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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					R-1 Program Element (Number/Name) PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	460.165	32.955	29.444	27.904	-	27.904	29.698	30.546	31.400	32.084	Continuing	Continuing
2319: <i>Non-Lethal Weapons</i>	460.165	32.955	29.444	27.904	-	27.904	29.698	30.546	31.400	32.084	Continuing	Continuing

A. Mission Description and Budget Item Justification

The DoD Non-Lethal Weapons Program was established by the FY96 National Defense Authorization Act. The Office of the Secretary of Defense designated the Commandant of the Marine Corps (CMC) as the DoD NLW Executive Agent (EA). The EA exercises centralized responsibility for joint research and development of non-lethal weapons and technology through the Joint Non-Lethal Weapons Program (JNLWP). The Office of the Under Secretary of Defense for Acquisition, Technology and Logistics serves as the OSD Principal Staff Assistant and oversees, in consultation with the Under Secretary of Defense for Policy, the DoD NLW Executive Agent.

The efforts described in this Program Element (PE) reflect Joint Service research and development (R&D) investment decisions provided by the Joint Non-Lethal Weapons Integrated Product Team, a multi-service flag level corporate board that provides executive oversight and management of the JNLWP for the EA. Research conducted is based on the needs and capabilities of the Services, the Special Operations Command and the Coast Guard, as identified in JROC-approved Joint Non-Lethal Effects Initial Capabilities Documents. This coordinated joint R&D development approach addresses mutual capability gaps and assures the best non-lethal technologies, capabilities and equipment are provided to the operating forces while eliminating duplicative Service investment. Advanced Component Development and Prototypes initiatives provide non-lethal capabilities which directly support the three pillars of the current Quadrennial Defense Review and comprise a fundamental part of DoD's security cooperation efforts to build partner capacity. The resulting capabilities will facilitate a fully integrated non-lethal competency as a complement to lethal firepower, providing force application options for short-of-lethal scenarios.

This PE funds Joint Service research, development, test, and evaluation of non-lethal weapons, devices, munitions and technologies which provide a non-lethal capability to minimize significant injuries as well as undesired damage to property and the environment. Counter-personnel and counter-materiel capability investment areas include directed energy (lasers, millimeter wave and high power microwave), multi-sensory suppression/incapacitation initiatives (acoustics, optical, electro-muscular incapacitation), and other emergent technologies transitioning from coordinated JNLWP Science and Technology PE initiatives. Investments also focus on Joint and allied experimentation, exercise, demonstration and assessment of advanced component and prototype initiatives in order to assist transition of suitable and effective capabilities to both joint and allied operational applications.

The Joint Non-Lethal Weapons Directorate is designated as a R&D organization and was established by the EA to manage the day to day research and development activities of the DoD's JNLWP. Each Service is responsible for their procurement and operating support costs.

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	35.627	29.448	29.151	-	29.151
Current President's Budget	32.955	29.444	27.904	-	27.904
Total Adjustments	-2.672	-0.004	-1.247	-	-1.247
• Congressional General Reductions	-	-0.004			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.864	0.000			
• SBIR/STTR Transfer	-0.808	0.000			
• Rate/Misc Adjustments	0.000	0.000	-1.247	-	-1.247

Change Summary Explanation

The funding decrease from FY16 to FY17 is attributed to programmatic adjustments to advisory and assistance services contracts.

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Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>	Project (Number/Name) 2319 / <i>Non-Lethal Weapons</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2319: <i>Non-Lethal Weapons</i>	460.165	32.955	29.444	27.904	-	27.904	29.698	30.546	31.400	32.084	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops non-lethal weapon (NLW) capabilities that minimize fatal or permanent injuries and undesired damage to property and the environment. These capabilities are designed to stun, incapacitate, or hinder movement of individuals, crowds or equipment. The availability of NLW allows commanders less than lethal options, particularly in urban warfare and military operations other than war, i.e. peacekeeping, humanitarian assistance and disaster relief, as well as special operations.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Counter-Personnel Advanced Component Development and Prototypes	16.572	14.810	14.036	0.000	14.036
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> - Continued coordination and requirements development for Service counter-personnel (CP) prototyping initiatives within the JNLWP. This includes SOCOM and USCG. - Continued development and assessment of Service-led CP NL prototype initiatives. - Continued maturation of CP directed energy technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. - Continued the advanced development of CP emerging technologies to support Service capability gaps and priorities as they support the Combatant Commanders. - Continued technology maturation and risk reduction of competing approaches to inform decisions for Service capability development. - Continued prototype development and assessment of advanced payloads for technological capabilities relevant to emerging counter-personnel capability gaps. - Continued prototype development and demonstration for the most promising technologies employing multisensory stimuli. Specifically, completed prototype development of the multi-bang flashbang grenade and the Distributed Sound and Light Array (DSLAs). - Continued program management support for CP efforts. 					
FY 2016 Plans:					
- Continue all efforts from FY 2015 except those noted as completed.					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Initiate munitions testing and acquisition documentation of NL capability to deny, move and suppress individuals at long ranges from currently fielded weapons systems.</p> <p>FY 2017 Base Plans: - Continue all efforts from FY 2016 except those noted as completed.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Counter-Materiel Advanced Component Development and Prototypes</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: - Continued coordination and requirements development for Service counter-material (CM) prototyping initiatives within the JNLWP. This includes SOCOM and USCG. - Continued development and assessment of Service-led CM NL prototype initiatives. - Continued maturation of CM directed energy technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. - Continued the advanced development of Counter-Materiel emerging technologies to support Service capability gaps and priorities as they support the Combatant Commanders. - Continued technology maturation and risk reduction of competing approaches to inform decisions for Service capability development. - Continued prototype development and assessment of advanced payloads for technological capabilities relevant to emerging counter-materiel capability gaps. - Continued program management support for CM efforts.</p> <p>FY 2016 Plans: - Continue all efforts from FY 2015 except those noted as completed. - Initiate development of the conceptual design of non-lethal Directed Energy (DE) vessel-stopping capability, including electro-magnetic and engagement modeling, platform feasibility and integration studies, and target characterization and validation. - Mission Payload Module (MPM) Engineer and Manufacturing Development contract terminated for convenience and returned to Technology Maturation and Risk Reduction acquisition phase.</p> <p>FY 2017 Base Plans: - Continue all efforts from FY 2016 except those noted as completed.</p>	11.667	10.427	9.883	0.000	9.883
	-	-	-	-	-

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Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>		Project (Number/Name) 2319 / <i>Non-Lethal Weapons</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
- Initiate production qualification testing of a Service-endorsed pre-emplaced, counter-materiel, counter vehicle stopping capability.					
FY 2017 OCO Plans: N/A					
Title: Joint and Allied Exercise, Experimentation, Demonstration and Assessment					
Articles:					
FY 2015 Accomplishments:					
- Continued modeling and simulation (M&S) of NLWs in warfighter training/gaming models and performance effects data collection/population to demonstrate/analyze NL effects and support optimization of training.					
- Continued evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication.					
- Continued engagement with NATO on cooperative security efforts, to include providing input for Systems Analysis and Studies (SAS) Panels and NATO assessment of NLW in appropriate allied scenarios and exercises. Specifically, completed the 2015 NATO Non-Lethal Technology Exercise - Maritime (NNTEX-15M).					
- Continued interaction with Combatant Commander staffs to evaluate emerging NLW capabilities and their utility in theater operations and Defense of the Homeland missions.					
- Continued effort to assess the utility, effect, and effectiveness of technologies for incapacitating personnel, clearing facilities, stopping vehicles and vessels, and denying enemy access to protected areas.					
- Continued to identify, test, and evaluate newly developed commercial products that may meet Joint service requirements for specific non-lethal capability set common items. Specifically, certified a two-way translation device for Service capability sets.					
- Continued program management support for Joint and Allied Exercise, Experimentation, Demonstration and Assessment efforts.					
FY 2016 Plans:					
- Continue all efforts from FY 2015 except those noted as completed.					
- Initiate support of 3 Combatant Commanders with demonstrating and assessing NLW capabilities for port opening operations; Humanitarian Assistance and Disaster Relief (HA/DR) and Counter-Transnational Organized Crime (CTOC) operations; and harbor and in-transit security operations.					
FY 2017 Base Plans:					
- Continue all efforts from FY 2016 except those noted as completed.					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	4.716	4.207	3.985	0.000	3.985
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Initiate support of two services with demonstrating and assessing NLW capabilities for expeditionary warfare experimentation and security of strategic systems exercises.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	32.955	29.444	27.904	0.000	27.904

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PE 0602651M: <i>Joint Non-Lethal Weapons Applied Research</i>	5.728	6.119	6.327	-	6.327	6.425	6.425	6.425	6.425	Continuing	Continuing
• PE 0603651M: <i>Joint Non-Lethal Weapons Advanced Technology Development</i>	11.163	12.745	13.117	-	13.117	13.448	13.387	13.387	13.387	Continuing	Continuing

Remarks

D. Acquisition Strategy
 The JNLW Program strategy is to continue to pursue the fielding of NLW systems through modifying Commercial-Off-The-Shelf (COTS) products for near term capabilities and the development of new technology NLW systems in various stages of acquisition. These are balanced with efforts in state-of-the-art technology investment, experimentation, and modeling and simulation. The acquisition strategy for each weapon system is largely Lead Service dependent. The JNLWP provides RDT&E funding while the Services are responsible for procurement and operations and maintenance funding. For complex development programs, such as directed energy research, JNLWP RDT&E funds will support each Service's RDT&E joint application efforts.

E. Performance Metrics
 N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
NLW Product Development	MIPR	ARDEC : Picatinny, NJ	52.499	1.148	Oct 2014	1.022	Oct 2015	1.010	Oct 2016	-		1.010	Continuing	Continuing	Continuing
NLW Product Development	MIPR	SOCOM : McDill AFB, FL	25.574	0.241	Oct 2014	0.250	Oct 2015	0.275	Oct 2016	-		0.275	Continuing	Continuing	Continuing
NLW Product Development	Various	NSWC : Various	31.795	5.539	Oct 2014	4.930	Oct 2015	4.688	Oct 2016	-		4.688	Continuing	Continuing	Continuing
NLW Product Development	MIPR	USAF : Ft. Sam Houston AFB, TX	56.734	0.775	Oct 2014	0.707	Oct 2015	0.670	Oct 2016	-		0.670	Continuing	Continuing	Continuing
NLW Product Development	Various	MCSC : Quantico, VA	26.523	4.510	Oct 2014	1.254	Oct 2015	1.432	Oct 2016	-		1.432	Continuing	Continuing	Continuing
NLW Product Development	Various	Uniformed Services : Various	145.320	11.329	Oct 2014	12.500	Oct 2015	10.918	Oct 2016	-		10.918	Continuing	Continuing	Continuing
Prior Year NLW Product Development	Various	Various : Various	65.401	0.000		0.000		0.000		-		0.000	0.000	65.401	-
Subtotal			403.846	23.542		20.663		18.993		-		18.993	-	-	-

Remarks
 Joint Program funds are distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Cost Category Item does not correlate to an individual project/effort. They fund multiple non-lethal projects/efforts that are incrementally funded throughout the fiscal year as each service identifies the project/effort requiring funding. October award dates reflect the start of incremental funding and does not indicate that the full amount will be awarded in October.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
NLW Support Cost	WR	NSWC : Dahlgren, VA	15.598	0.600	Oct 2014	0.600	Oct 2015	0.600	Oct 2016	-		0.600	Continuing	Continuing	Continuing
Subtotal			15.598	0.600		0.600		0.600		-		0.600	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
JNLW Management Support	Various	MCSC : Quantico, VA	0.000	8.813	Oct 2014	8.181	Oct 2015	8.311	Oct 2016	-		8.311	Continuing	Continuing	Continuing
Prior Year Management Services	Various	Various : Various	40.721	0.000		0.000		0.000		-		0.000	0.000	40.721	-
Subtotal			40.721	8.813		8.181		8.311		-		8.311	-	-	-

Remarks
 The JNLW Management Support was previously incorporated into the various cost categories instead of being displayed in the corresponding section of the R-3. The Management Services section of the R-3 now reflects the amounts for civilian salaries and contractor program management. The funding fluctuates across the R-2A categories based on the demand signals of the Services, USSOCOM, and the USCG.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	460.165	32.955	29.444	27.904	-	27.904	-	-	-

Remarks
 Joint Program funds are distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Cost Category Item does not correlate to an individual project/effort. They fund multiple non-lethal projects/efforts that are incrementally funded throughout the fiscal year as each service identifies the project/effort requiring funding. October award dates reflect the start of incremental funding and does not indicate that the full amount will be awarded in October.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
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

Proj 2319																																
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Advanced Demonstration Model (ADM) Development																																
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Preliminary Design Review																																
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Critical Design Review																																
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Pre-planned Product Improvement																																
Counter Vessel: Vessel Stopping Prototype (VSP) Technology Development: Advanced Demonstration Model (ADM) Development																																
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): Advanced Demonstration Model (ADM) Validation																																
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): Size Weight Power and Cooling Improvements																																
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): ADM Military Utility Assessment (MUA)																																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>	Project (Number/Name) 2319 / <i>Non-Lethal Weapons</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Sound & Light Spectrum: Laser and Acoustic Technologies: Advanced Demonstration Model (ADM) Development	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603851M / <i>Joint Non-Lethal Weapons Testing</i>	Project (Number/Name) 2319 / <i>Non-Lethal Weapons</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2319				
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Advanced Demonstration Model (ADM) Development	1	2015	3	2019
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Preliminary Design Review	2	2016	2	2016
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Critical Design Review	4	2016	2	2018
Counter Vehicle: Radio Frequency Vehicle Stopping (RFVS) Technologies: Pre-planned Product Improvement	3	2019	4	2021
Counter Vessel: Vessel Stopping Prototype (VSP) Technology Development: Advanced Demonstration Model (ADM) Development	3	2015	3	2019
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): Advanced Demonstration Model (ADM) Validation	3	2015	3	2016
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): Size Weight Power and Cooling Improvements	4	2016	4	2019
Millimeter Wave (mmW) Radio Frequency (RF): Active Denial Technologies (ADT): ADM Military Utility Assessment (MUA)	4	2018	1	2020
Sound & Light Spectrum: Laser and Acoustic Technologies: Advanced Demonstration Model (ADM) Development	1	2017	2	2020

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