.605	2.607	0.000	2.607	2.605	2.660	2.710	0.000	Continuing	Continuing
675058: B-52 Weapon Sys Trainer Air Ref Training Upgrade	-	17.472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.472
675129: B-52 CERP	-	9.495	61.915	175.359	0.000	175.359	300.063	328.016	321.348	269.900	Continuing	Continuing
675160: B-52 Crypto Modernization	-	13.756	12.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
676039: B-52 Airspace Compliance	-	0.949	36.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.004
*This project's R-2a exhibit has been suppressed due to funding not beginning until after FY 2020												

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	
<b>Note</b> Created four (4) new BPACs for traceability purposes. Note that these are not new start programs for FY2020.  Prior to FY2020, project 671803, B-52 AFMC Test Assets funding is documented in Project 675039, B-52 System Improvement  Prior to FY2020, Project 671805, B-52 VLF/LF Modernization funding is documented in Project 675039, B-52 System Improvement  Prior to FY2020, Project 671807, B-52 Advanced Target POD MFCD funding is documented in Project 675039, B-52 System Improvement  Prior to FY2020, Project 671810, B-52 AEHF Integration funding is documented in 675041 B-52 Bomber Tactical Data Link  <b>A. Mission Description and Budget Item Justification</b> 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 at least 2050.  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.  This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F, and 0605833F.  As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.  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.		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force				Date: February 2019		
Appropriation/Budget Activity		R-1 Program Element (Number/Name)				
3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development		PE 0101113F / B-52 Squadrons				
B. Program Change Summary (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget		111.910	280.414	529.772	0.000	529.772
Current President's Budget		107.936	325.264	325.974	0.000	325.974
Total Adjustments		-3.974	44.850	-203.798	0.000	-203.798
• Congressional General Reductions		0.000	0.000			
• Congressional Directed Reductions		0.000	-2.600			
• Congressional Rescissions		0.000	0.000			
• Congressional Adds		0.000	47.450			
• Congressional Directed Transfers		0.000	0.000			
• Reprogrammings		0.000	0.000			
• SBIR/STTR Transfer		-3.974	0.000			
• Other Adjustments		0.000	0.000	-203.798	0.000	-203.798
<b>Congressional Add Details (\$ in Millions, and Includes General Reductions)</b>						
<b>Project: 675039: B-52 System Improvements</b>						
Congressional Add: IR Missile Warning System						
Congressional Add: Mission Data Recorder						
Congressional Add Subtotals for Project: 675039						
<b>Project: 675041: Bomber Tactical Data Link</b>						
Congressional Add: Bomber Tactical Data Link - Congressional Add						
Congressional Add Subtotals for Project: 675041						
<b>Project: 675160: B-52 Crypto Modernization</b>						
Congressional Add: B-52 Crypto Modernization Congressional Add						
Congressional Add Subtotals for Project: 675160						
Congressional Add Totals for all Projects						
<b>Change Summary Explanation</b>						
FY18: Decrease of \$3.974 due to SBIR transfer						

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0101113F I B-52 Squadrons	
FY19: Increase of \$44.850 consists of congressional changes of: -\$2.6M for CERP; +\$1.450M for Bomber Tactical Data Link; +\$12.0M for Crypto Mod; +10.0M for Mission Data Recorder and +\$24.0M for Infrared Threat Urgent Operational Need		
FY20: Decrease of \$203.8M consists of: -\$137.291M for CERP; -\$9.727M for RMP; -\$7.858M for WST AR Trainer; -\$25.731M for VLF/LF; -\$33.191M for AEHF and +10.000M for Mission Data Recorder		

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
671803: B-52 AFMC Test Assets	-	0.000	0.000	4.069	0.000	4.069	15.682	4.269	4.270	0.000	0.000	28.290
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Prior to FY 2020, Project 671803, B-52 AFMC Test Assets funding is documented in Project 675039, B-52 System Improvement

**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. 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 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)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> B-52 AFMC Test Aircraft Asset Support	0.000	0.000	4.069
<b>Description:</b> B-52 Test Support provides funding for the test aircraft, manpower 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.			
<b>FY 2019 Plans:</b> Provide funding for the test aircraft, manpower and facilities at the Air Force Test Center, Edwards AFB and funds Programmed Depot Maintenance (PDM) for one test aircraft. This will support the developmental testing and sustainment needs of the B-52 from FY19-23. FY19 is documented in BPAC 675039.			
<b>FY 2020 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 671803 / <i>B-52 AFMC Test Assets</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
Provide funding for the test aircraft, manpower and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing and sustainment needs of the B-52.			
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decrease is due to the PDM cycle five year phase. The next PDM for aircraft #036 is FY24 (Approximately \$15M)			
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	0.000
			4.069
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b> Funding sent to Edwards AFB for the test aircraft, manpower, and facilities at the Air Force Test Center located at Edwards AFB, California.			
<b>E. Performance Metrics</b> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.			

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Air Force												<b>Date:</b> February 2019			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons				<b>Project (Number/Name)</b> 671803 / B-52 AFMC Test Assets					
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AFMC Test Aircraft support	PO	AFTC : Edwards AFB, CA	-	-		-		4.069	Jan 2020	-		4.069	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		4.069		-		4.069	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	-		0.000		4.069		-		4.069	Continuing	Continuing	N/A
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0101113F / B-52 Squadrons					671803 / B-52 AFMC Test Assets			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
AFMC Test Aircraft support																												
Test Support																												



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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AFMC Test Aircraft support				
Test Support	1	2020	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force									Date: February 2019			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671805 / B-52 VLF/LF Modernization			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
671805: B-52 VLF/LF Modernization	-	0.000	0.000	10.000	0.000	10.000	13.000	8.980	20.604	0.000	0.000	52.584
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
Prior to FY 2020, Project 671805 B-52 VLF/LF Modernization funding is documented in Project 675039 B-52 System Improvements												
A. Mission Description and Budget Item Justification												
The B-52 VLF/LF Moderization 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) issues. 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 (Link 16, EHF, 1760 IWBW, Mode S/Mode 5, IFF, BSB, Re-Engine, etc.) 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.												
Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources 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 2018	FY 2019	FY 2020	
Title: B-52 Very Low Frequency/Low Frequency (VLF/LF)									0.000	0.000	10.000	
Description: Provides secure, survivable, receive-only strategic nuclear communication for the B-52												
FY 2019 Plans: Approve Acquisition and Contracting Strategy for the B-52 VLF/LF and award a contract to the OEM for Engineering and Manufacturing Development (EMD) effort. FY19 funding for this effort is documented in BPAC 675039.												
FY 2020 Plans:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force								<b>Date:</b> February 2019			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons				<b>Project (Number/Name)</b> 671805 / B-52 VLF/LF Modernization			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	
Continue EMD phase to support fielding decision. Accomplish System Requirements Review (SRR), Preliminary Design Review (PDR), Critical Design Review (CDR), and Test and Evaluation Master Plan (TEMP). Initiate Development and Operational Testing. Release Request for Proposal to support long-lead procurement of terminals for installs in FY21/22.											
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decreased due to ramp down in EMD efforts.											
<b>Accomplishments/Planned Programs Subtotals</b>								0.000	0.000	10.000	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 B05200: BP11 Production	-	0.000	0.000	-	0.000	8.410	33.557	19.523	8.076	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
Approve Acquisition and Contracting Strategy for the B-52 VLF/LF and accomplish MS B. Submit RFP for Engineering and Manufacturing Development (EMD) effort. Negotiate and award EMD proposal.											
<b>E. Performance Metrics</b>											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 671805 / B-52 VLF/LF Modernization					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VLF/LF EMD	SS/CPFF	Various : Oklahoma, OK	-	-		-		6.430	Jul 2020	-		6.430	Continuing	Continuing	-
Subtotal			-	-		-		6.430		-		6.430	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VLF/LF Program Office Support	Various	Various : TBD	-	-		-		1.515	Jul 2020	-		1.515	Continuing	Continuing	-
VLF/LF Trainers	Allot	Not specified. : TBD	-	-		-		0.046	Jul 2020	-		0.046	Continuing	Continuing	-
Subtotal			-	-		-		1.561		-		1.561	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VLF/LF Test	PO	Not specified. : TBD	-	-		-		0.046	Jul 2020	-		0.046	Continuing	Continuing	-
VLF/LF Cyber Security	TBD	Not specified. : TBD	-	-		-		0.046	Jul 2020	-		0.046	Continuing	Continuing	-
VLF/LF Certifications	TBD	Not specified. : TBD	-	-		-		0.046	Jul 2020	-		0.046	Continuing	Continuing	-
Subtotal			-	-		-		0.138		-		0.138	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS, Travel, Centralized Support	Various	Various : TBD	-	-		-		1.871	Dec 2019	-		1.871	Continuing	Continuing	-
Subtotal			-	-		-		1.871		-		1.871	Continuing	Continuing	N/A

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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				
	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	-		0.000		10.000		-		10.000	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force																Date: February 2019			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0101113F / B-52 Squadrons								671805 / B-52 VLF/LF Modernization			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
B-52 VLF/LF Modernization																												
ASP																												
EMD																												
MS C																												
Production																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
B-52 VLF/LF Modernization				
ASP	1	2019	1	2019
EMD	3	2019	3	2021
MS C	3	2021	3	2021
Production	3	2021	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
671807: Advanced Targeting POD Display Upgrade	-	0.000	0.000	9.747	0.000	9.747	12.307	0.000	0.000	0.000	0.000	22.054
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Prior to FY2020, Project 671807 B-52 Advanced Target POD MFCD funding is documented in Project 675039 B-52 System Improvements

**A. Mission Description and Budget Item Justification**

The B-52 Advanced Targeting Pod (ATP) Multi-Functional Color Display (MFCD) project consists of a monitor upgrade with a 10 gigabyte Ethernet connection. The current targeting pod display is outdated and experiencing a historic break rate. Additionally, the current monitor does not support current and emerging video resolution improvements of the fielded Sniper and LITENING ATPs. The B-52's ATP is now capable of transmitting HD color and video at a much higher resolution than the current monochrome monitor; this upgrade will improve SA and combat lethality.

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 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)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> B-52 Advanced Target Pod Multi-Functional Color Display	0.000	0.000	9.747
<b>Description:</b> B-52 Advanced Targeting Pod Monitor Upgrade with 10 Gig Ethernet connection. ATPs are capable of transmitting high definition color, picture in picture video at a much higher resolution than the current monochrome ATP monitor can display. Capability increase will improve combat lethality and situational awareness.			
<b>FY 2019 Plans:</b> Initiate development activities for the B-52 Advanced Targeting Pod Monitor Upgrade with 10 Gig Ethernet connection. Begin TMRR efforts. FY19 funding is documented in BPAC 675039.			
<b>FY 2020 Plans:</b>			



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force								<b>Date:</b> February 2019			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>				<b>Project (Number/Name)</b> 671807 / <i>Advanced Targeting POD Display Upgrade</i>			

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>			<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
Development activities for the B-52 Advanced Targeting Pod Monitor Upgrade with 10 Gig Ethernet connection. EMD efforts.					
<b><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></b> Funding increased due to ramp up in EMD and flight test efforts.					
<b>Accomplishments/Planned Programs Subtotals</b>			0.000	0.000	9.747

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 B05200: <i>Advanced Target Pod MFCD Production</i>	-	-	-	-	-	-	22.907	16.216	16.508	0.000	55.631
• APAF 06 000999: <i>Initial Spares</i>	-	-	-	-	-	-	-	2.232	2.272	0.000	4.504
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> Acquisition Strategy Pending decision in 4QFY19.											
<b>E. Performance Metrics</b> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
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					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Target Pod Multi-Functional Color Display Development	TBD	TBD : TBD	-	-		-		9.447	Dec 2019	-		9.447	Continuing	Continuing	-
Subtotal			-	-		-		9.447		-		9.447	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration, Travel and Management Support	C/CPAF	Not specified. : TBD	-	-		-		0.300	Nov 2019	-		0.300	Continuing	Continuing	-
Subtotal			-	-		-		0.300		-		0.300	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		0.000		9.747		-		9.747	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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-MFCD																												
MDD																												
EMD																												
Milestone C																												
Production																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
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

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ATP-MFCD				
MDD	1	2019	1	2019
EMD	1	2019	1	2022
Milestone C	1	2022	1	2022
Production	1	2022	2	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	12.047	75.230	10.050	0.000	10.050	0.050	0.050	0.050	0.000	Continuing	Continuing
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.

## 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 AoA, studies and analysis, a CDD, and/or any other analysis or documentation necessary to establish a POR. Additionally, this project may include airborne integration experiments or demonstrations of emerging technologies.

### B-52 AMFC Test Support (FY19 funding only)

The B-52 Test Support 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.

### B-52 VLF/LF Modernization (FY19 funding only)

The B-52 VLF/LF Modernization 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) issues. 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 (Link 16, EHF, 1760 IWBU, Mode S/Mode 5, IFF, BSB, Re-Engine, etc.) 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-52 Advanced Targeting Pod (ATP) Multi-Functional Color Display (MFCD) (FY19 funding only)

The B-52 Advanced Targeting Pod (ATP) Multi-Functional Color Display (MFCD) project consists of a monitor upgrade with a 10 gigabyte Ethernet connection. The current targeting pod display is outdated and experiencing a historic break rate. Additionally, the current monitor does not support current and emerging video resolution

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675039 / B-52 System Improvements		
improvements of the fielded Sniper and LITENING ATPs. The B-52's ATP is now capable of transmitting HD color and video at a much higher resolution than the current monochrome monitor; this upgrade will improve SA and combat lethality.					
B-52 Infrared Missile Warning System The project will complete design, integration, and testing for overseas operations for installation on the B-52. The current missile warning system was designed in the 1970s and must be replaced to counter current and future threats.					
B-52 Mission Data Recorder Provides permanent crash survivable flight data recorder information to meet FAA and other regulatory requirements. Produces digital recordings enhancing aircrew mission reconstruction and release validation in AOR.					
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 FAA or other mandates necessary to ensure continue aircrew safety and mission effectiveness.					
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Title: B-52 Systems Improvements			12.047	0.050	10.050
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.					
FY 2019 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.					
FY 2020 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					
FY 2019 to FY 2020 Increase/Decrease Statement: \$10M for Mission Data Recorder documented in congressional adds.					
Title: AFMC Test Assets			0.000	17.766	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675039 / <i>B-52 System Improvements</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
<p><b>Description:</b> B-52 AFMC Test Assets provides funding for the test aircraft, manpower and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing and sustainment needs of the B-52 from FY19-23.</p> <p><b>FY 2019 Plans:</b> Provide funding for the test aircraft, manpower and facilities at the Air Force Test Center, Edwards AFB. This will support the developmental testing and sustainment needs of the B-52.</p> <p><b>FY 2020 Plans:</b> N/A</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> N/A - funding transferred to BPAC 671803 in FY20</p>			
<p><b>Title:</b> B-52 VLF/LF Modernization</p> <p><b>Description:</b> The B-52 Very Low Frequency (VLF)/Low Frequency (LF) effort integrates a receive-only, VLF/LF 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).</p> <p><b>FY 2019 Plans:</b> Approve Acquisition and Contracting Strategy for the B-52 VLF/LF and accomplish MS B. Submit RFP for Engineering and Manufacturing Development (EMD) effort. Negotiate and award EMD proposal.</p> <p><b>FY 2020 Plans:</b> N/A</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding moved to BPAC 671805 in FY20</p>		0.000	21.835
<p><b>Title:</b> Advanced Target POD MFCD</p> <p><b>Description:</b> B-52 Advanced Targeting Pod Monitor Upgrade with 10 Gig Ethernet connection. ATPs are capable of transmitting high definition color, picture in picture video at a much higher resolution than the current monochrome ATP monitor can display. Capability increase will improve combat lethality and situational awareness.</p> <p><b>FY 2019 Plans:</b></p>		0.000	1.579
			0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force								<b>Date:</b> February 2019			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>				<b>Project (Number/Name)</b> 675039 / <i>B-52 System Improvements</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	
Initiate development activities for the B-52 Advanced Targeting Pod Monitor Upgrade with 10 Gig Ethernet connection. Begin TMRR efforts.											
<b>FY 2020 Plans:</b> N/A											
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> N/A funding transferred to BPAC 671807 in FY20											
<b>Accomplishments/Planned Programs Subtotals</b>								12.047	41.230	10.050	
								<b>FY 2018</b>	<b>FY 2019</b>		
<b>Congressional Add:</b> IR Missile Warning System								-	24.000		
<b>FY 2019 Plans:</b> Complete design, integration, and testing for overseas operations for installation on B-52.											
<b>Congressional Add:</b> Mission Data Recorder								-	10.000		
<b>FY 2019 Plans:</b> Data recorder design and flight testing.											
<b>Congressional Adds Subtotals</b>								-	34.000		
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 B052000: <i>BP11 Aircraft Procurement Low Cost Mods</i>	0.425	0.452	5.460	-	5.460	0.470	0.480	0.489	0.498	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
Analyses of Alternatives will be conducted by various AFLCMC organizations and AFGSC.											
<b>E. Performance Metrics</b>											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											



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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675039 / B-52 System Improvements					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Improvements Studies and Analysis	SS/ Various	The Boeing Company, 559 SMXS/MXDPBA : Oklahoma City, OK	-	11.997	Jun 2018	-		-		-		-	Continuing	Continuing	-
VLF/LF EMD - BPAC 671805	SS/CPFF	Various : Oklahoma City, OK	-	-		18.947	Jul 2019	-		-		-	Continuing	Continuing	-
Advanced Target POD MFCD - BPAC 671807	TBD	TBD : TBD	-	-		1.579	Jun 2019	-		-		-	Continuing	Continuing	-
Mission Data Recorder	TBD	TBD : Oklahoma City, OK	-	-		10.000	Mar 2019	10.000	Dec 2019	-		10.000	Continuing	Continuing	-
IR Missile Warning System	C/CPAF	Not specified. : TBD	-	-		24.000	Mar 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	11.997		54.526		10.000		-		10.000	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VLF/LF Program Office Support- BPAC 671805	RO	Not specified. : TBD	-	-		0.521	Jul 2019	-		-		-	Continuing	Continuing	-
VLF/LF Trainers- BPAC 671805	Allot	Not specified. : TBD	-	-		0.552	Jul 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	-		1.073		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AFMC Test Aircraft support - BPAC 671803	PO	AFTC : Edwards AFB, CA	-	-		17.766	Aug 2019	-		-		-	Continuing	Continuing	-
VLF/LF Test - BPAC 671805	PO	Not specified. : TBD	-	-		0.169	Jul 2019	-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675039 / B-52 System Improvements					
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
VLF/LF Cyber Security - BPAC 671805	TBD	Not specified. : TBD	-	-		0.150	Jul 2019	-		-		-	Continuing	Continuing	-
VLF/LF Certification - BPAC 671805	TBD	Not specified. : TBD	-	-		0.046	Jul 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	-		18.131		-		-		-	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
B-52 Centralized Support, Program Management Administration, TDY, A&AS Contractor Support - 671039	Various	TBD : NV	-	0.050	Jan 2018	0.050	Jan 2019	0.050	Jan 2020	-		0.050	Continuing	Continuing	-
B-52 Centralized Support, Travel - 675039	Various	Various : TBD	-	-		1.450		-		-		-	Continuing	Continuing	-
Subtotal			-	0.050		1.500		0.050		-		0.050	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	12.047		75.230		10.050		-		10.050	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&amp;E Schedule Profile: PB 2020 Air Force

Date: February 2019

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0101113F / B-52 Squadrons

Project (Number/Name)

675039 / B-52 System Improvements

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b>Systems Improvements</b>																												
System Improvements Studies and Analysis, etc. (Began 2Q16)																												
<b>AFMC Test Aircraft support - BPAC 671803</b>																												
Test Support																												
<b>B-52 VLF/LF Modernization - BPAC 671805</b>																												
EMD																												
<b>ATP - MFCD BPAC 671807</b>																												
EMD																												
<b>IR Missile Warning System UON</b>																												
Integration and Test																												
Production and Installation																												
<b>Mission Data Recorder</b>																												
Boeing Contract for Permanent Modification of Mission Data recorder																												

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Exhibit R-4A, RDT&amp;E Schedule Details: PB 2020 Air Force

Date: February 2019

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0101113F / B-52 Squadrons

Project (Number/Name)

675039 / B-52 System Improvements

## Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Systems Improvements</b>				
System Improvements Studies and Analysis, etc. (Began 2Q16)	1	2018	4	2024
<b>AFMC Test Aircraft support - BPAC 671803</b>				
Test Support	1	2019	4	2019
<b>B-52 VLF/LF Modernization - BPAC 671805</b>				
EMD	3	2019	4	2019
<b>ATP - MFCD BPAC 671807</b>				
EMD	3	2019	4	2019
<b>IR Missile Warning System UON</b>				
Integration and Test	4	2018	2	2019
Production and Installation	3	2019	3	2020
<b>Mission Data Recorder</b>				
Boeing Contract for Permanent Modification of Mission Data recorder	2	2018	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675041: Bomber Tactical Data Link	-	5.529	32.427	2.878	0.000	2.878	0.000	0.000	0.000	0.000	0.000	40.834
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2020, PE 0101113F, B-52 Squadrons, Project 675041, B-52 Bomber Tactical Data Link efforts were transferred to PE 0101113F, B-52 Squadrons, Project 671810, B-52 AEHF Integration in order to provide a separate BPACs for FY19 new start effort.

**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 Link 16 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 Line-of-Sight (LOS) Link 16 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 Link-16 upgrade brings additional capability to the B-52, emerging security requirements (JRE messaging, crypto modernization, etc.) as well as other aircraft upgrades (1760 IWBUE, Mode S/Mode 5, IFF, BSB updates, RMP, CERP, etc.) may require study/support for potential impact to the CONNECT and Link-16 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.

B-52 Advanced Extremely High Frequency (AEHF) Integration (In FY19 only)

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) 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 (Link 16, VLF/LF, 1760 IWBUE, Mode S/Mode 5, IFF, BSB, Re-Engine, etc.) may require studies and/or support for potential impact to AEHF. 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,

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675041 / Bomber Tactical Data Link		
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 FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness. Trainers and Upgrades for B-52 AEHF. 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 2018	FY 2019	FY 2020
Title: Bomber Tactical Data Link			5.529	17.528	2.878
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 LRU. 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.					
FY 2019 Plans: Continue EMD phase to include unique software programming, and continued developmental and operational testing.					
FY 2020 Plans: Continue EMD, complete DT and OT, begin Weapons System Trainer Upgrade					
FY 2019 to FY 2020 Increase/Decrease Statement: Decrease due to EMD phase ending					
Title: B-52 AEHF Integration			0.000	13.449	0.000
Description: The B-52 Advanced 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 Integration effort will integrate the radio, antenna and system components required to provide two-way EHF communication for the B-52.					
FY 2019 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force									Date: February 2019		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675041 / Bomber Tactical Data Link			
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020
Establish risk reduction activity to support Engineering Manufacturing and Development effort. Risk reduction efforts to include opportunity for high classification of messages with focus on non-federated integration approaches versus federated approach and evaluation of environmental factors for terminal installation.											
FY 2020 Plans: Funds moved to BPAC 671810											
FY 2019 to FY 2020 Increase/Decrease Statement: Funds moved to BPAC 671810											
Accomplishments/Planned Programs Subtotals									5.529	30.977	2.878
							FY 2018	FY 2019			
Congressional Add: Bomber Tactical Data Link - Congressional Add							-	1.450			
FY 2019 Plans: Continue EMD phase to include unique software programming, and continued developmental and operational testing.											
Congressional Adds Subtotals							-	1.450			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 05 Line Item B05200: BP11 Production	-	-	15.925	-	15.925	30.214	24.917	25.372	-	0.000	96.428
• APAF 06 000999: Initial Spares	-	-	2.381	-	2.381	2.499	-	-	-	0.000	4.880
• RDTE 07 BPAC 671810: B-52 AEHF (not including Bomber Tactical Datalink)	-	13.449	0.000	-	0.000	2.500	2.500	2.500	20.766	Continuing	Continuing
Remarks											
FY19 is only year containing both Bomber Tactical Data Link and AEHF funding.											
D. Acquisition Strategy											
The Milestone Decision Authority (MDA) approved the 28 October 2016 decision of the B-52 Link-16 Acquisition Strategy Panel (ASP), which authorized the program to enter into the EMD phase with the Original Equipment Manufacturer (OEM). The program is required to return to the MDA for the production/deployment ASP following a successful Preliminary Design Review (PDR).											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675041 / Bomber Tactical Data Link

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.



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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Air Force</b>												<b>Date: February 2019</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons						<b>Project (Number/Name)</b> 675041 / Bomber Tactical Data Link			
<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Link 16 EMD - Wright Patt - BPAC 675041	SS/ Various	Boeing : Oklahoma City, OK	-	4.213	Feb 2018	9.409	Feb 2019	2.878	Nov 2019	-		2.878	Continuing	Continuing	-
<b>Subtotal</b>			-	4.213		9.409		2.878		-		2.878	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Trainers - Link 16 BPAC 675041	C/CPAF	Not specified. : TBD	-	-		4.039	Feb 2019	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	-		4.039		-		-		-	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Studies Link 16 BPAC 675041	C/CPAF	Not specified. : TBD	-	1.266	Feb 2018	1.447	Feb 2019	-		-		-	Continuing	Continuing	-
Test Link 16 BPAC 675041	C/CPAF	Not specified. : TBD	-	-		1.207	Feb 2019	-		-		-	Continuing	Continuing	-
Studies AEHF Development - BPAC 671810	C/CPAF	Not specified. : TBD	-	-		13.404	May 2019	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	1.266		16.058		-		-		-	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
A&AS, Travel, Centralized Support - Link 16 BPAC 675041	Various	Various : NV	-	0.050	Mar 2018	2.898	Mar 2019	-		-		-	Continuing	Continuing	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675041 / Bomber Tactical Data Link					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS, Travel, Centralized Support - AEHF BPAC 671810	Various	Various : TBD	-	-		0.023	Jan 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	0.050		2.921		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	5.529		32.427		2.878		-		2.878	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force																Date: February 2019			
Appropriation/Budget Activity								R-1 Program Element (Number/Name)								Project (Number/Name)			
3600 / 7								PE 0101113F / B-52 Squadrons								675041 / Bomber Tactical Data Link			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Bomber Tactical Data Link																												
EMD																												
Milestone C																												
Production and Install																												
IOC																												
FOC																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675041 / Bomber Tactical Data Link

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Bomber Tactical Data Link</i>				
EMD	4	2018	3	2020
Milestone C	4	2020	4	2020
Production and Install	4	2020	2	2024
IOC	4	2021	4	2021
FOC	2	2024	2	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675048: 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)	-	14.417	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.417
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

The MIL-STD-1760 Internal Weapons Bay Upgrade (IWBU) enables the integration of the 1760 weapons capability into the bomb bay on 78 B-52H aircraft (76 operational plus two (2) Ground Instructional Training Aircraft (GITA)), utilizing 44 Common Strategic Rotary Launchers (CSRLs) converted into Conventional Rotary Launchers (CRLs). Three of the CRLs were modified under EMD for test purposes.

The 1760 IWBU project is segmented into increments. Increment 1.0 provides internal and external carriage of JDAM, Laser-JDAM, JASSM, JASSM/ER, MALD, and MALD/J. It consists of two sub-increments 1.1 and 1.2. This requirement's CDD was validated by the Air Force Requirements Oversight Council (AFROC) in June 2013.

The 1760 IWBU Inc. 1.1 CDD was revalidated as a Capability Production Document (CPD) by the AFROC in February 2015; the 1760 IWBU Inc. 1.2 CPD was approved October 2018. Development efforts for Increment 1.1 were completed in November 2015 and Air Force Global Strike Command (AFGSC) declared Initial Operational Capability (IOC) in May 2016. AFGSC declared Full Operational Capability (FOC) in June 2018.

Increment 1.1 utilizes 44 CSRLs converted into CRLs, where three of the CRLs will be modified under EMD for test purposes.

Increment 1.2 converts 44 CRLs three of which will be modified under EMD and 76 operational B-52H aircraft plus two GITA.

Increment 1.2 develops the capability for internal carriage of eight Joint Air-to-Surface Standoff Missiles (JASSM) and its variants, to include JASSM Extended Range (JASSM-ER), and eight Miniature Air Launched Decoys (MALD) and its variants, to include MALD Jammer (MALD-J). This increment also develops the capability for external carriage for 12 JASSM-ER.

Increment 1.2 completed Preliminary Design Review (PDR) in October 2015. Critical Design Review (CDR) was conducted in March 2016. Milestone B approval was granted in April 2016. An Integrated Baseline Review (IBR) was conducted in May 2016, validating cost and schedule baselines. Long Lead parts approval was granted in October 2016, estimated award August 2018. In addition, a change from Low Rate Initial Production (LRIP)/Full Rate Production (FRP) to an FRP-only strategy with 2 lot buys was approved in October 2016. Lot I/II Approval was granted after the Milestone C Decision, November 2018.

Upon completion of JASSM/ER software development, an interim capability provided for carriage and deployment of no less than 20 JASSM/ER [8 bay (power 4), 12 external] is planned. A combined DT/OT validated this capability in advance of 1.2 Full System validation, and Required Assets Available (RAA) was declared September 2017. AFGSC declared 1.2 Interim Fielding Authorization October 2017.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)

Aircraft Hardware Development: Development of Group A wiring and circuit breakers to supply additional power to the CRL per JASSM-ER requirements (for all 76 operational B-52H aircraft) and two GITA.

Software Development consists of a modification to existing aircraft SMO and weapon (JASSM and MALD) OFP software to allow for internal and external carriage and modification to ground-based Joint Mission Planning System (JMPS).

CRL Hardware Development consists of developing Group A-associated interface hardware and two Group B LRUs (power supply and power distribution box). Two CRLs were modified for Interim and three CRLs were modified for 1.2 Full system using RDT&E funds.

Support Equipment consists of developing software updates to the existing MUSTANG to interface with the CRL and the development of additional ground handling support equipment, maintenance stands.

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 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>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> 1760 IWBU Inc 1.2	14.417	-	-
<b>Description:</b> Provides internal J-series weapons capability through modification of CRLs with aircraft hardware modifications and upgraded weapon management software. Upon completion of JASSM software coding and 1.2 Interim hardware design completion, but prior to Inc. 1.2 Full 1760 hardware design completion, an interim JASSM/ER capability will be validated thru DT/OT in FY17.			
<b>Accomplishments/Planned Programs Subtotals</b>	14.417	-	-

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF 05 Line Item B05200: <i>BP11 Production</i>	30.303	24.176	-	-	-	-	-	0.001	0.002	0.000	54.482
• APAF 06 000999: <i>Initial Spares</i>	0.814	0.174	-	-	-	-	-	-	-	0.000	0.988

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019	
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2020</u>	<u>FY 2020</u>	<u>FY 2020</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Complete</u>	<u>Total Cost</u>
• APAF 07 Line Item B05200: Depot Activation	-	0.981	-	-	-	-	-	-	-	0.000	0.981
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
<p>The 1760 IWBU Increment 1.1 project will acquire software development and hardware design via a sole source contract to Boeing Defense, Space &amp; Security (DSS) in Oklahoma City, OK. Deliverables include updated J-series weapon SMOs (software), three prototype modified CSRLs, six LRIP assets, logistics support, ground and flight test support, and engineering drawings. The Increment 1.1 program procured the CRL modification kits via sole source to Boeing DSS, OKC for LRIP and Full Rate Production (FRP), LRIP Installations, and FRP. Installs of the kits were completed via Contract Field Team (CFT).</p> <p>Increment 1.2 Program has a sole source EMD contract to Boeing Defense, Space &amp; Security (DSS) in Oklahoma City, OK. Deliverables include updated JASSM and MALD weapon SMOs (software), three prototype modified CRLs, logistics support, ground and flight test support, and engineering drawings. Upon completion of JASSM/ER OFP and SMO software coding, an interim capability of no less than 20 JASSM/ER [8 bay (power 4), 12 external] was validated thru DT/OT in FY17. The 1760 IWBU Inc. 1.2 Full capability lifted the Inc. 1.2 Interim power restriction to allow for power of 8 JASSMs in the bay and integrate 8 MALD into the bay. The Increment 1.2 program will procure the CRL modification and aircraft kits for full rate production via sole source to Boeing DSS, OKC. The installs of the kits are planned to be completed via CFTs and PDM.</p>											
<b>E. Performance Metrics</b>											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
1.2 1760 IWBU Production Development	SS/CPAF	Boeing : OKC, OK	-	3.000	Mar 2019	-		-		-		-	0.000	3.000	-
1.2 1760 IWBU JASSM OFF	SS/FFP	Lockheed : Orlando, FL	-	1.853	Jan 2019	-		-		-		-	0.000	1.853	-
Subtotal			-	4.853		-		-		-		-	0.000	4.853	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
1.2 1760 IWBU Government Test	PO	419 FLTS : Edwards AFB, CA	-	3.142	Jan 2019	-		-		-		-	0.000	3.142	-
1.2 1760 IWBU Trainer Software	Allot	AFLCMC : Wright Patterson AFB, OH	-	2.094	Sep 2018	-		-		-		-	0.000	2.094	-
1.2 1760 IWBU JASSM Test Assets	SS/FFP	Lockheed : Orlando, FL	-	3.272	Jan 2019	-		-		-		-	0.000	3.272	-
Subtotal			-	8.508		-		-		-		-	0.000	8.508	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
1.2 1760 IWBU Program Management Administration, A&AS, Travel	C/CPAF	AFLCMC : Tinker AFB, OK	-	1.056	Sep 2018	-		-		-		-	0.000	1.056	-
Subtotal			-	1.056		-		-		-		-	0.000	1.056	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	14.417		0.000		-		-		-	0.000	14.417	N/A



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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force							Date: February 2019		
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons			Project (Number/Name) 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Remarks									

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force			<b>Date:</b> February 2019		
<b>Appropriation/Budget Activity</b> 3600 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons			<b>Project (Number/Name)</b> 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b>1760 Internal Weapons Bay Upgrade</b>																												
1760 IWBU Inc. 1.2 EMD (Began 2Q16)																												
1760 IWBU Inc. 1.2 Milestone C (Nov 18)																												
1760 IWBU Inc. 1.2 Production and Installations																												
1760 IWBU Inc. 1.2 RAA (Dec 19)																												
1760 IWBU Inc. 1.2 FOC (Mar 21)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675048 / <i>1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>1760 Internal Weapons Bay Upgrade</i></b>				
1760 IWBU Inc. 1.2 EMD (Began 2Q16)	1	2018	1	2019
1760 IWBU Inc. 1.2 Milestone C (Nov 18)	1	2019	1	2019
1760 IWBU Inc. 1.2 Production and Installations	1	2019	2	2021
1760 IWBU Inc. 1.2 RAA (Dec 19)	1	2020	1	2020
1760 IWBU Inc. 1.2 FOC (Mar 21)	2	2021	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675050 / CONECT			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675050: CONECT	-	4.989	11.138	0.001	0.000	0.001	0.000	0.003	0.002	0.000	0.000	16.133
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The B-52 Combat Network Communications Technology (CONNECT) acquisition project supports nuclear and conventional operations by upgrading the B-52 fleet with data and voice communications capabilities, along with improved threat and situational awareness to support participation in net-centric operations. The CONNECT upgrade includes the following: new MFCDs, a digital interphone system, on-board client/server architecture supporting distributed processing with independent control functions, an Ultra High Frequency (UHF) Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability Intelligence Broadcast Receiver (IBR), limited Internet Protocol (IP)-based UHF BLOS link supporting voice, e-mail and file transfers, and an Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink.

As the CONNECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to IBR, JRE messages, crypto modernization, etc.) and aircraft upgrades (1760 IWBUs, Mode S/Mode 5 Identification, IFF, etc.) may require study for potential impacts to CONNECT. In order to maintain currency with the latest aircraft configuration, the CONNECT project will update existing trainers (using stimulate/simulate/computer-based training or a mix) to add CONNECT functionality to meet user-training requirements, and update/maintain the SIL for the WSTs. In order to assist PDM during after-install checkout and Barksdale AFB and Minot AFB units with maintenance checkout and operational training, a CONNECT ground station is being developed.

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 address emerging and short-notice DMSMS issues. Funds may also be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> B-52 CONNECT	4.989	11.138	0.001
<b>Description:</b> Diminishing Manufacturing Source (DMS) redesign development and test effort. Continued engineering design of CONNECT capability into the B-52 training systems. Began incorporating changes required due to updates in Government Furnished Equipment (GFE) and crypto modernization requirements. Incorporated/integrated CONNECT with recurring updates of the B-52 software baseline. As the CONNECT upgrade brings additional capability to the B-52, emerging communication and security requirements (upgrades to the IBR, JRE messages, crypto modernization, etc.) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 IFF, etc.) may require study for potential impacts to CONNECT. CONNECT will update the existing trainers and/or use computer-based training to add CONNECT functionality to meet user-training requirements, and update/			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675050 / CONECT				
B. Accomplishments/Planned Programs (\$ in Millions)										FY 2018	FY 2019	FY 2020
maintain the System Integration Lab (SIL) and for the WST. A CONECT ground station, is required in order to assist PDM during after-install checkout, and provide Barksdale/Minot units with maintenance checkout and operational training capability.												
<b>FY 2019 Plans:</b> Continue Diminishing Manufacturing Source (DMS) redesign development and test effort. Continue the engineering to assist PDM during after-install checkout, and provide Barksdale/Minot units with maintenance checkout and operational training capability. CONECT will continue the development/update of the existing trainers, by simulation/computer-based training or a mix, to add CONECT functionality to meet user-training requirements, ground stations and update/maintain the SIL for the Weapon System Trainer (WST).												
<b>FY 2020 Plans:</b> FY19 last year of funding												
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decreased due to program development ending in FY19.												
Accomplishments/Planned Programs Subtotals										4.989	11.138	0.001
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• APAF 05 Line Item B05200: BP11 Production	63.411	55.444	13.567	-	13.567	22.261	10.569	5.678	-	0.000	170.930	
• APAF 06 000999: Initial Spares	4.009	-	-	-	-	-	-	-	-	0.000	4.009	
• APAF 07 Line Item B05200: Post Production Support	0.199	12.819	4.641	-	4.641	5.550	5.662	5.765	-	0.000	34.636	
Remarks												
D. Acquisition Strategy												
The B-52 CONECT EMD prime contract is a sole source to Boeing Defense, Space & Security (DSS) in Oklahoma City, OK. Boeing DSS designs, develops, tests and procures necessary equipment from their subcontractors; developed engineering drawings, logistic and technical data. Advanced Training Consulting is the current contractor for the trainer update to integrate CONECT into the existing trainers.												
E. Performance Metrics												
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675050 / CONECT					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AFTRS R3 Integration	SS/CPAF	The Boeing Company : Oklahoma City, OK	-	0.005	Oct 2017	1.000	Dec 2018	0.001	Dec 2019	-		0.001	0.000	1.006	-
CONECT Weapon Sys Trainer Update	C/Various	Aviation Training Consultants LLC : Edmond, OK	-	4.984	May 2018	6.500	Feb 2019	-		-		-	0.000	11.484	-
Subtotal			-	4.989		7.500		0.001		-		0.001	0.000	12.490	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Support	Various	Not specified. : NV	-	-		1.138	Apr 2019	-		-		-	0.000	1.138	-
Subtotal			-	-		1.138		-		-		-	0.000	1.138	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
EMD Test Jet to FRP Configuration	C/CPAF	Not specified. : TBD	-	-		2.500	Dec 2018	-		-		-	0.000	2.500	-
Subtotal			-	-		2.500		-		-		-	0.000	2.500	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.989		11.138		0.001		-		0.001	0.000	16.128	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675050 / <i>CONNECT</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b>CONNECT</b>																												
Weapon System Trainer (WST) Upgrade																												
WST System Integration Lab (SIL) Development																												
System Integration Lab Relocation																												
Offensive Station Mission Trainer (OSMT) Development																												
Production and Installation																												
FOC																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675050 / <i>CONNECT</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>CONNECT</b>				
Weapon System Trainer (WST) Upgrade	1	2018	4	2019
WST System Integration Lab (SIL) Development	1	2018	1	2019
System Integration Lab Relocation	1	2018	4	2019
Offensive Station Mission Trainer (OSMT) Development	2	2018	4	2019
Production and Installation	1	2018	3	2021
FOC	3	2021	3	2021



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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675055: GPS-IU	-	15.223	37.030	1.985	0.000	1.985	0.000	0.000	0.000	0.000	0.000	54.238
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

The GPS IU Upgrade program will provide increased throughput and memory capacity by replacing the current processor, static memory, and necessary associated electronics with a newer processor, more memory, and sustainable electronic packages. This program will replace six Circuit Card Assemblies (CCA) which include combining three Circuit Cards into one Input/Output (I/O) CCA. The Backplane and Motherboard will require an upgrade to integrate the new CCAs: the Central Processing Unit / 1553, the power supply CCA, and the video graphics cards. The Input/Output CCA will combine the Discrete Inputs Analog, Audio Video (DAAV), Discrete Outputs (DOA) and Serial Busses functionality. This upgrade will improve system reliability and address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues on subcomponents of the IU.

In addition the new GPS IU will retain the existing functions and interfaces of the legacy GPS IU, and provide additional interfaces to allow for future growth requirements: Which include two Ethernet Ports and two connectors on face-plate for future growth.

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% throughput capacity and at 90% memory capacity, it is projected to exceed the designated safety threshold of 95% memory load by 2018. The GPS IU is also facing parts obsolescence issues. Studies show that the current spares will be exhausted by 2018. The upgrade will improve system reliability and address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues on subcomponents of the 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.

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.

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

Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill 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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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force								<b>Date:</b> February 2019			
<b>Appropriation/Budget Activity</b> 3600 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>				<b>Project (Number/Name)</b> 675055 / <i>GPS-IU</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	
<b>Title:</b> Global Positioning System (GPS) Interface Unit (IU) <b>Description:</b> Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace six circuit card assemblies in the GPS IU, the backplane, and the chassis.  <b>FY 2019 Plans:</b> Continue EMD and complete CDR.  <b>FY 2020 Plans:</b> Development/Operational Flight test, Configuration Control Board, and Technology Readiness Review  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding decrease due to ramp down and completion of EMD								15.223	37.030	1.985	
<b>Accomplishments/Planned Programs Subtotals</b>								15.223	37.030	1.985	
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 06 Line Item	-	-	11.097	-	11.097	23.904	22.359	0.000	-	0.000	57.360
<i>B05200: BP11 Production</i>											
• APAF 06 000999: <i>Initial Spares</i>	-	-	-	-	-	-	8.060	1.546	-	0.000	9.606
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
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. Development will continue in the EMD phase via a sole source contract to Boeing DSS, OKC, awarded Aug 2018. Deliverables include software, eight modernized prototypes, logistics support, ground and flight test support, and engineering drawings. MS B approved June 2018.											
<b>E. Performance Metrics</b>											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675055 / GPS-IU					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
GPS-IU TMRR	SS/ Various	Boeing : Oklahoma City, OK	-	7.000	Dec 2017	-		-		-		-	0.000	7.000	-
GPS-IU EMD Contract	SS/ Various	Boeing : Oklahoma City, OK	-	7.769	Jun 2018	36.770	Apr 2019	1.985	Oct 2019	-		1.985	0.000	46.524	-
Subtotal			-	14.769		36.770		1.985		-		1.985	0.000	53.524	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA, Contractor Support, Travel	Various	Various : NV	-	0.454	Jan 2018	0.260	Oct 2018	-		-		-	0.000	0.714	-
Subtotal			-	0.454		0.260		-		-		-	0.000	0.714	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	15.223		37.030		1.985		-		1.985	0.000	54.238	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675055 / <i>GPS-IU</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b>GPS-IU</b>																												
TMRR Phase II																												
MS B (June 2018)																												
EMD																												
DT/OT																												
MS C																												
Production & Installs																												
FOC																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675055 / <i>GPS-IU</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>GPS-IU</i></b>				
TMRR Phase II	1	2018	3	2018
MS B (June 2018)	3	2018	3	2018
EMD	4	2018	1	2021
DT/OT	2	2020	3	2020
MS C	1	2021	1	2021
Production & Installs	1	2021	3	2022
FOC	3	2022	3	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675056: B-52 Radar Modernization Program (RMP)	-	13.954	56.864	109.278	0.000	109.278	169.000	187.734	177.356	111.204	Continuing	Continuing
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 and up to 14 individual LRUs that comprise the entire radar system. Development, production and installation of new components and systems to replace the legacy equipment; to be installed on all 76 B-52H aircraft. 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. This Radar Modernization Program 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 upgrade will affect all three Weapon System Trainers (WST), the WST Training Systems Integration Laboratory (SIL), and both B-52 Offensive Station Maintenance Trainers (OSMT). As the RMP upgrade brings additional capability to the B-52, emerging security/certification requirements (nuclear certification, cyber security, program protection, crypto modernization, etc.), increased radar integration (advanced targeting pod, mission planning, open mission systems considerations, crew vehicle interfaces and Electronic Warfare System), as well as other aircraft upgrades (e.g., Link 16, EHF, 1760 IWBU, Mode S/Mode 5, IFF, GPS/INS, BSB, Re-Engine, EWS, etc.) may impact the RMP. Funds may be used to address emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issues. DMS efforts to include removal of end-of-life/obsolete software/hardware within the weapons system and simulators systems enabling a 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 may also be required. Additionally, funds may be used to resolve emerging safety of flight, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and nuclear/conventional mission effectiveness.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> Radar Modernization Program	13.954	56.864	109.278
<b>Description:</b> 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.			
<b>FY 2019 Plans:</b>			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020
Continue requirements development/decomposition, acquisition planning, risk reduction efforts, and complete an OEM radar supplier selection/award plus other OEM Group B subcontractor selections.												
FY 2020 Plans: Continue integration/technical design with OEM and subcontractors, leading to completion of a weapons system level Preliminary Design Review (PDR). Additionally, procure initial System Integration Laboratory (SIL) Kits and complete Milestone B and award EMD contract in 4QFY20.												
FY 2019 to FY 2020 Increase/Decrease Statement: Funding increased due to ramp up in OEM and subcontractors Pre-EMD activities through Preliminary Design Review with continued risk reduction efforts. Additionally, completion of MS B and initial SIL kits buy.												
Accomplishments/Planned Programs Subtotals										13.954	56.864	109.278
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• APAF 05 LineItem B05200: BP11 Production	-	-	0.009	-	0.009	0.000	12.861	69.114	193.655	Continuing	Continuing	
• APAF 07 Line Item B05200: Post Production Support	-	-	-	-	-	0.098	0.100	0.102	0.104	Continuing	Continuing	
• APAF 06 000999: Initial Spares	-	-	0.118	-	0.118	0.197	0.200	0.204	0.208	Continuing	Continuing	
Remarks												
D. Acquisition Strategy												
The Milestone Decision Authority was presented the B-52 RMP Acquisition Strategy (AS) on 19 Jan 2018 and signed/approved the AS on 13 Mar 2018. The MDA approved release of an RFP to the OEM to conduct radar selection, continue ongoing contract work with OEM as aircraft integrator, and continue ongoing acquisition planning and risk reduction activities.												
E. Performance Metrics												
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.												

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Air Force</b>												<b>Date:</b> February 2019			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons						<b>Project (Number/Name)</b> 675056 / B-52 Radar Modernization Program (RMP)			
<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Risk Reduction	TBD	Not specified. : NV	-	12.226	Dec 2017	52.736	Jul 2019	98.723	Jan 2020	-		98.723	Continuing	Continuing	-
<b>Subtotal</b>			-	12.226		52.736		98.723		-		98.723	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Cyber Security Support	C/CPAF	Not specified. : TBD	-	-		0.732	Dec 2018	-		-		-	Continuing	Continuing	-
<b>Subtotal</b>			-	-		0.732		-		-		-	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test RMP BPAC 675056	C/CPAF	Not specified. : TBD	-	-		0.276	Dec 2018	0.300	Jan 2020	-		0.300	Continuing	Continuing	-
Studies RMP Development	C/CPAF	Not specified. : TBD	-	-		1.966	Dec 2018	2.050	Jan 2020	-		2.050	Continuing	Continuing	-
<b>Subtotal</b>			-	-		2.242		2.350		-		2.350	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Management Support, A&AS, PMA	Various	Not specified. : NV	-	1.728	Jan 2018	1.154	Aug 2019	8.205	Dec 2019	-		8.205	Continuing	Continuing	-
<b>Subtotal</b>			-	1.728		1.154		8.205		-		8.205	Continuing	Continuing	N/A
			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	13.954		56.864		109.278		-		109.278	Continuing	Continuing	N/A



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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force							Date: February 2019			
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)				
	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract	
Remarks										

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force												Date: February 2019			
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b>Radar Modernization Program</b>																												
Acquisition Planning																												
Risk Reduction																												
Development Request for Proposal Release																												
MS B																												
EMD																												
MS C																												
Production																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675056 / <i>B-52 Radar Modernization Program (RMP)</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Radar Modernization Program</i></b>				
Acquisition Planning	1	2018	1	2018
Risk Reduction	1	2018	4	2020
Development Request for Proposal Release	3	2019	3	2019
MS B	4	2020	4	2020
EMD	4	2020	4	2024
MS C	2	2024	2	2024
Production	2	2024	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675057: B-52 Low Cost Improvement (LCI)	-	0.105	2.605	2.607	0.000	2.607	2.605	2.660	2.710	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This program will include projects to facilitate future B-52 capabilities. Scope of work may involve, but is not limited to, Avionics, Navigation, Situational Awareness (SA) and Defensive Systems. Additionally, develop and integrate emerging technologies for specialized B-52 missions to include Intelligence Surveillance and Reconnaissance (ISR), Targeting and Weapons. Continuing work related to the Mission Data Recorder to make the T-1 modification a Permanent Modification to the platform. 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, 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 FAA (or other) mandates necessary to ensure continued aircrew safety and mission effectiveness.

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

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> B-52 Low Cost Improvements	0.105	2.605	2.607
<b>Description:</b> 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.			
<b>FY 2019 Plans:</b> 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. Perform work necessary to make the Mission Data Recorder a permanent modification on the platform.			
<b>FY 2020 Plans:</b> 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			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675057 / B-52 Low Cost Improvement (LCI)				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b> projects of the technology in a relevant environment. Perform work necessary to make the Mission Data Recorder a permanent modification on the platform.  <b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> N/A										FY 2018	FY 2019	FY 2020
Accomplishments/Planned Programs Subtotals										0.105	2.605	2.607
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• APAF 05 Line item B05200: BP11 Production	2.378	2.362	2.412	-	2.412	2.461	2.511	2.557	2.603	Continuing	Continuing	
<b>Remarks</b>  <b>D. Acquisition Strategy</b> Studies and Analyses will be conducted by various AFLCMC organizations and AFGSC. Additionally, the OEM will perform work necessary to make the Mission Data Recorder a permanent modification.												
<b>E. Performance Metrics</b> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.												

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
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)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies and analyses to develop and integrate emerging technologies for the B-52	C/Various	TBD : NV	-	0.105	Feb 2018	2.605	Jan 2019	2.607	Jan 2020	-		2.607	Continuing	Continuing	-
Subtotal			-	0.105		2.605		2.607		-		2.607	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.105		2.605		2.607		-		2.607	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 7										PE 0101113F / B-52 Squadrons									
										Project (Number/Name)									
										675057 / B-52 Low Cost Improvement (LCI)									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Low Cost Improvements																												
Low Cost Improvements Studies and Analyses																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
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)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Low Cost Improvements				
Low Cost Improvements Studies and Analyses	2	2018	4	2024



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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675058: B-52 Weapon Sys Trainer Air Ref Training Upgrade	-	17.472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	17.472
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2020, Project 675058, B-52 Weapon Sys Trainer Air Ref Training Upgrade was terminated.

**A. Mission Description and Budget Item Justification**

The principal mission of the B-52 Training Systems program is to ensure high fidelity simulators and training systems are available for aircrew members to support credible training, maintain proficiencies, and increase skill levels. B-52 Aircrew Training Devices simulates the necessary visual, motion, and audible cues to provide ground training of Air Force Global Strike Command aircrew members. The B-52 Weapon System Trainer (WST) Air Refueling Upgrade is a comprehensive project that will allow B-52 Aircrew to accomplish credible air refueling training in the simulator, which minimizes the requirement for on-aircraft air refueling training. To facilitate this capability, scope of work may involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) or any other Analysis or paperwork necessary to establish a program of record. Funds may be used to address emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issues. DMSMS 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)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> B-52 Weapons Systems Trainer Air Refueling Training Upgrade	17.472	0.000	0.000
<b>Description:</b> Upgrade allows pilots to conduct effective air refueling training in a simulator; mitigates tanker availability shortfalls for training.			
<b>FY 2019 Plans:</b> Program terminated.			
<b>FY 2020 Plans:</b> Funding removed in FY19 and beyond. Will revisit trainer upgrade following RMP and CERP installations.			
<b>Accomplishments/Planned Programs Subtotals</b>	17.472	0.000	0.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675058 / <i>B-52 Weapon Sys Trainer Air Ref Training Upgrade</i>	

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line item B05200: <i>BP11 Production</i>	1.608	-	-	-	-	-	-	-	-	0.000	1.608

**Remarks**

**D. Acquisition Strategy**

The B-52 Training Systems Contract will be utilized for Weapon System Trainer Air Refueling contracting actions.

**E. Performance Metrics**

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2020 Air Force												<b>Date:</b> February 2019		
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons				<b>Project (Number/Name)</b> 675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade				

  

<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>		<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Weapon System Trainer Air Refueling Training Upgrade	TBD	TBD : NV	-	17.472	Feb 2018	-		-		-		-		0.000	17.472	-
<b>Subtotal</b>			-	17.472		-		-		-		-		0.000	17.472	N/A

  

	<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>		<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	17.472		0.000		-		-		-		0.000	17.472	N/A

  

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons					Project (Number/Name) 675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Weapon System Trainer																												
Master Flight Test Plan																												
Data Collection/Compilation																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675058 / <i>B-52 Weapon Sys Trainer Air Ref Training Upgrade</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Weapon System Trainer</i></b>				
Master Flight Test Plan	3	2018	2	2019
Data Collection/Compilation	3	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675129: B-52 CERP	-	9.495	61.915	175.359	0.000	175.359	300.063	328.016	321.348	269.900	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

B-52 CERP is a Middle Tier Section 804 program and not an MDAP.

**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 (AF 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 studies be performed during the program to determine optimal engine installation and deployment options.

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 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)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> B-52 CERP	9.495	61.915	175.359

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019	
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675129 / <i>B-52 CERP</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2018</b>	<b>FY 2019</b>
<p><b>Description:</b> 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.</p> <p><b>FY 2019 Plans:</b> Complete System Requirements and Acquisition Planning phase, Engine Source Selection, preliminary design with the integrator, and begin Rapid Prototyping Phase.</p> <p><b>FY 2020 Plans:</b> Continue Rapid Prototyping phase with selected engine vendor and Boeing as the integrator.</p> <p><b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Funding increased due to entry into Rapid Prototyping phase with selection of engine vendor and sole source integration contract with Boeing.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		9.495	61.915
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
Ongoing risk reduction activities with Original Equipment Manufacturer. Materiel Development Decision approved in May 2018. Acquisition strategy and FY16 NDAA Section 804 authority approved Sept 2018.			
<b>E. Performance Metrics</b>			
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 675129 / B-52 CERP					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Improvements Studies and Analysis	SS/ Various	The Boeing Co : Oklahoma City, OK	-	9.495	Jun 2018	-		-		-		-	Continuing	Continuing	-
Risk Reduction, Acquisition Planning, preliminary integration design and Engine Source Selection System Performance Requirements decomposition, Begin Rapid prototyping	SS/CPFF	The Boeing Co : Oklahoma City, OK	-	-		36.915	Apr 2019	169.359	Feb 2020	-		169.359	Continuing	Continuing	-
Integration Risk Analysis via Other Transaction	C/FFP	SOSSEC Consortium : Atkinson, NH	-	-		20.000	Jan 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	9.495		56.915		169.359		-		169.359	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Administration, Centralized Support, A&AS support, TDY	Various	EPASS Contract for A&AS : WPAFB, OH	-	-		5.000	Nov 2018	6.000	Oct 2019	-		6.000	Continuing	Continuing	-
Subtotal			-	-		5.000		6.000		-		6.000	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	9.495		61.915		175.359		-		175.359	Continuing	Continuing	N/A
Remarks															



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675129 / <i>B-52 CERP</i>
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b><i>B-52 CERP</i></b>																												
MDD																												
System Requirement Phase																												
Acquisition Strategy Panel																												
Prototype Development Phase 1																												
Prototype Development Phase 2																												
Virtual Power Pod Prototype																												
Virtual System Prototype																												
Physical System Prototype 1																												
Physical System Prototype 2																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force			<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675129 / <i>B-52 CERP</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>B-52 CERP</i></b>				
MDD	3	2018	3	2018
System Requirement Phase	4	2018	4	2019
Acquisition Strategy Panel	4	2018	4	2018
Prototype Development Phase 1	1	2020	4	2020
Prototype Development Phase 2	1	2021	4	2024
Virtual Power Pod Prototype	3	2019	3	2019
Virtual System Prototype	4	2020	4	2020
Physical System Prototype 1	3	2023	3	2023
Physical System Prototype 2	1	2024	1	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
675160: B-52 Crypto Modernization	-	13.756	12.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
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 BLOS voice and data communications capability.												
Funds may be used to address emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issues.												
Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill 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 2018	FY 2019	FY 2020	
Title: B-52 Crypto Modernization									13.756	0.000	0.000	
Description: Upgrades aircraft with MUOS capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability.												
FY 2019 Plans: Funded through congressional add.												
FY 2020 Plans: No funding.												
FY 2019 to FY 2020 Increase/Decrease Statement: No increase												
Accomplishments/Planned Programs Subtotals									13.756	0.000	0.000	
							FY 2018	FY 2019				
Congressional Add: B-52 Crypto Modernization Congressional Add							-	12.000				

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons	Project (Number/Name) 675160 / B-52 Crypto Modernization	

	FY 2018	FY 2019
<b>FY 2019 Plans:</b> Continue EMD efforts. Complete preliminary design reviews, s/w lab test, and prepare for FY20 flight testing.		
<b>Congressional Adds Subtotals</b>	-	12.000

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

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APAF 05 Line item B05200: BP11 Production	-	-	17.722	-	17.722	21.059	12.188	2.500	-	0.000	53.469

## Remarks

Combined Acquisition Strategy (AS) and AS Panel conducted Dec 2017 and approved Jan 2018. Initial POE submitted / approved Apr 2018. EMD contract awarded Dec 2018

## D. Acquisition Strategy

EMD - Expecting via a contract with the OEM (Boeing, Oklahoma City).  
Group A Kit (wiring / kitting / receiver) - Execute using Small Business non-competitive 8a  
Group B Kit (ARC-210 Radios and ancillaries) - MIPR to Navy PMA 209  
Installation - Executed via Contract Field Team (CFT) competitive contract

## E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2020 Air Force</b>												<b>Date: February 2019</b>			
<b>Appropriation/Budget Activity</b> 3600 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons						<b>Project (Number/Name)</b> 675160 / B-52 Crypto Modernization			
<b>Product Development (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Crypto Modernization development and integration activities	SS/CPIF	OEM : OKC, OK	-	12.937	Sep 2018	11.530	Aug 2019	-		-		-	0.000	24.467	-
<b>Subtotal</b>			-	12.937		11.530		-		-		-	0.000	24.467	N/A
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Initiate Test Requirements and DT/OT planning	Various	Various : OK	-	0.349	Jan 2018	-		-		-		-	0.000	0.349	-
<b>Subtotal</b>			-	0.349		-		-		-		-	0.000	0.349	N/A
<b>Management Services (\$ in Millions)</b>				<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Costs for Program Management Administration and Travel	Various	Various : OK	-	0.470	Jan 2018	0.470	Jan 2019	-		-		-	0.000	0.940	-
<b>Subtotal</b>			-	0.470		0.470		-		-		-	0.000	0.940	N/A
			<b>Prior Years</b>	<b>FY 2018</b>		<b>FY 2019</b>		<b>FY 2020 Base</b>		<b>FY 2020 OCO</b>		<b>FY 2020 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	13.756		12.000		-		-		-	0.000	25.756	N/A
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2020 Air Force	<b>Date:</b> February 2019
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<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 Squadrons	<b>Project (Number/Name)</b> 675160 / B-52 Crypto Modernization
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	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
<b><i>Crypto Modernization</i></b>																												
MDD / AS Approved (Jan 2018)																												
Risk Reduction Activities																												
EMD																												
MS C																												
Production and Installation																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 675160 / <i>B-52 Crypto Modernization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Crypto Modernization</i></b>				
MDD / AS Approved (Jan 2018)	2	2018	2	2018
Risk Reduction Activities	2	2018	2	2019
EMD	2	2019	4	2021
MS C	4	2021	4	2021
Production and Installation	4	2021	3	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 676039 / B-52 Airspace Compliance			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
676039: B-52 Airspace Compliance	-	0.949	36.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	37.004
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2020, Project 676039, B-52 Airspace Compliance was terminated.

**A. Mission Description and Budget Item Justification**

B-52 Airspace Compliance - Communication, Navigation and Surveillance and Air Traffic Management (CNS/ATM) upgrades are required to comply with increasing FAA requirements. Automatic Dependent Surveillance-Broadcast (ADS-B)Out upgrades to meet FAA mandate. ADS-B Out will also comply with Public Law 111-383-Jan 7, 2011, which mandates procurement of any Global Positioning System (GPS) after FY2017 must be capable of receiving Military Code (M-Code).

Funds may be used to resolve emerging safety of flight and diminishing manufacturing sources issues, accommodate technology insertion and fulfill 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)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>
<b>Title:</b> B-52 Airspace Compliance	0.949	36.055	0.000
<b>Description:</b> Communication, Navigation and Surveillance and Air Traffic Management (CNS/ATM) upgrades are required to comply with increasing FAA requirements. Automatic Dependent Surveillance-Broadcast (ADS-B) upgrade to meet FAA mandate.			
<b>FY 2019 Plans:</b> Continue develop and refine requirements, initiate development activities supporting integration of Communication, Navigation and Surveillance and Air Traffic Management (CNS/ATM) upgrades and Automatic Dependent Surveillance-Broadcast (ADS-B) upgrades			
<b>FY 2020 Plans:</b> N/A			
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> Effort terminated			
<b>Accomplishments/Planned Programs Subtotals</b>	0.949	36.055	0.000



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 676039 / <i>B-52 Airspace Compliance</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b> FY19 funding realigned to Radar Modernization Program and Infrared Missile Warning System.  Combined Acquisition Strategy (AS) and AS Panel conducted in Dec 2017 and Approved Apr 2018.		
<b>D. Acquisition Strategy</b> EMD - Expected to execute via a contract with the OEM (Boeing, Oklahoma City). Group A Kit (wiring / kitting / receiver) - Execute using Small Business non-competitive 8a Group B Kit (APX-119 transponder) - MIPR through iGATM catalog Installation - Executed via Contract Field Team (CFT) competitive contract		
<b>E. Performance Metrics</b> Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 Squadrons				Project (Number/Name) 676039 / B-52 Airspace Compliance					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
B-52 Airspace Compliance	TBD	Not specified. : TBD	-	-		31.155		-		-		-	Continuing	Continuing	-
Subtotal			-	-		31.155		-		-		-	Continuing	Continuing	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	TBD	Not specified. : NV	-	0.949	Jun 2018	4.900	Apr 2019	-		-		-	Continuing	Continuing	-
Subtotal			-	0.949		4.900		-		-		-	Continuing	Continuing	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.949		36.055		-		-		-	Continuing	Continuing	N/A
Remarks															
Effort terminated in FY19. FY19 funding realigned to Radar Modernization Program.															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 7										PE 0101113F / B-52 Squadrons									
										Project (Number/Name)									
										676039 / B-52 Airspace Compliance									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Airspace compliance																												
EMD/RFP Release																												
EMD																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Air Force		<b>Date:</b> February 2019
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0101113F / <i>B-52 Squadrons</i>	<b>Project (Number/Name)</b> 676039 / <i>B-52 Airspace Compliance</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Airspace compliance</i></b>				
EMD/RFP Release	1	2019	2	2019
EMD	2	2019	4	2019

**Note**

Effort Terminated in FY19. Funding realigned to Radar Modernization Program and Infrared Missile Warning System.