Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 1: *Basic Research*					R-1 Program Element (Number/Name) PE 0601152N / *In-House Lab Independent Res*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	18.238	19.438	19.237	-	19.237	19.235	19.225	19.604	20.003	Continuing	Continuing
0000: *In-House Lab Independent Res*	0.000	18.238	19.438	19.237	-	19.237	19.235	19.225	19.604	20.003	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) sustains U.S. Naval Science and Technology (S&T) superiority by providing new technological concepts for the maintenance of Naval power and national security, and by helping to avoid scientific surprise while exploiting scientific breakthroughs and providing options for new Future Naval Capabilities (FNCs). The Department of the Navy (DON) component responds to S&T directions of the Naval Research and Development Framework for long term Navy and Marine Corps improvements and is in consonance with future warfighting concepts and doctrine developed at the Naval Warfare Development Command and the Marine Corps Combat Development Command. It enables technologies that significantly improve the Joint Chiefs of Staff's Future Joint Warfighting Capabilities. The In-house Laboratory Independent Research (ILIR) program also adds increased emphasis to the revitalization of the scientist and engineer workforce component at the Navy's Warfare Centers and Laboratories by attracting superior candidates and retaining our best members through the provision of exciting and meaningful work.

This PE addresses DON Basic Research, which includes scientific study and experimentation directed toward increasing knowledge and understanding in national-security related aspects of physical, engineering, environmental, and life sciences, and is the core of Discovery and Invention. Basic research projects are developed, managed, and related to more advanced aspects of research in some hundred-plus technology and capability-related 'thrusts', which are consolidated in thirteen Naval Research and Development Framework focus areas: Power and Energy; Operational Environments; Maritime Domain Awareness; Asymmetric and Irregular Warfare; Information, Analysis and Communication; Power Projection; Assure Access and Hold at Risk; Distributed Operations; Naval Warfighter Performance and Protection; Survivability and Self-Defense; Platform Mobility; Fleet/Force Sustainment; Affordability, Maintainability and Reliability.

This portion of the DON Basic Research Program provides participating Naval Warfare Centers and Laboratories with funding for: basic research to support the execution of their assigned missions; developing and maintaining a cadre of active researchers who can distill and extend results from worldwide research and apply them to solve Naval problems; promoting hiring and development of new scientists; and encouragement of collaboration with universities, private industry, and other Navy and Department of Defense laboratories.

In-house Laboratory Independent Research (ILIR) efforts are selected by Naval Warfare Centers/Lab Commanding Officers and Technical Directors near the start of each Fiscal Year through internal competition. Efforts typically last three years, and are generally designed to assess the promise of new lines of research. Successful efforts attract external, competitively awarded funding. Because the Warfare Centers and Labs encompass the full range of naval technology interests, the scope of ILIR topics roughly parallels that of PE 0601153N, Defense Research Science.

Due to the number of efforts in PE 0601152N, the programs described herein are representative of the work included in this PE.

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B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	18.508	19.438	19.434	-	19.434
Current President's Budget	18.238	19.438	19.237	-	19.237
Total Adjustments	-0.270	0.000	-0.197	-	-0.197
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.243	0.000			
• SBIR/STTR Transfer	-0.027	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.197	-	-0.197

Change Summary Explanation

The FY 2019 funding request was reduced by $0.140 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 1	R-1 Program Element (Number/Name) PE 0601152N / *In-House Lab Independent Res*	Project (Number/Name) 0000 / *In-House Lab Independent Res*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0000: *In-House Lab Independent Res*	0.000	18.238	19.438	19.237	-	19.237	19.235	19.225	19.604	20.003	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project sustains U.S. Naval S&T superiority, provides new technological concepts for the maintenance of naval power and national security, and mitigates scientific surprises, while exploiting scientific breakthroughs and providing options for new Future Naval Capabilities (FNC's). It responds to S&T directions of the Naval Research and Development Framework for long term Navy and Marine Corps improvements. It is in consonance with future warfighting concepts and doctrine developed at the Naval Warfare Development Command (NWDC) and the Marine Corps Combat Development Command (MCCDC), and enables technologies that significantly improve the Joint Chiefs of Staff's Future Joint Warfighting Capabilities.

This portion of the DON Basic Research Program provides participating Naval Warfare Centers and Laboratories with funding for basic research to support the execution of their assigned missions, for developing and maintaining a cadre of active research scientists who can distill and extend results from worldwide research and apply them to naval problems, to promote hiring and development of new scientists, and to encourage collaboration with universities, private industry, and other Navy and Department of Defense laboratories.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: IN-HOUSE LABORATORY INDEPENDENT RESEARCH (ILIR) ***FY 2018 Plans:*** Continue In-house Laboratory Independent Research (ILIR) projects that enables laboratories to sponsor focused, high-risk research with potential high payoffs to the Navy and Marine Corps on a discretionary basis. ***FY 2019 Base Plans:*** Continue In-house Laboratory Independent Research (ILIR) projects which enables laboratories to sponsor focused, high-risk/potential high reward basic research to the Navy and Marine Corps on a discretionary basis. Each project is funded for at most three years with the goal being to transition successful technologies to either a higher level of research or to a program of record. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change between FY 2018 and FY 2019.	15.991	16.873	16.690	0.000	16.690
Title: SCIENCE TECHNOLOGY ENGINEERING AND MATH (STEM) EFFORTS AT NAVY LABS	2.247	2.565	2.547	0.000	2.547

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Description: This effort will support both the Science and Engineering Apprenticeship Program (SEAP) and the Naval Research Enterprise Intern Program (NREIP) summer programs to encourage participating students to pursue science and engineering careers, to further their education via mentoring by laboratory personnel and their participation in research, and to make them aware of Department of the Navy (DON) research and technology efforts, which can lead to employment within the DON. Participating students will spend eight to ten weeks during the summer doing research at approximately 19 to 20 DON laboratories. Participants will receive a stipend distributed by the Contractor. The stipend is a monthly allowance paid to interns for their participation in the research efforts. ***FY 2018 Plans:*** Continue to provide opportunities for students to participate in research at DON laboratories during the summer via the Naval Research Enterprise Internship Program (NREIP) program for undergraduate and graduate students and the Scientist and Engineering Apprenticeship Program (SEAP) Program for high school students. ***FY 2019 Base Plans:*** Continue to provide opportunities for approximately 300 high school and 600 college and graduate students to participate in research at DON laboratories during the summer via the Naval Research Enterprise Internship Program (NREIP) program for undergraduate and graduate students and the Scientist and Engineering Apprenticeship Program (SEAP) Program for high school students. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is no significant change between FY 2018 and FY 2019.					
Accomplishments/Planned Programs Subtotals	18.238	19.438	19.237	0.000	19.237

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

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E. Performance Metrics

The ILIR initiative seeks to improve the quality of defense research conducted predominantly through the Naval Warfare Centers/Laboratories. It also supports the development of technical intellect and education of engineers and scientists in disciplines critical to national defense needs through the development of new knowledge in a military laboratory environment. Initial research focus is often conducted in an unfettered environment since it is basic research, but many projects focus on applying recently developed theoretical knowledge to real world military problems with the intention of developing new capabilities and improving the performance of existing systems. Individual project metrics then become more tailored to the needs of specific applied research and advanced development programs. The National Research Council of the National Academies of Science and Engineering's Congressionally directed "Assessment of Department of Defense Basic Research" concluded that the Department of Defense is managing its basic research program effectively.