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

<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 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	-	14.377	5.983	7.094	-	7.094	-	-	-	-	-	-
499: Javelin (AAWS-M)	-	14.377	5.983	7.094	-	7.094	-	-	-	-	-	-

**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. Program Change Summary (\$ in Millions)**

	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	14.997	7.493	7.493	-	7.493
Current President's Budget	14.377	5.983	7.094	-	7.094
Total Adjustments	-0.620	-1.510	-0.399	-	-0.399
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.236			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.003	-			
• SBIR/STTR Transfer	-0.617	-0.274			
• Adjustments to Budget Years	-	-	-0.399	-	-0.399

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Army										<b>Date:</b> May 2021		
<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>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
499: Javelin (AAWS-M)	-	14.377	5.983	7.094	-	7.094	-	-	-	-	-	-
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)**

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> Javelin System Improvements	14.377	5.983	0.923
<b>Description:</b> Development of a new CLU will improve capability over the currently fielded Block 1 CLU by doubling target identification range and increasing system engagement range from 2.5 kilometers (km) to 4 km. Lightweight CLU reduces Soldier burden by 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>FY 2021 Plans:</b> Complete design/build of qualification units. Begin to perform qualification tests to include portability, maintenance and logistics demonstrations.			
<b>FY 2022 Plans:</b> Complete qualification testing. Begin Lightweight CLU operational testing.			
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Funding decrease from FY21 to FY22 due to completion of the Lightweight CLU qualification.			
<b>Title:</b> Auto-Gate/Fast-Launch	-	-	6.061
<b>Description:</b> Auto-Gate capability uses advanced video processing to automatically apply track gates to a target, eliminating manual gate adjustments and significantly reducing time for target acquisition. Fast-Launch capability correlates missile seeker view with CLU view to present the gunner with a composite image, eliminating the need to switch between CLU and missile view thus reducing target engagement time by 30-50% when combined with Auto-Gate.			
<b>FY 2022 Plans:</b>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2020	FY 2021	FY 2022
Begin development of Auto-Gate/Fast-Launch software controls and tracking algorithms to improve engagement timeline. Integrate new capabilities and features; identify and develop new features; create software builds; provide integration Subject Matter Expert support and Systems Engineering support.  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Funding increase from FY21 to FY22 due to start of system software improvements for Auto-Gate/Fast-Launch.			
<b>Title:</b> Integration and Counter Measure/Threat management  <b>Description:</b> The Javelin Product Office and OGA's will prepare technical assessments, concept studies, documentation and perform demonstrations and risk mitigation efforts to address emerging threats.  <b>FY 2022 Plans:</b> The Javelin Product Office and OGAs will perform technical assessments, concept studies, prepare documentation, and perform risk reduction efforts.  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Funding increase from FY21 to FY22 due to new requirements for concept studies and government testing.	-	-	0.110
<b>Accomplishments/Planned Programs Subtotals</b>	14.377	5.983	7.094

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• H06102: JAVELIN (AAWS-M)	142.794	165.355	76.648	-	76.648	-	-	-	-	-	-
• H06103: Javelin Lightweight Command Launch Unit (CLU)	-	15.970	44.194	-	44.194	-	-	-	-	-	-

**Remarks**  
 FY 2020 procurement funds procure missiles and CLU retrofits only. FY 2021-2026 procurement funds procure missiles and Lightweight CLUs.

**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 was approved for 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 improvements/software upgrades to the Javelin system. The Javelin Lightweight Command Launch Unit (CLU) addresses the Close Combat Missile System - Medium Capability Production Document objective system weight requirement and was initiated as a result of user feedback on weight and bulk. Development effort utilizes prime contractor, Javelin Joint Venture (Raytheon, Tucson, AZ, and Lockheed Martin, Orlando, FL) and will be accomplished

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Army **Date:** May 2021

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
2040 / 5	PE 0604611A / <i>JAVELIN</i>	499 / <i>Javelin (AAWS-M)</i>

via an existing sole source, Cost-Plus-Fixed-Fee contract. The Javelin Joint Venture has invested Independent Research and Development in the Lightweight CLU. Competition will be used for major sub-assemblies which are the primary cost drivers. Development and testing will occur through FY 2023 with Low-Rate Initial Production (LRIP) beginning in FY 2021. Army Acquisition Objective (AAO) is 4,979. Current plan is to field to priority Infantry and Stryker Brigade Combat Teams and Special Forces.

Auto-Gate/Fast-Launch is a software upgrade for the Lightweight CLU that will take approximately 3 years to develop from FY22-24. Development efforts will be accomplished via an existing sole-source, Cost-Plus-Fixed-Fee contract with the Javelin Joint Venture. Development completion lines up with production of the first full rate build of Lightweight CLUs, so that the Auto-Gate/Fast-Launch upgrade can be implemented prior to Lightweight CLU Full-Rate Production fielding.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army** **Date:** May 2021

<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)
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<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
System Engineering/ Program Management, Govt	Allot	Multiple : Redstone Arsenal, AL	4.273	0.729	Oct 2019	0.228	Apr 2021	0.216	Nov 2021	-		0.216	0.000	5.446	-
<b>Subtotal</b>			4.273	0.729		0.228		0.216		-		0.216	0.000	5.446	N/A

<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Lightweight CLU Development	SS/CPFF	JJV/Raytheon/ Lockheed Martin : Orlando, FL/ Tucson,AZ	42.241	13.648	Nov 2019	0.871	Mar 2021	-		-		-	0.000	56.760	-
Auto-Gate/Fast-Launch Software Development	SS/CPFF	JJV/Raytheon/ Lockheed Martin : Orlando, FL/Tucson, AZ	-	-		-		5.845	Jan 2022	-		5.845	0.000	5.845	-
Integration and Counter Measure/Threat management	SS/ Various	TBD : TBD	-	-		-		0.110	Dec 2021	-		0.110	0.000	0.110	-
<b>Subtotal</b>			42.241	13.648		0.871		5.955		-		5.955	0.000	62.715	N/A

**Remarks**

JJV - Javelin Joint Venture  
 SS CPFF - Sole Source Cost Plus Fixed Fee  
 CLU - Command Launch Unit  
 MIPR - Military Interdepartmental Purchase Request

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Lightweight CLU Qualification	SS/CPFF	JJV/Raytheon/ Lockheed Martin :	-	-		3.836	Mar 2021	-		-		-	0.000	3.836	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army** **Date:** May 2021

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Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
		Orlando, FL/Tucson, AZ													
Lightweight CLU Qualification	MIPR	Redstone Test Center : Redstone Arsenal, AL	-	-		1.048	Apr 2021	-		-		-	0.000	1.048	-
Lightweight CLU Operational Testing	MIPR	Operational Test Command : Ft. Hood, TX	-	-		-		0.923	Nov 2021	-		0.923	0.154	1.077	-
<b>Subtotal</b>			-	-		4.884		0.923		-		0.923	0.154	5.961	N/A
<b>Project Cost Totals</b>			46.514	14.377		5.983		7.094		-		7.094	0.154	74.122	N/A

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

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**Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army** **Date: May 2021**

<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)
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Event Name	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026							
	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				
<b>Lightweight Command Launch Unit (LW CLU)</b>																																
LW CLU Design / Build Qualification Units																																
LW CLU Qualification Testing																																
LW CLU Operational Testing																																
<b>Auto-Gate/Fast-Launch</b>																																
Auto-Gate/Fast-Launch Software Development																																
Auto-Gate/Fast-Launch Software Validation																																
Auto-Gate/Fast-Launch Functional Qualification Test (FQT)																					▲ 1											
Auto-Gate/Fast-Launch Integration, Checkout, Live Fire																																
Networking & Far Target Locator Development																																
Integration and Counter Measure/Threat management																																

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2022 Army **Date:** May 2021

<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)
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Lightweight Command Launch Unit (LW CLU)	1	2020	4	2024
LW CLU Design / Build Qualification Units	1	2020	3	2021
LW CLU Qualification Testing	3	2021	1	2022
LW CLU Operational Testing	1	2022	1	2023
Auto-Gate/Fast-Launch	2	2022	4	2023
Auto-Gate/Fast-Launch Software Development	2	2022	1	2023
Auto-Gate/Fast-Launch Software Validation	2	2023	3	2023
Auto-Gate/Fast-Launch Functional Qualification Test (FQT)	4	2023	4	2023
Auto-Gate/Fast-Launch Integration, Checkout, Live Fire	1	2024	4	2024
Networking & Far Target Locator Development	1	2025	4	2026
Integration and Counter Measure/Threat management	2	2022	1	2028

**Note**

LWCLU Operational Testing schedule incorporates requirement to provide funding to Operational Test Command 6-8 months prior to execution of test event. Funding reduction in FY21 delays the cold-environment OT live fire event from 1QFY22 to 1QFY23.