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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	70.172	88.267	111.910	0.000	111.910	130.323	121.576	153.711	178.177	Continuing	Continuing
675039: B-52 System Improvements	-	3.290	0.051	0.050	0.000	0.050	0.000	0.000	0.000	0.000	Continuing	Continuing
675041: Bomber Tactical Data Link	-	0.000	7.525	8.167	0.000	8.167	5.581	0.000	0.000	0.000	Continuing	Continuing
675048: 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)	-	53.670	34.634	15.164	0.000	15.164	0.001	0.000	0.000	0.000	Continuing	Continuing
675050: CONECT	-	10.335	13.672	7.043	0.000	7.043	11.222	0.000	0.000	0.002	Continuing	Continuing
675055: GPS-IU	-	2.877	6.916	18.767	0.000	18.767	9.309	0.000	0.000	0.000	Continuing	Continuing
675056: B-52 Radar Modernization Program (RMP)	-	0.000	4.653	15.226	0.000	15.226	57.292	118.899	151.036	175.445	Continuing	Continuing
675057: B-52 Low Cost Improvement (LCI)	-	0.000	0.000	2.682	0.000	2.682	2.675	2.677	2.675	2.730	Continuing	Continuing
675058: B-52 Weapon Sys Trainer Air Ref Training Upgrade	-	0.000	4.875	13.240	0.000	13.240	7.917	0.000	0.000	0.000	Continuing	Continuing
675129: B-52 Re-Engining	-	0.000	10.000	10.000	0.000	10.000	0.000	0.000	0.000	0.000	Continuing	Continuing
675160: B-52 Crypto Modernization	-	0.000	5.941	11.919	0.000	11.919	0.000	0.000	0.000	0.000	Continuing	Continuing
676039: B-52 Airspace Compliance	-	0.000	0.000	9.652	0.000	9.652	36.326	0.000	0.000	0.000	Continuing	Continuing
<b>Note</b> This program, BA 07 PE 0101113F, project 676039, B-52 Airspace Compliance, is a new start.  In FY17 Bomber Tactical Data Link was a new start. In FY17 Radar Modernization Program was a new start. In FY17 B-52 Weapons Systems Trainer Air Refueling Training Upgrade was a new start. In FY17 B-52 Crypto Modernization was a new start.												

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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>		<b>R-1 Program Element (Number/Name)</b> PE 0101113F / B-52 SQUADRONS
<b>A. Mission Description and Budget Item Justification</b> <p>B-52 SYSTEM IMPROVEMENTS (BPAC 675039)            A comprehensive project to ensure B-52 viability to perform current and future wartime missions. B-52 System Improvements will facilitate future capabilities, scope of work may involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) or any other analysis or documentation necessary to establish a program of record. Additionally, this project may include airborne integration experiments or demonstrations of emerging technologies.</p> <p>Trainers and Upgrades for Systems Improvements.            In order to maintain currency with the latest aircraft configuration, the Systems Improvements project will update existing trainers or use computer-based training to add any new systems improvements functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p> <p>BOMBER TACTICAL DATA LINK (B-52 LINK 16) (BPAC 675041)            The B-52 Tactical Data Link (TDL) provides low latency, jam-resistant situation awareness and command and control 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 antenna, and the Group B terminal Line Replaceable Unit (LRU). The TDL terminal will be fully integrated with CONECT. This Line-Of-Sight (LOS) Link 16 capability allows the warfighter to maintain situational awareness, avoid threats and employ an array of weapons.</p> <p>Trainers and Upgrades for Bomber Tactical Data Link (TDL)            In order to maintain currency with the latest aircraft configuration, the TDL project will update existing trainers or use computer-based training to add TDL functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p> <p>B-52 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU) (BPAC 675048)            The 1760 IWBU integrates MIL-STD 1760 weapons capability into the bomb bay on 78 B-52H aircraft, which includes two Ground Instructional Training Aircraft (GITA), utilizing 44 Common Strategic Rotary Launcher (CSRLs) converted into Conventional Rotary Launchers (CRLs), where three of the CRLs will be modified under Engineering Manufacturing and Development (EMD) for test purposes. This requirement's Capability Development Document (CDD) was validated by the AFROCC in June 2013. The 1760 IWBU project provides internal and external carriage for eight MIL STD 1760 weapons and consists of two sub increments: 1.1 and 1.2.</p> <p>Trainers and Upgrades for 1760 IWBU            In order to maintain currency with the latest aircraft configuration, the 1760 IWBU project will update existing trainers or use computer-based training to add 1760 IWBU functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p> <p>B-52 COMBAT NETWORK COMMUNICATIONS TECHNOLOGY (CONECT) (BPAC 675050)            The B-52 CONECT acquisition project supports nuclear and conventional operations by upgrading the B-52 fleet with tactical datalink and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. The CONECT upgrade includes new Multi-Functional Color Displays (MFCDs) and a digital interphone system, which will survive and function through the nuclear environment to enhance crew interaction and</p>		

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<p>situational awareness. To enable net centric operations, the CONECT upgrade integrates: on-board client/server architecture supporting distributed processing with independent control functions; UHF Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability via ARC-210 Warrior radio to exchange J-Series messaging within theater; Intelligence Broadcast Receiver (IBR); limited Internet Protocol (IP) based UHF BLOS link supporting voice, e-mail and file transfers; and Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink to significantly enhance close air support (CAS) missions. This integrated suite will provide the B-52 fleet with a machine-to-machine data transfer capability supporting aircraft re-tasking and retargeting of Conventional Air Launched Cruise Missile (CALCM) and J-series weapons across the range of B-52 military operations and missions. This requirement's Capability Production Document (CPD) was validated by the Air Force Requirement's Oversight Council (AFROC) on 16 September 2008.</p>		
<p>Trainers and Upgrades for CONECT In order to maintain currency with the latest aircraft configuration, the CONECT project will update existing trainers or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p>		
<p>GPS-INTERFACE UNIT (GPS-IU) REPLACEMENT (BPAC 675055) Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace three circuit card assemblies (CCAs) in the GPS-IU, as well as the backplane (to integrate the new and old CCAs): the Central Processing Unit/1553, the power supply CCA, and the video graphics card.</p>		
<p>Trainers and Upgrades for GPS-Interface Unit In order to maintain currency with the latest aircraft configuration, the GPS-IU project will update existing trainers or use computer-based training to add GPS-IU functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p>		
<p>RADAR MODERNIZATION PROGRAM (BPAC 675056) Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. The APQ-166 is increasingly difficult to support due to diminished manufacturing sources and obsolescent technologies; the average reliability rate places long-duration missions at risk. This replacement program will encompass the radar antenna array and up to 14 individual LRUs that comprise the entire radar system. Development and production of new systems to replace the legacy equipment; to be installed on all 76 B-52H aircraft. Radar Modernization Program (RMP) will take advantage of advances in technology and on-going development efforts to acquire, to the maximum extent possible, off-the-shelf components and integrate them into the B-52. The use of new technology will increase reliability of the radar system and allows the operational command to fully utilize the capabilities of the B-52H aircraft to employ an array of weapons and to perform mission-essential navigation and weather avoidance functions.</p>		
<p>Trainers and Upgrades for Radar Modernization Program In order to maintain currency with the latest aircraft configuration, the Radar Modernization project will update existing trainers or use computer-based training to add Radar Modernization functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p>		
<p>LOW COST IMPROVEMENTS (BPAC 675057)</p>		

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<p>Project to facilitate future B-52 capabilities. Scope of work may involve, but is not limited to, Avionics, Navigation, Situational Awareness (SA), Weapons/Targeting Pod Integration, Communications, Flight Systems, Nuclear Systems, and Electronic Flight Bags. Additionally, develop and integrate emerging technologies for specialized B-52 missions to include Information 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.</p>		
<p>Trainers and Upgrades for Low Cost Improvements</p> <p>In order to maintain currency with the latest aircraft configuration, the Low Cost Improvements project will update existing trainers or use computer-based training to add Low Cost Improvements functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p>		
<p>WEAPON SYSTEMS TRAINER AIR REFUELING TRAINER UPGRADE (BPAC 675058)</p> <p>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 for 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 will involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) or any other Analysis or documentation necessary to establish a program of record.</p>		
<p>B-52 RE-ENGINEING (BPAC 675129)</p> <p>Funds will address emergency war-fighting readiness requirements. Funds will facilitate future capabilities by conducting B-52 modernization and sustainment risk reduction studies such as, but not limited to, studies on new engines, electrical, pneumatic, cart-start, wing flutter analysis, TF-33 (present engine) refurbishment (SLEP). It also includes program management support for the development and integration of future capabilities. To facilitate future capabilities, the scope of work may involve development of Analysis of Alternatives (AoA), studies and Analysis, Capability Development Documents (CDD) or any other analysis or paper work necessary to establish a program or record.</p>		
<p>Trainers and Upgrades for Re-Engining</p> <p>In order to maintain currency with the latest aircraft configuration, the Re-Engining project will update existing trainers or use computer-based training to add Re-Engining to meet user-training requirements, and update/maintain the SIL for the WSTs.</p>		
<p>B-52 CRYPTO MODERNIZATION (BPAC 675160)</p> <p>Upgrades aircraft with Mobile User Objective System (MUOS) capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability. As MUOS channels are turned on, existing satellites will be removed from service. B-52 CONECT is at risk of losing its File Transfer Protocol (FTP), email, Beyond Line of Site (BLOS) voice, and BLOS data link communications without this modernization effort.</p>		
<p>Trainers and Upgrades for Crypto Modernization</p>		

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<p>In order to maintain currency with the latest aircraft configuration, the Crypto Modernization project will update existing trainers or use computer-based training to add Crypto Modernization functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p> <p>B-52 AIRSPACE COMPLIANCE (BPAC 676039) 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 for FY20. GPS guidance unit requires upgrade to new military M-Code standard.</p> <p>Trainers and Upgrades for Airspace Compliance In order to maintain currency with the latest aircraft configuration, the Airspace Compliance project will update existing trainers or use computer-based training to add Airspace Compliance functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.</p> <p>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.</p> <p>Funds are included to accommodate the FAA mandate for ADS-B as outlined throughout previous AF and DoD budget exhibits.</p> <p>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.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.</p> <p>BA7- This project 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.</p>		

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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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	74.520	78.267	140.285	0.000	140.285
Current President's Budget	70.172	88.267	111.910	0.000	111.910
Total Adjustments	-4.348	10.000	-28.375	0.000	-28.375
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-1.761	0.000			
• SBIR/STTR Transfer	-2.587	0.000			
• Other Adjustments	0.000	10.000	-28.375	0.000	-28.375
Change Summary Explanation					
FY16: Reduction of \$2.587M to account for Small Business Innovative Research (SBIR)					
FY16: Reduction of \$1.761M to account for Higher AF Priorities					
FY17: Increase of \$10.000M consists of: Request for Additional Appropriations (RAA) in FY17 PB Amended, +\$10.000 RDT&E Project 675129 B-52 Re-Engining risk reduction studies and development of Analysis of Alternatives (AoA).					
FY18: Reduction of \$38.375M Radar Modernization Program; Increase of \$10.000M RDT&E Project 675129 B-52 Re-Engining risk reduction studies.					

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	3.290	0.051	0.050	0.000	0.050	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

B-52 System Improvements - A comprehensive project to ensure B-52 viability to perform current and future wartime missions. To facilitate future capabilities, scope of work may involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) or any other analysis or paper work necessary to establish a program of record. Additionally, this project may lead to airborne integration experiments or demonstrations of emerging technologies.

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.

B-52 System Improvements will encompass the following major aircraft areas but is not limited to the examples given within each area.

Avionics - Offensive and Defensive; Electronic Warfare systems require upgrades to continue to protect the aircraft in the battle space. Radar Modernization is required to ensure the aircraft can perform the mission in today's environment and resolve current mean time between repair issues with legacy radar. Global Positioning Satellite Interface Unit (GPS-IU) requires replacement due to throughput issues.

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) upgrade to meet FAA mandate for FY20. GPS guidance unit requires upgrade to new military M-Code standard.

Situational Awareness (SA) - upgrades to current SA systems is required to ensure the B-52 maintains battle space awareness of intelligence broadcasts, friendly force locations, enemy forces and any emerging threats within the Area of Responsibility (AOR). Adaptation of new data links as well as addition of existing links is crucial to the B-52 remaining relevant to the integrated airborne battle space.

Weapons/Targeting Pod Integration - Improves conventional warfare capability with additional MIL-STD-1760 smart weapons and improved weapons carriage and fully integrates advanced targeting pods with the offensive avionics system. Integrate emerging targeting pods to include optical and radar targeting capabilities.

Communications - current UHF communications systems require upgrades due to legacy radios and satellite systems rearing end of life. Multiple User Objective System (MUOS) satellite deployments will require the B-52 to upgrade legacy UHF radios to remain relevant. New technology Beyond line of Sight (BLOS) and Line of Sight (LOS) radios are emerging and required on the B-52 to ensure communications continue in the AOR. Extreme High Frequency (EHF) program required to meet Nuclear Command Authority two way communications.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017				
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675039 / B-52 System Improvements				
<p>Flight Systems - current Jet A fuel used freezes at higher temperatures than previous fuel and therefore requires the addition of an internal fuel tank monitoring system to ensure the fuel does not gel and freeze while flying at altitude. In addition, the B-52 requires a new Environmental Control System (ECS) upgrade to support any new major aircraft modifications. EHF studies have indicated this will be a needed modification for integration depending on the terminal selection.</p> <p>Nuclear Systems - studies, analyzes, and tests aircraft systems' hardness to Chemical, Biological, Radiological, and Nuclear (CBRN) weapons effects, such as Low Level Continuous Wave (LLCW) and High altitude Electromagnetic Pulse (HEMP) Survivability tests. It upgrades mission critical systems to survive in CBRN environments.</p> <p>Electronic Flight Bags - require a system for displaying aircrew checklists on a permanent display. This supports current AF requirements to reduce carry on paper checklists.</p> <p>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.</p> <p>Funds may be used to address emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issues.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.</p> <p>BA7- This project 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.</p>						
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: B-52 System Improvements		3.290	0.051	0.050	0.000	0.050
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 2016 Accomplishments: Conducted B-52 low-level continuous wave (LLCW) test planning on the B-52H. Actual testing will include active, passive, and direct drive testing of the airframe and subsystems to determine weapon system survivability in the event of an EMP.						
FY 2017 Plans:						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force				<b>Date:</b> May 2017	
<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> 675039 / B-52 System Improvements	

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
<p>Continue Analysis of Alternatives, modeling &amp; simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.</p> <p><b><i>FY 2018 Base Plans:</i></b> Continue Analysis of Alternatives, modeling &amp; simulation, testing, and demonstration, including but not limited to: Studies of existing and planned avionics, communications/navigation, electrical, weapons, flight, and nuclear-related aircraft systems and subsystems to support the future viability of the B-52 fleet.</p> <p><b><i>FY 2018 OCO Plans:</i></b> N/A</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	3.290	0.051	0.050	0.000	0.050

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b><u>Line Item</u></b>	<b><u>FY 2016</u></b>	<b><u>FY 2017</u></b>	<b><u>FY 2018 Base</u></b>	<b><u>FY 2018 OCO</u></b>	<b><u>FY 2018 Total</u></b>	<b><u>FY 2019</u></b>	<b><u>FY 2020</u></b>	<b><u>FY 2021</u></b>	<b><u>FY 2022</u></b>	<b><u>Cost To Complete</u></b>	<b><u>Total Cost</u></b>
• APAF: BA05: Line item # B05200: <i>Arms Control Implementation</i>	0.000	0.196	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.196
<b><u>Remarks</u></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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COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675041: Bomber Tactical Data Link	-	0.000	7.525	8.167	0.000	8.167	5.581	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note In FY17 Bomber Tactical Data Link was a new start.												
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 situation awareness and command and control 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 antenna, and the Group B terminal Line Replaceable Unit (LRU). 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 Diminishing Manufacturing and Material Shortage (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 IWB, Mode S/Mode 5, IFF, BSB updates, RMP, Re-Engining, etc) may require study/support for potential impact to the CONNECT and Link-16 system. Funds may be used for Engineering Development Models (EDMs), 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.  This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.  BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Bomber Tactical Data Link								0.000	7.525	8.167	-	8.167

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force									Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
<p><b>Description:</b> 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.</p> <p><b>FY 2016 Accomplishments:</b> N/A</p> <p><b>FY 2017 Plans:</b> Establish/stand up program office; conduct systems requirements development and refinement; enter Engineering Manufacturing and Development phase of program with contract award to OEM. Support MIDS/JTRS environmental qualification for B-52 specification, purchase terminals to support EMD, conduct SRR, PDR, CDR activities, etc.</p> <p><b>FY 2018 Base Plans:</b> Continue EMD phase, with subsequent Developmental and Operational testing.</p>											
Accomplishments/Planned Programs Subtotals							0.000	7.525	8.167	-	8.167
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA05: Line Item # B05200: B-52 Bomber Tactical Data Link (TDL)	0.000	0.000	0.000	0.000	0.000	8.860	19.748	26.772	18.128	0.000	73.472
• APAF: BA06: Line Item # 000999: Initial Spares/Repair Parts	0.000	0.000	0.000	0.000	0.000	1.119	2.400	2.520	0.000	0.00	6.039
Remarks											
D. Acquisition Strategy											
The Milestone Decision Authority (MDA) approved the B-52 Link-16 Acquisition Strategy Panel (ASP) on 28 October 2016 authorizing the program to enter into the Engineering and Manufacturing Development phase with the OEM. The program is required to return to the MDA for the production/deployment ASP following a successful preliminary design review.											

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force		<b>Date:</b> May 2017
<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> 675041 / <i>Bomber Tactical Data Link</i>

**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-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675048: 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)	-	53.670	34.634	15.164	0.000	15.164	0.001	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

MIL-STD-1760 Internal Weapons Bay Upgrade (IWBU) requires the integration of the 1760 weapons capability into the bomb bay on 78 B-52H aircraft. It includes two Ground Instructional Training Aircraft (GITA), utilizing 44 Common Strategic Rotary Launchers (CSRLs) converted into Conventional Rotary Launchers (CRLs), where three of the CRLs will be modified under Engineering Manufacturing and Development (EMD) for test purposes. The 1760 IWBU project is segmented into increments. Increment 1.0 provides internal and external carriage and consists of two sub increments 1.1 and 1.2. This requirement's Capability Development Document (CDD) was validated by the Air Force Requirements Oversight Council (AFROC) in June 2013. The 1760 Capability Production Document was validated by the AFROC in February 2015. Development efforts for Increment 1.1 were completed in November 2015 and Air Force Global Strike Command (AFGSC) declared Initial Operational Capability (IOC) May 2016.

**Increment 1.2**

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.

Upon completion of JASSM/ER software development, an interim capability providing for carriage and deployment of no less than 20 JASSM/ER (8 bay (power 4), 12 external) is planned. A combined DT/OT will validate this capability in advance of 1.2 Full System validation.

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 Ground Instructional Training Aircraft.

Software Development: Development 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 JMPS.

CRL Hardware Development: Develops Group A associated interface hardware and two Group B LRUs (power supply and power distribution box). One CRL will be modified for Interim and three CRLs will be modified for 1.2 Full using RDT&E funds.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force		<b>Date:</b> May 2017
<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)

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.

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 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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.

BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
<b>Title:</b> 1760 IWBU Inc 1.2	53.670	34.634	15.164	-	15.164
<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, but prior to full 1760 hardware design completion, an interim JASSM/ER capability will be validated thru DT/OT in FY17.					
<b>FY 2016 Accomplishments:</b> Continued Increment 1.2 development: Completed TMRR phase in support of Milestone B decision and awards Engineering and Manufacturing Development Option. Continued weapon software modification and provision remaining test assets. Continued SEEK EAGLE safe separation analysis. Conducted ground testing of JASSM SMO. Finalized test planning and technical orders in preparation for Interim JASSM/ER Capability validation. Initiate and conclude modification of one Interim prototype CRL.					
<b>FY 2017 Plans:</b> Continue Increment 1.2 development: Continue Engineering and Manufacturing Development phase in support of Milestone C decision. Continue weapon software modification and Developmental/Operational Test efforts. Continue SEEK EAGLE safe separation analysis. Continue test planning and technical orders in preparation					

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<b>Exhibit R-2A, RDT&amp;E Project Justification: FY 2018 Air Force</b>										<b>Date: May 2017</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> 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)				
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
for full 1.2 Capability validation. Initiate and conclude modification of one 1.2 Full prototype aircraft and CRL. Deliver interim JASSM-ER capability.												
<b>FY 2018 Base Plans:</b> Continue Increment 1.2 development: Continues Engineering and Manufacturing Development phase in support of Milestone C decision. Continue weapon software modification and Developmental/Operational Test efforts. Continue SEEK EAGLE safe separation analysis. Initiate and conclude modification of two prototype aircraft and two prototype CRLs. Finalize test planning and technical orders in preparation for full 1.2 Capability validation.												
<b>Accomplishments/Planned Programs Subtotals</b>								53.670	34.634	15.164	-	15.164
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• APAF: BA05: Line Item # B05200: 1760 Internal Weapons Bay Upgrade (IWBU)	13.171	3.691	26.934	0.000	26.934	24.375	0.000	0.000	0.000	0.00	69.424	
• APAF: BA06: Line Item # 000999: Initial Spares/Repair Parts	1.051	0.944	0.814	0.000	0.814	0.171	0.020	0.000	0.000	0.00	2.999	
• APAF: BA07: Line Item # B05200: Depot Activation	3.960	0.000	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.00	4.952	
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
The 1760 Internal Weapons Bay Upgrade project will acquire software development and hardware design via a sole-source contract to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Deliverables include an updated J-series weapon SMOs (software), three prototype modified CSRLs, six Low Rate Initial Production (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 will be completed via Contract Field Teams (CFTs).												
Increment 1.2 Program has a sole-source Engineering Manufacturing and Development contract to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. 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) will be validated thru DT/OT in FY17. The Increment 1.2 program plans to procure the CRL modification and aircraft kits for full rate production via sole source, and this was approved at a Delta Acquisition Strategy, October 2016. The installs of the kits are planned to be completed via CFTs and PDM (10 installations through PDM).												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force		<b>Date:</b> May 2017
<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>

**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: FY 2018 Air Force</b>												<b>Date: May 2017</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> 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			
<b>Product Development (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
1.2 1760 IWBU Production Development	Various	Boeing : OKC, OK	-	40.293	Jan 2016	8.215	Feb 2017	6.265	Nov 2018	0.000		6.265	Continuing	Continuing	-
1.2 1760 IWBU MALD OFP	SS/FFP	Raytheon : Tuson, AZ	-	0.736	Sep 2016	2.841	Feb 2017	1.000	Nov 2018	0.000		1.000	Continuing	Continuing	-
1.2 1760 IWBU JASSM OFP	SS/FFP	Lockheed : Orlando, FL	-	7.147	Aug 2016	2.731	Feb 2017	1.000	Nov 2018	0.000		1.000	Continuing	Continuing	-
<b>Subtotal</b>			-	48.176		13.787		8.265		0.000		8.265	-	-	-
<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
1.2 1760 559th SMXG	C/FFP	559 SMXG : Tinker AFB, OK	-	0.238	Jul 2016	0.000		0.000		0.000		0.000	Continuing	Continuing	-
<b>Subtotal</b>			-	0.238		0.000		0.000		0.000		0.000	-	-	-
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
1.2 1760 IWBU Government Test	PO	419 FLTS : Edwards AFB, CA	-	4.305	May 2016	8.039	May 2017	3.405	Mar 2018	0.000		3.405	Continuing	Continuing	-
1.2 1760 IWBU Trainer Software	Allot	AFLCMC : Wright Patterson AFB, OH	-	0.000	Mar 2016	2.093	May 2017	0.000		0.000		0.000	Continuing	Continuing	-
1.2 1760 IWBU JASSM Test Assets	SS/FFP	Lockheed : Orlando, FL	-	0.354	Oct 2016	9.567	Jun 2017	2.700	Jan 2018	0.000		2.700	Continuing	Continuing	-
<b>Subtotal</b>			-	4.659		19.699		6.105		0.000		6.105	-	-	-

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Air Force</b>												<b>Date: May 2017</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> 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			
<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
1.2 1760 IWBU Program Management Administration, A&AS, Travel	Various	AFLCMC : Tinker AFB, OK	-	0.597	Sep 2016	1.148	Jan 2017	0.794	Jan 2018	0.000		0.794	Continuing	Continuing	-
<b>Subtotal</b>			-	0.597		1.148		0.794		0.000		0.794	-	-	-
			<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	53.670		34.634		15.164		0.000		15.164	-	-	-
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: FY 2018 Air Force</b>																<b>Date: May 2017</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> 675048 / 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
1760 IWBU Inc. 1.1 RAA (Dec 15)																												
1760 IWBU Inc. 1.2 TMRR																												
1760 IWBU Inc. 1.2 Milestone B (Apr 16)																												
1760 IWBU Inc. 1.2 EMD																												
1760 IWBU Inc. 1.2 Milestone C (Jul 18)																												
1760 IWBU Inc. 1.2 RAA (Jul 19)																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<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	Start		End	
	Quarter	Year	Quarter	Year
1760 IWBU Inc. 1.1 RAA (Dec 15)	1	2016	1	2016
1760 IWBU Inc. 1.2 TMRR	1	2016	2	2016
1760 IWBU Inc. 1.2 Milestone B (Apr 16)	3	2016	3	2016
1760 IWBU Inc. 1.2 EMD	2	2016	4	2018
1760 IWBU Inc. 1.2 Milestone C (Jul 18)	4	2018	4	2018
1760 IWBU Inc. 1.2 RAA (Jul 19)	4	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675050: CONECT	-	10.335	13.672	7.043	0.000	7.043	11.222	0.000	0.000	0.002	Continuing	Continuing
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 tactical datalink and voice communications capabilities, along with improved threat and situational awareness to support participation in network centric operations.

The CONNECT upgrade includes new Multi-Functional Color Displays (MFCDs); a digital interphone system, on-board client/server architecture supporting distributed processing with independent control functions; 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 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 Internal Weapons Bay Upgrade, Mode S/Mode 5 Identification, Friend or Foe (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 system integration laboratory (SIL) for the Weapon System Trainers (WST). In order to assist PDM during after-install checkout and Barksdale and Minot units with maintenance checkout and operational training, a CONNECT ground station is being developed.

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 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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.

BA7- This project 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-2A, RDT&E Project Justification: FY 2018 Air Force				Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: CONECT		10.335	13.672	7.043	-	7.043
<p><b>Description:</b> Diminishing Manufacturing Source (DMS) redesign development and test effort. Continued engineering design of CONECT 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 CONECT with recurring updates of the B-52 software baseline. As the CONECT 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 CONECT. CONECT will update the existing trainers and/or use computer-based training to add CONECT functionality to meet user-training requirements, and update/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.</p>						
<p><b>FY 2016 Accomplishments:</b></p> <p>Completed ground and flight test of the AFTRS R3. Completed source selection for the CONECT WST. Incorporated changes required due to updates in GFE and crypto modernization requirements. Incorporated/integrated CONECT with recurring updates of the B-52 software baseline. The CONECT Desktop Training Tool (CDTT) completed development and began deployment to the user as an interim training capability until the WST is available. Plan and developed acquisition strategy, and the engineering design of the CONECT ground station, required in order to assist PDM during after-install checkout, and provide Barksdale/Minot units with maintenance checkout and operational training capability. Completed spares acquisition to support Full Rate Production.</p>						
<p><b>FY 2017 Plans:</b></p> <p>Continue engineering design of CONECT capability into the B-52 training systems. Begin engineering design of CONECT capability into the B-52 training systems and SIL development through simulation/computer based training or a mix. Incorporate changes required due to updates in GFE and crypto modernization requirements. Incorporate/integrate CONECT with recurring updates of the B-52 software baseline. As the CONECT 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 CONECT. Continue procurement of spares to support risk kits and DMS items to support Barksdale/Minot Operational Deployments.</p>						
<p><b>FY 2018 Base Plans:</b></p>						

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force			<b>Date:</b> May 2017		
<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>	

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
Continue Diminishing Manufacturing Source (DMS) redesign development and test effort. Continue the engineering design of the CONNECT ground station, required in order to assist PDM during after-install checkout, and provide Barksdale/Minot units with maintenance checkout and operational training capability. CONNECT will continue the development/update of the existing trainers, by simulation/computer-based training or a mix, to add CONNECT functionality to meet user-training requirements, and update/maintain the SIL for the Weapon System Trainer (WST). Continue development of offensive station mission trainer.					
<b>Accomplishments/Planned Programs Subtotals</b>	10.335	13.672	7.043	-	7.043

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

<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF: BA05: Line Item # B05200: <i>B-52 CONNECT</i>	124.144	99.068	74.355	0.000	74.355	75.323	22.242	22.449	25.002	0.00	630.374
• APAF: BA06: Line Item # B05200: <i>Initial Spares/Repair Parts</i>	5.265	4.561	4.609	0.000	4.609	0.000	0.000	0.000	0.000	0.00	16.836
• APAF: BA07: Line Item # B05200: <i>Post Production Support</i>	5.911	28.125	0.199	0.000	0.199	12.924	4.678	5.597	5.710	0.00	45.797

**Remarks**

**D. Acquisition Strategy**

The B-52 CONNECT EMD prime contract is a sole source to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Boeing designs, develops, tests and procures necessary equipment from their subcontractors; developed engineering drawings, logistic and technical data. The Government is developing the time compliance technical order (TCTO) for installation on the B-52. Pro-Active Systems is the current contractor for the trainer update to integrate CONNECT into the existing trainers (currently in source selection).

**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-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675055: GPS-IU	-	2.877	6.916	18.767	0.000	18.767	9.309	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## A. Mission Description and Budget Item Justification

Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace three Circuit Card Assemblies (CCA) in the GPS IU, as well as the backplane (to integrate the new and old CCAs): the Central Processing Unit/1553, the power supply CCA, and the video graphics card. The current inventory of GPS IUs (76 installed on B-52H, plus current supply level of 16), plus 1 in the System Integration Laboratory (SIL), and 2 on Ground Instructional Training Aircraft (GITA)) will be upgraded by Prime Contractor Boeing. The upgraded LRUs will be replaced using blue-suit installation, using remove-and-replace processes on the flight line (the current maintenance process).

The GPS IU integrates GPS Position, Navigation and Timing (PNT) data into navigation, communications, and weapons systems onboard 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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force								<b>Date:</b> May 2017				
<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> 675055 / GPS-IU				
<p>BA7- This project 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.</p>												
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
<p><b>Title:</b> Global Positioning System (GPS) Interface Unit (IU)</p> <p><b>Description:</b> Global Positioning System (GPS) Interface Unit (IU) Upgrade will replace three circuit card assemblies in the GPS IU, as well as the backplane (to integrate the new and old CCAs): the Central Processing Unit/1553, the power supply CCA, and the video graphics card.</p> <p><b>FY 2016 Accomplishments:</b> Entered GPS IU Upgrade Technology Maturation and Risk Reduction (TMRR) phase. Awarded TMRR sole source contract to Boeing, OKC OK.</p> <p><b>FY 2017 Plans:</b> Continue GPS IU Upgrade development. Continue TMRR phase and prepare for Milestone B decision.</p> <p><b>FY 2018 Base Plans:</b> Continue GPS IU Upgrade development. Complete TMRR phase in support of Milestone B decision. Award EMD sole source contract to Boeing, OKC</p>								2.877	6.916	18.767	-	18.767
<b>Accomplishments/Planned Programs Subtotals</b>								2.877	6.916	18.767	-	18.767
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	
• APAF BA05: Line Item # B05200: GPS-IU Replacement	0.000	0.000	0.000	0.000	0.000	0.000	25.642	24.106	15.972	0.00	18.028	
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
<p>The GPS IU Upgrade project will begin development in the Technology Maturation and Risk Reduction (TMRR) phase via a sole source contract to Boeing Defense, Space &amp; Security (DSS), Oklahoma City, OK.</p> <p>Development will continue in the Engineering and Manufacturing Development (EMD) phase via a sole source contract to Boeing DSS, OKC. Deliverables include software, five prototype upgraded GPS IUs, logistics support, ground and flight test support, and engineering drawings.</p>												

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675055 / GPS-IU
<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: FY 2018 Air Force												Date: May 2017			
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 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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	-	2.877	Feb 2017	6.616	Mar 2017	7.000	Dec 2017	0.000		7.000	Continuing	Continuing	-
GPS-IU EMD Contract	SS/ Various	Boeing : Oklahoma City, OK	-	0.000		0.000		11.313	Jun 2018	0.000		11.313	Continuing	Continuing	-
Subtotal			-	2.877		6.616		18.313		0.000		18.313	-	-	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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 : TBD	-	0.000		0.300	Jan 2017	0.454	Jan 2018	0.000		0.454	Continuing	Continuing	-
Subtotal			-	0.000		0.300		0.454		0.000		0.454	-	-	-
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	2.877		6.916		18.767		0.000		18.767	-	-	-
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: FY 2018 Air Force</b>																<b>Date: May 2017</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> 675055 / GPS-IU			

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
MS A (Nov 16)																												
TMRR																												
MS B (Sep 17)																												
EMD																												
DT/OT																												
MS C																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<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	Start		End	
	Quarter	Year	Quarter	Year
MS A (Nov 16)	1	2017	1	2017
TMRR	2	2017	1	2018
MS B (Sep 17)	4	2017	4	2017
EMD	2	2018	1	2020
DT/OT	1	2019	4	2019
MS C	1	2020	1	2020

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675056: B-52 Radar Modernization Program (RMP)	-	0.000	4.653	15.226	0.000	15.226	57.292	118.899	151.036	175.445	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

## Note

In FY17 Radar Modernization Program was a new start.

## A. Mission Description and Budget Item Justification

The B-52 Radar Modernization Program (RMP) supports nuclear and conventional operations by upgrading or replacing, in whole or in part, the current APQ-166 radar Line Replaceable Units 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, off-the-shelf components and integrate them into the B-52. The use of new technology will increase both the overall reliability of the radar system and the capabilities for new missions. 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, all the applicable training devices which process radar data or represent the radar subsystem must also be modified and upgraded in conjunction with the aircraft modifications. This upgrade will affect all three Weapon System Trainers (WST), the WST Training Systems Integration Laboratory (SIL), both B-52 Offensive Station Maintenance Trainers (OSMT), and the Bombing-Navigation System Maintenance Trainers (BNSMT). The program will retire the five existing BNMSTs and replace them with three new virtual training devices.

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, crew vehicle interfaces), 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 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 software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient. Implement requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force									Date: May 2017		
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)			
BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year											
B. Accomplishments/Planned Programs (\$ in Millions)							FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Radar Modernization Program							0.000	4.653	15.226	-	15.226
Description: Support nuclear and conventional operations by replacing the current APQ-166 radar on the B-52H aircraft. Development and production of new systems to replace the legacy equipment and to be installed on all 76 B-52H aircraft.											
FY 2016 Accomplishments: N/A											
FY 2017 Plans: Establish/stand up program office; conduct systems requirements development and refinement; complete other materiel solution analysis (Human Systems Integration, studies of cooling, electromagnetic compatibility, power and nuclear hardening impacts and requirements, etc.); initiate acquisition strategy and program planning support for development, integration, and testing of radar and associated sub-system hardware and associated software											
FY 2018 Base Plans: Continue requirements development/refinement, acquisition planning, and preparations for radar vendor competition/award and Developmental Request for Proposal Release Date (DRFPRD).											
Accomplishments/Planned Programs Subtotals							0.000	4.653	15.226	-	15.226
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• APAF: BA05: LineItem # B05200: B-52 Radar Modernization Program (RMP)	0.000	0.000	0.000	0.000	0.000	0.000	5.855	13.105	13.368	0.00	32.301
• APAF: BA07: Line Item # B05200: Post Production Support	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.099	0.101	0.00	0.200

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017	
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>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2018</u>	<u>FY 2018</u>	<u>FY 2018</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Complete</u>	<u>Total Cost</u>
• APAF: BA06: Line Item #	0.000	0.000	0.000	0.000	0.000	0.000	0.099	0.199	0.203	0.00	0.501
B05200: Initial Spares\Repair Parts											
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
The Milestone Decision Authority approved the B-52 RMP Materiel Development Decision (MDD) and signed the Acquisition Decision Memorandum on 11 March 2017. Program has been designated as ACAT I Pre-Major Defense Acquisition Program with authorization to enter into pre-Milestone B phase with the DRFPRD as the next decision point.											
<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: FY 2018 Air Force</b>													<b>Date:</b> May 2017		
<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 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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. : TBD	-	0.000		3.500	May 2017	12.226	Jan 2018	0.000		12.226	Continuing	Continuing	-
<b>Subtotal</b>			-	0.000		3.500		12.226		0.000		12.226	-	-	-
<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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. : TBD	-	0.000		1.153	Aug 2017	3.000	Jan 2018	0.000		3.000	Continuing	Continuing	-
<b>Subtotal</b>			-	0.000		1.153		3.000		0.000		3.000	-	-	-
			<b>Prior Years</b>	<b>FY 2016</b>	<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>			-	0.000	4.653		15.226		0.000		15.226	-	-	-	
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> FY 2018 Air Force																<b>Date:</b> May 2017			
<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)			

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
Acquisition Planning																												
Risk Reduction																												
Development Request for Proposal (DRFPRD)																												
MS B																												
EMD																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force		<b>Date:</b> May 2017
<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)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Planning	3	2017	1	2018
Risk Reduction	1	2018	2	2020
Development Request for Proposal (DRFPRD)	1	2019	1	2019
MS B	2	2020	2	2020
EMD	2	2020	4	2022

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675057: B-52 Low Cost Improvement (LCI)	-	0.000	0.000	2.682	0.000	2.682	2.675	2.677	2.675	2.730	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
<p>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 Information 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.</p> <p>Funds may be used to address emerging and short-notice Diminishing Manufacturing and Material Shortage (DMSMS) issues.</p> <p>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.</p> <p>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.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.</p> <p>BA7- This project 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</p>												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: B-52 Low Cost Improvements								0.000	0.000	2.682	-	2.682
Description: Develop and integrate emerging technologies for specialized B-52 missions to include ISR, targeting, and weapons. This includes performing demonstrations and experimentation of emerging and advanced technologies, as well as supporting external agency projects of the technology in a relevant environment.												
FY 2016 Accomplishments:												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force				<b>Date:</b> May 2017	
<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> 675057 / B-52 Low Cost Improvement (LCI)	

  

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
N/A					
<b>FY 2017 Plans:</b> N/A					
<b>FY 2018 Base 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>Accomplishments/Planned Programs Subtotals</b>	0.000	0.000	2.682	-	2.682

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018 Base</u>	<u>FY 2018 OCO</u>	<u>FY 2018 Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APAF: BA 05: Line item # B05200: B-52 Low Cost Improvements	0.000	2.331	2.378	0.000	2.378	2.381	2.431	2.482	2.532	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> Analyses of Alternatives will be conducted by various AFLCMC organizations and AFGSC. Additionally, the OEM will perform work necessary to make the Mission Data Recorder via contract 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-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675058: B-52 Weapon Sys Trainer Air Ref Training Upgrade	-	0.000	4.875	13.240	0.000	13.240	7.917	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY17 B-52 Weapons Systems Trainer Air Refueling Training Upgrade was a new start.

**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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.

BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
<b>Title:</b> B-52 Weapons Systems Trainer Air Refueling Training Upgrade	0.000	4.875	13.240	-	13.240
<b>Description:</b> Upgrade allows pilots to conduct effective air refueling training in a simulator; mitigates tanker availability shortfalls for training.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force								<b>Date:</b> May 2017				
<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>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
<b>FY 2016 Accomplishments:</b> N/A												
<b>FY 2017 Plans:</b> Initiate engineering studies, flight test planning, data collection, data analysis, and software development required to support B-52 Weapon System Trainer Air Refueling Training Upgrade.												
<b>FY 2018 Base Plans:</b> Continuing engineering studies, flight test planning, data collection, data analysis, and software development required to support B-52 Weapon System Trainer Air Refueling Training Upgrade.												
<b>Accomplishments/Planned Programs Subtotals</b>								0.000	4.875	13.240	-	13.240
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018 Base</u>	<u>FY 2018 OCO</u>	<u>FY 2018 Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• APAF: BA 05: Line item #	0.000	0.000	1.809	0.000	1.809	0.000	11.085	0.000	0.000	0.00	12.891	
B05200: Weapons System Trainer												
Air Refueling Training Upgrade												
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
The B-52 Training Systems Contract will be utilized for Weapon System Trainer Air Refueling contracting actions.												
<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: FY 2018 Air Force</b>													<b>Date:</b> May 2017		
<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 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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 : TBD	-	0.000		4.875	Feb 2017	13.240	Feb 2018	0.000		13.240	Continuing	Continuing	-
<b>Subtotal</b>			-	0.000		4.875		13.240		0.000		13.240	-	-	-
<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
			<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			-	0.000		4.875		13.240		0.000		13.240	-	-	-
<b>Remarks</b>															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: FY 2018 Air Force</b>			<b>Date: May 2017</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> 675058 / B-52 Weapon Sys Trainer Air Ref Training Upgrade		

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
WST AR Trainer Engineering Studies/Analysis																												
WST AR Trainer Data Collection/Compilation																												
WST AR Trainer Software/Hardware Development/Integration/Test																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<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	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
WST AR Trainer Engineering Studies/Analysis	2	2017	4	2017
WST AR Trainer Data Collection/Compilation	1	2018	3	2018
WST AR Trainer Software/Hardware Development/Integration/Test	4	2017	3	2020

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS				Project (Number/Name) 675129 / B-52 Re-Engining			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675129: B-52 Re-Engining	-	0.000	10.000	10.000	0.000	10.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

Funds will address emergency warfighting readiness requirements. Funds will facilitate future capabilities by conducting B-52 modernization and sustainment risk reduction studies such as, but not limited to, studies on new engines, electrical, pneumatic, cart-start, wing flutter analysis, TF-33 (present engine) refurbishment (SLEP). It also includes program management support for the development and integration of future capabilities. To facilitate future capabilities, the scope of work may involve development of Analysis of Alternatives (AoA), studies and Analysis, Capability Development Documents (CDD) or any other analysis or paper work necessary to establish a program or record.

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.

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 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.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.

BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
<b>Title:</b> B-52 Re-Engining	0.000	10.000	10.000	-	10.000

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force				<b>Date:</b> May 2017	
<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> 675129 / B-52 Re-Engining	
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>
<p><b>Description:</b> Funds will facilitate future capabilities by conducting B-52 modernization and sustainment risk reduction studies such as studies on new engines, electrical, pneumatic, cart-start, wing flutter analysis and TF-33 Engines</p> <p><b>FY 2016 Accomplishments:</b> n/a</p> <p><b>FY 2017 Plans:</b> To facilitate future capabilities, scope of work will involve development of Analysis of Alternatives (AoA), Studies and Analysis, Capability Development Documents (CDD) and other analysis or paperwork necessary to establish a program of record.</p> <p><b>FY 2018 Base Plans:</b> Continue development of Analysis of Alternatives (AoA), Studies and analyses, Capability Development Documents (CDD) or any other analysis or paper work necessary to establish a program of record.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	10.000	10.000	-
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A					
<b>Remarks</b>					
<b>D. Acquisition Strategy</b> N/A					
<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: FY 2018 Air Force</b>													<b>Date: May 2017</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> 675129 / B-52 Re-Engining				
<b>Product Development (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
EMD Risk Reduction, Studies & Analyses	SS/CPFF	The Boeing Co : Oklahoma City, OK	-	0.000		9.000	Jun 2017	9.000	Feb 2018	0.000		9.000	Continuing	Continuing	-
<b>Subtotal</b>			-	0.000		9.000		9.000		0.000		9.000	-	-	-
<b>Support (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
<b>Subtotal</b>			-	-		-		-		-		-	-	-	-
<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
Program Management Administration, Centralized Support, A&AS, TDY	Various	EPASS Contract for A&AS : WPAFB, OH	-	0.000		1.000	Jun 2017	1.000	Jan 2018	0.000		1.000	Continuing	Continuing	-
<b>Subtotal</b>			-	0.000		1.000		1.000		0.000		1.000	-	-	-
			<b>Prior Years</b>	<b>FY 2016</b>	<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>			-	0.000	10.000		10.000		0.000		10.000	-	-	-	
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force										Date: May 2017			
Appropriation/Budget Activity					R-1 Program Element (Number/Name)					Project (Number/Name)			
3600 / 7					PE 0101113F / B-52 SQUADRONS					675129 / B-52 Re-Engining			

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EMD Studies-Analyses/Risk Reduction																												

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS	Project (Number/Name) 675129 / B-52 Re-Engining	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
EMD Studies-Analyses/Risk Reduction	3	2017	4	2018

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675160: B-52 Crypto Modernization	-	0.000	5.941	11.919	0.000	11.919	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note In FY17 B-52 Crypto Modernization was a new start.												
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. As MUOS legacy channels are turned on, existing satellites will be removed from service. B-52 CONECT is at risk of losing its File Transfer Protocol (FTP), email, Beyond Line of Site (BLOS) voice, and BLOS data link communications without this modernization effort.  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.  This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.  BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: B-52 Crypto Modernization								0.000	5.941	11.919	-	11.919
Description: Upgrades aircraft with MUOS capable ARC-210 radio systems to prevent loss of BLOS voice and data communications capability. As Mobile User Objective System (MUOS) legacy channels are turned on, existing satellites will be removed from service. B-52 CONECT is at risk of losing its File Transfer Protocol												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force								<b>Date:</b> May 2017				
<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>B. Accomplishments/Planned Programs (\$ in Millions)</b>								<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
(FTP), email, Beyond Line of Site (BLOS) voice, and BLOS data link communications without this modernization effort.  <b>FY 2016 Accomplishments:</b> N/A  <b>FY 2017 Plans:</b> Establish/stand-up program office, develop and refine requirements, initiate development activities supporting integration of MUOS radio, and planning for DT&E.  <b>FY 2018 Base Plans:</b> Continue to develop and refine requirements, initiate development activities supporting integration of MUOS radio, and planning for DT&E												
								<b>Accomplishments/Planned Programs Subtotals</b>				
<b>C. Other Program Funding Summary (\$ in Millions)</b>												
	<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018 Base</u>	<u>FY 2018 OCO</u>	<u>FY 2018 Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
	• APAF: BA 05: Line item #	0.000	0.000	0.000	0.000	0.000	14.880	17.863	21.842	22.280	0.00	0.000
	B05200: B-52 Crypto Modernization											
<b>Remarks</b>												
<b>D. Acquisition Strategy</b>												
The B-52 Crypto Modernization Program EMD prime contract is expected to be sole sourced to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Boeing designs, develops, integrates, tests, and procures necessary equipment from their subcontractors, develops engineering drawings, logistics and technical data.												
<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: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS				Project (Number/Name) 675160 / B-52 Crypto Modernization					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Crypto Modernization development and integration activities	TBD	Not specified. : TBD	-	0.000		5.541	Jan 2017	11.885	Jan 2018	0.000		11.885	Continuing	Continuing	-
Subtotal			-	0.000		5.541		11.885		0.000		11.885	-	-	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Initiate test requirements and DTE planning	TBD	TBD : TBD	-	0.000		0.300	Jan 2017	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		0.300		0.000		0.000		0.000	-	-	-
Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Costs for Program Management Administration and Travel	Various	TBD : TBD	-	0.000		0.100	Jan 2017	0.034	Jan 2018	0.000		0.034	Continuing	Continuing	-
Subtotal			-	0.000		0.100		0.034		0.000		0.034	-	-	-
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000		5.941		11.919		0.000		11.919	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force							Date: May 2017			
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS			Project (Number/Name) 675160 / B-52 Crypto Modernization			
	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 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> FY 2018 Air Force	<b>Date:</b> May 2017
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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 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
MDD																												
Milestone B																												
EMD contract award																												
EMD																												
Milestone C																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Air Force			<b>Date:</b> May 2017
<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	Start		End	
	Quarter	Year	Quarter	Year
MDD	1	2017	1	2017
Milestone B	2	2017	2	2017
EMD contract award	2	2017	2	2017
EMD	2	2017	2	2018
Milestone C	4	2018	4	2018

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
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 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
676039: B-52 Airspace Compliance	-	0.000	0.000	9.652	0.000	9.652	36.326	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note This program, BA 07 PE 0101113F, project 676039, B-52 Airspace Compliance, is a new start.												
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) upgrades to meet FAA mandate for FY20. Global Positioning System (GPS) guidance unit requires upgrade to new military M-Code standard.  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.  Funds may be used to address emerging and short-notice Diminishing Manufacturing and Material Shortages (DMSMS) issues.  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.  This program element may include necessary civilian pay expenses required to manage, execute, and deliver B-52 weapon system capability.  BA7 - This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: B-52 Airspace Compliance								0.000	0.000	9.652	0.000	9.652
Description: 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 for FY20. GPS guidance unit requires upgrade to new military M-Code standard.												

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Air Force				<b>Date:</b> May 2017							
<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> 676039 / B-52 Airspace Compliance							
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>											
		<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>					
<b>FY 2016 Accomplishments:</b> N/A  <b>FY 2017 Plans:</b> N/A  <b>FY 2018 Base Plans:</b> Establish/stand-up program office, develop and refine requirements, initiate development activities supporting integration of Communication, Navigation and Surveillance and Air Traffic Management (CNS/ATM) upgrades, Automatic Dependent Surveillance-Broadcast (ADS-B) upgrades, and GPS guidance unit for new military M-Code standard.  <b>FY 2018 OCO Plans:</b> N/A											
<b>Accomplishments/Planned Programs Subtotals</b>		0.000	0.000	9.652	0.000	9.652					
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• APAF: BA05: Line item # B05200: <i>B-52 Airspace Compliance</i>	0.000	0.000	0.000	0.000	0.000	1.970	19.850	16.513	3.600	0.00	0.000
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
GPS M-Code and ADS-B will be executed via a contract with the Original Equipment Manufacturer (OEM), Boeing, OKC.											
<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.											