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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605611M / <i>MC AVS Development & Demonstration</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	214.842	48.396	41.775	80.709	-	80.709	-	-	-	-	-	-
0025: <i>Amphibious Combat Vehicle Family of Vehicles</i>	192.101	22.610	41.775	80.709	-	80.709	-	-	-	-	-	-
0026: <i>Amphibious Combat Vehicle 1.2</i>	22.741	25.786	0.000	0.000	-	0.000	-	-	-	-	-	-

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 FY 2021 and beyond and program resources budgeted for ACV 1.2 in fiscal years FY 2019 through FY 2020 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.

The Full Rate Production (FRP) decision scheduled for 4Q FY 2020 was delayed by 2 months due to COVID-19 impacts and was completed 1Q FY 2021; FRP Lot 1 awarded as scheduled in 1Q FY 2021.

A. Mission Description and Budget Item Justification

This is a CMC Force Design program. ACV provides protected mobility to otherwise dismounted infantry formations and enables littoral maneuver from ship-to-shore and from shore-to-shore. Equipped with modern communications systems and weapons for infantry support-by-fire, the ACV significantly improves the ability of Fleet Marine Forces to access, seize, and hold key maritime terrain in the execution of Expeditionary Advanced Base Operations. The Amphibious Combat Vehicle is imperative to realizing Marine Corps requirements for Fleet Marine Force 2030. The capability to project power from the sea ensures joint freedom of maneuver against increasingly sophisticated area denial and anti-access strategies across the range of military operations in areas vital to our national interest. To this end, an ACV creates operational and tactical options through rapid maneuver on sea and land, provides for the seamless transition of combat power from sea to land, enables rapid response to crisis, enables the introduction of joint follow-on forces and can impose disproportionate costs on our enemies who must extend their defenses. This program has delivered the initial capability of Personnel variants (ACV-Ps) in Nov 2020 and is on track to deliver the initial capability of Command variants (ACV-Cs) in 4Q FY 2023, Improved Lethality variants (ACV-30s) in 3Q FY 2026, and Recovery variants (ACV-Rs) in 4Q FY 2027.

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	50.137	41.775	81.125	-	81.125
Current President's Budget	48.396	41.775	80.709	-	80.709
Total Adjustments	-1.741	0.000	-0.416	-	-0.416
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.251	0.000			
• SBIR/STTR Transfer	-1.489	0.000			
• Program Adjustments	0.000	0.000	0.688	-	0.688
• Rate/Misc Adjustments	-0.001	0.000	-1.104	-	-1.104

Change Summary Explanation

The increase from FY 2021 to FY 2022 (\$38.934) is primarily attributed to the following:

- o Increase for design and development due to ACV-30 Phase III risk reduction activities (\$23.211M) needed to streamline the design of the 30MM RWS and vehicle in order to meet the weight and structural requirements prior to reaching Critical Design Review (CDR) by 2Q FY 2022;
- o Net decrease of \$16.786M in ACV-C design and development/ACV-C prime contractor test support/ACV-30 Phase II design and development/ACV-R Technology Demonstrator efforts;
- o The order of three (3) ACV-30 Production Representative Test Vehicles (PRTVs) which will be incrementally funded(\$14M towards total of \$21M) to initiate test and evaluation efforts;
- o The initiation of ACV-R variant design and development (\$13.313M) as ACV-R moves out of the tech demonstration phase;
- o Increase in Training Devices and Simulators (\$3.905M) to design a new Submerged Vehicle Egress Trainer (SVET) for safety in amphibious operations.

FY 2022 full funding supports the program ability to perform the following:

- o complete testing and logistics demonstration efforts required to initiate procurement in FY 2022 of the Command variant (ACV-C);
- o complete Phase III (Risk Reduction Analysis effort) and Phase IV (Production Representative Test Vehicle build effort) for ACV-30; Additionally, ACV-30 design efforts are on the critical path to production in FY 2025; any adverse funding marks will jeopardize production in FY 2025 and could result in a production gap between FY 2024 and FY 2025 because ACV-30 is the only variant produced in FY 2025;
- o complete Technology Demonstration design efforts (risk reduction effort) and unable to initiate design and development for the Recovery variant (ACV-R) with the prime contractor.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy										Date: May 2021		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration				Project (Number/Name) 0025 / Amphibious Combat Vehicle Family of Vehicles			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
0025: Amphibious Combat Vehicle Family of Vehicles	192.101	22.610	41.775	80.709	-	80.709	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P472

Note

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 FY 2021 and beyond, and program resources budgeted for ACV 1.2 in fiscal years FY 2019 through FY 2020 will continue to be shown in Project Unit 0026.

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

This is a CMC Force Design program. 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 was 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 were planned to provide additional personnel carriers and to develop Mission Role Variants (MRVs), such as command and control (ACV-C), improved lethality (ACV-30), and tactical recovery capabilities (ACV-R). 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.

The project level increase from FY 2021 to FY 2022 (\$38.934) is primarily attributed to the increase in design and development due to ACV-30 Phase III and the initiation of ACV-R design and development, plus the order of three (3) ACV-30 Production Representative Test Vehicles (PRTVs).

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Product Development	5.208	32.836	66.416	0.000	66.416
Articles:	-	-	3	-	3

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0025 / Amphibious Combat Vehicle Family of Vehicles

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Description: 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.</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Continue prime contractor Test Support for ACV-C. - Continue ACV-C design and development. - Continue ACV-R Technology Demonstrator effort. - Complete ACV-30 Phase II design and development activity initiated in Project 0026. - Initiate ACV-30 Phase III design and development. - Initiate Common Remotely Operated Weapons Station II (CROWS-II) Multi-User Multi-Station (MUMS) software development Functional Qualification Testing (FQT). <p>FY 2022 Base Plans:</p> <ul style="list-style-type: none"> - Complete prime contractor Test Support for ACV-C. - Complete ACV-R Technology Demonstrator effort. - Complete Common Remotely Operated Weapons Station II (CROWS-II) Multi-User Multi-Station (MUMS) software development Functional Qualification Testing (FQT). - Complete ACV-30 Phase III design and development. - Initiate the order of three (3) ACV-30 Production Representative Test Vehicles (PRTVs) plus related Government Furnished Equipment (GFE). - Initiate ACV-R design and development activity following the Technology Demonstrator effort. - Initiate integration and system check-out activities for Assured Position Navigation and Timing (APNT) system. <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase from FY 2021 to FY 2022 (\$33.580M) is attributed to continuation and completion of ACV-30 Phase III design, the order of three (3) Production Representative Test Vehicles (PRTVs) for ACV-30, the initiation of ACV-R design activity, and an increase in the order of GFE for three (3) ACV-30 Production Representative Test Vehicles (PRTVs).</p>					
Title: Management Services	0.000	0.603	0.614	0.000	0.614
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>Description: Contract Advisory and Assistance Services (Engineering and Technical Support, Management Support Services, and Studies and Analyses) for all variants of ACV FOV.</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Initiate force protection modeling and simulation activities for ACV-C. - Continue hydrodynamic support. - Continue Advanced Technology Cell support to reduce fleet maintenance costs through analysis of improved materials, testing, and repair procedures. <p>FY 2022 Base Plans:</p> <ul style="list-style-type: none"> - Complete force protection modeling and simulation activities for ACV-C. - Initiate force protection modeling and simulation activities for ACV-30. - Continue hydrodynamic support. - Continue Advanced Technology Cell support to reduce fleet maintenance costs through analysis of improved materials, testing, and repair procedures. <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase from FY 2021 to FY 2022 (\$0.011M) is primarily due to normal inflation for ongoing efforts in modeling and simulation and hydrodynamic support services.</p>					
<p>Title: Program Support</p> <p align="right">Articles:</p>	2.723	2.604	11.543	0.000	11.543
<p>Description: Government labor, material, and travel for Integrated Logistics Support, Technical Publications, Support Equipment development, In-house Technical Support, and Program Management Support.</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Continue Engineering Support for communication suite integration efforts - Continue procurement, inventory, checkout, kitting, shipment, and troubleshooting of ACV communications suite Government Furnished Equipment (GFE). - Initiate Remote Weapons Station/Common Remotely Operated Weapons Station (CROWS) support. - Continue Human Systems Integration (HSI) Support. 	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
<p>- Initiate ACV-30 government engineering and maintenance and technical support.</p> <p>FY 2022 Base Plans:</p> <ul style="list-style-type: none"> - Continue Engineering Support for communication suite integration efforts - Continue Remote Weapons Station/Common Remotely Operated Weapons Station (CROWS) support. - Continue Human Systems Integration (HSI) Support. - Continue ACV-30 government engineering and maintenance and technical support. - Initiate and complete several nonrecurring efforts, including: <ul style="list-style-type: none"> a.) nonrecurring technical analyses in support of Training Devices, Armor Characterization, Tire Coatings, and Engine Coolant and Exhaust management; b.) nonrecurring design activity for Submerged Vehicle Egress Trainer (SVET); the SVET is a required safety training system for amphibious operations in which personnel embark in a vehicle structure similar to the ACV, are submerged in water, and have to demonstrate their ability to rapidly exit the vehicle while submerged in the event of an emergency; c.) nonrecurring vehicle disposition of EMD test vehicles. - Initiate Reliability Centered Maintenance analysis validation and implementation. - Initiate Logistics Demonstration and Technical Publications verification and support for ACV-C. <p>FY 2022 OCO Plans: N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: The increase from FY 2021 to FY 2022 (\$8.939M) is attributed to nonrecurring design for the Submerged Vehicle Egress Trainer (SVET); Reliability Centered Maintenance analysis and validation; initiation of Training Devices coordinating analyses and support; nonrecurring technical analyses in support of Training Devices, Armor Characterization, Tire Coatings, and Engine Coolant and Exhaust Management; initiation and completion of nonrecurring EMD vehicle disposition; and Technical Publications verification/validation.</p>					
<p>Title: Test & Evaluation</p> <p align="right">Articles:</p> <p>Description: Governmental Developmental Test & Evaluation (DT&E), Operational Test & Evaluation (OT&E), and Live Fire Test and Evaluation (LFT&E) activities.</p> <p>FY 2021 Plans: - Initiate ACV-C test planning.</p>	14.679	5.732	2.136	0.000	2.136
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
- Initiate ACV-C Developmental Test and Evaluation (DT&E). - Initiate ACV-C Live Fire Test and Evaluation (LFT&E); Full-Up System Level (FUSL) is a ballistics test which is conducted as part of LFT&E. - Initiate follow-on Reliability Growth Testing (RGT) for ACV-P. FY 2022 Base Plans: - Complete ACV-C Developmental Test and Evaluation (DT&E). - Initiate and complete ACV-C Operational Test and Evaluation (OT&E). - Complete ACV-C Live Fire Test and Evaluation (LFT&E); Full-Up System Level (FUSL) is a ballistics test which is conducted as part of LFT&E. - Complete follow-on Reliability Growth Testing (RGT) for ACV-P. FY 2022 OCO Plans: N/A FY 2021 to FY 2022 Increase/Decrease Statement: The decrease from FY 2021 to FY 2022 (\$3.596M) is attributed to completion of ACV-C DT&E/OT&E/LFT&E and completion of ACV-P Reliability Growth Testing (RGT) in FY 2022.					
Accomplishments/Planned Programs Subtotals	22.610	41.775	80.709	0.000	80.709

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• PMC/2025: Amphibious Combat Vehicle Family of Vehicles	300.935	436.805	532.355	-	532.355	-	-	-	-	-	-
• PMC/7000/ACV FoV: Spares and Repair Parts ACV FoV	13.954	13.557	19.049	-	19.049	-	-	-	-	-	-
• RDTE/0605611M/0026: Amphibious Combat Vehicle 1.2	25.786	0.000	0.000	-	0.000	-	-	-	-	-	-

Remarks
 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

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

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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.											

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 FY 2021 and beyond, and program resources budgeted for ACV 1.2 in fiscal years FY 2019 through FY 2020 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 Lot 1.

Initial Operational Test and Evaluation (IOT&E) commenced 3QFY20 and completed in 4QFY20. The Full Rate Production (FRP) decision scheduled for 4QFY20 slipped 2 months due to COVID-19 impacts and completed in 1QFY21; FRP Lot 1 awarded on schedule in 1QFY21. Similar to LRIP Lot 3, FRP Lot 1 was broken into two lots (1A for 36 vehicles/1B for 36 vehicles) due to the Continuing Resolution.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0025 / Amphibious Combat Vehicle Family of Vehicles
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
System Design & Development	C/FPIF	BAE Systems : Sterling Heights, MI/ York, PA	115.610	5.208	Jan 2020	31.911	Jan 2021	63.566	Jan 2022	-		63.566	-	-	-
Other Product Development	C/FFP	NIWC : New Jersey/ Charleston/Picatinny	8.429	0.000		0.925	Jan 2021	2.850	Jan 2022	-		2.850	-	-	-
Subtotal			124.039	5.208		32.836		66.416		-		66.416	-	-	N/A

Remarks

- The increase from FY 2021 to FY 2022 (\$31.655M) is attributed to continuation and completion of ACV-30 Phase III design, the order of three (3) Production Representative Test Vehicles (PRTVs) for ACV-30, and initiation of ACV-R design activity.
- The increase in Other Product Development between FY 2021 and FY 2022 (\$1.925M) is attributed to the order GFE for three (3) ACV-30 Production Representative Test Vehicles (PRTVs) and completion of CROWS Multi-Station Multi-User System (MUMS) software development Functional Qualification Testing (FQT) in FY 2022.

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Integrated Logistics Support	WR	Various : Various	1.162	0.230	Apr 2020	0.030	Apr 2021	2.750	Apr 2022	-		2.750	-	-	-
Technical Data & Pubs Development	WR	NSWC CD : Carderock, MD	0.250	0.303	Apr 2020	0.000	Apr 2021	0.456	Apr 2022	-		0.456	-	-	-
In-House Technical Support	WR	Various : Various	10.918	1.160	Apr 2020	1.911	Apr 2021	3.802	Apr 2022	-		3.802	-	-	-
Training Devices/ Simulators	WR	NAWC : Orlando, FL	0.366	0.000		0.480	Apr 2021	4.385	Apr 2022	-		4.385	-	-	-
Travel	Various	Various : Various	0.676	1.031	Sep 2020	0.183	Sep 2021	0.150	Sep 2022	-		0.150	-	-	-
Subtotal			13.372	2.724		2.604		11.543		-		11.543	-	-	N/A

Remarks

- The increase in Integrated Logistics Support between FY 2021 and FY 2022 (\$2.720M) is attributed to initiation of Reliability Centered Maintenance (RCM) analysis, validation, and implementation activities. RCM is a process utilized to determine the optimal maintenance strategy to support the materiel system in order to improve equipment reliability, reduce maintenance costs, and minimize opportunity costs associated with system downtime.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0025 / Amphibious Combat Vehicle Family of Vehicles
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Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
<p>- The increase in Technical Data & Pubs between FY 2021 and FY 2022 (\$0.456M) is attributed to initiation of Logistics Demonstration Technical Publications Verification for ACV-C variant, and an increase in Technical Manual Development support. Logistics Demonstration is required for all new acquisition systems as part of DT&E and is used to assess the adequacy of the System Support Package (SSP) and ensure the user has the logistical capability to achieve Initial Operational Capability (IOC). Logistics Demonstration verifies the adequacy of operator and maintainer technical publications for the system and results in updates to the technical publications in order to make them suitable prior to system fielding.</p> <p>- The increase in In-house Technical Support from FY 2021 to FY 2022 (\$1.891M) is attributed to nonrecurring technical analyses in support of Training Devices, Armor Characterization, Tire Coatings, and Engine Coolant and Exhaust management. These technical analyses provide data which help inform test events, Reliability Centered Maintenance (RCM) analyses, and improve the overall reliability, maintenance, and safety of the system.</p> <p>- The increase in Training Devices and Simulators between FY 2021 and FY 2022 (\$3.905M) is attributed to Submerged Vehicle Egress Trainer (SVET) design, Training Devices coordinating analyses, and Manpower and Training support. The SVET is a required safety training system for amphibious operations in which personnel embark in a vehicle structure similar to the ACV, are submerged in water, and have to demonstrate their ability to rapidly exit the vehicle while submerged in the event of an emergency.</p>															

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Development Test & Evaluation	WR	Various : Various	23.297	1.830	Jan 2020	2.942	Jan 2021	0.643	Jan 2022	-		0.643	-	-	-
Operational Test & Evaluation	WR	MCOTEA : Quantico, VA	6.554	7.805	Jan 2020	0.343	Jan 2021	1.016	Jan 2022	-		1.016	-	-	-
Live Fire Test & Evaluation	WR	Various : Various	8.715	5.043	Jan 2020	2.447	Apr 2021	0.477	Jan 2022	-		0.477	-	-	-
Subtotal			38.566	14.678		5.732		2.136		-		2.136	-	-	N/A

Remarks

- The decrease in Developmental Test & Evaluation between FY 2021 and FY 2022 (\$2.299M) is attributed to completion of ACV-C Developmental Testing, and low level ACV-P Reliability Growth Testing in FY 2022.
- The increase in Operational Test & Evaluation between FY 2021 and FY 2022 (\$0.673M) is attributed to initiation and completion of ACV-C Operational Test and Evaluation (OT&E) in FY 2022.
- The decrease in Live Fire Test & Evaluation between FY 2021 & FY 2022 (\$1.970M) is attributed to completion of ACV-C Live Fire Test and Evaluation (LFT&E) in FY 2022. FUSL testing is a ballistics test conducted as part of LFT&E and is depicted on the R-4 schedule.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

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Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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 & Technical Services	Various	Various : Various	6.144	0.000		0.353	Mar 2021	0.359	Mar 2022	-		0.359	-	-	-
Management Support Services	Various	Various : Various	9.980	0.000		0.250	Mar 2021	0.255	Mar 2022	-		0.255	-	-	-
Studies and Analyses	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	-	-	-
Subtotal			16.124	0.000		0.603		0.614		-		0.614	-	-	N/A

Remarks
The increases from FY2021 to FY2022 for Engineering and Technical Services (\$0.006M), and Management Support Services (\$0.005M) are attributed to the normal rates of inflation.

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	192.101	22.610	41.775	80.709	-	80.709	-	-	N/A

Remarks

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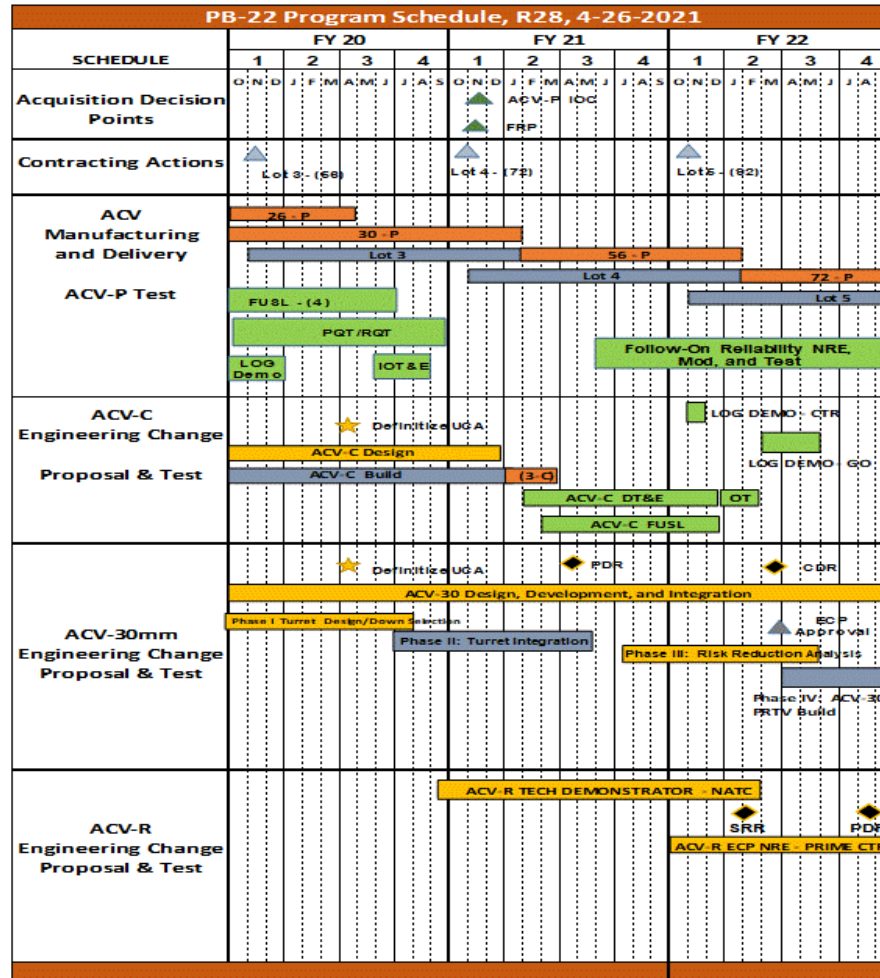
Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy

Date: May 2021

Appropriation/Budget Activity
1319 / 5

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

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



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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0025 / Amphibious Combat Vehicle Family of Vehicles

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0025				
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	1	2021	1	2021
ACV-P Initial Operational Capability (IOC)	1	2021	1	2021
Lot 4 Option Exercised	1	2021	1	2021
FUSL Test and Evaluation for ACV-P	1	2020	3	2020
PQT/RQT for ACV-P	1	2020	4	2020
Follow on Reliability Modernization, NRE and Test	3	2021	4	2022
ACV-P Logistics Demo	1	2020	1	2020
ACV-C ECP NRE Design & Test Article Build	1	2020	2	2021
ACV-C DT, OT and LFT&E	2	2021	2	2022
ACV-C Contractor Logistics Demo	1	2022	1	2022
ACV-C Government Only Logistics Demo	2	2022	3	2022
ACV-30 ECP NRE Design & Test Article Build	1	2020	4	2022
ACV-R Tech Demonstrator	4	2020	2	2022
ACV-R ECP NRE Design & Test Article Build	1	2022	4	2022

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy										Date: May 2021		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration				Project (Number/Name) 0026 / Amphibious Combat Vehicle 1.2			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
0026: Amphibious Combat Vehicle 1.2	22.741	25.786	0.000	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Project Unit 0026 depicts program resources for the ACV 1.2 program FY 2019 and FY 2020 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.

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 increments 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 FY 2021 and beyond, and program resources budgeted for ACV 1.2 in fiscal years FY 2019 through FY 2020 will continue to be shown in Project Unit 0026.

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

	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Title: Product Development	18.716	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: 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.					
FY 2021 Plans: N/A					
FY 2022 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0026 / Amphibious Combat Vehicle 1.2

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
N/A					
FY 2022 OCO Plans: N/A					
Title: Program Support	4.285	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Government Labor, material, and travel for Integrated Logistics Support, Technical Publications, Support Equipment development, In-house Technical Support, and Program Management support.					
FY 2021 Plans: N/A					
FY 2022 Base Plans: N/A					
FY 2022 OCO Plans: N/A					
Title: Test and Evaluation	2.785	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Government Developmental Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), and Live Fire Test and Evaluation (LFT&E) activities.					
FY 2021 Plans: N/A					
FY 2022 Base Plans: N/A					
FY 2022 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	25.786	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0026 / Amphibious Combat Vehicle 1.2

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

Line Item	FY 2020	FY 2021	FY 2022	FY 2022	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PMC/2025: Amphibious Combat Vehicle 1.1	300.935	436.805	474.269	-	474.269	-	-	-	-	-	-
• PMC/2025/7000: Initial Spares ACV 1.1	13.954	13.557	19.049	-	19.049	-	-	-	-	-	-
• RDTE/0025: Amphibious Combat Vehicle 1.1	22.610	41.775	81.110	-	81.110	-	-	-	-	-	-

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 FY 2021 and beyond, and program resources budgeted for ACV 1.2 in fiscal years FY 2019 through FY 2020 will continue to be shown in Project Unit 0026.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Navy **Date:** May 2021

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0026 / Amphibious Combat Vehicle 1.2
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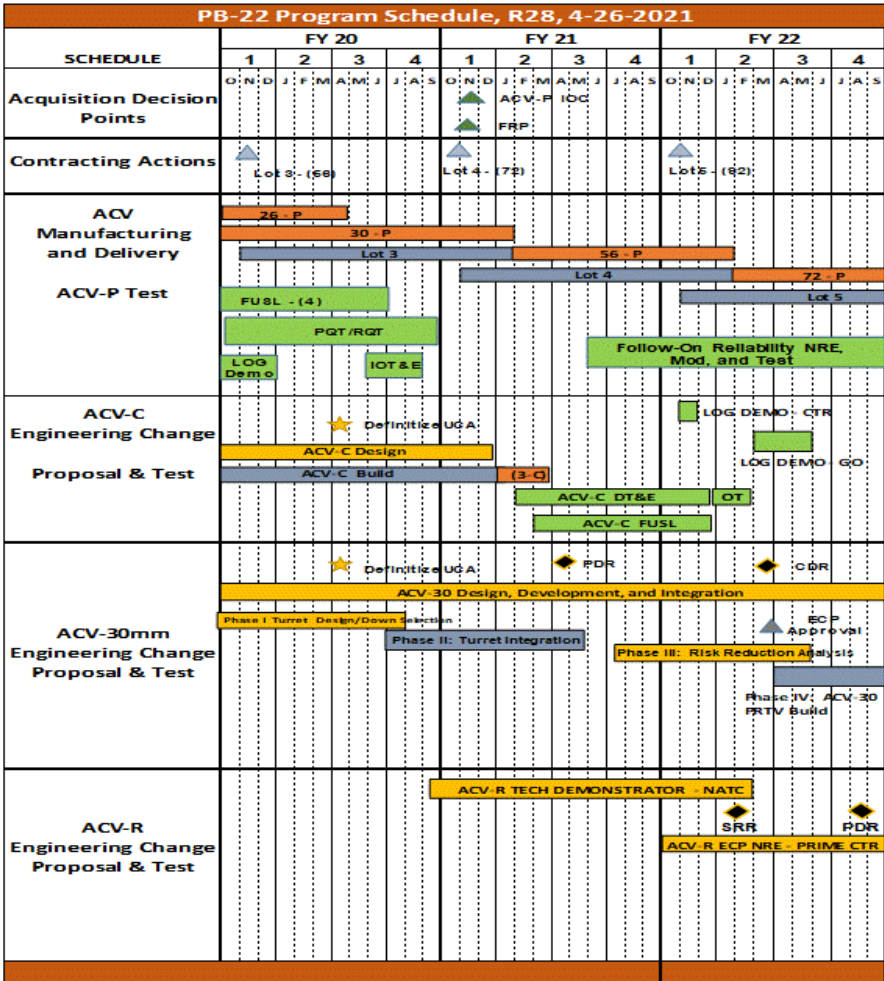
Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Design & Development	C/FPIF	BAE : York PA	19.039	18.716	Dec 2019	0.000		0.000		-		0.000	-	-	-
Other Product Development	WR	NIWC : Charleston SC	3.702	0.000		0.000		0.000		-		0.000	-	-	-
Subtotal			22.741	18.716		0.000		0.000		-		0.000	-	-	N/A

Support (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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			
Integrated Logistics Support	WR	Various : Various	0.000	0.277	Jan 2020	0.000		0.000		-		0.000	-	-	-
Training Devices/ Simulators	TBD	TACOM : Warren MI	0.000	0.000		0.000		0.000		-		0.000	-	-	-
Technical Data & Pubs Development	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	-	-	-
In-House Technical Support	Various	Various : Various	0.000	1.906	May 2020	0.000		0.000		-		0.000	-	-	-
Travel	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	-	-	-
Subtotal			0.000	2.183		0.000		0.000		-		0.000	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 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	2.485	Mar 2020	0.000		0.000		-		0.000	-	-	-
Operational Test & Evaluation	WR	Various : Various	0.000	0.300	Mar 2020	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	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0026 / Amphibious Combat Vehicle 1.2



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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Navy		Date: May 2021
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605611M / MC AVS Development & Demonstration	Project (Number/Name) 0026 / Amphibious Combat Vehicle 1.2

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0026				
ACV 1.2: Combine with Proj 0025 as of FY21	1	2020	4	2020