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**Exhibit R-2, RDT&E Budget Item Justification:** FY 2018 Navy **Date:** May 2017

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>					<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/Supt Sys</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	33.706	0.359	1.303	1.428	-	1.428	1.355	1.380	1.411	1.438	Continuing	Continuing
1964: <i>Anti-Armor Weapon System</i>	3.912	0.359	0.886	1.023	-	1.023	0.982	0.999	1.023	1.043	Continuing	Continuing
2614: <i>SMAW Follow-On</i>	29.794	0.000	0.417	0.405	-	0.405	0.373	0.381	0.388	0.395	Continuing	Continuing

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

This PE supports the demonstration and validation of Marine Corps Ground/Supporting Arms Systems for utilization in Marine Air-Ground Expeditionary Force amphibious operations. This program is funded under Demonstration & Validation because it develops and integrates hardware for experimental tests related to specific ground weapon systems.

<b><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2016</u></b>	<b><u>FY 2017</u></b>	<b><u>FY 2018 Base</u></b>	<b><u>FY 2018 OCO</u></b>	<b><u>FY 2018 Total</u></b>
Previous President's Budget	0.378	1.303	1.422	-	1.422
Current President's Budget	0.359	1.303	1.428	-	1.428
Total Adjustments	-0.019	0.000	0.006	-	0.006
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.005	0.000			
• SBIR/STTR Transfer	-0.014	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.006	-	0.006

## **Change Summary Explanation**

The increase in funding from FY17 to FY18 is mostly due to efforts to improve the Saber power system and the Global Positioning System (GPS) of the Saber system.

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy										Date: May 2017		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/ Supt Sys				Project (Number/Name) 1964 / Anti-Armor Weapon System			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
1964: Anti-Armor Weapon System	3.912	0.359	0.886	1.023	-	1.023	0.982	0.999	1.023	1.043	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Note**

The increase in funding from FY17 to FY18 (\$0.137M) is due to efforts to improve the Saber power system and the Global Positioning System (GPS) of the Saber system.

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

The M41A7 Saber system is the primary heavy, anti-armor launch system for the TOW Missile within the Ground Combat Element of the Marine Corps. The Anti-Armor Weapons System-Heavy (AAWS-H) program, working in concert with the U.S. Army, will develop and integrate technology improvements into the Improved Target Acquisition System (ITAS) to meet Increment II system requirements as jointly agreed. Improvements centered on integration of sight image enhancements were concluded in FY13. Other efforts have focused on providing engineering and technical support such as the study of densified propellant and battery replacement for the Saber system (far-target location accuracy improvements). Laser designation capability has been postponed due to prioritization.

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

	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>
<b>Title:</b> Saber Battery Replacement	0.359	0.636	0.508	0.000	0.508
<b>Articles:</b>	-	-	-	-	-
<b><i>FY 2016 Accomplishments:</i></b> -Continued research of a replacement battery for Saber to address safety concerns, while maintaining the same or increased capabilities for power and longevity. -Continued testing of replacement battery.					
<b><i>FY 2017 Plans:</i></b> -Continue research of a replacement battery for Saber to address safety concerns, while maintaining the same or increased capabilities for power and longevity. -Continue testing of replacement battery.					
<b><i>FY 2018 Base Plans:</i></b> -Complete research of a replacement battery for Saber to address safety concerns, while maintaining the same or increased capabilities for power and longevity.					

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy				Date: May 2017		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/ Supt Sys		Project (Number/Name) 1964 / Anti-Armor Weapon System		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
-Complete testing of replacement battery.						
FY 2018 OCO Plans: N/A						
Title: Management Support		0.000	0.000	0.420	0.000	0.420
Articles:		-	-	-	-	-
FY 2016 Accomplishments: N/A						
FY 2017 Plans: N/A						
FY 2018 Base Plans: -Funding will support product improvement upgrades for the Saber System, engineering, logistics, and program office support.						
FY 2018 OCO Plans: N/A						
Title: Global Positioning System (GPS) Improvement		0.000	0.250	0.095	0.000	0.095
Articles:		-	-	-	-	-
FY 2016 Accomplishments: N/A						
FY 2017 Plans: -Initiate research for improvements to future GPS for the Saber system. -Initiate prototype testing of the Far-Target Locator from the US Army.						
FY 2018 Base Plans: -Complete research for improvements to future GPS for the Saber system. -Complete prototype testing of the Far-Target Locator and assess results.						
FY 2018 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		0.359	0.886	1.023	0.000	1.023

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Navy										<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 1319 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603635M / <i>Marine Corps Grnd Cmbt/ Supt Sys</i>				<b>Project (Number/Name)</b> 1964 / <i>Anti-Armor Weapon System</i>			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
			<u>FY 2018</u>	<u>FY 2018</u>	<u>FY 2018</u>					<u>Cost To</u>	
<u>Line Item</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Base</u>	<u>OCO</u>	<u>Total</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>Complete</u>	<u>Total Cost</u>
• PMC/3017: <i>Anti-Armor Weapon Systems-Heavy</i>	0.661	17.080	21.553	5.024	26.577	22.106	6.111	6.251	6.384	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
The Saber system is a joint program with the U.S. Army. FY16-FY18 funding supports the development, integration, and qualification of incremental improvements to meet objective requirements and assesses emergent technologies.											
<b>E. Performance Metrics</b>											
N/A											

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Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603635M / Marine Corps Grnd Cmbt/ Supt Sys				Project (Number/Name) 2614 / SMAW Follow-On			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
2614: SMAW Follow-On	29.794	0.000	0.417	0.405	-	0.405	0.373	0.381	0.388	0.395	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The solution to the Follow on to SMAW (FOTS) capability requirement has been defined as the SMAW MOD 2 system. It is a lightweight, short range, fire-and-forget assault weapon comprised of a launcher and integral sighting system that enables a Marine to neutralize a variety of ground targets. Marine Expeditionary Forces will employ the SMAW MOD 2 across the spectrum of conflict, under all environmental conditions, to destroy a variety of ground targets. As defined in the FOTS Capability Production Document (CPD), the program consists of requirements for a new Launcher and integrated laser range finder and thermal sight. The Launcher will be physically and functionally compatible with existing inventory of SMAW rocket variants [High Explosive Dual Purpose, Anti-Armor, Novel Explosive and Common Practice (CP)] and will replace the existing Mark 153 Mod 0 SMAW launcher. R&D supports the work being performed to develop new propellant technologies for an enhanced rocket motor as well as development of the SMAW Mod 2 replacement millijoule meter and replacement bore sight kit development.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Engineer and technical support.  Articles:  FY 2016 Accomplishments: N/A  FY 2017 Plans: -Continue engineering support for the development and testing of the Densified Propellant. -Initiate qualification of Densified Propellant in accordance with Technology Transition Agreement (TTA). -Initiate and complete qualification of current millijoule meter. -Initiate development of replacement bore sight kit.  FY 2018 Base Plans: -Continue engineering support for the development and testing of the Densified Propellant. -Continue qualification of Densified Propellant in accordance with Technology Transition Agreement (TTA). -Continue development of replacement bore sight kit. -Complete qualification of current millijoule meter.  FY 2018 OCO Plans: N/A								0.000	0.417	0.405	0.000	0.405
								-	-	-	-	-
Accomplishments/Planned Programs Subtotals								0.000	0.417	0.405	0.000	0.405

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

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• PMC/3016: Follow on to SMAW	0.000	24.666	25.125	0.049	25.174	0.023	0.067	0.090	0.112	Continuing	Continuing

## Remarks

## D. Acquisition Strategy

FY16-FY18 strategy is to complete development and qualification of upgraded components to the SMAW MOD 2 system.

The Office of Naval Research is funding densified propellant under a Technology Transition Agreement (TTA) through late FY18. The PMO will begin programmatic documentation and planning to support transition for final design and qualification of densified propellant in FY18 if TTA technology readiness level 7 is achieved per TTA.

## E. Performance Metrics

Milestone reviews and technical reviews.