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

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0208030F / <i>War Reserve Materiel - Ammunition</i>
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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	-	0.000	0.000	3.943	0.000	3.943	-	-	-	-	-	-
648030: <i>Operational Weaponing and Analysis</i>	-	0.000	0.000	3.943	0.000	3.943	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

This program, BA 4, PE 0208030F, project 648030, Operational Weaponing and Analysis, is a new start.

The AF will assume operational support and development of the Integrated Munitions Effects Assessment (IMEA) software program from the Defense Threat Reduction Agency starting FY22.

A. Mission Description and Budget Item Justification

The Operational Weaponing and Analysis (OWA) provides weapons' effectiveness data and classified software Modeling and Simulation (M&S) tools to support the Air Force (AF) Requirements Process, Combatant Commands (COCOMs), and Major Commands (MAJCOMS). OWA provides mission critical National Security Software (NSS) to meet instructions and directives found in CJCSI 3160 and 3170, as well as, AFI 14-401 and JP 3-60. M&S classified software tools are operationally critical to overall mission success and weapons employment. Weapons employment is not legally possible until a complete target and weapon analysis is complete. The classified M&S software tools are in constant development to support evolving weapon phenomenology (directed energy, high power microwave, cyber, hypersonic, etc.) and target modeling of a wide range of multi-domain targets, which includes structural, ground mobile, ships, and more.

The Integrated Munitions Effects Analysis (IMEA) software is a classified mission critical program that provides Air Force Operational Warfighters with unique analytical capabilities. These unique capabilities are associated with Hard Deeply Buried Targets (HDBTs), Nuclear Weapons, and Weapons of Mass Destruction (WMD) weapons employment. In addition, IMEA also analyzes national strategic sites facility defeat information with Nuclear and WMD weapons in support of operational warfighter requirement. IMEA is also the only software, which is program of record for Massive Ordnance Penetrator (MOP) lethality estimates in DoD.

In addition to operational support, IMEA provides analytical reachback for both operational and weapon acquisition communities. OWA also aligns with Air Force Research Laboratory (AFRL) and Defense Threat Agency (DTRA) Research and Development (R&D) weapon lethality and effectiveness missions to create an R&D pipeline of capabilities all maintained in a single M&S software framework which allows the software to be easily developed, deployed, and maintained within the Operational Weaponing and Analysis Division.

The AF will assume operational support and development of the IMEA program from the Defense Threat Reduction Agency starting FY22. DTRA will continue to support Air Force with basic R&D research of new capabilities associated with HDBT, Nuclear, and WMD as defined by MOA between DTRA and the AF. OWA has become the operational transition partner for DTRA and AFRL to integrate and field all weapon and target R&D technology to AF and other Joint Environments.

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This program element may include necessary emergent or unanticipated civilian pay expenses required to manage, execute, and deliver War Reserve Materiel - Ammunition weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in Program Elements 0605831F.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	3.943	0.000	3.943
Total Adjustments	0.000	0.000	3.943	0.000	3.943
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• 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	0.000	0.000			
• Other Adjustments	0.000	0.000	3.943	0.000	3.943

Change Summary Explanation

FY22 - The requested \$3.943M will establish AF air-to-surface kinetic / conventional R&D support for IMEA. The AF will be transitioning the IMEA software framework / architecture to the AF Endgame Framework to support Joint operations. This transition will focus on evolving weapon phenomenology associated with advanced penetrator and hypersonic weapons against Hard Deeply Buried Targets (HDBTs). The AF will assume operational support and development of the IMEA software from the Defense Threat Reduction Agency starting FY22. DTRA will continue to support Air Force with basic R&D research of new capabilities associated with HDBT, Nuclear, and WMD as defined by MOA between DTRA and the AF. The AF is the operational fielding and transition partner for DTRA and AFRL to integrate and field all weapon and target R&D technology to AF and other Joint Environments.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Operational Weaponeeing and Analysis	0.000	0.000	3.943	0.000	3.943
Description: The Operational Weaponeeing and Analysis (OWA) provides weapons' effectiveness data and classified software Modeling and Simulation (M&S) tools to support the Air Force (AF) Requirements Process, Combatant Commands (COCOMs), and Major Commands (MAJCOMS).					
FY 2021 Plans:					

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>N/A</p> <p>FY 2022 Base Plans: Conduct Operational Users Working Group (OUWG) reviews, providing a singularly unique forum for AF and Joint service level demonstrations of developmental methodologies and data to support weapon and target effectiveness. Collect, assess and inject operational user and analyst end user feedback into product development cycles.</p> <p>Exploit Agile Continuous Integration and Continuous Development (CI/CD) pipeline to provide Technical Previews (TPs) of evolving phenomenology models and operational capabilities.</p> <p>Develop common target and weapon data models to support multi-domain capabilities within a common AF and Joint M&S lethality framework. All weapon data, target data and methodology will be hosted in a the Air Force Combined Effects Repository (AFCER). The repository will be hosted on the AF WeaponOne (W1) Digital Engineering P1 environment.</p> <p>Refactor IMEA weapon and target data and methodologies into a common engagement lethality architecture to enable CI/CD pipeline.</p> <p>Develop, validate, and accredit improved computer vulnerability and weapons effectiveness in support of warfighter requirements. Integrate Verification, Validation and Accreditation (VV&A) and Independent Verification and Validation (IV&V) efforts into Agile product development processes.</p> <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: New program for the AF: AF will take over operational support of the IMEA program from the Defense Threat Reduction Agency (DTRA) in FY22.</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.943	0.000	3.943

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PAAF 01 355990: <i>Items Less Than \$5</i>	-	-	9.164	-	9.164	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

Performance-based contracts are primarily used for this support. IMEA and AFTES will maximize the use of competitive awards and uses various contract types, employs large and small contractors, and is focused to achieve agency socio-economic goals and incorporate DoD acquisition reform initiatives.

Both AFTES and IMEA are paralleling AF Digital Engineering contracting effort to add Agile capabilities into performance contracts. IMEA and AFTES use physics based modeling requiring specialized methodology development unique to specific weapon capabilities. The Operational and Analysis (OWA) has identified multiple sources of software development include both commercial and defense working capital.

OWA identified multiple contacts to support software development efforts including five year IDIQs awarded by Army Contracting Command (ACC), General Services Administration (GSA), and Air Force. We are working to award additional GSA contracts to support software development in the for outyear development.

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0208030F / <i>War Reserve Materiel - Ammunition</i>	Project (Number/Name) 648030 / <i>Operational Weaponneering and Analysis</i>

	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
<i>Integrated Munitions Effects Assessment (IMEA)</i>																												
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<i>Air Force Targeting and Effects Software (AFTES)</i>																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0208030F / <i>War Reserve Materiel - Ammunition</i>	Project (Number/Name) 648030 / <i>Operational Weaponeering and Analysis</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Integrated Munitions Effects Assessment (IMEA)</i>				
Integrated Munitions Effects Assessment (IMEA)	1	2022	4	2026
<i>Air Force Targeting and Effects Software (AFTES)</i>				
Air Force Targeting and Effects Software (AFTES)	1	2022	4	2026