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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0204413N / Amphibious Tactical Supt Units							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	57.557	2.346	6.073	6.931	-	6.931	3.109	2.310	1.297	1.323	Continuing	Continuing
2231: LCAC / LCU 1700	54.868	2.035	1.153	1.061	-	1.061	1.352	1.350	1.297	1.323	Continuing	Continuing
2909: Amphibious Lighterage Development	2.689	0.311	4.920	5.870	-	5.870	1.757	0.960	0.000	0.000	0.000	16.507

A. Mission Description and Budget Item Justification

The FY 2020 funding request was reduced by \$0.152 million to account for the availability of prior year execution balances.

Landing Craft, Air Cushion (LCAC): Research and development efforts to transfer technologies into functional uses on the current LCACs. Current technology initiatives include sustainability/reliability/readiness/performance analyses, LCAC communication improvements, compliance with Cybersecurity policy regulations, and LCAC Total Ownership Costs (TOC) reduction initiatives.

Landing Craft, Utility (LCU 1700): Replacement program for the current LCU 1610 class craft - a class of craft that has exceeded its 25-year planned service life by nearly double, average age of craft is approaching 50-years-old. LCU 1700 will provide similar payload, range, speed, and interoperability. Detail design contract awarded Q2 FY18.

The Amphibious Support Craft Vehicle (ASCV) which will be the Lighter Amphibious Resupply Cargo, 5 ton (LARC-V) Replacement, provides amphibious equipment and personnel transport as well as near shore salvage and diving capability.

B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	3.940	6.073	7.100	-	7.100
Current President's Budget	2.346	6.073	6.931	-	6.931
Total Adjustments	-1.594	0.000	-0.169	-	-0.169
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.391	0.000			
• SBIR/STTR Transfer	-0.006	0.000			
• Program Adjustments	0.000	0.000	-0.152	-	-0.152
• Rate/Misc Adjustments	0.000	0.000	-0.017	-	-0.017

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Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development		PE 0204413N / Amphibious Tactical Supt Units			
• Congressional Directed Reductions Adjustments		-1.979	-	-	-
Change Summary Explanation					
The FY 2020 funding request was reduced by \$0.152 million to account for the availability of prior year execution balances. Increase in FY 2020 to support the Amphibious Support Craft Vehicle.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204413N / Amphibious Tactical Supt Units				Project (Number/Name) 2231 / LCAC / LCU 1700			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2231: LCAC / LCU 1700	54.868	2.035	1.153	1.061	-	1.061	1.352	1.350	1.297	1.323	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Landing Craft, Air Cushion (LCAC): Research and development efforts to transfer technologies into functional uses on the current LCACs. Ongoing technology initiatives include sustainability/reliability/readiness/performance analyses, LCAC communication improvements, Cybersecurity policy regulations compliance, and LCAC Total Ownership Costs (TOC) reduction initiatives.												
Landing Craft, Utility (LCU 1700): Replacement program for the current LCU 1610 class craft - a class of craft that has exceeded its 25-year planned service life by nearly double, average age of craft is approaching 50-years-old. LCU 1700 will provide similar payload, range, speed, and interoperability. Detail design contract awarded Q2 FY18.												
The FY 2020 funding request was reduced to account for the availability of prior year execution balances.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: LCAC RDT&E,N and LCU 1700 Articles:								2.035	1.153	1.061	0.000	1.061
								-	-	-	-	-
FY 2019 Plans: LCAC: - Continue to improve reliability and maintainability of the LCAC HM&E systems. - Complete the technical data package for Windows 10 updates to SBC4 (command and control system) and LCAC Mission Support Systems (LMSS) stations in accordance with DoD directives and Cybersecurity requirements. - Attain Platform IT Risk Management Framework (RMF) accreditation. LCU: - Conduct risk reduction efforts, which support Life Cycle/Total Ownership Cost (TOC) reductions for the class. - Perform Developmental Testing (DT-2). - Complete Platform IT Risk Management Framework (RMF) accreditation. - Continue development of Command, Control, Communications, Computers, and Navigation (C4N) Turnkey Solution.												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy						Date: March 2019					
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0204413N / <i>Amphibious Tactical Supt Units</i>			Project (Number/Name) 2231 / LCAC / LCU 1700				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)											
				FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total			
- Commence planning efforts for Operational Testing. FY 2020 Base Plans: LCAC: - Continue to improve reliability and maintainability of the LCAC HM&E systems. - Maintain compliance with cybersecurity directives and mandates. LCU: - Conduct risk reduction efforts, which support Life Cycle/Total Ownership Cost (TOC) reductions for the class. - Perform Developmental Testing (DT-3 and DT-4). - Continue planning efforts for Operational Testing. - Complete development and commence testing of Command, Control, Communications, Computers, and Navigation (C4N) Turnkey Solution. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: The FY 2020 funding request was reduced to account for the availability of prior year execution balances and rate adjustments.											
Accomplishments/Planned Programs Subtotals				2.035	1.153	1.061	0.000	1.061			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN 0970: LCAC	5.507	3.709	3.392	-	3.392	6.758	20.889	20.958	21.381	0.000	201.113
• SCN 5139: LCAC SLEP	0.000	23.321	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,443.818
• SCN 5100: LCU 1700	0.000	41.520	85.670	-	85.670	89.514	88.708	89.524	91.313	196.412	716.661
Remarks											
D. Acquisition Strategy Multiple contracts and Field Activities are involved to complete the various projects.											

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
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<u>E. Performance Metrics</u> LCAC: Continue to improve the reliability, maintainability, and security of the LCAC. LCU 1700: Continue risk reduction efforts, update acquisition documentation, and continue IT/OT activities. Establish efforts to improve reliability, maintainability, and security of LCU 1700 as detail design develops.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0204413N / Amphibious Tactical Supt Units				Project (Number/Name) 2231 / LCAC / LCU 1700					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
LCAC - Component Development	WR	NSWC CD : Philadelphia, PA	8.325	0.000		0.000		0.000		-		0.000	0.000	8.325	-
LCAC - Systems Engineering	WR	NSWC : Various	7.234	0.240	Jan 2018	0.199	Jan 2019	0.244	Jan 2020	-		0.244	Continuing	Continuing	Continuing
LCU - Special Studies	Various	Various : Various	3.840	0.000		0.000		0.000		-		0.000	0.000	3.840	-
LCU - Ship Design	WR	NSWC : Various	17.499	0.959	Jan 2018	0.310	Jan 2019	0.227	Jan 2020	-		0.227	Continuing	Continuing	Continuing
Subtotal			36.898	1.199		0.509		0.471		-		0.471	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
LCAC - Technical Engineering Services	WR	NSWC PCD : Panama City, FL	12.140	0.560	Jan 2018	0.000		0.000		-		0.000	0.000	12.700	-
LCU - Research Studies	Various	Various : Various	0.565	0.000		0.000		0.000		-		0.000	0.000	0.565	-
Subtotal			12.705	0.560		0.000		0.000		-		0.000	0.000	13.265	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
LCAC - Developmental Test & Evaluation	WR	Various : Various	0.287	0.000		0.000		0.000		-		0.000	0.000	0.287	-
LCAC -Operational Test & Evaluation	WR	NSWC PCD : Panama City, FL	2.047	0.000		0.000		0.000		-		0.000	0.000	2.047	-
LCAC - Test Assets	WR	NSWC PCD : Panama City, FL	0.850	0.000		0.000		0.000		-		0.000	0.000	0.850	-
LCU - Developmental Test & Evaluation	WR	OPTEVFOR/ MCOTEA : Norfolk, VA/Quantico, VA	0.000	0.150	Jan 2018	0.358	Jan 2019	0.362	Jan 2020	-		0.362	Continuing	Continuing	Continuing

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Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
LCU - Operational Test & Evaluation	WR	OPTEVFOR/ MCOTEA : Norfolk, VA/Quantico, VA	0.009	0.076	Jan 2018	0.240	Jan 2019	0.228	Jan 2020	-		0.228	Continuing	Continuing	Continuing
Subtotal			3.193	0.226		0.598		0.590		-		0.590	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Engineering Support	WR	Various : Various	0.726	0.000		0.000		0.000		-		0.000	0.000	0.726	-
Program Management	WR	NSWC CD : West Bethesda, MD	1.271	0.050	Jan 2018	0.046	Jan 2019	0.000		-		0.000	0.000	1.367	-
Travel	WR	NAVSEA : Not Specified	0.064	0.000		0.000		0.000		-		0.000	0.000	0.064	-
Defense Acquisition Workforce	MIPR	OSD : Not Specified	0.011	0.000		0.000		0.000		-		0.000	0.000	0.011	-
Subtotal			2.072	0.050		0.046		0.000		-		0.000	0.000	2.168	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			54.868	2.035		1.153		1.061		-		1.061	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy																Date: March 2019			
Appropriation/Budget Activity 1319 / 7								R-1 Program Element (Number/Name) PE 0204413N / <i>Amphibious Tactical Supt Units</i>								Project (Number/Name) 2231 / <i>LCAC / LCU 1700</i>			

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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 2231																												
LCAC - Technology Initiatives																												
LCU 1700 - Integrated Developmental / Operational Testing																												
LCU 1700 - C4N Turnkey Solution																												
LCU 1700 - Sustainment Technology Initiatives																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204413N / <i>Amphibious Tactical Supt Units</i>	Project (Number/Name) 2231 / LCAC / LCU 1700

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 2231</i>				
LCAC - Technology Initiatives	1	2018	4	2024
LCU 1700 - Integrated Developmental / Operational Testing	1	2018	4	2022
LCU 1700 - C4N Turnkey Solution	2	2018	4	2020
LCU 1700 - Sustainment Technology Initiatives	2	2021	4	2024

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204413N / Amphibious Tactical Supt Units				Project (Number/Name) 2909 / Amphibious Lighterage Development			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2909: Amphibious Lighterage Development	2.689	0.311	4.920	5.870	-	5.870	1.757	0.960	0.000	0.000	0.000	16.507
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Amphibious Support Craft Vehicle (ASCV) which will be the Lighter Amphibious Resupply Cargo, 5 ton (LARC-V) Replacement, provides amphibious equipment and personnel transport as well as near shore salvage and diving capability. It is a vital piece of equipment required for the execution of the Naval Beach Group (NBG) and Underwater Construction Team (UCT) missions.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: LARC-V Replacement Articles: FY 2019 Plans: FY 2019 RDT&E will fund the ASCV acquisition team tasks to include post-Milestone A activities, and refinement of all program documentation required by statute and regulation such as the Acquisition Plan/Acquisition Strategy, Systems Engineering Plan, Test and Evaluation Master Plan, and development of the mission-based test design. These required documents and tasks are the framework by which the eventual prototype vehicle will be evaluated for meeting Key Performance Parameters (KPPs). The development of the prototype vehicle RFP will be initiated during FY 2019. Additionally, it is anticipated that three separate system design contracts will be awarded as part of a down-select process. FY 2020 Base Plans: FY 2020 RDT&E will fund the ASCV acquisition team tasks to include pre-Milestone B activities which includes the Preliminary Design Review (PDR), Independent Logistics Assessment (ILA), final development of the Test and Evaluation Master plan(TEMP), and updates to all pre-Milestone B required documents. The Milestone B review is anticipated for Q3 FY 2020. Immediately after Milestone B approval, the team will focus their efforts on the Detail Design & Construction (DD&C) solicitation and contract award. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement:								0.311	4.920	5.870	0.000	5.870
								-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy				Date: March 2019	
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0204413N / <i>Amphibious Tactical Supt Units</i>		Project (Number/Name) 2909 / <i>Amphibious Lighterage Development</i>	

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
The increase from FY 2019 to FY 2020 is attributed to the Preliminary Design Review (PDR), finalization of Pre-Milestone B documentation, and the initiation of the Detailed Design & Construction (DD&C) effort, specifically the solicitation and source selection stages.					
Accomplishments/Planned Programs Subtotals	0.311	4.920	5.870	0.000	5.870

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy
RDT&E funding is required to develop a replacement amphibious vehicle to support OPLAN and Required Operational Capability/Potential Operating Environment (ROC/POE) requirements of the Naval Beach Groups and Underwater Construction Teams. Technology investigation began in FY15. Requirements documentation and analysis of alternatives and other such efforts are largely being accomplished with in house resources. Design and initial production efforts will be accomplished via a competitive award contract.

E. Performance Metrics
Quarterly Program Reviews are conducted with the performer to include funds status discussion, schedule review.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0204413N / <i>Amphibious Tactical Supt Units</i>						Project (Number/Name) 2909 / <i>Amphibious Lighterage Development</i>			
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
LARC-V Replacement	WR	Naval Surface Warfare Center Carderock Division (N : West Bethesda, MD	2.689	0.311	Mar 2018	1.920	Mar 2019	5.185	Mar 2020	-		5.185	0.000	10.105	0.200
LARC-V Replacement	Various	EXWC : Port Hueneme, CA	0.000	0.000		3.000	Mar 2019	0.685	Mar 2020	-		0.685	0.000	3.685	-
Subtotal			2.689	0.311		4.920		5.870		-		5.870	0.000	13.790	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			2.689	0.311		4.920		5.870		-		5.870	0.000	13.790	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy			Date: March 2019		
Appropriation/Budget Activity 1319 / 7		R-1 Program Element (Number/Name) PE 0204413N / <i>Amphibious Tactical Supt Units</i>			Project (Number/Name) 2909 / <i>Amphibious Lighterage Development</i>

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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 2909																												
LARC-V Replacement: prototype development - stability testing																												
Technical Review																												
Independent Logistics Assessment (ILA)																												
Test and Evaluation Master Plan																												
Detailed Design & Construction (DD&C) Solicitation Actions - Develop and Issue DD&C RFP																												
Detailed Design & Construction (DD&C) Source Selection																												
Milestone B																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204413N / <i>Amphibious Tactical Supt Units</i>	Project (Number/Name) 2909 / <i>Amphibious Lighterage Development</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2909				
LARC-V Replacement: prototype development - stability testing	1	2018	4	2022
Technical Review	1	2020	3	2020
Independent Logistics Assessment (ILA)	1	2020	2	2020
Test and Evaluation Master Plan	2	2020	3	2020
Detailed Design & Construction (DD&C) Solicitation Actions - Develop and Issue DD&C RFP	4	2020	4	2020
Detailed Design & Construction (DD&C) Source Selection	3	2020	1	2021
Milestone B	3	2020	4	2022