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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army Date: March 2019

<b>Appropriation/Budget Activity</b> 2040: Research, Development, Test & Evaluation, Army / BA 5: System Development & Demonstration (SDD)	<b>R-1 Program Element (Number/Name)</b> PE 0604611A / JAVELIN
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COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	20.252	5.616	17.897	-	17.897	7.500	7.500	7.500	7.500	0.000	73.765
499: Javelin (AAWS-M)	-	20.252	5.616	17.897	-	17.897	7.500	7.500	7.500	7.500	0.000	73.765

## 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 2020 Base dollars in the amount of \$17.897 million will continue development engineering of the Javelin Lightweight Command Launch Unit (CLU). Compared to the Block I CLU, Lightweight CLU will double target identification range while providing a minimum of 25% reduction in weight and 30% reduction in size. 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
Previous President's Budget	21.095	10.623	11.897	-	11.897
Current President's Budget	20.252	5.616	17.897	-	17.897
Total Adjustments	-0.843	-5.007	6.000	-	6.000
• Congressional General Reductions	-0.017	-0.007			
• Congressional Directed Reductions	-	-5.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.826	-			
• Adjustments to Budget Years	-	-	6.000	-	6.000

## Change Summary Explanation

The FY 2020 increase of \$6.0 million is to complete design/build of qualification units and begin qualification testing.

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
499: Javelin (AAWS-M)	-	20.252	5.616	17.897	-	17.897	7.500	7.500	7.500	7.500	0.000	73.765
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

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FY 2020 Base dollars in the amount of \$17.897 million will continue development engineering of the Javelin Lightweight Command Launch Unit (CLU). Compared to the Block I CLU, Lightweight CLU will double target identification range while providing a minimum of 25% reduction in weight and 30% reduction in size. 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)**

	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>
<b>Title:</b> Javelin System Improvements	20.252	5.250	17.897	-	17.897
<b>Description:</b> Develop Lightweight Command Launch Unit.					
<b>FY 2019 Plans:</b> Conduct Lightweight CLU Design Review. Begin design, build and integration of Qualification Units.					
<b>FY 2020 Base Plans:</b> Continue design/build of qualification units. Begin qualification tests to include portability, maintenance, and logistics demonstrations.					
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> The FY 2020 increase of \$6.0 million is to complete design/build of qualification units and begin qualification testing.					
<b>Title:</b> FY 2019 SBIR/STTR Transfer	-	0.366	-	-	-
<b>Description:</b> FY 2019 SBIR / STTR Transfer					
<b>FY 2019 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2020 Army				<b>Date:</b> March 2019							
<b>Appropriation/Budget Activity</b> 2040 / 5		<b>R-1 Program Element (Number/Name)</b> PE 0604611A / JAVELIN		<b>Project (Number/Name)</b> 499 / Javelin (AAWS-M)							
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>				<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>			
FY 2019 SBIR / STTR Transfer											
<b>FY 2019 to FY 2020 Increase/Decrease Statement:</b> FY 2019 SBIR / STTR Transfer											
<b>Accomplishments/Planned Programs Subtotals</b>				20.252	5.616	17.897	-	17.897			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020 Base</b>	<b>FY 2020 OCO</b>	<b>FY 2020 Total</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• CC0007: Javelin (AAWS-M) System Summary	265.535	245.485	0.000	142.794	142.794	147.643	141.924	209.591	199.926	0.000	1,352.898
• H06103: Javelin Lightweight Command Launch Unit (CLU)	-	22.500	0.000	-	0.000	30.000	60.000	70.000	70.000	0.000	252.500
<b>Remarks</b>											
FY 2018-2020 procurement funds are to procure missiles and Block I CLU retrofits. No CLUs will be procured with FY 2018-2020 funds. Missiles, Lightweight CLUs, and associated training devices will be procured with FY 2021-2024 procurement funds.											
<b>D. Acquisition Strategy</b>											
Javelin Lightweight CLU development is Sole Source to the Javelin Joint Venture (Raytheon, Tucson, AZ, and Lockheed Martin, Orlando, FL). A Cost Plus contract with the Javelin Joint Venture will be utilized for Lightweight CLU development efforts. The major sub-assemblies, which are also the primary cost drivers, will be competed. The Javelin Joint Venture has invested Independent Research and Development in the Lightweight CLU. Development, prototype, and testing will occur FY 2015-2021 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.											
<b>E. Performance Metrics</b>											
N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Army												Date: March 2019			
Appropriation/Budget Activity 2040 / 5						R-1 Program Element (Number/Name) PE 0604611A / JAVELIN				Project (Number/Name) 499 / Javelin (AAWS-M)					
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	2.465	1.808	May 2018	0.956	Oct 2018	1.070	Oct 2019	-		1.070	0.000	6.299	-
Subtotal			2.465	1.808		0.956		1.070		-		1.070	0.000	6.299	N/A
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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	21.981	16.228	Aug 2018	4.294	Nov 2018	14.985	Nov 2019	-		14.985	1.589	59.077	-
Lightweight CLU Development	MIPR	Redstone Test Center : Redstone Arsenal, AL	0.548	-		-		-		-		-	0.000	0.548	-
Lightweight CLU Trade Studies and Demonstrations	MIPR	AMRDEC : Redstone Arsenal, AL	2.043	-		-		-		-		-	0.000	2.043	-
FY 2019 SBIR/STTR Transfer	TBD	TBD : TBD	-	-		0.366		-		-		-	0.000	0.366	-
Subtotal			24.572	16.228		4.660		14.985		-		14.985	1.589	62.034	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															

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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)					
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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 : Orlando, FL/Tucson, AZ	-	1.923	Jul 2018	-		-		-		-	0.000	1.923	-
Lightweight CLU Design Verification Testing	MIPR	Redstone Test Center : Redstone Arsenal, AL	-	0.293	Jul 2018	-		-		-		-	0.000	0.293	-
Lightweight CLU Qualification Testing	SS/CPFF	JJV/Raytheon/ Lockheed Martin : Orlando, FL/Tucson, AZ	-	-		-		0.278	Nov 2019	-		0.278	0.828	1.106	-
Lightweight CLU Qualification Testing	MIPR	Redstone Test Center : Redstone Arsenal, AL	-	-		-		1.564	Nov 2019	-		1.564	4.635	6.199	-
Subtotal			-	2.216		-		1.842		-		1.842	5.463	9.521	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			27.037	20.252		5.616		17.897		-		17.897	7.052	77.854	N/A
Remarks															

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2020 Army</b>			<b>Date:</b> March 2019		
<b>Appropriation/Budget Activity</b> 2040 / 5		<b>R-1 Program Element (Number/Name)</b> PE 0604611A / JAVELIN		<b>Project (Number/Name)</b> 499 / Javelin (AAWS-M)	

Event Name	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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 Design / Build DVT Units																												
LW CLU Design Verification Testing																												
LW CLU Design Review																												
LW CLU Design / Build Qualification Units																												
LW CLU Qualification Testing																												
Submit Final ECP																												
System Improvements to Meet Emerging Threats																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2020 Army			<b>Date:</b> March 2019
<b>Appropriation/Budget Activity</b> 2040 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0604611A / JAVELIN	<b>Project (Number/Name)</b> 499 / Javelin (AAWS-M)	

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
LW CLU Design / Build DVT Units	3	2016	1	2019
LW CLU Design Verification Testing	1	2019	3	2019
LW CLU Design Review	4	2019	4	2019
LW CLU Design / Build Qualification Units	3	2019	2	2021
LW CLU Qualification Testing	4	2020	4	2021
Submit Final ECP	4	2021	4	2021
System Improvements to Meet Emerging Threats	1	2022	4	2024