

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	59.903	4.840	6.931	1.713	-	1.713	3.956	2.560	1.821	1.848	Continuing	Continuing
2231: <i>LCAC / LCU 1700</i>	56.903	1.149	1.061	0.979	-	0.979	1.590	1.457	1.321	1.348	Continuing	Continuing
2477: <i>NECC Additive Manufacturing</i>	0.000	0.000	0.000	0.499	-	0.499	0.500	0.500	0.500	0.500	Continuing	Continuing
2909: <i>Amphibious Lighterage Development</i>	3.000	3.691	5.870	0.235	-	0.235	1.866	0.603	0.000	0.000	0.000	15.265

**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. 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	6.073	6.931	3.109	-	3.109
Current President's Budget	4.840	6.931	1.713	-	1.713
Total Adjustments	-1.233	0.000	-1.396	-	-1.396
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-1.210	0.000	-	-	-
• SBIR/STTR Transfer	-0.023	0.000	-	-	-
• Program Adjustments	0.000	0.000	-1.408	-	-1.408
• Rate/Misc Adjustments	0.000	0.000	0.012	-	0.012

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	
<b><u>Change Summary Explanation</u></b> The FY 2021 funding request was reduced by \$0.393 million to account for the availability of prior year execution balances.  The FY 2021 decrease is also due to decreasing efforts for Amphibious Lighterage Development, as the prototype has been completed and development testing will be conducted. This effort requires less funding than the previous fiscal year.		

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2021 Navy **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2231 / LCAC / LCU 1700
--	---	--

COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
2231: LCAC / LCU 1700	56.903	1.149	1.061	0.979	-	0.979	1.590	1.457	1.321	1.348	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.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<b>Title:</b> LCAC and LCU 1700 RDT&E,N	1.149	1.061	0.979	0.000	0.979
<b>Articles:</b>	-	-	-	-	-
<b>FY 2020 Plans:</b>					
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.					
<b>FY 2021 Base Plans:</b>					
LCAC:					
- Continue to improve reliability and maintainability of the LCAC HM&E systems.					
- Maintain compliance with cybersecurity directives and mandates.					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2231 / LCAC / LCU 1700

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
LCU: - Conduct risk reduction efforts, which support Life Cycle/Total Ownership Cost (TOC) reductions for the class. - Conduct Developmental Testing & Operational Testing (DT/OT). - Support Developmental Testing & Operational Testing on lead craft.  <b>FY 2021 OCO Plans:</b> N/A  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Decrease is due to a decrease in scope of DT/OT events					
<b>Accomplishments/Planned Programs Subtotals</b>	1.149	1.061	0.979	0.000	0.979

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021 Base</u>	<u>FY 2021 OCO</u>	<u>FY 2021 Total</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN 0970: LCAC	3.709	3.392	9.366	-	9.366	6.898	6.865	6.929	6.940	0.000	168.125
• SCN 5139: LCAC SLEP	0.000	0.000	56.461	-	56.461	52.271	53.307	0.000	0.000	0.000	1,582.483
• SCN 5100: LCU 1700	41.520	83.670	87.395	-	87.395	70.249	69.650	74.082	74.321	76.036	610.903

**Remarks**

**D. Acquisition Strategy**

Multiple contracts and Field Activities are involved to complete the various projects.

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 7				PE 0204413N / Amphibious Tactical Supt Units				2231 / LCAC / LCU 1700								
<b>Product Development (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	7.474	0.199	Jan 2019	0.244	Jan 2020	0.200	Jan 2021	-		0.200	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	18.458	0.310	Jan 2019	0.227	Jan 2020	0.000		-		0.000	Continuing	Continuing	Continuing	
<b>Subtotal</b>			38.097	0.509		0.471		0.200		-		0.200	Continuing	Continuing	N/A	
<b>Support (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	12.700	0.000		0.000		0.000		-		0.000	0.000	12.700	-	
LCU - Research Studies	Various	Various : Various	0.565	0.000		0.000		0.095	Jan 2021	-		0.095	0.000	0.660	-	
<b>Subtotal</b>			13.265	0.000		0.000		0.095		-		0.095	0.000	13.360	N/A	
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	0.150	0.358	Jan 2019	0.362	Jan 2020	0.320	Jan 2021	-		0.320	Continuing	Continuing	Continuing	

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
1319 / 7				PE 0204413N / Amphibious Tactical Supt Units						2231 / LCAC / LCU 1700					
<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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	0.085	0.240	Jan 2019	0.228	Jan 2020	0.228	Jan 2021	-		0.228	Continuing	Continuing	Continuing
<b>Subtotal</b>			3.419	0.598		0.590		0.548		-		0.548	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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		0.094	Jan 2021	-		0.094	0.000	0.820	-
Program Management	WR	NSWC CD : West Bethesda, MD	1.321	0.042	Jan 2019	0.000		0.042	Jan 2021	-		0.042	0.000	1.405	-
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	-
<b>Subtotal</b>			2.122	0.042		0.000		0.136		-		0.136	0.000	2.300	N/A
<b>Project Cost Totals</b>			56.903	1.149		1.061		0.979		-		0.979	Continuing	Continuing	N/A
<b>Remarks</b>															

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2231 / LCAC / LCU 1700

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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

<b>Proj 2231</b>	
LCAC - Technology Initiatives	[REDACTED]
LCU 1700 - Integrated Developmental / Operational Testing	[REDACTED]
LCU 1700 - C4N Turnkey Solution	[REDACTED]
LCU 1700 - Sustainment Technology Initiatives	[REDACTED]

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2231 / LCAC / LCU 1700

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2231</b>				
LCAC - Technology Initiatives	1	2019	4	2025
LCU 1700 - Integrated Developmental / Operational Testing	1	2019	2	2023
LCU 1700 - C4N Turnkey Solution	2	2019	4	2020
LCU 1700 - Sustainment Technology Initiatives	2	2021	4	2025

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>				<b>Project (Number/Name)</b> 2477 / <i>NECC Additive Manufacturing</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2477: <i>NECC Additive Manufacturing</i>	0.000	0.000	0.000	0.499	-	0.499	0.500	0.500	0.500	0.500	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

This is a new start in FY 2021.

In accordance with the National Defense Strategy (NDS) of 2018, A Design for Maintaining Maritime Superiority 2.0, and NAVFAC Strategic Design 2.0, this program provides the Navy with new engineering capabilities to build a more lethal force by modernizing key capabilities in resilient and agile logistics thru additive manufacturing (AM). Investing in AM enhances the fleet's ability to conduct operational logistics in a contested environment, and ensures logistics supportability across the austere distributed battlespace. AM technology results in increased operational availability, on demand production of critical systems, and supply cost savings.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> NECC Additive Manufacturing	0.000	0.000	0.499	0.000	0.499
<b>Articles:</b>	-	-	-	-	-
<b>FY 2020 Plans:</b> N/A					
<b>FY 2021 Base Plans:</b> FY21 will fund user evaluation of AM capabilities at each stage of the supply chain including design, data transmission, printing, part validation, installation, and operational mobilization. Test plans will be developed to support operational evaluation. Analysis of the user evaluation data will be performed.					
<b>FY 2021 OCO Plans:</b> N/A					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Increase of .499 is due to a new project to develop requirement for future additive manufacturing capabilities.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	0.000	0.499	0.000	0.499

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

N/A

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2477 / <i>NECC Additive Manufacturing</i>

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

**Remarks**

**D. Acquisition Strategy**

The projects identified in this budget have been carefully selected to respond to a series of extended user evaluations of commercial off the shelf (COTS) equipment by the warfighter with the goal of developing requirements for future additive manufacturing capabilities that will meet unique logistics alternatives.



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2021 Navy</b>		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2477 / <i>NECC Additive Manufacturing</i>

	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
<b>Proj 2477</b>																												
Operational Evaluation																												
Test Plan and Analysis																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2477 / <i>NECC Additive Manufacturing</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2477</b>				
Operational Evaluation	1	2021	4	2025
Test Plan and Analysis	1	2021	4	2025

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>				<b>Project (Number/Name)</b> 2909 / <i>Amphibious Lighterage Development</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2909: <i>Amphibious Lighterage Development</i>	3.000	3.691	5.870	0.235	-	0.235	1.866	0.603	0.000	0.000	0.000	15.265
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

The Amphibious Lighterage Development, 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. A system of systems approach is being researched as an alternative to a direct LARC-V Replacement. The capability required is vital for the execution of the Naval Beach Group (NBG) and Underwater Construction Team (UCT) missions of Ship to shore transport and near shore salvage.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
<b>Title:</b> LARC-V Replacement	3.691	5.870	0.235	0.000	0.235
<b>Articles:</b>	-	-	-	-	-
<b>FY 2020 Plans:</b> FY 2020 RDT&E will fund the acquisition of COTS prototype to validate military application to meet gaps identified in the Initial Capabilities Document (ICD), specifically Boat Lane Preparation and Personnel/ Light Cargo Transport. The strategy has shifted from single solution system to using more affordable systems of systems approach and non-developmental material solutions (COTS) to meet gaps. In FY20, prototypes will be acquired for evaluation of operational effectiveness for military use.					
<b>FY 2021 Base Plans:</b> FY 2021 RDT&E funding will be used to complete user assessments of COTS prototype acquired during FY20.					
<b>FY 2021 OCO Plans:</b> N/A					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The FY 2021 request has decreased due to decreasing efforts as the prototype has been completed with the development and operational testing substantially has been completed. Final testing activities and reports to be funded with FY 2021. The FY 2021 request has also been decreased to account for the availability of prior year execution balances.					
<b>Accomplishments/Planned Programs Subtotals</b>	3.691	5.870	0.235	0.000	0.235

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204413N / Amphibious Tactical Supt Units	Project (Number/Name) 2909 / Amphibious Lighterage Development

**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. In FY19, a one for one like in kind replacement of the LARC-V was determined not affordable. An alternative system of systems approach is now being pursued with a near term focus being on two of the seven original capabilities. The two capabilities are (1)boat lane preparation and (2)personnel and equipment transport. Requirements documentation and other such documentation efforts are largely being accomplished with in house resources. Procurement of prototypes accomplished via competitive other transaction authority (OTA).

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 7				PE 0204413N / Amphibious Tactical Supt Units				2909 / Amphibious Lighterage Development							
Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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)	3.000	0.713	Mar 2019	0.000		0.000		-		0.000	0.000	3.713	0.200
Boat Lane Preparation	Various	EDRC : Duck, North Carolina	0.000	0.000		3.996	Mar 2020	0.000		-		0.000	0.000	3.996	-
Personnel Transport	C/BA	Denfense Innovation Unit : Mountview, CA	0.000	2.800	Apr 2020	1.500	Apr 2020	0.000		-		0.000	0.000	4.300	-
<b>Subtotal</b>			3.000	3.513		5.496		0.000		-		0.000	0.000	12.009	N/A
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
Operational Testing	WR	EXWC : Port Hueneme, CA	0.000	0.000		0.300	Oct 2020	0.235	Nov 2020	-		0.235	0.000	0.535	-
<b>Subtotal</b>			0.000	0.000		0.300		0.235		-		0.235	0.000	0.535	N/A
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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
In house Program Management	Sub Allot	Not Specified : Not Specified	0.000	0.178	Mar 2019	0.074	Mar 2020	0.000		-		0.000	0.000	0.252	-
<b>Subtotal</b>			0.000	0.178		0.074		0.000		-		0.000	0.000	0.252	N/A
<b>Project Cost Totals</b>			3.000	3.691		5.870		0.235		-		0.235	0.000	12.796	N/A

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2021 Navy							<b>Date:</b> February 2020			
<b>Appropriation/Budget Activity</b> 1319 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>			<b>Project (Number/Name)</b> 2909 / <i>Amphibious Lighterage Development</i>				
	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	

<b>Remarks</b>									

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2909 / <i>Amphibious Lighterage Development</i>

FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
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

<b>Proj 2909</b>	
Boat Lane Preparation: Ariel Bathometry Mapping Technology Demonstration	██████████
Boat Lane Preparation: Prototype Development	████████████████████
Boat Lane Preparation: Test and Evaluate Prototype	████████████████████
Personnel and Equipment Transport: Prototype Procurement	██████████
Personnel and Equipment Transport: Prototype Development	██████████
Personnel and Equipment Transport: Test and Evaluate Prototype	██████████

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0204413N / <i>Amphibious Tactical Supt Units</i>	<b>Project (Number/Name)</b> 2909 / <i>Amphibious Lighterage Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2909</b>				
Boat Lane Preparation: Ariel Bathometry Mapping Technology Demonstration	1	2020	2	2020
Boat Lane Preparation: Prototype Development	1	2020	1	2021
Boat Lane Preparation: Test and Evaluate Prototype	1	2021	4	2021
Personnel and Equipment Transport: Prototype Procurement	1	2020	3	2020
Personnel and Equipment Transport: Prototype Development	2	2020	4	2020
Personnel and Equipment Transport: Test and Evaluate Prototype	1	2021	3	2021