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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Army											<b>Date:</b> April 2022	
<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0607865A / <i>Patriot Product Improvement</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	178.984	125.932	152.312	-	152.312	140.999	140.870	140.916	142.287	Continuing	Continuing
DV8: <i>Patriot Product Improvement</i>	-	178.984	125.932	152.312	-	152.312	140.999	140.870	140.916	142.287	Continuing	Continuing

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

This funding line is a key enabler of the Army Modernization Priorities in support of the PATRIOT surface to air missile system. PATRIOT is an integral part of the Integrated Air and Missile Defense (IAMD) Architecture, and enables the incremental fielding of the IBCS capability for Army Air and Missile Defense Battalions.

The PATRIOT Product Improvement Program (PIP) provides for the upgrade of the PATRIOT System and the Army Integrated Air and Missile Defense (IAMD) system through software improvements and individual materiel changes and upgrades to current force and IAMD-connected PATRIOT system components (interceptors, ground system equipment, launcher, and current radar) to address operational lessons-learned and necessary system performance improvements to include enhancements that support joint force interoperability and enable convergence with IBCS to ensure overmatch capability. As software and hardware improvements are developed, there is a continuing need for system level modeling, simulation, integration and testing. Modeling and Simulation (M&S) allow for performance assessment against emerging threats in a manner that is not practical to demonstrate with live fire flight tests alone due to cost, target availability, and range constraints. Flight testing is periodically required for validation of the modeling and simulation as well as satisfying Army Test and Evaluation Command/ Director, Operational Test and Evaluation (ATEC/DOTE) requirements of segment improvements.

This effort supports work with national agencies to evaluate, assess, and develop means to mitigate threat trends and specific threat developments potentially impacting system performance including effective detection, tracking, discrimination, and engagement. Specific improvements may be developed and fielded under this task if warranted. The effort maintains the Mission Tailoring Database, responding to immediate tactical concerns. Database updates are fielded between major software upgrades as necessary.

The PIP line also supports the identification, analysis, design, and test of materiel solutions to counter cyber security and electronic warfare shortcomings to all elements of the Lower Tier Battle Space.

FY 2023 base dollars in the amount of \$152.312 million support the continuance of critical software improvements for current force PATRIOT and Army IAMD, including Software Improvement for Threat Evolution, PAC-3 Seeker Software Improvement, Advanced Electronic Counter Measures (AECM), Combat ID enhancements, Tasks 2, 6, and 7 activities, program integration, modeling and simulation, acquisition of test assets and targets, Mobile Flight Mission Simulator (MFMS), PDB-8.1 and Patriot Component Software Build (PCSB) software, convergence with the IAMD Battle Command System (IBCS) and government and contractor support.

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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / <i>Patriot Product Improvement</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	178.984	125.932	0.000	-	0.000
Current President's Budget	178.984	125.932	152.312	-	152.312
Total Adjustments	0.000	0.000	152.312	-	152.312
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	152.312	-	152.312

**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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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Army										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 2040 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607865A / <i>Patriot Product Improvement</i>				<b>Project (Number/Name)</b> DV8 / <i>Patriot Product Improvement</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
DV8: <i>Patriot Product Improvement</i>	-	178.984	125.932	152.312	-	152.312	140.999	140.870	140.916	142.287	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The PATRIOT system includes a family of hardware, software, interceptors (PAC-2, Guidance Enhanced Missiles, PAC-3 and PAC-3 Missile Segment Enhancement) and Ground Support Equipment. PATRIOT system components (interceptors, launcher, and radar) are integrated with current force PATRIOT and Army Integrated Air and Missile Defense (IAMD) components, including IBCS. As PATRIOT system components software and hardware improvements are developed, there is a continuing need for system level modeling, simulation, integration and testing. Modeling and Simulation (M&S) allow for performance assessment against specific threats in a manner that is not practical to demonstrate with live fire flight tests alone due to cost, target availability, and range constraints. Flight testing is periodically required for M&S validation as well as satisfying ATEC/DOTE requirements of segment improvements.

-PATRIOT system components software and hardware improvements for threat evolution: Performs necessary analysis and development efforts to maintain PATRIOT system (interceptors, ground support equipment, and current radar) effectiveness against evolving threat technologies and capabilities, support convergence with the IBCS, and complete PATRIOT Component Software Builds (PCSB). This effort identifies evolving threats and threat characteristics that present a challenge to PATRIOT's current capabilities and develops initial concepts to maintain system effectiveness including detection, tracking, discrimination, and engagement relative to these threats. Additionally, evolving threat information is used to develop, integrate, and assess evolving lethality models in high-fidelity interceptor simulations supporting system level assessment of hit-to-kill and warhead interceptor performance.

-Advanced Electronic Counter Measures (AECM): This task investigates the implications of advanced technology Digital Radio Frequency Memory available on airborne platforms that enables new ECM techniques which could adversely degrade Air and Missile Defense System effectiveness. AECM efforts support PATRIOT system interceptors, ground support equipment, and current radar.

-Task 2: Implements improved ground system and interceptor capabilities (PATRIOT Advanced Capability-2/Guidance Enhanced Missiles, PATRIOT Advanced Capability-3, and Missile Segment Enhancement) to counter emerging Tactical Ballistic Missile threats.

-Task 6: Software improvements enhance ground support equipment and current radar discrimination of higher altitude Tactical Ballistic Missile Re-entry Vehicles (RVs) from associated objects to support the full engagement capabilities of the interceptor. Longer-range detection, track, and improved high-altitude discrimination are required to achieve the required lethality performance against the RV and to mitigate and reduce missile wastage against separation debris. This task leverages the signal processing capabilities of the Radar Digital Processor, and supports the high altitude engagements required by the PATRIOT Advanced Capability-3 (PAC-3) and PAC-3 Missile Segment Enhancement (MSE) missiles.

-Task 7: Performs analysis on existing and evolving TBM countermeasures to determine the effects on PATRIOT system effectiveness. Develops hardware and software concepts to address countermeasure effects to ensure the PATRIOT system maintains its effectiveness. Develops detailed system requirements to implement concepts; design/code/test software implementation leveraging Radar Digital Processor, Modernized Adjunct Processor, Enhanced Weapons Control Computer - Emulator and Flight Solution Computer-Redesign processing capabilities. Implements simulation-based concepts to define trade space and establish system requirements.

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<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / <i>Patriot Product Improvement</i>	<b>Project (Number/Name)</b> DV8 / <i>Patriot Product Improvement</i>
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-Combat ID Enhancements: Develop and implement improvements to the Radar Digital Processor-Capability Combat ID capabilities and additional Non-Cooperative Target Recognition techniques to further mitigate misclassification and fratricide risk, and to provide the Warfighter with improved situational awareness. This effort mitigates detection, tracking, and engagement errors on friendly targets.

-PAC-3 Seeker Software Improvements: Perform PAC-3 MSE Software improvements to address evolving and newly fielded Electronic Attack threats providing analysis, engineering, prototyping, testing, and tactical software implementation of improvements.

-Program Integration MSE LMMFC: This task support interceptor flight mission analysis, test missile preparation, flight mission interceptor integration, and range safety tasks allowing execution of required PATRIOT flight test activities.

-Mobile Flight Mission Simulator (MFMS) is a real-time system exerciser integrated with tactical ground hardware to simulate signals into the radar. The MFMS is part of the simulation and testing infrastructure required to support fielded PATRIOT.

-Post Deployment Build 8 (PDB-8) continues system testing and analysis for PATRIOT Component Software Build Developmental Test and Evaluation and Limited User Testing required to support fielded PATRIOT. MSE/PAC-3 Raytheon effort provides integration into PATRIOT and associated Raytheon/PATRIOT ground system flight test support.

-US Government and contractor support for PIP efforts supporting system interceptors, ground support equipment, and current radar provide studies and support to ensure the system and its components continue to evolve to defeat emerging threats.

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

	FY 2021	FY 2022	FY 2023
<p><b>Title:</b> PATRIOT Product Improvement</p> <p><b>Description:</b> Patriot Product improvement line provides continuous improvement to current force PATRIOT and Army IAMD to keep pace with and counter evolving and emerging threats.</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>-Continue Software Improvement for Threat Evolution and AECM to address emerging threats and convergence with IBCS</li> <li>-Continue Combat ID enhancements</li> <li>-Continue Tasks 2, 6, and 7 activities to develop hardware and software to maintain PATRIOT system effectiveness in the field</li> <li>-Continue program development through system level modeling, simulation, integration and test support to address emerging threats and convergence with IBCS</li> <li>-Continue test program to include utilization of targets/threat simulators, flight simulator and modeling efforts to maintain system effectiveness</li> <li>-Continue test activities to support the TEMP</li> <li>-Continue Ballistic Missile Defense System (BMDS) Integration Testing</li> <li>-Continue development and integration of Assured Position, Navigation and Timing (APNT)</li> <li>-Continue supporting Integrated Fires Testing</li> <li>-Continue PATRIOT program M&amp;S laboratory infrastructure maintenance as well as the conduct of M&amp;S for hardware/software capability improvements</li> </ul>	178.984	121.335	152.312

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<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / <i>Patriot Product Improvement</i>	<b>Project (Number/Name)</b> DV8 / <i>Patriot Product Improvement</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p>-U.S. Government and contractor support to ensure force effectiveness is maintained to keep pace with evolving and emerging threats</p> <p>-Continue IBCS convergence and PCSB effort (IBCS convergence and PCSB efforts began in FY21)</p> <p>-Continue PAC-3 Seeker Software Improvements to counter Electronic Attack Threats</p> <p>-Continue interceptor design reviews, system integration activities, test and analysis, and threat analysis and modeling</p> <p>-Continue MSS-2 laboratory support for high fidelity seeker data collection, modeling and analysis</p> <p><b>FY 2023 Plans:</b></p> <p>-Continue Software Improvement for Threat Evolution and AECM to address emerging threats and convergence with IBCS</p> <p>-Continue Combat ID enhancements to reduce fratricide potential</p> <p>-Continue Tasks 2, 6, and 7 activities to develop hardware and software to maintain PATRIOT system effectiveness in the field</p> <p>-Continue program development through system level modeling, simulation, integration and test support to address emerging threats and convergence with IBCS</p> <p>-Continue test program to include utilization of targets/threat simulators, flight simulator and modeling efforts to maintain system effectiveness</p> <p>-Continue test activities to support the TEMP</p> <p>-Continue supporting Integrated Fires Testing</p> <p>-Continue Ballistic Missile Defense System (BMDS) Integration Testing</p> <p>-Continue PATRIOT program M&amp;S laboratory infrastructure maintenance as well as the conduct of M&amp;S for hardware/software capability improvements</p> <p>-U.S. Government and contractor support to ensure force effectiveness is maintained to keep pace with evolving and emerging threats</p> <p>-Continue IBCS convergence and PCSB effort</p> <p>-Continue PAC-3 Seeker Software Improvements to counter Electronic Attack Threats</p> <p>-Continue system integration activities, test and analysis, and threat analysis and modeling</p> <p>-Continue MSS-2 laboratory support for high fidelity seeker data collection, modeling and analysis</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b></p> <p>The \$26.380M increase in funding from FY22 to FY23 will restore funding levels for Advanced Electronic Counter Measures (AECM) and Task 7; increase Task 2, and SW improvements funding. These adjustments support development and testing required to defend against identified emerging threats and AMD transition to IBCS.</p>				
<b>Title:</b> FY2022 SBIR/STTR Transfer		-	4.597	-
<b>Description:</b> SBIR/STTR				

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<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / Patriot Product Improvement	<b>Project (Number/Name)</b> DV8 / Patriot Product Improvement
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2021	FY 2022	FY 2023
<b>FY 2022 Plans:</b> SBIR/STTR			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC 2638.			
<b>Accomplishments/Planned Programs Subtotals</b>	178.984	125.932	152.312

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• C50700: Patriot Mods	278.050	205.469	253.689	-	253.689	215.425	182.062	809.071	820.684	Continuing	Continuing

**Remarks**  
The improvements/enhancements developed through the PATRIOT Product Improvement Program (PIP) are interrelated with the hardware kits that are procured and installed under the Missile Procurement, Army (MIPA) appropriation's PATRIOT Mods program and maximizes PAC-3 MSE capabilities.

**D. Acquisition Strategy**  
The design objective of the PATRIOT system was to provide a baseline system capable of modification to cope with continuing threat evolution. This program minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems. The PATRIOT Product Improvement Program upgrades the PATRIOT system and the Army IAMD system to address operational lessons learned, enhancements to joint force interoperability and communications, and other system performance improvements including detection, tracking, discrimination, and engagement to provide overmatch capability against the emerging threat. Upgrades are implemented through individual hardware and software materiel changes and fielded incrementally. This program encompasses several changes which will require the use of a variety of acquisition methods to develop, test, procure and field. Future hardware and software capabilities will be incorporated into Patriot Component Software Build (PCSB) releases and continue convergence efforts with IBCS. Developing, fabricating, and testing hit to kill surface to air missile and associated ground support equipment provides essential increases in battle space, accuracy, lethality and firepower to counter and destroy evolving air defense threats. These state-of-the-art capabilities and enhancements require ongoing demonstration through a series of flight tests and modeling and simulation activities to add survivability and resiliency in a denied environment.

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

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / Patriot Product Improvement	<b>Project (Number/Name)</b> DV8 / Patriot Product Improvement
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<b>Management Services (\$ in Millions)</b>				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			
Government Program Management	MIPR	RSA, AL : RSA, AL	13.028	5.444	Oct 2020	5.474	Jan 2022	4.515	Jan 2023	-		4.515	Continuing	Continuing	-
U.S. Contracts	Various	Multiple : Multiple	9.800	1.700	Feb 2021	1.770	Feb 2022	1.770	Feb 2023	-		1.770	Continuing	Continuing	-
PAC-3 Product Office	RO	Project Office : Huntsville, AL	-	1.900	Oct 2020	-		-		-		-	Continuing	Continuing	-
FY 2020 Army Withhold Pending ATR	TBD	Various : Various	4.397	-		-		-		-		-	0.000	4.397	-
SIBR/STTR Transfer	TBD	Government : Government	-	-		4.597		-		-		-	0.000	4.597	-
<b>Subtotal</b>			27.225	9.044		11.841		6.285		-		6.285	Continuing	Continuing	N/A

<b>Product Development (\$ in Millions)</b>				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			
Software Improvement for Threat Evolution	Various	Multiple : Multiple	63.270	8.756	Jan 2021	6.486	Jan 2022	9.260	Jan 2023	-		9.260	Continuing	Continuing	-
Advanced Electronic Counter Measures (AECM)	Various	Multiple : Multiple	100.797	16.390	Jan 2021	7.736	Jan 2022	19.350	Jan 2023	-		19.350	Continuing	Continuing	-
Task 2 Non-Ballistic Tactical Ballistic Missile (TBM)	Various	Multiple : Multiple	48.339	6.300	Feb 2021	6.648	Feb 2022	9.765	Feb 2023	-		9.765	Continuing	Continuing	-
Task 6 Discrimination Improvements	Various	Multiple : Multiple	47.539	6.100	Feb 2021	5.074	Feb 2022	5.400	Feb 2023	-		5.400	Continuing	Continuing	-
Task 7 TBM Countermeasures / Effectors	Various	Multiple : Multiple	46.639	9.561	Feb 2021	8.787	Feb 2022	24.000	Feb 2023	-		24.000	Continuing	Continuing	-
Assured PNT	Various	Multiple : Multiple	16.779	1.900	Jan 2021	-		3.000	Jan 2023	-		3.000	Continuing	Continuing	-
Combat ID Enhancements	Various	Multiple : Multiple	48.828	14.736	Feb 2021	2.912	Feb 2022	15.328	Feb 2023	-		15.328	Continuing	Continuing	-
Anti-Radiation Missile (ARM) Asset Defense	Various	Raytheon : Andover, Massachusetts	5.000	1.200	May 2021	-		-		-		-	Continuing	Continuing	-

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

<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / Patriot Product Improvement	<b>Project (Number/Name)</b> DV8 / Patriot Product Improvement
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<b>Product Development (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 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>			
Tactical Telemetry Ground Station	Various	Multiple : Multiple	0.250	-		-		2.000	Feb 2023	-		2.000	Continuing	Continuing	-
PAC-3 Seeker SW Improvement	TBD	Multiple : Multiple	21.015	13.874	Feb 2021	2.649	Feb 2022	2.000	Feb 2023	-		2.000	Continuing	Continuing	-
CDCC and OGAs	MIPR	RSA : RSA	-	0.800	Oct 2020	0.836	Oct 2021	0.850	Oct 2022	-		0.850	Continuing	Continuing	-
Program Integration MSE LMMFC	Various	LMMFC : Dallas, TX	-	21.262	Feb 2021	12.035	Feb 2022	7.442	Feb 2023	-		7.442	Continuing	Continuing	-
MSE/PAC-3 Raytheon	Various	Raytheon : Watham, Massachusetts	-	7.900	Feb 2021	4.600	Feb 2022	2.500	Feb 2023	-		2.500	Continuing	Continuing	-
SETA Contracts	Various	Multiple : Multiple	-	2.800	Feb 2021	2.900	Feb 2022	0.918	Feb 2023	-		0.918	Continuing	Continuing	-
<b>Subtotal</b>			398.456	111.579		60.663		101.813		-		101.813	Continuing	Continuing	N/A

**Remarks**  
The contract method type Sole Source/Various is Fixed Price Level of Effort which includes Cost Plus Fixed Fee for material, ODC, and travel.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2021</b>		<b>FY 2022</b>		<b>FY 2023 Base</b>		<b>FY 2023 OCO</b>		<b>FY 2023 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>			
CCDC and Other Govt Agencies	MIPR	RDEC and OGA'S : RSA, AL	6.251	6.800	Jan 2021	7.000	Jan 2022	4.255	Jan 2023	-		4.255	Continuing	Continuing	-
Targets/Threat Simulation	MIPR	Various : Huntsville, AL	-	26.396	Jan 2021	23.650	Jan 2022	25.841	Jan 2023	-		25.841	Continuing	Continuing	-
Modeling and Simulation	MIPR	Various : Huntsville, AL	-	3.022	Jan 2021	3.700	Jan 2022	3.700	Jan 2023	-		3.700	Continuing	Continuing	-
Contractor T&E	Various	Multiple : Various	-	8.328	Feb 2021	4.893	Jan 2022	3.048	Jan 2023	-		3.048	Continuing	Continuing	-
Other T&E	MIPR	Various : WSMR, NM	-	4.600	Jan 2021	4.600	Jan 2022	1.456	Feb 2023	-		1.456	Continuing	Continuing	-
Mobile Flight Mission Simulator	SS/FPIF	Raytheon : Massachusetts	-	1.000	Feb 2021	1.175	Feb 2022	1.166	Feb 2023	-		1.166	Continuing	Continuing	-
PDB-8.1	MIPR	Various : WSMR, NM	-	8.215	Feb 2021	8.410	Nov 2021	4.748	Nov 2022	-		4.748	Continuing	Continuing	-
<b>Subtotal</b>			6.251	58.361		53.428		44.214		-		44.214	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Army							<b>Date:</b> April 2022				
<b>Appropriation/Budget Activity</b> 2040 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0607865A / Patriot Product Improvement				<b>Project (Number/Name)</b> DV8 / Patriot Product Improvement				
	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>		
<b>Project Cost Totals</b>	431.932	178.984	125.932	152.312	-	152.312	Continuing	Continuing	N/A		

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Army</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / Patriot Product Improvement	<b>Project (Number/Name)</b> DV8 / Patriot Product Improvement

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
Software Build (PDB 8.1 and PCSB V 1.0)	[Redacted]																											
Advanced Electronic Counter Measures (AECM)	[Redacted]																											
Software Improvement for Threat Evolution	[Redacted]																											
Combat ID Enhancements	[Redacted]																											
Task 2 Non-Ballistic Tactical Ballistic Missile (TBM)	[Redacted]																											
Task 6 Discrimination Improvements	[Redacted]																											
Task 7 TBM Countermeasures / Effectors	[Redacted]																											
Assured PNT	[Redacted]																											
PAC-3 Seeker Software Improvements	[Redacted]																											
PATRIOT System Testing, Integration and Evaluation	[Redacted]																											
Program Development, Integration, and Support	[Redacted]																											
Testing, Targets, Modeling and Simulation	[Redacted]																											
Developmental/Operational Flight Testing	[Redacted]																											

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2023 Army</b>		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / Patriot Product Improvement	<b>Project (Number/Name)</b> DV8 / Patriot Product Improvement

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																								
Follow-On Flight Testing																																																				
PDB 8.1 Material Release																																																				
PCSB V 1.0 Material Release																																																				
PDB 8.1/PCSB Fieldings																																																				

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Army		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 2040 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607865A / <i>Patriot Product Improvement</i>	<b>Project (Number/Name)</b> DV8 / <i>Patriot Product Improvement</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Software Build (PDB 8.1 and PCSB V 1.0)	4	2005	4	2028
Advanced Electronic Counter Measures (AECM)	1	2014	4	2028
Software Improvement for Threat Evolution	1	2014	4	2028
Combat ID Enhancements	1	2014	4	2028
Task 2 Non-Ballistic Tactical Ballistic Missile (TBM)	1	2015	4	2028
Task 6 Discrimination Improvements	1	2014	4	2028
Task 7 TBM Countermeasures / Effectors	1	2015	4	2028
Assured PNT	1	2020	3	2022
PAC-3 Seeker Software Improvements	2	2020	4	2028
PATRIOT System Testing, Integration and Evaluation	1	2016	4	2028
Program Development, Integration, and Support	1	2016	4	2028
Testing, Targets, Modeling and Simulation	1	2016	4	2028
Developmental/Operational Flight Testing	3	2020	4	2028
Follow-On Flight Testing	4	2022	4	2028
PDB 8.1 Material Release	2	2023	2	2023
PCSB V 1.0 Material Release	4	2024	4	2024
PDB 8.1/PCSB Fieldings	2	2023	1	2029