

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
--	--

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	37.951	20.044	12.619	0.000	12.619	17.926	2.023	0.008	0.008	0.000	90.579
675344: <i>B-1B Modernization</i>	-	37.951	20.044	12.619	0.000	12.619	17.926	2.023	0.008	0.008	0.000	90.579
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The B-1B Lancer is a swing-wing, supersonic, long-range conventional bomber. It carries the largest payload of both guided and unguided weapons in the AF inventory. The multi-mission B-1B is the backbone of America's long-range conventional bomber force and can rapidly deliver massive quantities of precision (and non-precision) weapons against any adversary, anywhere in the world, at any time.

The B-1B modernization projects alleviate aircraft obsolescence issues due to Diminishing Manufacturing Sources and Material Shortages (DMSMS) while at the same time providing improved capabilities to the B-1B weapon system that require significant hardware and software development and testing.

MULTIFUNCTIONAL INFORMATION DISTRIBUTION SYSTEM - JOINT TACTICAL RADIO SYSTEMS (MIDS-JTRS):

MIDS-JTRS replaces the existing MIDS-LVT (1) (Low Volume Terminal) Link 16 terminal to meet the 2022 NSA Crypto Modernization (CM) Device Cease Key as well as DoD Link 16 mandate/directive and Federal Aviation Administration (FAA)/National Telecommunications and Information Administration (NTIA) Frequency Remap mandate.

These requirements must be met to replace the existing MIDS-LVT (1) to resolve all LVT (1) deficiencies as well as add combat capability enhancements by implementing Link 16 Enhanced Throughput (LET) and Concurrent Multi-Netting (CMN-4) with Concurrent Retention Receive (CRR). MIDS-JTRS will provide enhanced data link capability, improving situational awareness and allowing rapid in-flight re-targeting in a cooperative combat environment. Program focuses on eliminating LVT (1) deficiencies as well as delivering all mandates and directives.

RADIO-CRYPTO MODERNIZATION:

The B-1B Radio Crypto program originates from JROCM 040-11, VACM Cease Key CED-026-11, UHF SATCOM (Ultra-High Frequency Satellite Communication) Decommission and Cease Key for Demand Assigned Multi Access (DAMA) Orderwire, HAVE QUICK II Cease use date, and DoD CIO Mobile User Objective System (MUOS) transition directive. If the requirements/directives are not met, B-1B will lose its secure line of sight, beyond line of sight, and anti-jam communication with ground and air forces. The initiative will replace the existing ARC-210 (Gen 3/4) ARC-210 (Gen 6) next generation radios. Additionally, the program will provide MUOS Satellite Communication capability that supports the DoD Chief Information Officer (CIO) directive to move all DoD assets to MUOS constellation (70% by FY26). This effort will lay in Ethernet cable required by MUOS Data (J-REAP C), install MUOS ancillaries (HPA/LNA), and additional software to execute MUOS capability on the aircraft.

HYPERSONIC INTEGRATION (HWICC)

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force		Date: March 2023
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / <i>B-1B Squadrons</i>	
<p>The FY22 and FY23 Conference Appropriations, detailed in the Congressional Conference Reports of Interest added 20M (10M in FY22 and 10M in FY23) RTD&E appropriation for B-1B hypersonic weapon integration. This appropriation develops an external carry-enabled B-1B as a testbed to facilitate rapid integration of priority hypersonic weapons to support national security objectives, leading to a potential investment opportunity for weapons programs. Additionally, this provides an opportunity to significantly reduce risk for an operational external carry capability on the B-1B if directed.</p> <p>B-1B AFMC TEST ASSETS:</p> <p>The B-1B AFMC Test Assets project will provide funding for the test aircraft, manpower, and facilities at the Air Force Test Center located at Edwards Air Force Base (AFB), California. This will support the developmental testing and sustainment needs of the B-1B weapon system. It funds support for Programmed Depot Maintenance (PDM) for test aircraft, which is performed at Tinker AFB, Oklahoma. Funds also support analysis, documentation, and related activities necessary to establish a program of record and support the B-1B weapon system. Additionally, other costs include Program Management Administration (PMA) and centralized support as well as initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, digital engineering and total cost of ownership).</p> <p>GAP AND INTEGRATION ANALYSIS:</p> <p>Program funds cover engineering/planning studies, related engineering efforts, and the auxiliary equipment needed for development projects that have not yet been fielded. Funds may be used to resolve emerging safety of flight and DMSMS issues, accommodate technology insertion, and fulfill FAA (or other) mandates necessary to ensure continued aircrew safety and mission effectiveness. Costs include PMA costs, total ownership cost, as well as initiatives for anticipated weapon system enhancements (to include efforts for improving weapon system operational capabilities, safety, supportability, maintainability, reliability, digital engineering and total cost of ownership). All B-1B development projects support planned requirements for unique identification in their production phases.</p> <p>B-1B funding also supports innovation activities to include studies, analyses, requirements definition, digital engineering initiatives and quick-reaction capability prototypes/demonstrations to accelerate planning for technology transition, technology insertion, and future acquisition programs.</p> <p>The BY2024 funding request was reduced by \$3 million to account for the availability of prior year execution balances</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. Funds may be used to address emerging and short-notice DMSMS issues.</p> <p>This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY22 2.8M was expended for civilian pay expenses in this program element, and in FY23 1.8M is forecasted for civilian pay expenses in this program element.</p>		

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
--	--

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

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	39.127	13.144	14.084	0.000	14.084
Current President's Budget	37.951	20.044	12.619	0.000	12.619
Total Adjustments	-1.176	6.900	-1.465	0.000	-1.465
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-3.100			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	10.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.176	0.000			
• Other Adjustments	0.000	0.000	-1.465	0.000	-1.465

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

Project: 675344: *B-1B Modernization*

Congressional Add: *HYPERSONIC INTEGRATION*

	FY 2022	FY 2023
	9.699	10.000
Congressional Add Subtotals for Project: 675344	9.699	10.000
Congressional Add Totals for all Projects	9.699	10.000

Change Summary Explanation

FY23:

Congressional directed reductions: -\$3.1M for Radio Crypto Delays

Congressional Add: \$10M for Hypersonic Integration

FY24:

-\$1.465M was reprogrammed for higher priority Air Force efforts.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
--	-------------------------

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
--	--

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>Title: B-1 AFMC Test Assets</p> <p>Description: The B-1 Test Asset effort will provide funding for the test aircraft, manpower, and facilities at the Air Force Test Center located at Edwards Air Force Base (AFB), California. This will support the developmental testing and sustainment needs of the B-1B weapon system. It funds support for Programmed Depot Maintenance (PDM) for test aircraft, which is performed at Tinker AFB, Oklahoma.</p> <p>Funds also support analysis, documentation, and related activities necessary to establish a program of record and support the B-1B weapon system. Additionally, other costs include PMA and centralized support as well as initiatives for anticipated weapon system enhancements (to include efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, digital engineering and total cost of ownership) are included.</p> <p>Funding may be used to resolve or address emerging safety of flight and Diminishing Manufacturing Sources (DMS) issues, accommodate technology insertion and fulfill FAA or other mandates necessary to ensure continued aircrew safety and mission effectiveness.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans: N/A</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>	16.947	0.000	0.000	0.000	0.000
<p>Title: RADIO-CRYPTO</p> <p>Description: The B-1B Radio Crypto program originates from JROCM 040-11, VACM Cease Key CED-026-11, UHF SATCOM (Ultra-High Frequency Satellite Communication) Decommission and Cease Key for Demand Assigned Multi Access (DAMA) Orderwire, HAVE QUICK II Cease use date, and DoD CIO Mobile User Objective System (MUOS) transition directive. If the requirements/directives are not met, B-1B will lose its secure line of sight, beyond line of sight, and anti-jam communication with ground and air forces. The initiative</p>	10.015	10.044	12.619	0.000	12.619

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
--	-------------------------

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
--	--

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
<p>will replace the existing ARC-210 (Gen 3/4) ARC-210 (Gen 6) next generation radios. Additionally, the program will provide MUOS Satellite Communication capability that supports the DoD Chief Information Officer (CIO) directive to move all DoD assets to MUOS constellation (70% by FY26). This effort will lay in Ethernet cable required by MUOS Data (J-REAP C), install MUOS ancillaries (HPA/LNA), and additional software to execute MUOS capability on the aircraft.</p> <p>FY 2023 Plans: Award EMD Contract (EA-11468) for CDR through Flight Test.</p> <p>FY 2024 Base Plans: Continue EMD activities (EA-11468) through Flight Test to complete the EMD phase.</p> <p>FY 2024 OCO Plans: N/A</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased to accelerate EMD activities to meet mandates.</p>					
<p>Title: MIDS-JTRS</p> <p>Description: Multifunctional Information Distribution System-Joint Tactical Radio System (MIDS-JTRS) replaces the existing MIDS-LVT (1) (Low Volume Terminal) Link 16 terminal to meet the 2022 NSA Crypto Modernization (CM) Device Cease Key as well as DoD Link 16 mandate/directive and FAA/NTIA Frequency Remap mandate. The current MIDS-LVT (1) system became non-compliant on 1 Jan 22. MIDS-JTRS resolves all LVT (1) deficiencies and adds substantial combat capability enhancements to Link 16 Enhanced Throughput (LET) and Concurrent Multi-Netting (CMN-4) with Concurrent Retention Receive (CRR). MIDS-JTRS also provides multi-datalink capability, improving situational awareness and allowing rapid in-flight re-targeting in a cooperative combat environment. The B-1B does not have voice communication over Link-16 if the MIDS-JTRS program is not implemented.</p> <p>Program efforts will focus on delivering all mandates and directives, which includes integrations of MIDS-JTRS terminal and all associated software, wiring, and hardware updates.</p> <p>FY 2023 Plans: N/A</p> <p>FY 2024 Base Plans:</p>	1.290	0.000	0.000	0.000	0.000

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons
--	--

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Completed activities related to MIIDS-JTRS RDTE funding.					
Accomplishments/Planned Programs Subtotals	28.252	10.044	12.619	0.000	12.619

	FY 2022	FY 2023
Congressional Add: HYPERSONIC INTEGRATION	9.699	10.000
FY 2022 Accomplishments: Boeing Engineering Project for Hypersonic Airworthiness and Integration plan awarded June 2022.		
FY 2023 Plans: Award Boeing Engineering Assignment for Load Adaptive Modular (LAM) Integration (completed December 2022), and follow-on Boeing Engineering Assignment contract award for additional hardpoint integration. Continued Airworthiness analysis, purchase LAM pylons, and demonstration ground and flight testing.		
Congressional Adds Subtotals	9.699	10.000

D. Other Program Funding Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APAF 05 Line Item	0.771	0.101	0.500	-	0.500	0.512	0.520	0.532	0.888	0.000	3.824
B01B00: <i>Training Support to Units, Mods PE 0809731F</i>											
• APAF 05 B01B00: B-1B	27.406	36.313	12.757	-	12.757	3.315	2.743	1.001	1.367	0.000	84.902
• APAF 05 B00100: B-1	-	-	-	-	-	-	-	-	-	0.000	0.000
• APAF 05 Line Item B01B00	0.000	0.000	0.000	-	0.000	-	-	-	-	0.000	0.000
Spares: <i>B-1B Squadrons, Spares</i>											

Remarks

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Air Force	Date: March 2023
--	-------------------------

Appropriation/Budget Activity
3600: *Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
PE 0101126F / *B-1B Squadrons*

E. Acquisition Strategy

B-1 AFMC Test Assets will utilize funding for Programmed Depot Maintenance (PDM) for the test aircraft at Tinker AFB, OK.

Radio Crypto acquisition strategy addresses National Security Agency (NSA) as well as DoD mandates and directives executing EMD and production with a Sole Source, Cost Plus Fixed Fee (CPFF) EMD contract effort followed by a two-year Production and installation effort.

MIDS-JTRS acquisition strategy addresses the (2022) NSA and (2025) Federal Aviation Administration (FAA)/National Telecommunications and Information Administration (NTIA) mandates by replacing the MIDS-LVT 1 with MIDS-JTRS terminal through a five-year, Sole Source (SS), Cost Plus Fixed Fee (CPFF) EMD contract effort followed by a two-year Production and Installation effort.

The Hypersonic Weapons Integration strategy addresses national security objectives and is designed to achieve the end result of an external carry-enabled testbed facilitating rapid integration of priority hypersonic weapons through a two-year Sole Source (SS), Cost Plus Fixed Fee (CPFF) Engineering Assignment effort. An additional 18 month SS CPFF term Engineering Assignment effort will continue the integration of Load Adaptive Modular (LAM) pylon for demonstrating carry and release capability of various stores and working toward utilizing additional hardpoints.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons	Project (Number/Name) 675344 / B-1B Modernization
--	--	---

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
B-1 AFMC Test Assets (PDM)	MIPR	Tinker AFB : OKC, OK	-	16.947	Mar 2022	-		-		-		-	0.000	16.947	-
Radio Crypto Compliance (EA-11494 & 11468)	SS/CPFF	Boeing : OKC, OK	-	8.162	Dec 2022	8.210	Mar 2023	8.794	Nov 2023	-		8.794	0.000	25.166	35.000
Hypersonic Weapons Integration	SS/CPFF	Boeing : OKC, OK	-	9.699	Sep 2022	10.000	Mar 2023	-		-		-	0.000	19.699	-
Subtotal			-	34.808		18.210		8.794		-		8.794	0.000	61.812	N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BAH (A&AS)	MIPR	GSA : OKC, OK	-	0.372	May 2022	0.000	Jun 2023	1.338	May 2024	-		1.338	0.000	1.710	-
Subtotal			-	0.372		0.000		1.338		-		1.338	0.000	1.710	N/A

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Radio Crypto Testing (DT/OT)	PO	Edwards : CA	-	-		-		0.600	Oct 2023	-		0.600	0.000	0.600	-
Subtotal			-	-		-		0.600		-		0.600	0.000	0.600	N/A

Remarks
Radio Crypto Project Order (PO) for Flight testing is to the 419th Test Squadron.

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PMA/DCA	Various	Various : OKC, OK	-	2.771	Jan 2022	1.834	Jan 2023	1.887	Jan 2024	-		1.887	0.000	6.492	-
Subtotal			-	2.771		1.834		1.887		-		1.887	0.000	6.492	N/A

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / B-1B Squadrons	Project (Number/Name) 675344 / B-1B Modernization
--	--	---

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Hypersonic Integration (HIWCC)</i>	
Demo Planning	██████████
Demo Ground Test	██████████
Demo Flight Test	██████████
Additional Hardpoint Development	████████████████████
<i>Radio Crypto</i>	
EMD	██
PDR/CDR	██████████
DT/OT	██████████
MS-C	██████████
<i>MIDS-JTRS</i>	
EMD	████████████████████
DT/OT	██████████
MS-C	██████████
BU1-BU3 Regression Testing	██████████

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Air Force **Date:** March 2023

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101126F / <i>B-1B Squadrons</i>	Project (Number/Name) 675344 / <i>B-1B Modernization</i>
--	---	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Hypersonic Integration (HIWCC)</i>				
Demo Planning	4	2022	2	2023
Demo Ground Test	2	2023	3	2023
Demo Flight Test	3	2023	4	2023
Additional Hardpoint Development	4	2023	4	2024
<i>Radio Crypto</i>				
EMD	1	2022	4	2025
PDR/CDR	1	2024	2	2024
DT/OT	4	2024	1	2025
MS-C	2	2025	3	2025
<i>MIDS-JTRS</i>				
EMD	1	2022	3	2023
DT/OT	1	2022	3	2022
MS-C	4	2022	1	2023
BU1-BU3 Regression Testing	1	2023	3	2023