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**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 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration
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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
Total Program Element	150.381	64.311	50.137	41.775	-	41.775	81.125	49.198	57.685	35.558	Continuing	Continuing
0025: <i>Amphibious Combat Vehicle Family of Vehicles</i>	150.381	41.570	23.299	41.775	-	41.775	81.125	49.198	57.685	35.558	Continuing	Continuing
0026: <i>Amphibious Combat Vehicle 1.2</i>	0.000	22.741	26.838	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	49.579

**Program MDAP/MAIS Code:**  
**Project MDAP/MAIS Code(s):** P472

**Note**

The program funding transitions from Program Element 0603611M Marine Corps Assault Vehicles to Program Element 0605611M MC AVS Development and Demonstration as the program proceeds through the acquisition process.

In an Acquisition Decision Memorandum (ADM) dated 8 Jan 2019, ASN(RD&A) authorized the Program Executive Officer, Land Systems (PEOLS) to combine the ACV 1.1 and ACV 1.2 programs into a single ACV Family of Vehicles (FOV) that continues the phased development and procurement approach. Accordingly, program resources for the merged program will be depicted in Project Unit 0025 for FY2021 and beyond and program resources budgeted for ACV 1.2 in fiscal years FY2019 through FY2020 will continue to be shown in Project Unit 0026. In an ADM dated 12 Jul 2019, ASN(RD&A) authorized a third lot of LRIP consisting of 56 vehicles and directed that acquisition documentation reflecting this change shall be updated as part of the Full Rate Production (FRP) Milestone Decision approval process. Both the merger and the additional lot of LRIP are departures from the FY 2020 President's Budget Submission acquisition strategy.

Due to the vehicle delivery schedule and test supporting unit availability, Initial Operational Test and Evaluation (IOT&E) will now commence 3QFY20 instead of 2QFY20. Similarly, the Full Rate Production (FRP) decision scheduled for 3QFY20 will now commence 4QFY20. Because both events will commence in FY2020, there is no budget impact.

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

The Amphibious Combat Vehicle is an armored personnel carrier, balanced in performance, protection, and payload for employment within the Ground Combat Element (GCE) and throughout the range of military operations, to include a swim capability.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2021 Navy	<b>Date:</b> February 2020
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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration
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<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	66.137	77.322	59.517	-	59.517
Current President's Budget	64.311	50.137	41.775	-	41.775
Total Adjustments	-1.826	-27.185	-17.742	-	-17.742
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-27.185			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.101	0.000			
• SBIR/STTR Transfer	-1.725	0.000			
• Program Adjustments	0.000	0.000	-17.779	-	-17.779
• Rate/Misc Adjustments	0.000	0.000	0.037	-	0.037

**Change Summary Explanation**

The FY 2021 funding request was reduced by \$17.779M to account for the availability of prior year execution balances.

The decrease from FY 2020 to FY 2021 (\$8.362M) is primarily attributed to the completion of ACV-P test and evaluation in FY 2020.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration				<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle Family of Vehicles			
<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>
0025: Amphibious Combat Vehicle Family of Vehicles	150.381	41.570	23.299	41.775	-	41.775	81.125	49.198	57.685	35.558	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

**Project MDAP/MAIS Code:** P472

**Note**

Beginning in FY 2018, the program funding transitioned from Program Element 0603611M Marine Corps Assault Vehicles to Program Element 0605611M MC AVS Development and Demonstration as the program proceeds through the acquisition process.

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

The Amphibious Combat Vehicle (ACV) replaces the legacy Assault Amphibious Vehicle (AAV) battalions within the Marine Divisions. ACV-equipped Amphibious Assault (AA) companies will provide protected mobility and general support lift to elements of Marine Infantry Battalions. The ACV, an advanced generation, eight-wheeled armored personnel carrier, will mitigate current and projected capability gaps by providing improved lethality against dismounted enemy troops, more effective land and water tactical mobility, and increased force protection and survivability from blast, fragmentation, and kinetic energy threats. ACV is structured to be executed in multiple increments, with the first increment designed to provide an initial operational capability of personnel carriers (ACV-P). Subsequent increments are planned to provide additional personnel carriers and to develop Mission Role Variants (MRVs), such as command and control (ACV-C), improved lethality (ACV-30MM), and tactical recovery capabilities (ACV-R).

The project level increase from FY2020 to FY2021 (\$18.476) is primarily attributed to transition of design and test activity for the ACV MRVs from Project 0026 to Project 0025 in FY2021 and beyond per ASN (RDA) Acquisition Decision Memorandum dated 8 Jan 2019.

**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> Product Development	19.309	3.600	31.688	0.000	31.688
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> System Design and Development; Engineering and Manufacturing Development (EMD) test vehicle manufacturing; prime contractor Developmental and Operational test support, and development of Logistics Management Information (LMI) data.					
<b>FY 2020 Plans:</b> - Complete Advance Capabilities Improvements, Developmental Testing and Evaluation (DT&E) and Live Fire Test and Evaluation (LFT&E) support for ACV-P.					



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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy			<b>Date:</b> February 2020			
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle Family of Vehicles				
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
N/A						
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The increase in Management Services (\$0.193) is attributed to technical support labor required for ACV-C during test.						
<b>Title:</b> Program Support						
<b>Articles:</b>						
<b>Description:</b> Government labor, material, and travel for Integrated Logistics Support, Technical Publications, Support Equipment development, In-house Technical Support, and Program Management Support.						
<b>FY 2020 Plans:</b>						
<ul style="list-style-type: none"> <li>- Continue Engineering Support for communication suite integration efforts</li> <li>- Continue procurement, inventory, checkout, kitting, shipment, and troubleshooting of ACV communications suite Government Furnished Equipment (GFE).</li> <li>- Complete Reliability, Availability, Maintainability-Durability (RAM-D),</li> <li>- Continue Human Systems Integration (HSI) Support.</li> <li>- Complete Digital Integration Facility (DIF) architecture support.</li> <li>- Complete technical support for ACV-P training packages.</li> </ul>						
<b>FY 2021 Base Plans:</b>						
<ul style="list-style-type: none"> <li>- Continue Engineering Support for communication suite integration efforts</li> <li>- Continue procurement, inventory, checkout, kitting, shipment, and troubleshooting of ACV communications suite Government Furnished Equipment (GFE).</li> <li>- Initiate Remote Weapons Station/Common Remotely Operated Weapons Station (CROWS) support.</li> <li>- Continue Human Systems Integration (HSI) Support.</li> <li>- Initiate ACV-30 government engineering and maintenance and technical support.</li> </ul>						
<b>FY 2021 OCO Plans:</b>						
N/A						
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The increase in Program Support between FY2020 and FY2021 (\$0.469) is attributed to initiation of ACV-30 government engineering and maintenance and technical support. After combining projects 0025 and 0026 (see						
		4.587	3.211	3.680	0.000	3.680
		-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle Family of Vehicles

<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>
Section D, Acquisition Strategy, of the R-2A for projects 0025 and 0026), the combined decrease from FY2020 to FY2021 is \$3.206M.					
<b>Title:</b> Test & Evaluation  <b>Description:</b> Government Developmental Test (DT), Operational Assessment (OA), and Live Fire Test and Evaluation (LFT&E) activities.  <b>FY 2020 Plans:</b> - Complete DT&E Reliability Growth Testing (EMD) for ACV-P. - Complete Production Qualification Test/Reliability Qualification Testing (PQT/RQT) development testing execution for ACV-P. - Complete LFT&E modeling and simulation for Full Up System Level (FUSL) Live Fire Testing for ACV-P. - Initiate and complete Initial Operational Test and Evaluation (IOT&E) for ACV-P.  <b>FY 2021 Base Plans:</b> - Initiate ACV-C Developmental and Operational test planning. - Initiate ACV-C Developmental Test and Evaluation (DT&E).  <b>FY 2021 OCO Plans:</b> N/A  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The decrease in Test & Evaluation between FY2020 and FY2021 (\$10.274) is attributed to the completion of Reliability Growth Testing (RGT), Production Qualification Testing (PQT), and Reliability Qualification Testing (RQT) for ACV-P in FY2020, the initiation and completion of IOT&E for ACV-P in FY2020, and the completion of the Full Up System Level (FUSL) Live Fire test event for ACV-P in FY2020.	15.568	16.086	5.812	0.000	5.812
<b>Articles:</b>	-	-	-	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	41.570	23.299	41.775	0.000	41.775

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</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>
• PMC/2025: Amphibious Combat Vehicle Family of Vehicles	166.522	300.935	478.874	-	478.874	517.516	657.179	672.429	707.752	Continuing	Continuing

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

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle Family of Vehicles
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• PMC/7000/ACV FoV: Spares and Repair Parts ACV FoV	6.145	13.954	13.557	-	13.557	19.256	19.682	20.075	20.479	Continuing	Continuing
• RDTE/0605611M/0026: Amphibious Combat Vehicle 1.2	22.741	26.838	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	49.579

**Remarks**

**D. Acquisition Strategy**

The program office awarded two competitive Engineering and Manufacturing Development (EMD) contracts to two vendors to build 16 vehicles each (32 total). The program entered the acquisition cycle at Milestone B in FY 2016 and down-selected to one vendor at Milestone C in 3Q FY 2018; the program entered into Low Rate Initial Production (LRIP) at Milestone C with approval for two Lots of LRIP.

In an Acquisition Decision Memorandum (ADM) dated 8 Jan 2019, ASN(RD&A) authorized the program office to combine the ACV 1.1 and ACV 1.2 programs into a single ACV Family of Vehicles (FOV) that continues the phased development and procurement approach. Accordingly, program resources for the merged program are depicted in Project Unit 0025 for FY2021 and beyond, and program resources budgeted for ACV 1.2 in fiscal years FY2019 through FY2020 will continue to be shown in Project Unit 0026.

In an ADM dated 12 Jul 2019, ASN(RD&A) authorized a third lot of LRIP consisting of 56 vehicles and directed that acquisition documentation reflecting this change shall be updated as part of the Full Rate Production (FRP) Milestone Decision approval process. LRIP Lot 3 was broken into two lots (3A for 30 vehicles/3B for 26 vehicles) due to the Continuing Resolution. The production contract includes competitively priced options for the development phase through FRP.

Due to the vehicle delivery schedule and test supporting unit availability, Initial Operational Test and Evaluation (IOT&E) will now commence 3QFY20 instead of 2QFY20. Similarly, the Full Rate Production (FRP) decision scheduled for 3QFY20 will now commence 4QFY20. Because both events will commence in FY2020, there is no budget impact.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle Family of Vehicles
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<b>Product Development (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
System Design & Development	C/FPIF	Various : Various	96.301	19.309	Jan 2019	3.600	Jan 2020	30.858	Jan 2021	-		30.858	Continuing	Continuing	Continuing
Other Product Development	C/FFP	NIWC : New Jersey/Charleston/Picatinny	8.429	0.000		0.000		0.830	Jan 2021	-		0.830	Continuing	Continuing	Continuing
<b>Subtotal</b>			104.730	19.309		3.600		31.688		-		31.688	Continuing	Continuing	N/A

**Remarks**

- The increase in System Design & Development between FY2020 and FY2021 (\$27.258) is attributed to prime contractor test support for the ACV-C and design and development of the ACV-C and ACV-30.
- The increase in Other Product Development between FY2020 and FY2021 (\$0.830) will initiate Common Remotely Operated Weapon Station II(CROWS-II) Multi-User Multi-Station (MUMS) software development which was deferred from FY2019 to FY2021.

<b>Support (\$ 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>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Integrated Logistics Support	WR	Various : Various	0.300	0.862	Apr 2019	0.410	Apr 2020	0.558	Apr 2021	-		0.558	Continuing	Continuing	Continuing
Technical Data & Pubs Development	WR	NSWC CD : Carderock, MD	0.100	0.000	Sep 2019	0.600	Apr 2020	0.101	Apr 2021	-		0.101	Continuing	Continuing	Continuing
In-House Technical Support	WR	Various : Various	7.807	3.111	Apr 2019	1.658	Apr 2020	2.717	Apr 2021	-		2.717	Continuing	Continuing	Continuing
Training Devices/ Simulators	WR	NAWC : Orlando, FL	0.366	0.000		0.000		0.222	Apr 2021	-		0.222	0.000	0.588	-
Travel	Various	Various : Various	0.062	0.614	Sep 2019	0.544	Sep 2020	0.083	Sep 2021	-		0.083	0.000	1.303	-
<b>Subtotal</b>			8.635	4.587		3.212		3.681		-		3.681	Continuing	Continuing	N/A

**Remarks**

- The decrease in Technical Data & Pubs between FY2020 and FY2021 (-\$0.499) is attributed to the completion of Logistic Demonstration for ACV-P in FY2020.
- The increase in In-house Technical Support (\$1.059) is attributed to recurring Remote Weapons Station/Common Remotely Operated Weapons Station (CROWS) support which begins in FY2021.
- The increase in Training Devices and Simulators between FY2020 and FY2021 (\$0.222) is attributed to design activities for non-prime contractor Operator/Maintenance Training devices required to enhance Operator and Maintainer proficiency.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle Family of Vehicles
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<b>Test and Evaluation (\$ 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>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Development Test & Evaluation	WR	Various : Various	14.072	9.225	Jan 2019	1.135	Jan 2020	5.396	Jan 2021	-		5.396	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	MCOTEA : Quantico,VA	6.041	0.513	Jan 2019	9.907	Jan 2020	0.415	Jan 2021	-		0.415	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	Various : Various	2.885	5.830	Jan 2019	5.043	Jan 2020	0.000		-		0.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			22.998	15.568		16.085		5.811		-		5.811	Continuing	Continuing	N/A

**Remarks**

- The increase in Developmental Test & Evaluation between FY2020 and FY2021 (\$4.261) is primarily attributed to the initiation of ACV-C DT&E in FY2021.
- The decrease in Operational Test & Evaluation between FY2020 and FY2021 (\$9.492) is attributed to the initiation and completion of IOT&E for the ACV-P in FY2020.
- The decrease in Live Fire Test & Evaluation between FY2020 & FY2021 (\$5.043) is primarily attributed to completion of the Full Up System Level (FUSL) Live Fire test event for the ACV-P in FY2020.

<b>Management Services (\$ 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>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Engineering & Technical Services	Various	Various : Various	5.357	0.787	Mar 2019	0.402	Mar 2020	0.353	Mar 2021	-		0.353	0.000	6.899	-
Management Support Services	Various	Various : Various	8.661	1.319	Mar 2019	0.000	Mar 2020	0.242	Mar 2021	-		0.242	Continuing	Continuing	Continuing
Studies and Analyses	TBD	TBD : TBD	0.000	0.000		0.000	Apr 2020	0.000		-		0.000	0.000	0.000	-
<b>Subtotal</b>			14.018	2.106		0.402		0.595		-		0.595	Continuing	Continuing	N/A

**Remarks**

- The increase in Management Support Services between FY2020 and FY2021 (\$0.242) is attributed to increased business, acquisition, logistics and engineering support related to ACV-C and ACV-30 Mission Role Variants.

	<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>Project Cost Totals</b>	150.381	41.570	23.299	41.775	-	41.775	Continuing	Continuing	N/A



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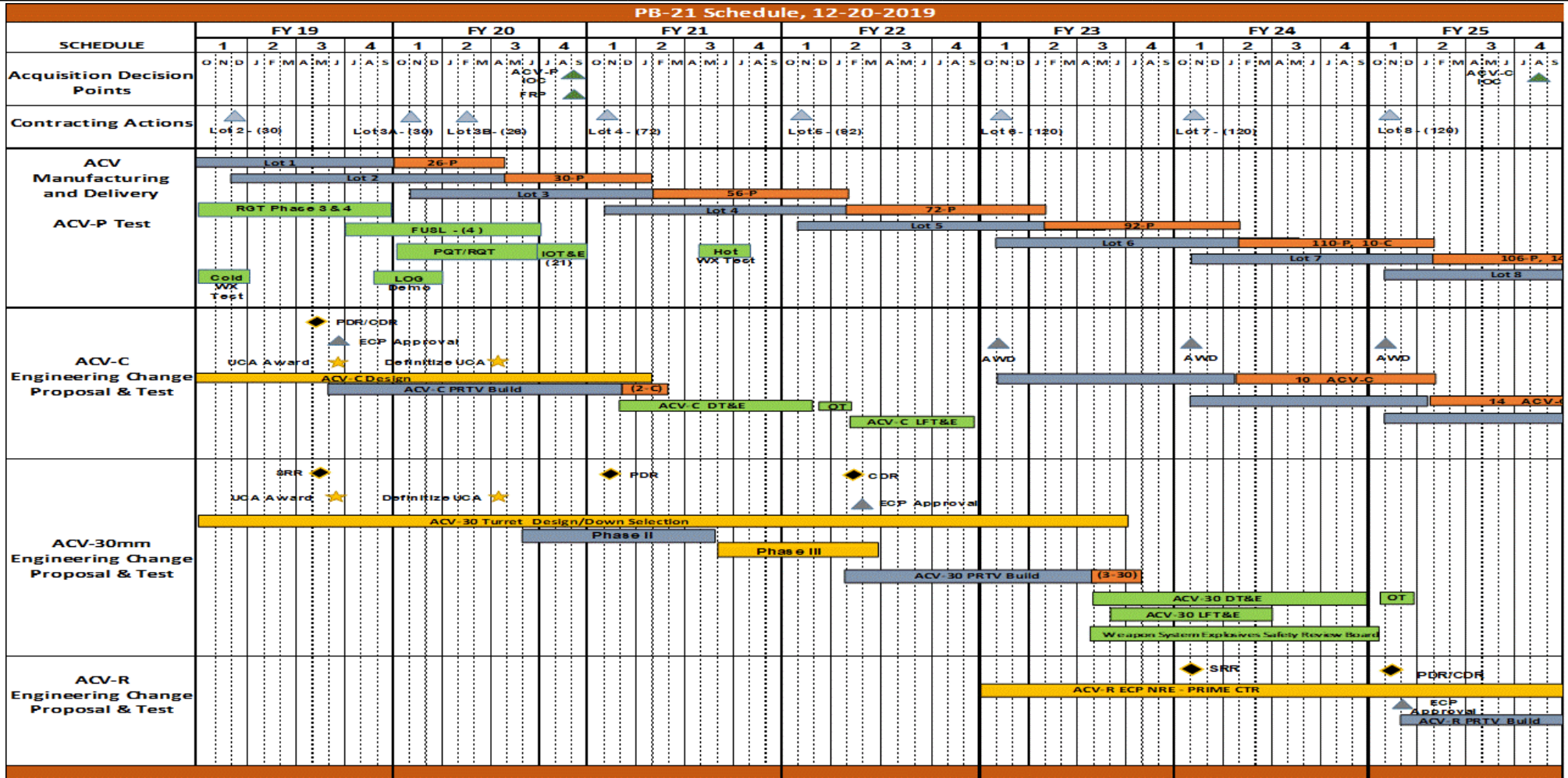
Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy

Date: February 2020

Appropriation/Budget Activity  
1319 / 5

R-1 Program Element (Number/Name)  
PE 0605611M / (U) MC AVS Development  
& Demonstration

Project (Number/Name)  
0025 / Amphibious Combat Vehicle Family  
of Vehicles



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle Family of Vehicles

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0025</b>				
Lot 2 Option Exercised	1	2019	1	2019
Lot 3 Option Exercised	1	2020	1	2020
Initial Operational Test & Evaluation (IOT&E) for ACV-P	3	2020	4	2020
Full Rate Production (FRP) Decision	4	2020	4	2020
ACV-P Initial Operational Capability (IOC)	4	2020	4	2020
Lot 4 Option Exercised	1	2021	1	2021
FUSL Test and Evaluation	4	2019	3	2020
RGT Phase 3/4 Test and Evaluation	1	2019	4	2019
PQT/RQT	1	2020	3	2020
Cold Weather Testing	1	2019	1	2019
Hot Weather Testing	3	2021	4	2021
Logistic Demo	4	2019	1	2020
ACV-C ECP NRE Design & Test Article Build	1	2019	2	2021
ACV-C DT, OT and LFT&E	1	2021	4	2022
ACV-30 ECP NRE Design & Test Article Build	1	2019	4	2023
ACV-30 DT, OT and LFT&E	3	2023	1	2025
ACV-R ECP NRE Design & Test Article Build	1	2023	4	2025

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy										<b>Date:</b> February 2020		
<b>Appropriation/Budget Activity</b> 1319 / 5					<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration				<b>Project (Number/Name)</b> 0026 / Amphibious Combat Vehicle 1.2			
<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>
0026: Amphibious Combat Vehicle 1.2	0.000	22.741	26.838	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	49.579
Quantity of RDT&E Articles		3	-	-	-	-	-	-	-	-		

**Note**

Project Unit 0026 depicts program resources for the ACV 1.2 program FY2019 and FY2020 prior to the merger of ACV 1.1 and ACV 1.2. The merged program (ACV Family of Vehicles) is justified in Project Unit 0025. For additional information, see Note D, Acquisition Strategy, below.

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

The Amphibious Combat Vehicle (ACV) replaces the legacy Assault Amphibious Vehicle (AAV) battalions within the Marine Divisions. ACV-equipped Amphibious Assault (AA) companies will provide protected mobility and general support lift to elements of Marine Infantry Battalions. The ACV, an advanced generation, eight-wheeled armored personnel carrier, will mitigate current and projected capability gaps by providing improved lethality against dismounted enemy troops, more effective land and water tactical mobility, and increased force protection and survivability from blast, fragmentation, and kinetic energy threats. ACV is structured to be executed in multiple increments, with the first increment designed to provide an initial operational capability of personnel carriers. Subsequent increments are planned to provide additional personnel carriers and to develop Mission Role Variants (MRVs), such as command and control, improved lethality, and tactical recovery capabilities.

**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> Product Development	22.741	20.078	0.000	0.000	0.000
<b>Articles:</b>	3	-	-	-	-
<b>Description:</b> System Design and Development; Engineering and Manufacturing Development (EMD) test vehicle manufacturing; prime contractor Developmental and Operational test support, and development of Logistics Management Information (LMI) data.					
<b>FY 2020 Plans:</b> - Continue ACV MRV design and development activities for ACV-C and ACV-30.					
<b>FY 2021 Base Plans:</b> N/A					
<b>FY 2021 OCO Plans:</b> N/A					
<b>FY 2020 to FY 2021 Increase/Decrease Statement:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0026 / Amphibious Combat Vehicle 1.2

<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>
The decrease in product development between FY2020 and FY2021 is the result of a funding realignment to Project 0025 to reflect the merged program (see Section D, Acquisition Strategy, of the R-2A for Projects 0025 and 0026).					
<p><b>Title:</b> Program Support</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Government Labor, material, and travel for Integrated Logistics Support, Technical Publications, Support Equipment development, In-house Technical Support, and Program Management support.</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Initiate operator and maintainer training devices and simulators design and development (e.g., Gunnery Trainer and Maintenance Task Trainer (MTT)), which are required in advance of system fielding in order to provide this capability to the Operating forces for their use of this new vehicle.</li> <li>- Continue development of technical data and publications for ACV Command and Lethality variants; initiate development of technical data and publications for ACV Recovery variant.</li> <li>- Initiate support for procurement, inventory, and shipping of GFE.</li> </ul> <p><b>FY 2021 Base Plans:</b> N/A</p> <p><b>FY 2021 OCO Plans:</b> N/A</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The decrease in program support between FY2020 and FY2021 is the result of a funding realignment to Project 0025 to reflect the merged program (see Section D, Acquisition Strategy, of the R-2A for Projects 0025 and 0026).</p>	0.000 -	3.675 -	0.000 -	0.000 -	0.000 -
<p><b>Title:</b> Test and Evaluation</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Government Developmental Test and Evaluation (DT&amp;E), Operational Test and Evaluation (OT&amp;E), and Live Fire Test and Evaluation (LFT&amp;E) activities.</p> <p><b>FY 2020 Plans:</b></p> <ul style="list-style-type: none"> <li>- Complete DT&amp;E Reliability Growth Testing and Reporting on ACV Personnel (ACV-P) variant.</li> </ul>	0.000 -	3.085 -	0.000 -	0.000 -	0.000 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0026 / Amphibious Combat Vehicle 1.2

<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>
- Initiate New Equipment Training Team (NETT) Support for Initial Operational Test and Evaluation (IOT&E) on ACV Family of Vehicles.  <b>FY 2021 Base Plans:</b> N/A  <b>FY 2021 OCO Plans:</b> N/A  <b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> The decrease in Test and Evaluation between FY2020 and FY2021 is the result of a funding realignment to Project 0025 to reflect the merged program (see Section D, Acquisition Strategy, of the R-2A for Projects 0025 and 0026).					
<b>Accomplishments/Planned Programs Subtotals</b>	22.741	26.838	0.000	0.000	0.000

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</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>
• PMC/2025: Amphibious Combat Vehicle 1.1	166.522	300.935	478.874	-	478.874	517.516	657.179	672.429	707.752	Continuing	Continuing
• PMC/2025/7000: Initial Spares ACV 1.1	6.145	13.954	13.557	-	13.557	19.256	19.682	20.075	20.479	Continuing	Continuing
• RDTE/0025: Amphibious Combat Vehicle 1.1	41.570	23.299	41.775	-	41.775	81.125	49.198	57.685	35.558	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**  
The program office awarded two competitive Engineering and Manufacturing Development (EMD) contracts to two vendors to build 16 vehicles each (32 total). The program entered the acquisition cycle at Milestone B in FY 2016 and down-selected to one vendor at Milestone C in 3Q FY 2018; the program entered into Low Rate Initial Production (LRIP) at Milestone C with approval for two Lots of LRIP.

In an Acquisition Decision Memorandum (ADM) dated 8 Jan 2019, ASN(RD&A) authorized the program office to combine the ACV 1.1 and ACV 1.2 programs into a single ACV Family of Vehicles (FOV) that continues the phased development and procurement approach. Accordingly, program resources for the merged program are

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

<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
1319 / 5	PE 0605611M / (U) MC AVS Development & Demonstration	0026 / Amphibious Combat Vehicle 1.2

depicted in Project Unit 0025 for FY2021 and beyond, and program resources budgeted for ACV 1.2 in fiscal years FY2019 through FY2020 will continue to be shown in Project Unit 0026.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0026 / Amphibious Combat Vehicle 1.2
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<b>Product Development (\$ 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>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
System Design & Development	C/FPIF	BAE : York PA	0.000	19.039	Mar 2019	19.328	Dec 2019	0.000		-		0.000	0.000	38.367	-
Other Product Development	WR	NIWC : Charleston SC	0.000	3.702	Mar 2019	0.750	Dec 2019	0.000		-		0.000	0.000	4.452	-
<b>Subtotal</b>			0.000	22.741		20.078		0.000		-		0.000	0.000	42.819	N/A

**Remarks**  
The decrease in product development between FY2020 and FY2021 is the result of a funding realignment to Project 0025 to reflect the merged program (see Section D, Acquisition Strategy, of the R-2A for Projects 0025 and 0026).

<b>Support (\$ 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>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Integrated Logistics Support	WR	Various : Various	0.000	0.000		0.111	Jan 2020	0.000		-		0.000	0.000	0.111	-
Training Devices/ Simulators	TBD	TACOM : Warren MI	0.000	0.000		0.500	Apr 2020	0.000		-		0.000	0.000	0.500	-
Technical Data & Pubs Development	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
In-House Technical Support	Various	Various : Various	0.000	0.000		1.267	May 2020	0.000		-		0.000	0.000	1.267	-
Travel	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
<b>Subtotal</b>			0.000	0.000		1.878		0.000		-		0.000	0.000	1.878	N/A

**Remarks**  
The decrease in Training Devices/Simulators, Integrated Logistics Support, and in-house technical support between FY2020 and FY2021 is the result of a funding realignment to Project 0025 to reflect the merged program (see Section D, Acquisition Strategy, of the R-2A for Projects 0025 and 0026).

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy** **Date:** February 2020

<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0026 / Amphibious Combat Vehicle 1.2
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Developmental Test & Evaluation	WR	Various : Various	0.000	0.000		3.085	Mar 2020	0.000		-		0.000	0.000	3.085	-
Operational Test & Evaluation	WR	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Live Fire Test & Evaluation (LFT&E)	WR	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
<b>Subtotal</b>			0.000	0.000		3.085		0.000		-		0.000	0.000	3.085	N/A

**Remarks**  
The decrease in Developmental Test & Evaluation between FY2020 and FY2021 is the result of a funding realignment to Project 0025 to reflect the merged program (see Section D, Acquisition Strategy, of the R-2A for Projects 0025 and 0026).

<b>Management Services (\$ in Millions)</b>				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 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			
Engineering and Technical Services	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Management Support Services	Various	Various : Various	0.000	0.000		1.797	May 2020	0.000		-		0.000	0.000	1.797	-
Studies and Analysis	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
<b>Subtotal</b>			0.000	0.000		1.797		0.000		-		0.000	0.000	1.797	N/A

**Remarks**  
The decrease in Management Support Services between FY2020 and FY2021 is the result of a funding realignment to Project 0025 to reflect the merged program (see Section D, Acquisition Strategy, of the R-2A for Projects 0025 and 0026).

	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	0.000	22.741	26.838	0.000	-	0.000	0.000	49.579	N/A

**Remarks**

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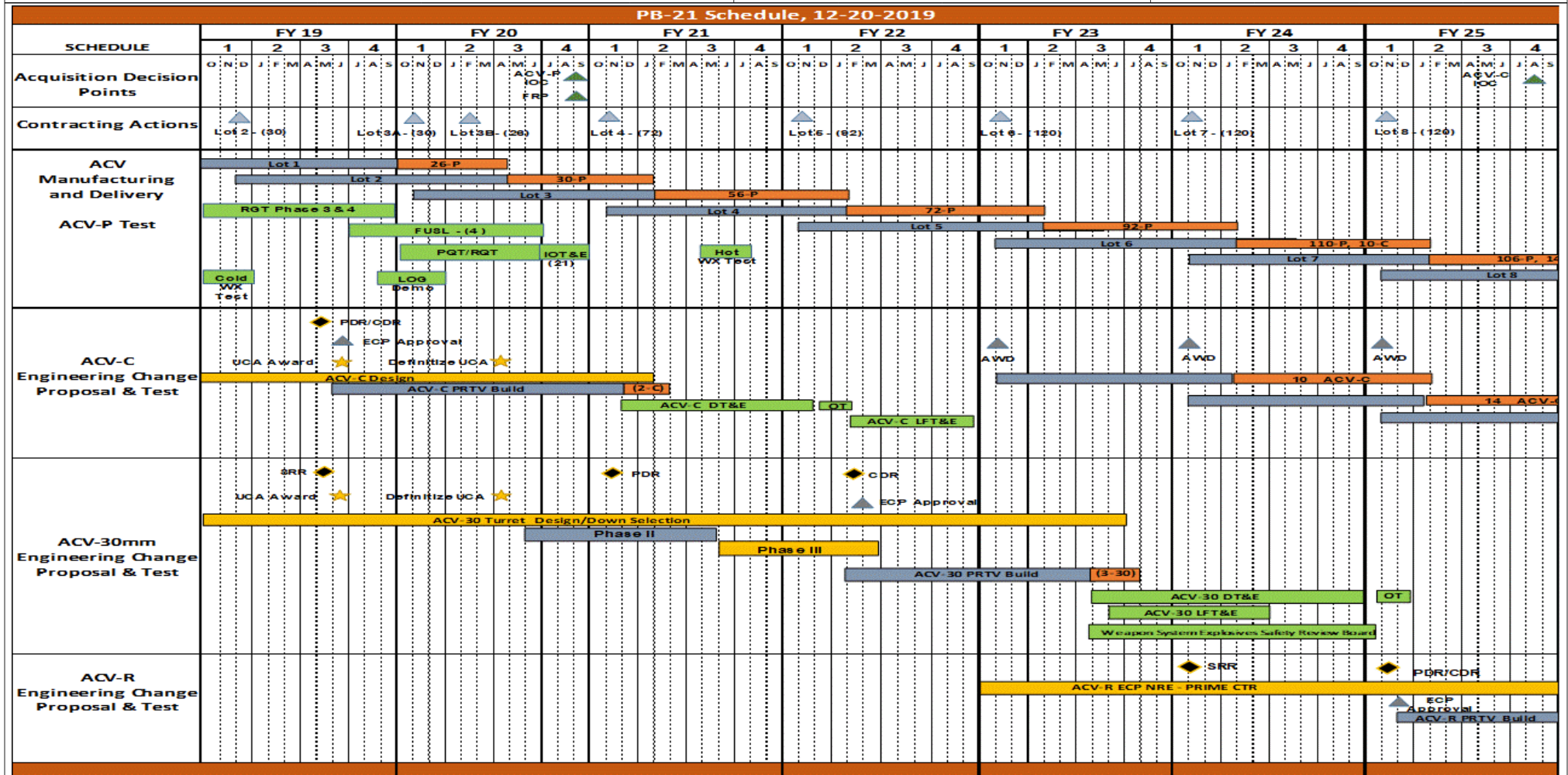
Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy

Date: February 2020

Appropriation/Budget Activity  
1319 / 5

R-1 Program Element (Number/Name)  
PE 0605611M / (U) MC AVS Development  
& Demonstration

Project (Number/Name)  
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2021 Navy		<b>Date:</b> February 2020
<b>Appropriation/Budget Activity</b> 1319 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0605611M / (U) MC AVS Development & Demonstration	<b>Project (Number/Name)</b> 0026 / Amphibious Combat Vehicle 1.2

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0026</b>				
PDR/CDR (ACV-C)	3	2019	3	2019
ECP Approval (ACV-C)	3	2019	3	2019