

**UNCLASSIFIED**

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	229.238	196.991	158.682	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	584.911
0025: Amphibious Combat Vehicle 1.1	229.238	196.991	158.682	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	584.911
Program MDAP/MAIS Code: Project MDAP/MAIS Code(s): P472												
Note ACV Increment 1.1 leverages and continues the work that was previously accomplished under the Marine Personnel Carrier (MPC) program, funded in PE 0206623M; Project 9C85.  Beginning in FY18, 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.												
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.												
B. Program Change Summary (\$ in Millions)				FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total				
Previous President's Budget				212.173	158.682	177.520	-	177.520				
Current President's Budget				196.991	158.682	0.000	-	0.000				
Total Adjustments				-15.182	0.000	-177.520	-	-177.520				
• Congressional General Reductions				-	-							
• Congressional Directed Reductions				-	-							
• Congressional Rescissions				-	-							
• Congressional Adds				-	-							
• Congressional Directed Transfers				-	-							
• Reprogrammings				-8.062	0.000							
• SBIR/STTR Transfer				-7.119	0.000							
• Program Adjustments				0.000	0.000	-177.980	-	-177.980				
• Rate/Misc Adjustments				-0.001	0.000	0.460	-	0.460				

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles	
<u>Change Summary Explanation</u> Beginning in FY18, 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.		

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy										Date: May 2017		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles				Project (Number/Name) 0025 / Amphibious Combat Vehicle 1.1			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
0025: Amphibious Combat Vehicle 1.1	229.238	196.991	158.682	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	584.911
Quantity of RDT&E Articles		32	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: P472												
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. FY17 and FY18 funds will support Amphibious Combat Vehicle (ACV) Increment 1.1 Engineering, Manufacturing and Development (EMD) contracts, Test & Evaluation (T&E) activities and associated program support.												
Note: ACV Increment 1.1 leverages and continues the work previously accomplished under the Marine Personnel Carrier (MPC) program, funded in PE 0206623M; Project 9C85.												
Beginning in FY18, 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.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Product Development  Articles:  Description: System design and development; EMD test vehicle manufacturing; prime contractor Developmental and Operational test, and Logistics Management Information (LMI) data development.  NOTE: The increase in Product & Development between FY17 & FY18 (\$29.297M) is attributed to the procurement of 4 Full-up System Level (FUSL) vehicles, Contractor support Initial Operational Test & Evaluation (IOT&E), and Live Fire Test & Evaluation (LFT&E), and FUSL-vehicle Government Furnished Equipment (GFE) procurement.  FY 2016 Accomplishments: - Completed the EMD contract award. Contract was awarded to two vendors to build 16 test vehicles each (32 total). - Completed Preliminary and Critical Design reviews.								165.237	109.536	0.000	0.000	0.000
								32	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017			
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles	Project (Number/Name) 0025 / Amphibious Combat Vehicle 1.1				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
<div>- Initiated manufacturing of 32 test vehicles.</div> <div><b>FY 2017 Plans:</b><div>- Complete EMD manufacturing and receive 32 test vehicle deliveries.</div><div>- Initiate break-in operations and acceptance testing.</div><div>- Initiate vehicle acceptance review.</div><div>- Initiate contractor developmental test activities.</div><div>- Initiate corrective action modifications that result from Reliability Growth Testing.</div></div> <div><b>FY 2018 Base Plans:</b><div>Details provided in PE 0605611M /Project 0025</div></div> <div><b>FY 2018 OCO Plans:</b><div>N/A</div></div>						
<div><b>Title:</b> Management Services</div> <div><b>Articles:</b></div> <div><b>Description:</b> Contract Advisory and Assistance Services (Engineering and Technical Support, Management Support Services, and Studies and Analyses).</div> <div>NOTE: The increase in Management Support Services between FY17 &amp; FY18 (\$0.209K) is attributed to the additional logistics and test and evaluation support (\$1.254M) and the reduction of Engineering and Technical Services (\$1.045M) due to the completion of the NATC Tire Study and decrease in Modeling &amp; Simulation (M&amp;S) Force Protection effort.</div> <div><b>FY 2016 Accomplishments:</b><div>- Continued business, acquisition, logistics, and engineering related activities for program document development, program analysis, acquisition logistics management, and financial management support.</div><div>- Initiated engineering and technical services for Remote Weapon Station (RWS) marinization, logistical, maintenance support, and integration.</div><div>- Initiated analyses of product support elements to support Maintenance Plan development, Support and Test Equipment, Calibration, and other logistics elements.</div></div> <div><b>FY 2017 Plans:</b></div>		12.267 -	7.033 -	0.000 -	0.000 -	0.000 -

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy				Date: May 2017		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles		Project (Number/Name) 0025 / Amphibious Combat Vehicle 1.1		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
<div>- Continue business, acquisition, logistics, and engineering related activities for program document development, program analysis, acquisition logistics management, and financial management support.</div> <div>- Continue engineering and technical services for RWS, logistical, maintenance support, and integration.</div> <div>- Initiate facilities impact assessment at ACV 1.1 fielding locations, and continue analyses of product support elements to support Maintenance Plan development, Support and Test Equipment, Calibration, and other logistics elements.</div> <div>- Initiate force protection modeling and simulation activities.</div> <div>- Initiate Depot Source of Repair (DSOR) Analyses on secondary repairable items, and product support Business Case Analysis on concepts.</div> <div>FY 2018 Base Plans: Details provided in PE 0605611M /Project 0025.</div> <div>FY 2018 OCO Plans: N/A</div>						
<div>Title: Test &amp; Evaluation</div> <div>Articles:</div> <div>Description: Government Developmental, Operational, and Live Fire Test and Evaluation activities.</div> <div>FY 2016 Accomplishments: - Completed Event Design Plans supporting development test. - Initiated Developmental (DT), Operational (OT), and Live Fire Test and Evaluation (LFT&amp;E) planning events to support development of detailed test strategies.</div> <div>FY 2017 Plans: - Initiate formation of the Operational Test (OT) team and begin initial development of the OT detailed test plan. - Initiate training for personnel to support execution of Developmental Test, OT, and LFT&amp;E events. - Initiate development test efforts for two vendors on 32 EMD vehicles - Initiate DT activities such as: Land Mobility, Safety/Human Factors, Lethality, Water Mobility, Communication, and Survivability - Initiate LFT&amp;E activities. - Initiate training for conduct of Operational Assessment (OA)</div> <div>FY 2018 Base Plans:</div>		5.485 -	32.170 -	0.000 -	0.000 -	0.000 -

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy				Date: May 2017		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles		Project (Number/Name) 0025 / Amphibious Combat Vehicle 1.1		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Details provided in PE 0605611M /Project 0025						
FY 2018 OCO Plans: N/A						
Title: Program Support		14.002	9.943	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 2016 Accomplishments: - Continued Digital Integrated Facility (DIF) Architecture support. - Initiated engineering support for Government Furnished Property (GFP) integration efforts documented during technical information and review meetings; generate products, acquire equipment and software to implement Vehicle Integration for C4ISR/EW Interoperability (VICTORY) initiative compliance process. - Initiated hydrodynamic model testing; Reliability, Availability, and Maintainability (RAM-D), and human systems integration activities. - Initiated inventory, checkout, kitting, shipment, and trouble shooting ACV 1.1 GFP. - Initiated Remote Weapons Station (RWS) marinization efforts.						
FY 2017 Plans: - Continue engineering support for communication suite integration efforts documented during technical information and review meetings. - Continue hydrodynamic model testing; Reliability, Availability, and Maintainability (RAM-D), and human systems integration activities. - Continue procurement, inventory, checkout, kitting, shipment, and troubleshooting of ACV 1.1 communications suite GFP spares to support development test. - Continue DIF Architecture support. - Continue RWS marinization and integration support. - Initiate technical support for training packages.						
FY 2018 Base Plans: Details provided in PE 0605611M /Project 0025.						
FY 2018 OCO Plans:						

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> FY 2018 Navy										<b>Date:</b> May 2017	
<b>Appropriation/Budget Activity</b> 1319 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603611M / <i>Marine Corps Assault Vehicles</i>				<b>Project (Number/Name)</b> 0025 / <i>Amphibious Combat Vehicle 1.1</i>			
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>											
				<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>			
N/A											
<b>Accomplishments/Planned Programs Subtotals</b>				196.991	158.682	0.000	0.000	0.000			
<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018 Base</b>	<b>FY 2018 OCO</b>	<b>FY 2018 Total</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• PMC/2025: <i>Amphibious Combat Vehicle 1.1</i>	0.000	0.000	161.511	-	161.511	169.811	316.064	471.775	0.761	0.000	1,119.922
• PMC/2026: <i>Amphibious Combat Vehicle 1.2</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	603.826	0.000	603.826
• PMC/7000/0605611M: <i>Initial Spares - ACV 1.1</i>	0.000	0.000	5.569	-	5.569	6.221	14.115	13.798	0.000	0.000	39.703
• RDT&E/0605611M/0025: <i>Amphibious Combat Vehicle 1.1</i>	0.000	0.000	178.993	-	178.993	50.382	33.530	1.705	0.588	0.000	265.198
• RDT&E/0605611M/0026: <i>Amphibious Combat Vehicle 1.2</i>	0.000	0.000	0.000	-	0.000	29.400	0.000	31.600	60.699	Continuing	Continuing
• PMC7000/0605611M: <i>Initial Spares - ACV 1.2</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	19.539	Continuing	Continuing
<b>Remarks</b>											
<b>D. Acquisition Strategy</b>											
The program office awarded two competitive Engineering, Manufacturing and Development (EMD) contracts to two vendors to build 16 test vehicles each (32 total). ACV Increment 1.1 entered the acquisition cycle at Milestone B in FY16 and will down-select to one vendor at Milestone C. In FY18 the program will enter into Low Rate Initial Production (LRIP) and Full Rate Production (FRP) will begin in FY20.											
<b>E. Performance Metrics</b>											
Milestone Reviews											
Milestone B: 1QFY16											
Milestone C: 3QFY18											

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy												Date: May 2017			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles				Project (Number/Name) 0025 / Amphibious Combat Vehicle 1.1					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
System Design & Development	C/FPIF	Various : Various	152.315	164.510	Nov 2015	109.536	Jan 2017	0.000		-		0.000	45.961	472.322	-
Other Product Development	C/FFP	SPAWAR/ NEW JERSEY : Charleston/Picatinny	13.117	0.727	Jul 2016	0.000		0.000		-		0.000	0.000	13.844	-
Prior Years Cumulative Funding	Various	Various : Various	18.506	0.000		0.000		0.000		-		0.000	0.000	18.506	-
Subtotal			183.938	165.237		109.536		0.000		-		0.000	45.961	504.672	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 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
Test and Evaluation - EMD Detailed Planning	WR	AVTB : Camp Pendleton, CA	1.069	0.000		0.000		0.000		-		0.000	0.000	1.069	-
Propulsion System Demonstrator	WR	NSWC Carderock - SSES Philly : Philadelphia, PA	1.193	0.000		0.000		0.000		-		0.000	0.000	1.193	-
Integrated Logistics Support	WR	NSWC - Dahlgren : Dahlgren, VA	0.398	1.075	Apr 2016	0.425	Apr 2017	0.000		-		0.000	0.775	2.673	-
Technical Data & Pubs Development	WR	NSWC Carderock : Philadelphia, PA	0.000	0.050	Sep 2016	0.100	Sep 2017	0.000		-		0.000	0.000	0.150	-
GFP Management	WR	SPAWAR Charleston : SPAWAR Charleston	11.131	12.712	Apr 2016	9.308	Apr 2017	0.000		-		0.000	2.455	35.606	-
Travel	Various	Various : Various	0.626	0.165	Sep 2016	0.110	Sep 2017	0.000		-		0.000	0.280	1.181	-
Subtotal			14.417	14.002		9.943		0.000		-		0.000	3.510	41.872	-



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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: FY 2018 Navy</b>												<b>Date: May 2017</b>			
<b>Appropriation/Budget Activity</b> 1319 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603611M / Marine Corps Assault Vehicles						<b>Project (Number/Name)</b> 0025 / Amphibious Combat Vehicle 1.1			
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
Operational Test Evaluation (OT&E)	WR	MCOTEA : Quantico, Va	0.000	0.258	Jan 2016	7.510	Jan 2017	0.000		-		0.000	12.583	20.351	-
Development Test & Evaluation	WR	Various : Various	0.000	2.740	Jan 2016	18.074	Jan 2017	0.000		-		0.000	10.317	31.131	-
Live Fire Test & Evaluation	WR	Various : Various	0.000	2.487	Jan 2016	6.586	Jan 2017	0.000		-		0.000	8.509	17.582	-
<b>Subtotal</b>			0.000	5.485		32.170		0.000		-		0.000	31.409	69.064	-
<b>Remarks</b> * The FY 2017 award date for cost categories with various activities is the actual obligation date for the last award in the category.															
<b>Management Services (\$ in Millions)</b>				<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 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>
Engineering and Technical Services	C/FFP	Various : Various	14.536	2.973	Jul 2016	1.945	Jul 2017	0.000		-		0.000	1.256	20.710	-
Management Support Services	C/FFP	DDG : Stafford VA	10.032	9.294	Apr 2016	4.788	Mar 2017	0.000		-		0.000	0.450	24.564	-
Studies and Analyses	C/FFP	Various : Various	6.315	0.000		0.300	Jul 2017	0.000		-		0.000	0.600	7.215	-
<b>Subtotal</b>			30.883	12.267		7.033		0.000		-		0.000	2.306	52.489	-
			<b>Prior Years</b>	<b>FY 2016</b>		<b>FY 2017</b>		<b>FY 2018 Base</b>		<b>FY 2018 OCO</b>		<b>FY 2018 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			229.238	196.991		158.682		0.000		-		0.000	83.186	668.097	-
<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy

Date: May 2017

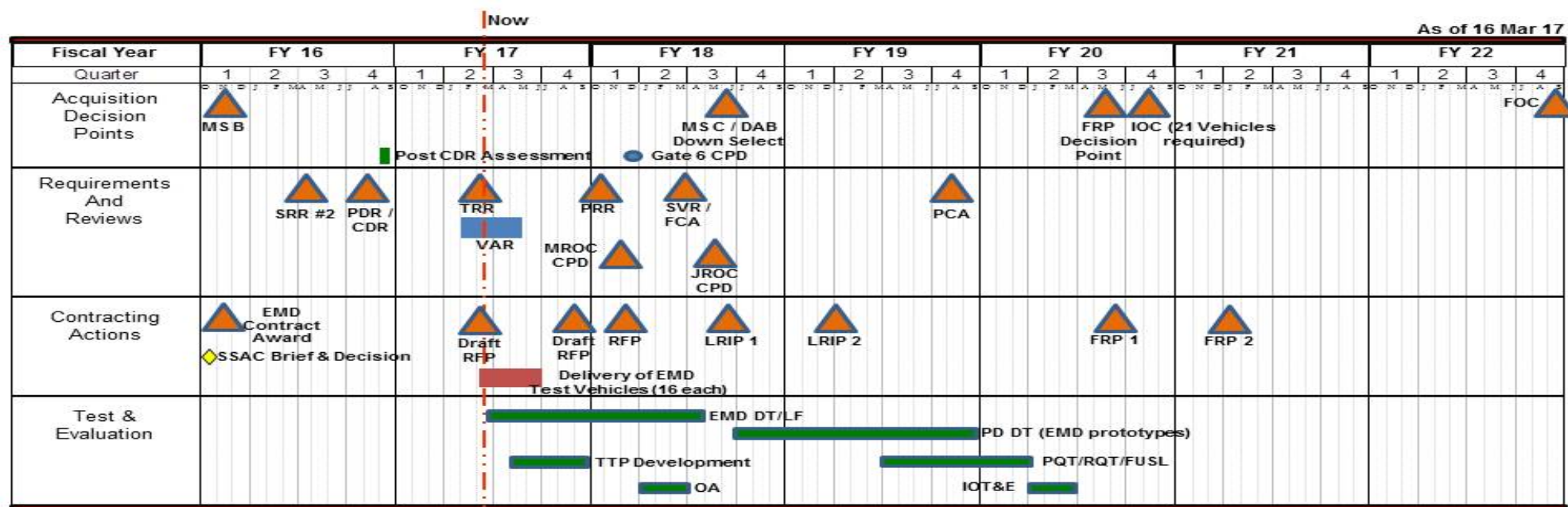
Appropriation/Budget Activity  
1319 / 4

R-1 Program Element (Number/Name)  
PE 0603611M / Marine Corps Assault  
Vehicles

Project (Number/Name)  
0025 / Amphibious Combat Vehicle 1.1

Unclassified (U)

# ACV 1.1 Program Schedule



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1

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> FY 2018 Navy			<b>Date:</b> May 2017
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603611M / <i>Marine Corps Assault Vehicles</i>	<b>Project (Number/Name)</b> 0025 / <i>Amphibious Combat Vehicle 1.1</i>	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0025</b>				
MS B	1	2016	1	2016
EMD Contract Award	1	2016	1	2016
System Readiness Review 2	3	2016	3	2016
Preliminary Design Review/Critical Design Review	4	2016	4	2016
EMD Vehicle Delivery (32 Vehicles)	2	2017	3	2017
Vehicle Acceptance Review	2	2017	3	2017
Development Test/Live Fire Test	2	2017	1	2020
TTP Development	3	2017	4	2017
Operational Assessment (OA)	2	2018	3	2018
Production Readiness Review (PRR)	1	2018	1	2018
System Verification Review (SVR)	2	2018	2	2018
Capabilities Production Document (CPD)	3	2018	3	2018
MS C/DAB Down Select	3	2018	3	2018
LRIP Option 1 Exercised	3	2018	3	2018
PCA	4	2019	4	2019
LRIP Option 2 Exercised	2	2019	2	2019
Initial Operational Test & Evaluation (IOT&E)/Full Up System Level (FUSL)	2	2020	2	2020
FRP Decision	3	2020	3	2020
FRP #1 Option Exercised	3	2020	3	2020
IOC	4	2020	4	2020
FRP #2 Option Exercised	2	2021	2	2021

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy			Date: May 2017		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603611M / Marine Corps Assault Vehicles		Project (Number/Name) 0025 / Amphibious Combat Vehicle 1.1	
		Start		End	
Events by Sub Project		Quarter	Year	Quarter	Year
FOC		4	2022	4	2022