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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army **Date:** April 2022

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604611A / JAVELIN
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	5.983	7.094	7.870	-	7.870	7.993	10.591	10.256	10.356	0.000	60.143
499: <i>Javelin (AAWS-M)</i>	-	5.983	7.094	7.870	-	7.870	7.993	10.591	10.256	10.356	0.000	60.143

A. Mission Description and Budget Item Justification

Javelin is a man-portable, fire-and-forget, medium-range missile with enhanced situational awareness and precision direct-fire effects to defeat armored vehicles, fortifications, and soft targets in a range of military operations. The Javelin Weapon System consists of a re-usable Command Launch Unit (CLU) and a modular missile encased in a disposable launch tube assembly. Javelin has a high kill rate against a variety of targets at extended ranges under day/night, battlefield obscurants, adverse weather and multiple counter-measure conditions. Research, Development, Test & Evaluation (RDT&E) funding provides for system improvements in accordance with the Javelin Capabilities Production Document Objectives and User priorities for future development.

Fiscal Year (FY) 2023 dollars in the amount of \$7.870 million will continue software (SW) improvements (Auto-Gate/Fast-Launch) for the CLU and LWCLU to improve the Javelin Weapons System engagement time and increase lethality against emerging threats and potential adversary countermeasures.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>
Previous President's Budget	5.983	7.094	0.000	-	0.000
Current President's Budget	5.983	7.094	7.870	-	7.870
Total Adjustments	0.000	0.000	7.870	-	7.870
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	7.870	-	7.870

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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Appropriation/Budget Activity 2040 / 5					R-1 Program Element (Number/Name) PE 0604611A / JAVELIN				Project (Number/Name) 499 / Javelin (AAWS-M)			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
499: Javelin (AAWS-M)	-	5.983	7.094	7.870	-	7.870	7.993	10.591	10.256	10.356	0.000	60.143
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Javelin is a man-portable, fire-and-forget, medium-range missile with enhanced situational awareness and precision direct-fire effects to defeat armored vehicles, fortifications, and soft targets in a range of military operations. The Javelin Weapon System consists of a re-usable Command Launch Unit (CLU) and a modular missile encased in a disposable launch tube assembly. Javelin has a high kill rate against a variety of targets at extended ranges under day/night, battlefield obscurants, adverse weather and multiple counter-measure conditions. Research, Development, Test & Evaluation (RDT&E) funding provides for system improvements in accordance with the Javelin Capabilities Production Document Objectives and User priorities for future development.

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

	FY 2021	FY 2022	FY 2023
Title: Javelin System Improvements	5.983	6.725	7.870
<p>Description: Javelin Weapon System Research and Development funding line completes development of a new Light Weight Command Launch Unit (CLU), conducts countermeasure and threat mitigation as well as develops critical software/hardware upgrades for the Javelin Missile System. It provides improved capability to the warfighter by doubling the target identification range and increasing system engagement range up to 4km, while reducing soldier burden. Lightweight CLU and Missile Software improvements will address emerging threats, improve engagement timeline, and increase lethality. Integration and Counter Measure/Threat management allows for technical assessments, concept studies, documentation, prototypes, demonstrations and risk mitigation efforts to address emerging threats and to maintain modernized overmatch capability for U.S. and Allied Nations ground forces.</p> <p>FY 2022 Plans: Continue Lightweight CLU Qualification Testing. Begin Lightweight CLU Operational Testing.</p> <p>FY 2023 Plans: Continue SW improvements (Auto-Gate/Fast-Launch) for the CLU and LWCLU to improve the Javelin Weapons System engagement time and increase lethality against emerging threats and potential adversary countermeasures.</p> <p>Complete Lightweight CLU Operational Testing. Perform and complete Lightweight CLU Airborne Compatibility Qualification Test.</p> <p>Continue development of Lightweight CLU and Javelin Missile software and hardware capability drops.</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
Continue to perform technical assessments, concept studies, prepare documentation, develop prototypes and perform risk reduction efforts to address emerging threats as well as peer and near peer adversary Javelin countermeasures. FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased from FY22 to FY23 is due to Lightweight CLU and Missile software and hardware capability improvements to maintain overmatch of threats and to modernize the dismounted anti-tank ground missile system (ATGM).			
Title: Integration and Counter Measure/Threat management Description: The Javelin Product Office and OGA's will prepare technical assessments, concept studies, documentation, perform demonstrations, and risk mitigation efforts to address emerging threats. FY 2022 Plans: The Javelin Product Office and OGAs will perform technical assessments, concept studies, prepare documentation, and perform risk reduction efforts. Continued in overarching Javelin Weapons Improvement in FY23. FY 2022 to FY 2023 Increase/Decrease Statement: Funding decrease from FY22 to FY23 is due to the integration into the overarching Javelin Weapons System improvement activity.	-	0.110	-
Title: FY22 SBIR/STTR Transfer Description: Funding transferred in accordance with Title 15 USC 638 FY 2022 Plans: Funding transferred in accordance with Title 15 USC 638 FY 2022 to FY 2023 Increase/Decrease Statement: Funding transferred in accordance with Title 15 USC 638	-	0.259	-
Accomplishments/Planned Programs Subtotals	5.983	7.094	7.870

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• H06102: JAVELIN (AAWS-M)	165.354	84.618	99.846	-	99.846	113.675	119.766	124.165	124.191	0.000	831.615
• H06103: Javelin Lightweight Command Launch Unit (CLU)	15.970	44.194	63.122	-	63.122	68.127	78.691	78.434	78.453	0.000	426.991
Remarks											

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D. Acquisition Strategy

The Javelin Weapon System is an Army-led, Acquisition Category (ACAT) IC Major Defense Acquisition Program (MDAP) that has joint interest with the U.S. Marine Corps, U.S. Navy, and U.S. Air Force. Javelin initiated Full Rate Production (FRP) in 1997 and achieved Full Operational Capability (FOC) in 2014. Javelin is currently in the Production and Deployment phase.

Current Acquisition Strategy addresses software and hardware technology upgrades to the Javelin system. The Javelin Lightweight Command Launch Unit (CLU) addresses the Close Combat Missile System-Medium (CCMS-M) Capability Production Document requirement to maintain a low soldier burden dismounted anti-tank missile system. Software upgrades to reduce target engagement time, improving soldier lethality and survivability, previously described, as Auto-Gate /Fast-Launch will initiate FY22 and released in FY25. Missile Hardware upgrades to prevent adversary overmatch will initiate development in FY23 and be incorporated into the Javelin Weapons System in FY27. Development effort utilizes prime contractor, Javelin Joint Venture (Raytheon, Tucson, AZ, and Lockheed Martin, Orlando, FL) via an existing sole source, Cost-Plus-Fixed-Fee contract. The Javelin Joint Venture has invested Independent Research and Development in the Lightweight CLU. Development and testing will occur through FY27 to stay ahead of peer and near-peer adversaries. Future Lightweight CLU and Missile software upgrades will continue to address emerging threats and ensure modernized overmatch capability for U.S and ally ground forces.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army **Date:** April 2022

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Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering/ Program Management, Govt	Various	Multiple : Redstone Arsenal, AL	5.002	0.228	Apr 2021	0.216	Jun 2022	0.220	Nov 2022	-		0.220	0.000	5.666	-
FY22 SBIR/STTR Transfer	TBD	Various : Various	-	-		0.259		-		-		-	0.000	0.259	-
Subtotal			5.002	0.228		0.475		0.220		-		0.220	0.000	5.925	N/A

Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Javelin System Improvements	Various	Multiple : Various Locations	55.889	0.871	Mar 2021	5.586	Apr 2022	5.168	Jan 2023	-		5.168	0.000	67.514	-
Integration and Counter Measure/Threat management	MIPR	Multiple : Various Locations	-	-		0.110	Aug 2022	0.112	Dec 2022	-		0.112	0.000	0.222	-
Subtotal			55.889	0.871		5.696		5.280		-		5.280	0.000	67.736	N/A

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Lightweight CLU Qualification	SS/CPFF	JJV/Raytheon/ Lockheed Martin : Orlando, FL/Tucson, AZ	-	3.836	Mar 2021	-		-		-		-	0.000	3.836	-
Lightweight CLU Qualification	MIPR	Redstone Test Center : Redstone Arsenal, AL	-	1.048	Apr 2021	-		-		-		-	0.000	1.048	-
Lightweight CLU Airborne Compatibility Qualification Test	MIPR	Yuma Proving Grounds : Yuma, AZ	-	-		-		0.385	Mar 2023	-		0.385	0.000	0.385	-
Lightweight CLU Operational Testing	MIPR	Multiple : Various Locations	-	-		0.923	Nov 2021	1.985	Nov 2022	-		1.985	0.000	2.908	-

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Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Subtotal			-	4.884		0.923		2.370		-		2.370	0.000	8.177	N/A
Project Cost Totals			60.891	5.983		7.094		7.870		-		7.870	0.000	81.838	N/A

Remarks
Low-Rate Initial Procurement decision will be made upon completion of critical qualification test events but prior to completion of Operational Test.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army **Date:** April 2022

Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0604611A / JAVELIN	Project (Number/Name) 499 / Javelin (AAWS-M)
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Event Name	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
Lightweight Command Launch Unit (LW CLU)	<div style="display: flex; flex-direction: column; align-items: center; justify-content: center;"> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> <div style="width: 100%; height: 10px; background-color: blue; margin-bottom: 5px;"></div> </div>																											
LW CLU Design / Build Qualification Units																												
LW CLU Qualification Testing																												
LW CLU Airborne Compatibility Qualification Test																												
LW CLU Operational Testing																												
Javelin System Improvements																												
CLU/LW CLU/Missile Software Upgrades																												
LW CLU/Missile Hardware Upgrades																												
Integration and Counter Measure/Threat management																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army **Date:** April 2022

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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Lightweight Command Launch Unit (LW CLU)	1	2022	4	2027
LW CLU Design / Build Qualification Units	1	2020	4	2021
LW CLU Qualification Testing	3	2021	4	2022
LW CLU Airborne Compatibility Qualification Test	3	2023	3	2023
LW CLU Operational Testing	3	2022	1	2023
Javelin System Improvements	1	2020	4	2027
CLU/LW CLU/Missile Software Upgrades	3	2025	3	2025
LW CLU/Missile Hardware Upgrades	4	2027	4	2027
Integration and Counter Measure/Threat management	4	2022	4	2027