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

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604874C <i>I Improved Homeland Defense Interceptors</i>
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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	540.748	843.899	884.125	1,833.357	-	1,833.357	2,104.382	2,232.025	1,448.632	1,358.561	Continuing	Continuing
MD15: <i>Risk Reduction</i>	155.000	200.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	355.000
MD80: <i>Next Generation Interceptor Development (NGI)</i>	310.000	617.520	848.206	1,766.786	-	1,766.786	2,030.625	2,156.053	1,394.502	1,307.197	Continuing	Continuing
MD40: <i>Program Wide Support</i>	75.748	26.379	35.919	66.571	-	66.571	73.757	75.972	54.130	51.364	Continuing	Continuing

**Program MDAP/MAIS Code:** 362

**Note**

The increase from FY 2022 to FY 2023 provides NGI development including two vendors through Critical Design Review to deliver the NGI in accordance with the two awarded contracts to support first operational delivery in late FY2027. The increase provides for engineering design development and component level parts testing necessary to achieve PDR for two NGI contractors, including completion of sub-system and component Survivability analysis and testing for natural and tactical space environments. Increase also provides for technical risk mitigation leading to CDR, expansion of the Integrated Digital Data Environment and Software Factory Framework to support analysis, functional baseline verification, Modeling and Simulation development, and system designs analysis.

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

The Improved Homeland Defense Interceptor Program Element will develop, test, and deliver an NGI for Homeland Defense, meeting the U.S. Northern Command's Operational Needs for the NGI. The NGI acquisition covers the development, integration, and testing of an All Up Round (AUR) boost vehicle/ kill vehicle system capable of surviving both natural and hostile environments while countering the allocated threats. The budget requested continues to support the planned first NGI delivery in FY2027, one year earlier than originally planned, which addresses the number one priority in the Operational Needs document

The NGI will provide the Warfighter a cost-effective solution that is lethal across the specified threat space and upgradeable to address future and advancing threats. The Missile Defense Agency issued a Request for Proposal in FY 2020 and competitively awarded two best value contracts on March 24, 2021 for an NGI acquisition, which covers the development, integration, and testing of an AUR boost vehicle/ kill vehicle system. MDA plans to maintain the competitive environment through CDR in FY 2025 to reduce technical risk throughout the design development activities, secure competitive production pricing, and support the Department's ability to field a system capable of negating the expanded threat.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Missile Defense Agency	<b>Date:</b> April 2022
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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604874C <i>I Improved Homeland Defense Interceptors</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	860.384	926.125	0.000	-	0.000
Current President's Budget	843.899	884.125	1,833.357	-	1,833.357
Total Adjustments	-16.485	-42.000	1,833.357	-	1,833.357
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-42.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-16.485	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	1,833.357	-	1,833.357

**Change Summary Explanation**

Decrease of \$42 million in FY 2022 reflects the Congressional reduction for Next generation interceptor funds phasing.

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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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD15 / Risk Reduction
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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
MD15: Risk Reduction	155.000	200.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	355.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A

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

Risk Reduction for enhancing existing homeland defense against near- and mid-term threats that focuses on the entire Ground Based Defense Weapon System and In-Service Fleet, ensuring optimal operation and warfighting capability.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2021	FY 2022	FY 2023
<b>Title:</b> Risk Reduction	200.000	0.000	0.000
<b>Articles:</b>	-	-	-
<b>Description:</b> Risk Reduction for enhancing existing homeland defense and post-Next Generation Interceptor fielding capabilities against near- and mid- term threats. Funding used to build up payload for flight test Ground Based Midcourse Boost Vehicle Test - 03 (GM BVT-03), integrate a Ground Based Interceptor (GBI) from available parts, update software to bring mid-term discrimination capabilities to the Capability Enhancement-I fleet, install enhanced maintenance built-in testing equipment, install improved high-altitude electromagnetic pulse protection improvements, instantiate a digital engineering infrastructure, complete improved lethality engineering, and improved survivability modeling.			
<b>FY 2022 Plans:</b>			
N/A			
<b>FY 2023 Plans:</b>			
N/A			
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>			
N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	200.000	0.000	0.000

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD15 / Risk Reduction
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**C. Other Program Funding Summary (\$ in Millions)**

<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>
• 0208866C: MD08: <i>Midcourse Defense O&amp;M</i>	148.741	156.623	185.564	-	185.564	199.248	204.864	188.486	186.647	Continuing	Continuing
• 0208866C: MD08:: <i>GMD Procurement</i>	150.000	0.000	11.300	-	11.300	0.000	18.403	42.725	48.866	Continuing	Continuing
• 0603882C: <i>Ballistic</i> <i>Missile Defense Midcourse</i> <i>Defense Segment</i>	1,195.853	724.028	667.524	-	667.524	870.817	802.617	781.973	765.733	Continuing	Continuing
• 0604887C: <i>Ballistic</i> <i>Missile Defense Midcourse</i> <i>Defense Segment Test</i>	67.071	61.424	84.075	-	84.075	73.920	68.490	95.223	191.476	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

N/A

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

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD15 / Risk Reduction
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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			
Risk Reduction - Risk Reduction - Risk Reduction	C/CPIF	Various : Various	155.000	200.000	Jun 2021	0.000		0.000		-		0.000	0.000	355.000	0.000
<b>Subtotal</b>			155.000	200.000		0.000		0.000		-		0.000	0.000	355.000	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	155.000	200.000	0.000	0.000	-	0.000	0.000	355.000	N/A

**Remarks**  
N/A

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Missile Defense Agency						<b>Date:</b> April 2022										
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>				<b>Project (Number/Name)</b> MD15 / <i>Risk Reduction</i>								
Significant Event Complete ▲	Milestone Decision Complete ★	Element Test Complete ◆	System Level Test Complete ●	Complete Activity ◆	Significant Event Planned △	Milestone Decision Planned ☆	Element Test Planned ◇	System Level Test Planned ○	Planned Activity ◇							
Risk Reduction - Risk Reduction FY 2021																

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>	<b>Project (Number/Name)</b> MD15 / <i>Risk Reduction</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Risk Reduction - Risk Reduction FY 2021	3	2021	4	2022

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors				<b>Project (Number/Name)</b> MD80 / Next Generation Interceptor Development (NGI)			
<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>
MD80: Next Generation Interceptor Development (NGI)	310.000	617.520	848.206	1,766.786	-	1,766.786	2,030.625	2,156.053	1,394.502	1,307.197	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

The increase from FY 2022 to FY 2023 provides NGI development including two vendors through Critical Design Review to deliver the NGI in accordance with the two awarded contracts to support first operational delivery in late FY2027. The increase provides for engineering design development and component level parts testing necessary to achieve PDR for two NGI contractors, including completion of sub-system and component Survivability analysis and testing for natural and tactical space environments. Increase also provides for technical risk mitigation leading to CDR, expansion of the Integrated Digital Data Environment and Software Factory Framework to support analysis, functional baseline verification, Modeling and Simulation development, and system designs analysis.

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

The Improved Homeland Defense Interceptor Program Element will develop, test, and deliver an NGI for Homeland Defense, meeting the warfighter's number one priority for Homeland Defense. U.S. Northern Command (USNORTHCOM) developed and maintained the Operational Needs for the NGI. The NGI acquisition covers the development, integration, and testing of an All Up Round (AUR) boost vehicle/ kill vehicle system capable of surviving both natural and hostile environments while countering the allocated threats.

The NGI will provide the Warfighter a cost-effective solution that is lethal across the specified threat space and upgradeable to address future and advancing threats. The Missile Defense Agency (MDA) issued a Request for Proposal in FY 2020 and competitively awarded two best value contracts on March 24, 2021 for an NGI acquisition, which covers the development, integration, and testing of an AUR boost vehicle/ kill vehicle system. MDA plans to maintain the competitive environment through CDR in FY 2025 to reduce technical risk throughout the design development activities, secure competitive production pricing, and support the Department's ability to field a system capable of negating the expanded threat.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Next Generation Interceptor Development (NGI)	595.489	827.612	1,745.981
<b>Articles:</b>	-	-	-
<b>Description:</b> The Improved Homeland Defense Interceptor Program Element will deliver a NGI for Homeland Defense. The NGI has improved survivability against natural and hostile environments and increases performance capability against 2030 threats compared to the currently fielded Ground Based Interceptors (GBIs).			
Recurring efforts include:			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>	<b>Project (Number/Name)</b> MD80 / <i>Next Generation Interceptor Development (NGI)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Continue the interceptor design and development to include completion of design trade studies and engineering analysis for AUR PDR</li> <li>- Continue analysis of concept design against required threats leading to the PDR</li> <li>- Continue activities to support achieving Knowledge Point #1 (PDR) exit criteria</li> <li>- Continue to purchase and initiate testing of NGI parts to gain early confidence in the NGI design</li> <li>- Continue Parts, Materials, and Processes Board Requirements approval for all parts</li> <li>- Continue to purchase NGI parts and radiation/suitability testing to gain early confidence in NGI design and development by building in reliability into design</li> <li>- Continue initiation of battlespace and threat containment requirement analysis</li> <li>- Continue development of the Development, Security, and Operations initial software factory</li> </ul> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>- Initiate purchase of long-lead materials for the initial AUR test articles</li> <li>- Purchase of NGI parts and testing to gain early confidence in NGI design and development by building in reliability into design</li> <li>- Purchase of NGI parts and testing to continue initiation of battlespace and threat containment requirement analysis</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>-Initiate flight-like sub-assembly testing</li> <li>-Increase part and Sub-Assembly qualification testing</li> <li>-Complete Sub-Assembly PDRs (Booster and Payload)</li> <li>-Complete Assembly and Check out of sub-systems (seekers, avionics, motors, etc.) for AUR PDR</li> <li>-Validate Software Factory to enable continuous delivery and integration of NGI software development</li> <li>-Complete and Deliver analysis of Battle Space Requirements and threat containment/Engagement Management</li> <li>-Develop Test and Prototyping plan</li> <li>-Complete Critical Technology Element designs and risk mitigations</li> <li>-Complete Software Demonstrations</li> <li>-Purchase low-risk long-lead materials for the initial AUR test articles</li> <li>-Develop NGI AUR transportation capability</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b>                      The increase from FY 2022 to FY 2023 provides NGI development including two vendors through Critical Design Review to deliver the NGI in accordance with the two awarded contracts to support first operational delivery in late FY2027. The increase provides for engineering design development and component level parts testing necessary to achieve PDR for two NGI contractors, including completion of sub-system and component Survivability analysis and testing for natural and tactical space environments. Increase also provides for technical risk mitigation leading to CDR, expansion of the Integrated Digital Data Environment and</p>				

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD80 / Next Generation Interceptor Development (NGI)
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**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2021	FY 2022	FY 2023
Software Factory Framework to support analysis, functional baseline verification, Modeling and Simulation development, and system designs analysis.			
<p><b>Title:</b> Program Operations</p> <p align="right"><b>Articles:</b></p>	22.031	20.594	20.805
<p><b>Description:</b> Program Operations provides:</p> <ul style="list-style-type: none"> <li>-Technical and business management support, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management, and integration activities to ensure the program meets cost, schedule, and performance goals</li> <li>-Ground-Based Midcourse Defense (GMD) NGI program compliance with internal and external direction, policies, and regulations to deliver critical capability via a consistent and disciplined process</li> <li>-Mission Assurance and Manufacturing Engineering processes to include quality, configuration management, manufacturing, engineering, and safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs</li> <li>-Technical and testing oversight, verification of hardware and software development, quality / safety / mission assurance, integrated logistics support, and government manpower and infrastructure to develop, test, and sustain the NGI</li> </ul> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2022 Plans:</b> -SEE ABOVE.</p> <p><b>FY 2023 Plans:</b> -SEE ABOVE</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> N/A</p>	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	617.520	848.206	1,766.786

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

<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>
• 0208866C: MD08: BMD Midcourse Defense O&M	148.741	156.623	185.564	-	185.564	199.248	204.684	188.486	186.647	Continuing	Continuing
• 0208866C: MD08: GMD Procurement	150.000	0.000	11.300	-	11.300	0.000	18.403	42.725	48.866	Continuing	Continuing

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**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>	<b>Project (Number/Name)</b> MD80 / <i>Next Generation Interceptor Development (NGI)</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</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>
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	1,195.853	724.028	667.524	-	667.524	870.817	802.617	781.973	765.733	Continuing	Continuing
• 0604887C: <i>Ballistic Missile Defense Midcourse Defense Segment Test</i>	67.071	61.424	84.075	-	84.075	73.920	68.490	95.223	191.476	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

GMDs overarching acquisition strategy included a competitive source selection to develop and test an AUR interceptor to meet warfighter requirements and defeat the 2030 threat. MDA has established multiple knowledge points and flight tests to evaluate NGI Component and GMD Element performance during development, followed by production decisions. The Government plans to utilize two contractors through CDR to develop the NGI and maximize the likelihood of delivering this critical capability at the earliest possible opportunity.

The NGI effort includes, but is not limited to, systems engineering, hardware, software, and firmware development, manufacture, integration and checkout/test, and delivery of NGI's, culminating in four (4) intercept flight tests. Based on successful capability demonstration during flight tests, MDA will seek approval from the Under Secretary of Defense for Acquisition and Sustainment to proceed with procurement of operational AURs.

MDA competitively awarded two best value contracts for NGI to Northrop Grumman (known as NGI Gold Program) and Lockheed Martin (known as NGI Black Program) on March 24, 2021, and plans to maintain competition to develop the NGI through CDR. The NGI competitive acquisition strategy is intended to reduce technical risk, drive industry behavior(s) through retention of a competitive environment throughout early design development activities, secure competitive production pricing, and support the Department's ability to field a system capable of negating the expanded threat, as well as, maximize the likelihood of delivering this critical capability at the earliest possible opportunity.

The NGI will be an integrated capability of the greater Ground-Based Element, the GMD System, and will provide a fully qualified, production representative NGI AUR. Once the NGI AUR is accepted by the Government, it will be integrated into the GMD Element and operated by the System Engineering, Integration, Test, and Readiness (SITR) Contract. The NGI is constrained to the existing silo dimensions. Industry proposed all changes required to the GMD Weapon System interfaces and to silo infrastructure to support their proposed solution in their competitive proposals.

An option is available on each contract to extend efforts through December 2028 for activities and hardware to support Missile Defense System Ground Testing, as well as, activities and hardware to deliver up to ten (10) NGI units as an AUR configuration in support of the corresponding MDS flight test campaigns. After CDR, the contractors will submit a proposal for one test article and 20 production units, broken into two production lots.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>	<b>Project (Number/Name)</b> MD80 / <i>Next Generation Interceptor Development (NGI)</i>

The GMD Acquisition Strategy scope satisfies future GMD requirements beyond the Development and Sustainment Contract (DSC) and initiates and executes concurrently while the DSC scope is completed.

The GMD Acquisition Strategy includes:

MDA plans to competitively award a single SITR contract to provide, along with the Technical Direction Agent, a synergistic approach in executing the GMD Element-level engineering, integration, test, and readiness of the GMD Weapon System. The SITR contractor is charged with being the Government's technical partner for day-to-day operation and sustainment of the GMD Weapon System alongside the USNORTHCOM Warfighters. While the Government maintains overall authority, the SITR contractor will assume a technical role responsible for ensuring overall GMD integration including physical and logical integration of the GMD Components, GMD Element, and MDA enterprise level integration, planning and execution of all necessary testing to verify and validate overall requirements compliance.

MDA plans to competitively award a single GMD Weapon System (GWS) contract to provide design, development, production, product level testing, sustainment planning, and deployment of new capabilities for the Weapon System. The GWS contractor is responsible for developing weapon system solutions, including fire control and communication systems improvements, required to update the legacy system to remain effective while NGI is under development, as well as, preparing for the seamless introduction of NGI and other future MDS capabilities. The GWS contract will update the system interface for the addition of NGIs to the fleet, provide the Warfighter capability to operate the GWS with a mixed fleet of GBIs and NGIs, and identify and develop solutions for message exchanges between GWS and in-flight kill vehicles. All of this must be accomplished while maintaining a robust cyber defense network capable of detecting and defending against current and future cybersecurity threats.

Any interface change will be coordinated with the Government, SITR contractor, and GWS contractor, approved by the Government, and flowed to the GMD contract(s) via contract modification(s).

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

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD80 / Next Generation Interceptor Development (NGI)
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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>			
Next Generation Interceptor Development (NGI) - NGI Development - Lockheed-Martin	C/CPIF	LOCKHEED MARTIN CORPORATION : Various	0.000	0.000		0.000		995.876	Nov 2022	-		995.876	Continuing	Continuing	Continuing
Next Generation Interceptor Development (NGI) - NGI Development - Northrop-Grumman	C/CPIF	NORTHROP GRUMMAN : Various	0.000	0.000		0.000		733.255	Nov 2022	-		733.255	Continuing	Continuing	Continuing
Next Generation Interceptor Development (NGI) - NGI Development - Various	C/CPIF	Lockheed-Martin, Northrop-Grumman : AL	302.429	588.646	Mar 2021	822.383	Nov 2021	0.000		-		0.000	0.000	1,713.458	0.000
Next Generation Interceptor Development (NGI) - NGI Development Lab & System Support	C/CPIF	Lockheed-Martin, Northrop-Grumman : AL	0.888	6.843	Mar 2021	0.000		0.000		-		0.000	0.000	7.731	0.000
<b>Subtotal</b>			303.317	595.489		822.383		1,729.131		-		1,729.131	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

<b>Support (\$ 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>			
Next Generation Interceptor Development (NGI) - NGI Development	C/CPIF	Various : AL	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	0.000
Next Generation Interceptor Development (NGI) - NGI Development Lab & System Support	C/CPIF	CCDC, Torch Technologies Inc. : AL	0.000	0.000		5.229	Mar 2022	0.000		-		0.000	0.000	5.229	0.000

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

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD80 / Next Generation Interceptor Development (NGI)
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<b>Support (\$ 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			
Next Generation Interceptor Development (NGI) - NGI Development Lab & System Support - CCDC	MIPR	USA CCDC AVIATION AND MISSILE CENTE : AL	0.000	0.000		0.000		15.736	Jan 2023	-		15.736	Continuing	Continuing	Continuing
Next Generation Interceptor Development (NGI) - NGI Development Lab & System Support - JACOBS TECHNOLOGY INC.	C/CPIF	JACOBS TECHNOLOGY INC. : AL	0.000	0.000		0.000		1.114	Nov 2022	-		1.114	Continuing	Continuing	Continuing
Program Operations - Contract Support Services	C/CPFF	Various : AL/AK/ CA/ CO/VA	5.070	13.102	Oct 2020	0.000		0.000		-		0.000	0.000	18.172	0.000
Program Operations - Government Civilian Salaries	Allot	MDA : AL/VA	1.613	8.440	Oct 2020	8.064	Oct 2021	8.386	Jan 2023	-		8.386	Continuing	Continuing	Continuing
Program Operations - Government Travel	Allot	MDA : AL/VA	0.000	0.489	Oct 2020	0.499	Oct 2021	0.503	Jan 2023	-		0.503	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.683	22.031		13.792		25.739		-		25.739	Continuing	Continuing	N/A

**Remarks**  
N/A

<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			
Program Operations - Contract Support Services - PARSONS GOVERNMENT SERVICES INC.	C/CPIF	PARSONS GOVERNMENT SERVICES INC. : AL	0.000	0.000		0.000		10.321	Nov 2022	-		10.321	Continuing	Continuing	Continuing

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

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD80 / Next Generation Interceptor Development (NGI)
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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			
Program Operations - Contract Support Services - Various	C/CPFF	Various : AL	0.000	0.000		12.031	Oct 2021	1.595	Nov 2022	-		1.595	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	0.000		12.031		11.916		-		11.916	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	310.000	617.520	848.206	1,766.786	-	1,766.786	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>	<b>Project (Number/Name)</b> MD80 / <i>Next Generation Interceptor Development (NGI)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Next Generation Interceptor TD Phase	2	2021	3	2024
Next Generation Interceptor PD Phase	3	2024	2	2027
Next Generation Interceptor IP Phase	2	2027	4	2028
Next Generation Interceptor (Black) SRR	1	2022	1	2022
Next Generation Interceptor (Black) PDR	4	2023	4	2023
Next Generation Interceptor (Black) CDR	3	2025	3	2025
Next Generation Interceptor (Gold) SRR	1	2022	1	2022
Next Generation Interceptor (Gold) PDR	2	2024	2	2024
Next Generation Interceptor (Gold) CDR	3	2025	3	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency										<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors				<b>Project (Number/Name)</b> MD40 / Program Wide Support			
<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>
MD40: Program Wide Support	75.748	26.379	35.919	66.571	-	66.571	73.757	75.972	54.130	51.364	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Program Wide Support (PWS) is allocated on a pro-rata basis across multiple Agency PEs each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.

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

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (FSRM) program (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Program Wide Support	26.379	35.919	66.571
<b>Articles:</b>	-	-	-
<b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the STEM program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; the FSRM program (formerly Real Property Maintenance) to keep the Department's			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>	<b>Project (Number/Name)</b> MD40 / <i>Program Wide Support</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.				
<b>FY 2022 Plans:</b> - SEE ABOVE.				
<b>FY 2023 Plans:</b> - SEE ABOVE.				
<b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Increase from FY 2022 to FY 2023 provides the PWS allocation on a pro-rata basis across multiple Agency PEs each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.				
<b>Accomplishments/Planned Programs Subtotals</b>		26.379	35.919	66.571
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

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

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / Improved Homeland Defense Interceptors	<b>Project (Number/Name)</b> MD40 / Program Wide Support
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<b>Support (\$ 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			
Program Wide Support - Agency Facilities and Maintenance	MIPR	Various Multi : AL, VA	28.813	2.492	Nov 2020	2.978	Dec 2021	12.295	Nov 2022	-		12.295	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance SRM	MIPR	Various : Multi: AK, AL, CA, CO, HI, NY, VA	0.000	0.000		3.775	Dec 2021	2.675	Nov 2022	-		2.675	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Various	Various Multi : AL, VA	0.956	1.500	Nov 2020	0.000		22.960	Oct 2022	-		22.960	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various Multi : AL, VA	15.086	4.450	Nov 2020	2.980	Nov 2021	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various Multi : AL, VA	30.893	17.937	Dec 2020	22.626	Nov 2021	28.641	Nov 2022	-		28.641	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations, Sustainment and GPC	C/FFP	Various : Multi: AK, AL, CA, HI, NY, VA	0.000	0.000		3.560	Dec 2021	0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			75.748	26.379		35.919		66.571		-		66.571	Continuing	Continuing	N/A

**Remarks**  
N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	75.748	26.379	35.919	66.571	-	66.571	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604874C / <i>Improved Homeland Defense Interceptors</i>	<b>Project (Number/Name)</b> MD40 / <i>Program Wide Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2021	4	2027