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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy **Date:** February 2018

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0708730N / Maritime Tech (MARITECH)							
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	21.511	3.080	4.808	7.284	-	7.284	6.779	7.512	7.664	7.823	Continuing	Continuing
2466: NSRP ASE	21.511	3.080	4.808	4.319	-	4.319	3.752	4.421	4.507	4.602	Continuing	Continuing
3435: Advanced Shipyard Technology	0.000	0.000	0.000	2.965	-	2.965	3.027	3.091	3.157	3.221	Continuing	Continuing

A. Mission Description and Budget Item Justification

The FY 2019 funding request was reduced by \$.005 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.

The National Shipbuilding Research Program (NSRP) is an industry and enterprise wide research collaboration that seeks to reduce the Navy's shipbuilding and repair cost. The resulting technologies implemented in NSRP-ASE member shipyards, benefit both the shipyard and the US Navy.

The Advanced Shipyard Technology (AST) seeks to improve the productivity, quality, and reduce costs of maintenance performed by the Naval public shipyards. The resulting technologies implemented by this program benefit both the naval shipyard and the US Navy.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	3.204	4.808	4.373	-	4.373
Current President's Budget	3.080	4.808	7.284	-	7.284
Total Adjustments	-0.124	0.000	2.911	-	2.911
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.124	0.000			
• Program Adjustments	0.000	0.000	2.995	-	2.995
• Rate/Misc Adjustments	0.000	0.000	-0.084	-	-0.084

Change Summary Explanation

The increase to the FY 2019 budget request is due to the start of the Advanced Shipyard Technology effort.

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0708730N / Maritime Tech (MARITECH)				Project (Number/Name) 2466 / NSRP ASE			
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
2466: NSRP ASE	21.511	3.080	4.808	4.319	-	4.319	3.752	4.421	4.507	4.602	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

NSRP ASE is a collaboration of U.S. shipyards working with the Navy customer to reduce the cost of building and repairing naval ships and improving shipbuilding industry productivity through advanced technology and processes. NSRP ASE is an innovative and proven approach to public/private cooperation to manage cost-shared R&D based on a national consensus Strategic Investment Plan. The Plan targets potential industry-wide technology and process solutions which are vetted by industry experts and builds upon the progress made over the previous years. The collaboration's organizational structure promotes teaming of industry, government and academia to achieve the continuous product and process improvements necessary for improved Navy ship affordability. Solutions include both leverage of best commercial practices and creation of industry-wide initiatives with aggressive technology transfer to, and buy-in by, multiple U.S. shipyards. Navy PEOs (Ships, Subs and Carriers) and NAVSEA are directly involved in NSRP. The Plan calls for matching government and industry investments over several years.

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

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Technology Development Projects	3.080	4.808	4.319	0.000	4.319
Articles:	-	-	-	-	-
<p>Description: The NSRP is an ongoing Research and Development program. This program awards small research projects and large research projects to (1) Improve Quality; (2) Reduce Total Ownership Costs; and, (3) Increase Energy Efficiency. These research projects have been known to produce technological advances in shipbuilding that once implemented have resulted in savings for the Navy.</p> <p>FY 2018 Plans:</p> <p>(1) Complete technology development projects in the four major initiative areas (Ship Design and Material Technologies, Ship Production Technologies, Business Process and Information Systems, and Infrastructure and Support (Regulatory Compliance, Technology Transfer and Workforce Development)) that will be competitively selected by industry subject matter experts and Navy stakeholders during GFY18, targeting the following priorities in Naval shipbuilding and repair:</p> <p>(1) Improving Quality; (2) Reduction of Total Ownership Costs; and, (3) Increasing Energy Efficiency. It is anticipated that projects selected will continue to be focused in the following areas:</p> <ul style="list-style-type: none"> - Promotion of Modular Construction - Reduction of Re-work - Improving Production Engineering 					

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018			
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
<div>- Improving Specifications and Standards</div> <div>- Improving Manufacturing Processes</div> <div>- Improving Production Planning</div> <div>- Data Exchange</div> <div>- Improving Safety & Health / Reducing Environmental Impacts</div> <div>- Education and Training</div> <div>- Total Ownership Cost</div> <div>(2) Continue technology transfer among the Navy, shipbuilding industry, academia, equipment and material suppliers and the R&D community</div> <div>FY 2019 Base Plans:</div> <div>(1) Complete technology development projects in the four major initiative areas (Ship Design and Material Technologies, Ship Production Technologies, Business Process and Information Systems, and Infrastructure and Support (Regulatory Compliance, Technology Transfer and Workforce Development)) that will be competitively selected by industry subject matter experts and Navy stakeholders during GFY19, targeting the following priorities in Naval shipbuilding and repair:</div> <div>(1) Improving Quality; (2) Reduction of Total Ownership Costs; and, (3) Increasing Energy Efficiency. It is anticipated that projects selected will continue to be focused in the following areas:</div> <div>- Promotion of Modular Construction</div> <div>- Reduction of Re-work</div> <div>- Improving Production Engineering</div> <div>- Improving Specifications and Standards</div> <div>- Improving Manufacturing Processes</div> <div>- Improving Production Planning</div> <div>- Data Exchange</div> <div>- Improving Safety & Health / Reducing Environmental Impacts</div> <div>- Education and Training</div> <div>- Total Ownership Cost</div> <div>(2) Continue technology transfer among the Navy, shipbuilding industry, academia, equipment and material suppliers and the R&D community</div> <div>FY 2019 OCO Plans:</div> <div>N/A</div> <div>FY 2018 to FY 2019 Increase/Decrease Statement:</div>						

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0708730N / <i>Maritime Tech (MARITECH)</i>		Project (Number/Name) 2466 / NSRP ASE	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO
The decrease from FY 2018 to FY 2019 is result of budget directed reforms for efficiency and effectiveness in addition to rate adjustments.					
Accomplishments/Planned Programs Subtotals		3.080	4.808	4.319	0.000
C. Other Program Funding Summary (\$ in Millions) N/A					
Remarks					
D. Acquisition Strategy R&D projects have been solicited and awarded by an industry collaboration represented by the Executive Control Board (ECB) of the National Shipbuilding Research Program (NSRP). The Navy has entered into an agreement with the industry collaboration using "other transaction" authority pursuant to 10 U.S.C. 2371.					
E. Performance Metrics Quarterly reports and reviews					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0708730N / Maritime Tech (MARITECH)				Project (Number/Name) 2466 / NSRP ASE					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development	Various	ECB NSRP : Not Specified	20.640	3.080	Dec 2016	4.808	Dec 2017	4.319	Dec 2018	-		4.319	Continuing	Continuing	Continuing
Subtotal			20.640	3.080		4.808		4.319		-		4.319	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Gov't Support Services	WR	NSWCCD : Not Specified	0.650	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Contractor Support Services	Various	Various : Not Specified	0.221	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.871	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			21.511	3.080		4.808		4.319		-		4.319	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0708730N / Maritime Tech (MARITECH)

Project (Number/Name)
2466 / NSRP ASE

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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 2466																												
Ship Collaborative Framework Technologies																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0708730N / Maritime Tech (MARITECH)	Project (Number/Name) 2466 / NSRP ASE

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2466				
Ship Collaborative Framework Technologies	1	2017	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy										Date: February 2018		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0708730N / Maritime Tech (MARITECH)				Project (Number/Name) 3435 / Advanced Shipyard Technology			
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
3435: Advanced Shipyard Technology	0.000	0.000	0.000	2.965	-	2.965	3.027	3.091	3.157	3.221	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Advanced Shipyard Technology (AST) develops, matures, and transitions technology (production processes, human augmentation, business process, IT, tooling, etc.), into the naval shipyards. Advanced Shipyard Technology funding will facilitate collaboration between government (Naval Sea Systems Command (NAVSEA), the public naval shipyards, Navy customers, Naval Warfare Centers, and others), academia, and industry. AST is an innovative approach to leverage public/private cooperation and target technology and process solutions that build on progress made over the previous years. Funding ensures widespread adoption of innovative improvements, enhancing proficiency and productivity of the public naval shipyard workforce to achieve the continuous product and process improvements necessary for improved Navy ship repair costs, and an overall reduction in availability duration.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Technology Transfer Articles: FY 2018 Plans: N/A FY 2019 Base Plans: Complete and accelerate technology transfer projects in the four major initiative areas (Predictive Planning, Proficient Workforce Development, Infrastructure-IT and Support, and Shipyard Execution) to deliver ships to the warfighter on time at the best cost. These funds enable "See, Solve, and Sustain" naval shipyard innovations through targeting of projects that deliver improvements in Critical Path Work, and Reduction of Total Ownership Costs (Improve Quality, Safety, and Throughput). Specific projects will be competitively selected by Navy subject matter experts during FY18, targeting the following capabilities in Naval Shipyards: a. Implement accelerated technology transfer and best practices on Shipyard Maintenance among industry, academia, and other DOD Services (e.g. automation, artificial intelligence, virtual reality, augmented reality, and geolocation). b. Accelerate technical approvals on new methods, such as laser ablation and cold spray disruptive technologies.								0.000	0.000	2.965	0.000	2.965
								-	-	-	-	-

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Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0708730N / <i>Maritime Tech (MARITECH)</i>		Project (Number/Name) 3435 / <i>Advanced Shipyard Technology</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
c. Establish and Sustain Naval Shipyard Laboratory Operations, Partnerships, and Results.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The increase from the FY 2018 to FY 2019 budget request was due to the start of the Advanced Shipyard Technology program.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.965	0.000	2.965
C. Other Program Funding Summary (\$ in Millions)					
N/A					
Remarks					
D. Acquisition Strategy					
Technologies will be developed and fielded based on their level of maturity and measure of benefit to the public naval shipyards.					
E. Performance Metrics					
Quarterly reports and reviews.					

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy												Date: February 2018			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0708730N / Maritime Tech (MARITECH)				Project (Number/Name) 3435 / Advanced Shipyard Technology					
Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development	Various	Various : Locations	0.000	0.000		0.000		2.965	Dec 2018	-		2.965	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		2.965		-		2.965	Continuing	Continuing	N/A
			Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		0.000		2.965		-		2.965	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy

Date: February 2018

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0708730N / Maritime Tech (MARITECH)

Project (Number/Name)
3435 / Advanced Shipyard Technology

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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 3435																												
Advanced Shipyard Technologies																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0708730N / Maritime Tech (MARITECH)	Project (Number/Name) 3435 / Advanced Shipyard Technology

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3435				
Advanced Shipyard Technologies	1	2019	4	2023