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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Army **Date:** February 2018

Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604611A / JAVELIN
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COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	19.241	21.095	10.623	-	10.623	11.897	0.000	0.000	0.000	0.000	62.856
499: Javelin (AAWS-M)	-	19.241	21.095	10.623	-	10.623	11.897	0.000	0.000	0.000	0.000	62.856

Note

Not applicable for this item.

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. Javelin uses a modular design to allow the system to evolve to meet changing threats and requirements via both software and hardware upgrades. The system consists of a reusable Command Launch Unit (CLU) with a built-in-test (BIT), and a modular missile encased in a disposable launch tube assembly. The system also includes training devices for tactical training and classroom training

FY 2019 Base dollars in the amount of \$10.623 million will continue development engineering of the Javelin Lightweight Command Launch Unit (CLU). Objective of the Javelin Lightweight CLU is a 50% reduction in weight and a 35% reduction in size compared to the Block I CLU, while meeting detect, recognize, and identify requirements. Javelin Lightweight CLU is a result of user feedback on weight and bulk, and addresses the Close Combat Missile System - Medium Capability Production Document objective system weight requirement.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	20.011	21.095	17.772	-	17.772
Current President's Budget	19.241	21.095	10.623	-	10.623
Total Adjustments	-0.770	0.000	-7.149	-	-7.149
• Congressional General Reductions	-0.010	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.760	-			
• Adjustments to Budget Years	-	-	-7.149	-	-7.149

Change Summary Explanation

Reduction of \$7.149 M represents a program rephrasing of Base dollars from FY19 to FY20.

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Army										Date: February 2018		
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
499: Javelin (AAWS-M)	-	19.241	21.095	10.623	-	10.623	11.897	0.000	0.000	0.000	0.000	62.856
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. Javelin uses a modular design to allow the system to evolve to meet changing threats and requirements via both software and hardware upgrades. The system consists of a reusable Command Launch Unit (CLU) with a built-in-test (BIT), and a modular missile encased in a disposable launch tube assembly. The system also includes training devices for tactical training and classroom training												
FY2019 Base dollars in the amount of \$10.623 million will continue development engineering of the Javelin Lightweight Command Launch Unit (CLU). Objective of the Javelin Lightweight CLU is a 50% reduction in weight and a 35% reduction in size compared to the Block I CLU, while meeting detect, recognize, and identify requirements. Javelin Lightweight CLU is a result of user feedback on weight and bulk, and addresses the Close Combat Missile System - Medium Capability Production Document objective system weight requirement.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Javelin System Improvements								19.241	21.095	10.623	-	10.623
Description: Develop Lightweight Command Launch Unit.												
FY 2018 Plans: Finalize Design Phase including a system level analysis, a formal Design Review, and the building of 8 Design Verification Testing (DVT) units. Conduct DVT which will include producibility, electromagnetic/electrostatic discharge, image quality, and mechanical separation/launch dynamic tests. Conduct system-level Limited User Assessment. Begin the design, build, and integration of Qualification Units.												
FY 2019 Base Plans: Conduct Critical Design Review. Design, build and integrate Qualification Units. Begin Qualification Testing.												
FY 2018 to FY 2019 Increase/Decrease Statement: Funding is decreased from FY18 to FY19 due to a rephasing of \$7.149M from FY19 to FY20.												
Accomplishments/Planned Programs Subtotals								19.241	21.095	10.623	-	10.623

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

<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u> <u>Base</u>	<u>FY 2019</u> <u>OCO</u>	<u>FY 2019</u> <u>Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• CC0007: Javelin (AAWS-M) System Summary	191.575	118.235	303.665	31.120	334.785	116.742	135.070	212.930	246.157	0.000	1,355.494
• H06103: Javelin Lightweight Command Launch Unit (CLU)	-	-	22.500	-	22.500	-	29.736	59.604	77.670	0.000	189.510

Remarks

FY 2017-2020 procurement funds are to procure missiles only. No CLUs will be procured with FY 2017-2020 funds. Missiles, Lightweight CLUs, and associated training devices will be procured with FY 2021-2023 procurement funds.

D. Acquisition Strategy

Javelin Lightweight CLU development is Sole Source to the Javelin Joint Venture (Raytheon, Tucson, AZ, and Lockheed Martin, Orlando, FL). An Engineering Services Cost Plus contract with the Javelin Joint Venture will be utilized for Lightweight CLU development efforts. The major subassemblies, which are also the primary cost drivers, will be competed. The Javelin Joint Venture has invested Industry Research and Development in the Lightweight CLU. Development, prototype, and testing will occur FY 2015-2020 with production beginning in FY 2021. Army Acquisition Objective (AAO) is 4,809. Current plan is to field to priority Infantry and Stryker Brigade Combat Teams and Special Forces and cascade Block 0 CLUs out of the inventory.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army **Date:** February 2018

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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Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering/ Program Management, Govt	Allot	Multiple : Redstone Arsenal, AL	0.766	1.699	Nov 2016	1.883	Oct 2018	0.956	Oct 2018	-		0.956	1.071	6.375	-
Subtotal			0.766	1.699		1.883		0.956		-		0.956	1.071	6.375	N/A

Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Lightweight CLU Development	SS/CPFF	JJV/Raytheon/ Lockheed Martin : Orlando, FL/ Tucson, AZ	4.987	16.994	Jul 2017	16.903	Nov 2018	7.861	Nov 2018	-		7.861	5.471	52.216	-
Lightweight CLU Development	MIPR	Redstone Test Center : Redstone Arsenal, AL	-	0.548	Nov 2016	-		-		-		-	0.000	0.548	-
Lightweight CLU Trade Studies and Demonstrations	MIPR	AMRDEC : Redstone Arsenal, AL	2.043	-		-		-		-		-	0.000	2.043	-
Subtotal			7.030	17.542		16.903		7.861		-		7.861	5.471	54.807	N/A

Remarks

JJV - Javelin Joint Venture
 SS CPFF - Sole Source Cost Plus Fixed Fee
 CLU - Command Launch Unit
 AMRDEC - Aviation & Missile Research, Development and Engineering Center
 MIPR - Military Interdepartmental Purchase Request

Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Lightweight CLU Design Verification Testing	SS/CPFF	JJV/Raytheon/ Lockheed Martin :	-	-		2.003	Nov 2018	-		-		-	0.000	2.003	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Army												Date: February 2018			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604611A / JAVELIN				Project (Number/Name) 499 / Javelin (AAWS-M)					
Test and Evaluation (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
		Orlando, FL/Tucson, AZ													
Lightweight CLU Design Verification Testing	MIPR	Redstone Test Center : Redstone Arsenal, AL	-	-		0.306	Nov 2018	-		-		-	0.000	0.306	-
Lightweight CLU Qualification Testing	SS/CPFF	JJV/Raytheon/ Lockheed Martin : Orlando, FL/Tucson, AZ	-	-		-		0.273	Nov 2018	-		0.273	0.812	1.085	-
Lightweight CLU Qualification Testing	MIPR	Redstone Test Center : Redstone Arsenal, AL	-	-		-		1.533	Nov 2018	-		1.533	4.544	6.077	-
Subtotal			-	-		2.309		1.806		-		1.806	5.356	9.471	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			7.796	19.241		21.095		10.623		-		10.623	11.898	70.653	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Army	Date: February 2018
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Event Name	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
LW CLU Prototype Demonstration																												
LW CLU Design / Build / Integrate DVT Units																												
LW CLU Design Verification Testing																												
LW CLU Design/Build/Integrate Qualification Units																												
LW CLU Qualification Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Army			Date: February 2018
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
LW CLU Prototype Demonstration	1	2017	1	2017
LW CLU Design / Build / Integrate DVT Units	3	2016	2	2018
LW CLU Design Verification Testing	2	2018	3	2018
LW CLU Design/Build/Integrate Qualification Units	3	2018	1	2020
LW CLU Qualification Testing	4	2019	4	2020