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

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604932F / <i>Long Range Standoff Weapon</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	1,216.497	701.866	384.727	609.042	0.000	609.042	-	-	-	-	-	-
657011: <i>LONG RANGE STAND-OFF</i>	1,216.497	701.866	384.727	609.042	0.000	609.042	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 489

A. Mission Description and Budget Item Justification

The Long Range Stand Off (LRSO) Cruise Missile is a long range survivable stand-off weapon capable of delivering lethal nuclear effect on strategic targets. LRSO will replace the currently fielded Air Launched Cruise Missile (ALCM) and will be integrated on both legacy and future bomber aircraft. The LRSO weapon system will be capable of penetrating and surviving advanced Integrated Air Defense Systems (IADS) from significant stand-off range to prosecute strategic targets in support of the Air Force's global attack capability and strategic deterrence core function.

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

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605831F.

This program is conducting activities associated with engineering and manufacturing development tasks aimed at meeting validated requirements during the Technology Maturation and Risk Reduction (TMRR) phase; transitioning through MS B decision point into EMD.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	712.539	474.430	358.756	0.000	358.756
Current President's Budget	701.866	384.727	609.042	0.000	609.042
Total Adjustments	-10.673	-89.703	250.286	0.000	250.286
• Congressional General Reductions	0.000	-0.703			
• Congressional Directed Reductions	0.000	-89.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-10.673	0.000			
• Other Adjustments	0.000	0.000	250.286	0.000	250.286

Change Summary Explanation

FY20 reduced 10.673M for Small Business Innovative Research (SBIR).

FY21 adjustments include Congressional Mark for TMRR funding excess to need -89,000; Undistributed Reduction - Excess to Need -703

FY22 increase to address LRSO requirements

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Title: Long Range Stand-Off (LRSO) Weapon Development	624.386	310.149	496.451
Description: Conduct LRSO Weapon Development activities			
FY 2021 Plans: Continue to design, develop, integrate and test the LRSO system through the TMRR and EMD contracts. Robust systems engineering will ensure the USAF owns the technical baseline for requirements traceability as well as reliability, manufacturability, and maintainability. Program transitioning through MS B decision point into EMD.			
FY 2022 Plans: Program will continue to design, develop, integrate and test the LRSO system through the EMD contract. Specific areas of concentration will include qualification testing and nuclear hardness testing in support of component selection assessment. Continue sub-system critical design reviews in preparation for Critical Design Review, ensuring the design adequately meets the warfighter's performance requirements in the Capabilities Development Document (CDD). Robust systems engineering and early demonstrated flight testing will ensure the USAF owns the technical baseline for requirements traceability. Additional activities to			

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
support reliability growth, manufacturability, and maintainability will also be conducted. The program will continue test activities, such as but not limited to, envelope testing, separation control testing and powered flight.				
FY 2021 to FY 2022 Increase/Decrease Statement: Funding increased due to ramp up in program activities for EMD.				
Title: All-Up-Round		39.323	43.101	73.109
Description: Conduct All-Up-Round activities to support weapon development				
FY 2021 Plans: Continue program practices that ensure the following are met: requirements flow down, requirement allocation to hardware and software, requirements compliance matrix, system performance, reliability, maintainability, product assurance, testability, producibility and supportability. Continue facility and security infrastructure upgrades to enable secure connectivity and communication between Department of Defense (DoD), Department of Energy (DOE), and industry. Continue efforts to conduct parallel development, design, and test activities with the DOE to ensure the LRSO adequately integrates the DOE designed warhead into the system. Conduct safety studies and other nuclear certification activities. Continue to perform Aircraft Integration efforts including activities associated with integration on threshold aircraft and aircraft mission planning system upgrades to accommodate the new weapon. Furthermore, these efforts include activities and assets related to weapon design compatibility and qualification, and other nuclear certification with both threshold and objective aircraft. Other activities falling under these efforts include: developing mission planning upgrade needs, OFP development and integration to deliver the OFP test tapes, planning activities necessary to integrate LRSO with aircraft, and ensuring the logical, electrical, and physical interfaces of the LRSO as defined in the ICD.				
FY 2022 Plans: Continue program practices that ensure the following are met: requirements flow down, requirement allocation to hardware and software, requirements compliance matrix, system performance, reliability, maintainability, product assurance, testability, producibility and supportability. Continue facility and security infrastructure upgrades to enable secure connectivity and communication between Department of Defense (DoD), Department of Energy (DOE), and industry. Continue efforts to conduct parallel development, design, and test activities with the DOE to ensure the LRSO adequately integrates the DOE designed warhead into the system. Conduct safety studies and other nuclear certification activities. Continue to perform Aircraft Integration efforts including activities associated with integration on threshold aircraft and aircraft mission planning system upgrades to accommodate the new weapon. Furthermore, these efforts include activities and assets related to weapon design compatibility and qualification, and other nuclear certification with both threshold and objective aircraft. Other activities falling under these efforts include: developing mission planning upgrade needs, OFP development and integration to deliver the OFP test tapes,				

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
planning activities necessary to integrate LRSO with aircraft, and ensuring the logical, electrical, and physical interfaces of the LRSO as defined in the ICD. FY 2021 to FY 2022 Increase/Decrease Statement: Funding increased due to aircraft integration and W80-4 level of effort for EMD.				
Title: Test Support Description: Conduct Test Support activities to support weapon development FY 2021 Plans: Continue to perform design validation, verification, test, nuclear certification (to include design and operational certification) and system qualification activities. Perform weapon system environment testing. Furthermore, these efforts will continue test planning and execution activities to support LRSO weapon development, All-Up-Round technical integration, and aircraft integration. FY 2022 Plans: Continue to perform design validation, verification, test, nuclear certification (to include design and operational certification) and system qualification activities. Perform weapon system environment testing. Furthermore, these efforts will continue test planning and execution activities to support LRSO weapon development, All-Up-Round technical integration, and aircraft integration. FY 2021 to FY 2022 Increase/Decrease Statement: Funding increased due to ramp up in testing into EMD Phase.		38.157	31.477	39.482
Accomplishments/Planned Programs Subtotals		701.866	384.727	609.042
D. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
E. Acquisition Strategy The acquisition strategy focuses on the development and integration of subsystem technologies with a robust reliability and manufacturing approach in a competitive environment. The program obtained a successful MS A decision in July 2016 and subsequently released a Request for Proposals. The program competitively selected two prime contractors in August 2017 to execute the Technology Maturation and Risk Reduction (TMRR) phase. The selected prime contractors executed the Cost-Plus-Fixed-Fee (CPFF) contracts during TMRR with activities focused on developing and maturing subsystem and system designs. In FY20, LRSO pivoted to sole source TMRR contractor, enabling early Development RFP (dRFP) release & MS B. Program transitioning through MS B and early entry into EMD.				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force												Date: May 2021				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
3600 / 5				PE 0604932F / Long Range Standoff Weapon					657011 / LONG RANGE STAND-OFF							
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
Long Range Standoff Weapon Development	SS/CPFF	Various : TBD	946.766	590.780	Oct 2019	275.823	Oct 2020	453.203	Oct 2021	-		453.203	-	-	-	
Subtotal			946.766	590.780		275.823		453.203		-		453.203	-	-	N/A	
Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	
Aircraft Integration Planning	Various	Various : TBD	59.742	27.371	Jan 2020	25.182	Oct 2020	41.266	Oct 2021	-		41.266	-	-	-	
All-Up-Round Activities	Various	Various : TBD	25.228	11.952	Feb 2020	17.919	Jan 2021	31.843	Jan 2022	-		31.843	-	-	-	
Subtotal			84.970	39.323		43.101		73.109		-		73.109	-	-	N/A	
Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Test Support	Various	Various : TBD	85.205	38.157	Jan 2020	31.476	Jan 2021	39.483	Jan 2022	-		39.483	-	-	-	
Subtotal			85.205	38.157		31.476		39.483		-		39.483	-	-	N/A	
Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Administration	Various	Various : TBD	99.556	33.606	Oct 2019	34.327	Oct 2020	43.247	Oct 2021	-		43.247	-	-	-	
Subtotal			99.556	33.606		34.327		43.247		-		43.247	-	-	N/A	

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604932F / <i>Long Range Standoff Weapon</i>	Project (Number/Name) 657011 / <i>LONG RANGE STAND-OFF</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Long Range StandOff Weapon</i>				
Technology Maturation and Risk Reduction Phase	1	2020	2	2022
Milestone B Decision	3	2021	3	2021
Engineering and Manufacturing Development Phase	3	2021	4	2026
CDR	2	2023	2	2023