

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification: PB 2017 Navy</b>										<b>Date: February 2016</b>		
<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy I BA 7: Operational Systems Development</i>					<b>R-1 Program Element (Number/Name)</b> PE 0206629M I (U) <i>Amphibious Assault Vehicle</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	0.000	87.940	45.110	38.020	-	38.020	58.303	19.012	8.771	5.823	Continuing	Continuing
2938: <i>Amphibious Assault Vehicle</i>	0.000	87.940	45.110	38.020	-	38.020	58.303	19.012	8.771	5.823	Continuing	Continuing

**Note**

NOTE: Prior funding is reflected in P.E. 0206623M/Project 0021.

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

The Assault Amphibious Vehicle (AAV) program provides life-cycle support to ensure cost-effective combat readiness for the AAV Family of Vehicles (FOV). This is accomplished through engineering changes resulting from continuous review of sub-systems to maintain system supportability, safety, reduce total ownership costs, improve fleet readiness, address obsolescence issues, and improve vehicle survivability and performance.

**B. Program Change Summary (\$ in Millions)**

	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
Previous President's Budget	96.207	48.535	49.414	-	49.414
Current President's Budget	87.940	45.110	38.020	-	38.020
Total Adjustments	-8.267	-3.425	-11.394	-	-11.394
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.425			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.092	0.000			
• SBIR/STTR Transfer	-3.175	0.000			
• Program Adjustments	0.000	0.000	-10.161	-	-10.161
• Rate/Misc Adjustments	0.000	0.000	-1.233	-	-1.233

**Change Summary Explanation**

The decrease (\$7.090M) from FY16 to FY17 represents acceleration of various AAV test efforts into FY16 and the completion of AAV intercom modernization and hydraulic analysis. The decrease also reflects fewer efforts in engineering technical services for Engineering Maintenance and Technical Support (EMTS) and decreased program management support due to the completion of the AAV prototype build in support of AAV Survivability Upgrade.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy										<b>Date:</b> February 2016		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0206629M / (U)Amphibious Assault Vehicle				<b>Project (Number/Name)</b> 2938 / Amphibious Assault Vehicle			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2938: Amphibious Assault Vehicle	0.000	87.940	45.110	38.020	-	38.020	58.303	19.012	8.771	5.823	Continuing	Continuing
Quantity of RDT&E Articles		10	-	4	-	4	-	-	-	-		

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

The Assault Amphibious Vehicle (AAV) program provides life-cycle support to ensure cost-effective combat readiness for the AAV Family of Vehicles (FOV). This is accomplished through engineering changes resulting from continuous review of sub-systems to maintain system supportability, safety, reduce total ownership costs, improve fleet readiness, address obsolescence issues, and improve vehicle survivability and performance. The AAV program also includes a survivability upgrade which will increase AAVP7A1 survivability and force protection while maintaining the required land and water mobility performance.

The decrease from FY16 to FY17 (\$7.090M) represents acceleration of various AAV test efforts into FY16 and the completion of AAV intercom modernization and hydraulic analysis. The decrease also reflects fewer efforts in engineering technical services for Engineering Maintenance and Technical Support (EMTS) and decreased program management support due to the completion of the AAV prototype build in support of AAV Survivability Upgrade.

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

	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
<b>Title:</b> Product Development	47.517	20.458	24.273	0.000	24.273
<b>Articles:</b>	10	-	4	-	4
<b>Description:</b> AAV Survivability Upgrade will improve the legacy AAV Force Protection capability. Improvements include improved underbelly protection, integrated blast mitigating seats, integrated spall liners, protected fuel storage, sponson armor, and selected improvements to maintain required water and land mobility. AAV modifications will provide Nonrecurring Engineering (NRE) and design for AAV safety, obsolescence, and performance improvement engineering change proposals.					
<b>FY 2015 Accomplishments:</b>					
-Continued nonrecurring engineering efforts to support AAV safety improvements, turret improvements, electrical modernization and intercoms.					
-Completed Critical Design Review. Down selected to prime contractor; awarded Engineering and Manufacturing Development (EMD) prototype build option (10).					
<b>FY 2016 Plans:</b>					
-Initiate prime contractor support for Developmental, Operational, and Live Fire Test and Evaluation (LFT&E).					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206629M / (U)Amphibious Assault Vehicle	<b>Project (Number/Name)</b> 2938 / Amphibious Assault Vehicle

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
-Initiate nonrecurring engineering effort for 3d Modeling for AAVC7. <b>FY 2017 Base Plans:</b> -Complete prime contractor support for Developmental, Operational, and Live Fire Test and Evaluation (LFT&E). -Initiate the procurement of four test articles for Full Up System Level (FUSL) testing. -Initiate the Corrective Action Period (CAP) for EMD <b>FY 2017 OCO Plans:</b> N/A					
<b>Title:</b> Support	20.019	7.266	4.652	0.000	4.652
<b>Articles:</b>	-	-	-	-	-
<b>Description:</b> Provide government engineering and technical support for AAV safety, obsolescence, and performance modifications, and Survivability Upgrade support.  <b>FY 2015 Accomplishments:</b> -Continued nonrecurring engineering and design for AAV electrical and command and control (C2) systems modernization. -Continued to provide government engineering services in support of AAV safety, obsolescence, and performance modifications. -Initiated nonrecurring engineering and design for upgraded fire suppression system, and AAV obsolescence and performance modifications. -Provided material and travel associated with these efforts.  <b>FY 2016 Plans:</b> -Continue nonrecurring engineering and design for AAV fire suppression system, electrical modernization, and command and control (C2) systems modernization. -Continue to provide technical and engineering services in support of AAV obsolescence and performance modifications. -Initiate nonrecurring engineering and design for AAV hydraulic modernization and fire suppression system and fuel cell day tank upgrade. -Provide material and travel associated with these efforts.  <b>FY 2017 Base Plans:</b>					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy			<b>Date:</b> February 2016			
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206629M / (U)Amphibious Assault Vehicle	<b>Project (Number/Name)</b> 2938 / Amphibious Assault Vehicle				
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
		<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
<ul style="list-style-type: none"> <li>- Continue electrical modernization, and command and control (C2) systems modernization.</li> <li>- Continue to provide technical and engineering services in support of AAV obsolescence and performance modifications.</li> <li>- Complete nonrecurring engineering and design for AAV hydraulic modernization and AAV fire suppression system.</li> <li>- Provide material and travel associated with these efforts.</li> </ul> <p><b>FY 2017 OCO Plans:</b> N/A</p>						
<b>Title:</b> Test and Evaluation		1.483	11.838	5.059	0.000	5.059
		<b>Articles:</b>	-	-	-	-
<p><b>Description:</b> Developmental Operational and Live Fire Test and Evaluation of safety improvements, upgrades, modifications and fact of life changes to ensure operational suitability and effectiveness of the AAV family of vehicles.</p> <p><b>FY 2015 Accomplishments:</b> -Initiated government developmental, operational, and live fire test planning for survivability upgrade, Enhanced Applique Armor Kit (EAAK) Phase III and Electromagnetic Environmental Effects (E3) Co-site testing.</p> <p><b>FY 2016 Plans:</b> -Initiate developmental testing for survivability upgrade and initiate operational assessment and live fire test and evaluation activities in support of survivability upgrade. -Complete EAAK Phase III and E3 Co-site testing.</p> <p><b>FY 2017 Base Plans:</b> - Continue developmental testing, operational assessment and live fire test and evaluation activities in support of survivability upgrade. - Initiate hot and cold environmental testing for the survivability upgrade.</p> <p><b>FY 2017 OCO Plans:</b> N/A</p>						
<b>Title:</b> Management and Engineering Technical Services		18.921	5.548	4.036	0.000	4.036
		<b>Articles:</b>	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206629M / (U)Amphibious Assault Vehicle	<b>Project (Number/Name)</b> 2938 / Amphibious Assault Vehicle

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>
<p><b>Description:</b> Management support services and technical support for program office and field activities.</p> <p><b>FY 2015 Accomplishments:</b></p> <ul style="list-style-type: none"> <li>- Continued program management services in support of Engineering Change Proposal (ECP) development, trade studies and analysis, supply chain and government property management in support of AAV sustainment and modification efforts.</li> <li>- Continued to provide program management services in support of AAV Survivability Upgrade.</li> </ul> <p><b>FY 2016 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue program management services in support of ECP development, trade studies and analysis, supply chain and government property management in support of AAV sustainment modification efforts.</li> <li>- Complete program management services in support of AAV Survivability Upgrade.</li> </ul> <p><b>FY 2017 Base Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue program management services in support of ECP development, trade studies and analysis, supply chain and government property management in support of AAV sustainment modification efforts.</li> </ul> <p><b>FY 2017 OCO Plans:</b></p> <p>N/A</p>					
<b>Accomplishments/Planned Programs Subtotals</b>	87.940	45.110	38.020	0.000	38.020

<b>C. Other Program Funding Summary (\$ in Millions)</b>										
<b>Line Item</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017 Base</b>	<b>FY 2017 OCO</b>	<b>FY 2017 Total</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>Cost To Complete Total Cost</b>
• PMC/2021: AAV Product Improvement Program	15.202	20.571	73.785	-	73.785	111.923	180.111	139.851	151.558	258.626 1,911.743

**Remarks**

**D. Acquisition Strategy**

The USMC competitively awarded two contracts in FY14 for development efforts in support of upgrading 392 Assault Amphibious Vehicles. Down-select to one contractor for manufacture of prototype vehicles occurred in February 2015. The program's main focus is on improving Marine force protection capabilities. To support the required capabilities, the Survivability Upgrade program will seek to incorporate Non-Developmental Items (NDI) and/or Commercial off the Shelf (COTS) solutions

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2017 Navy		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206629M / (U)Amphibious Assault Vehicle	<b>Project (Number/Name)</b> 2938 / Amphibious Assault Vehicle

into the existing AAVP7A1 Reliability, Availability, Maintainability/Rebuild to Standard (RAM/RS). The acquisition strategy seeks to minimize cost and schedule, and maximize value, technology readiness, and commonality, while ensuring the selected manufacturer meets the capability attributes established for the AAVP7A1 RAM/RS. RDT&E funds competitive designs followed by contract options for Engineering and Manufacturing Development (EMD) and production. Initial Operational Capability (IOC) is scheduled for FY19.

**E. Performance Metrics**

Milestone Reviews:

Milestone C: 2nd quarter of FY17

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0206629M / (U)Amphibious Assault Vehicle				Project (Number/Name) 2938 / Amphibious Assault Vehicle							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Syst Design & Dev / EMD	C/FFP	MCSC : Quantico, VA	0.000	46.888	Feb 2015	15.217	May 2016	22.086	Apr 2017	-		22.086	Continuing	Continuing	Continuing
Other Product Development	C/BA	Various : Various	0.000	0.629	Mar 2015	5.241	Feb 2016	2.187	Feb 2017	-		2.187	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	47.517		20.458		24.273		-		24.273	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Travel	Various	Various : Various	0.000	0.197	Oct 2014	0.464	Oct 2015	0.256	Oct 2016	-		0.256	Continuing	Continuing	Continuing
In-House Technical Support	Various	Various : Various	0.000	19.822	Apr 2015	6.802	Feb 2016	4.396	Feb 2017	-		4.396	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	20.019		7.266		4.652		-		4.652	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Developmental Testing (DT)	Various	Various : Various	0.000	1.291	Mar 2015	5.013	Feb 2016	2.434	Mar 2017	-		2.434	Continuing	Continuing	Continuing
Operational Testing (OT)	WR	MCOTE A : Quantico, VA	0.000	0.182	May 2015	4.599	May 2016	0.000	Jan 2017	-		0.000	0.000	4.781	-
Live Fire Test and Evaluation (LFT&E)	Various	Various : Various	0.000	0.010	Jul 2015	2.226	Dec 2015	2.625	Dec 2016	-		2.625	0.000	4.861	-
<b>Subtotal</b>			0.000	1.483		11.838		5.059		-		5.059	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2017 Navy</b>												<b>Date:</b> February 2016			
<b>Appropriation/Budget Activity</b> 1319 / 7						<b>R-1 Program Element (Number/Name)</b> PE 0206629M / (U)Amphibious Assault Vehicle				<b>Project (Number/Name)</b> 2938 / Amphibious Assault Vehicle					
<b>Management Services (\$ in Millions)</b>				<b>FY 2015</b>		<b>FY 2016</b>		<b>FY 2017 Base</b>		<b>FY 2017 OCO</b>		<b>FY 2017 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>
Management Support Svcs	C/FFP	MCSC : Quantico, VA	0.000	6.802	Apr 2015	0.248	Apr 2016	1.466	Apr 2017	-		1.466	Continuing	Continuing	Continuing
Engineering and Technical Services	Various	Various : Various	0.000	12.119	Dec 2014	5.300	Mar 2016	2.570	Mar 2017	-		2.570	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.000	18.921		5.548		4.036		-		4.036	-	-	-
			<b>Prior Years</b>	<b>FY 2015</b>		<b>FY 2016</b>		<b>FY 2017 Base</b>		<b>FY 2017 OCO</b>		<b>FY 2017 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			0.000	87.940		45.110		38.020		-		38.020	-	-	-

**Remarks**

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

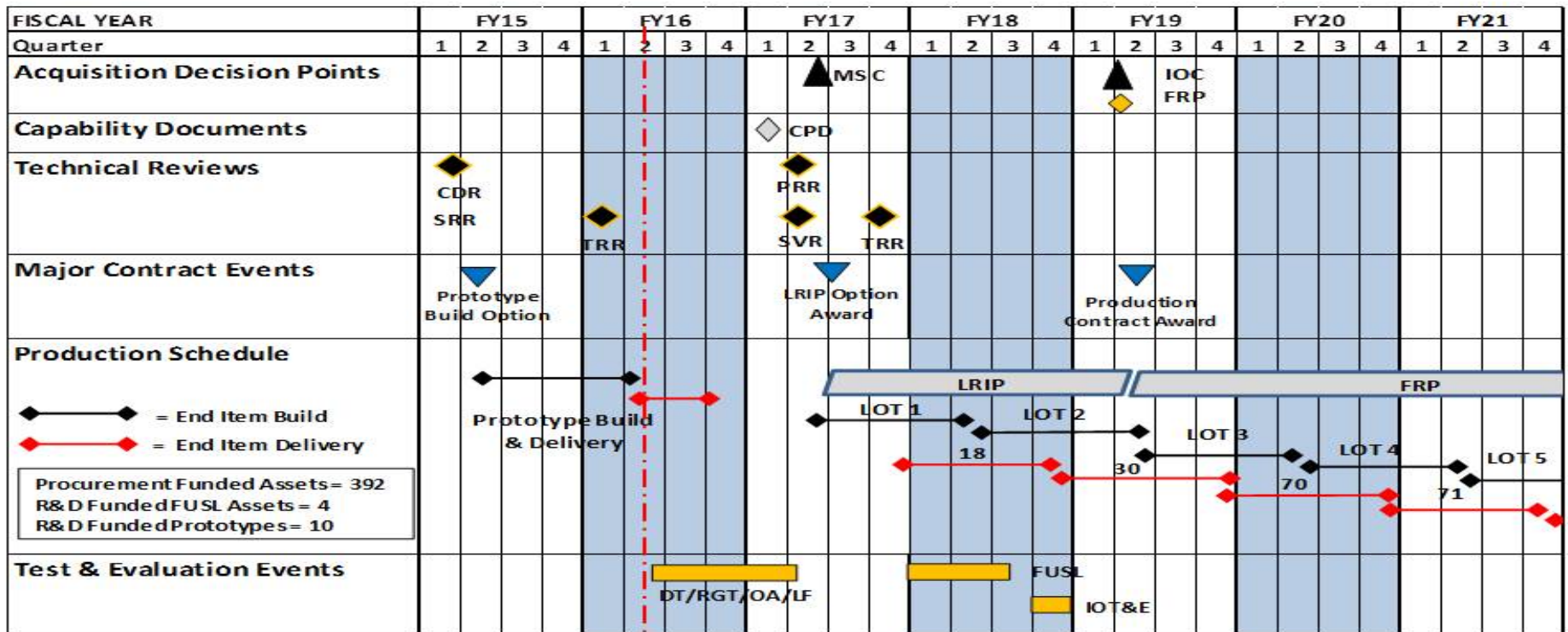
Date: February 2016

Appropriation/Budget Activity  
1319 / 7

R-1 Program Element (Number/Name)  
PE 0206629M / (U)Amphibious Assault  
Vehicle

Project (Number/Name)  
2938 / Amphibious Assault Vehicle

# PB-17 SCHEDULE AAV SURVIVABILITY UPGRADE



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2017 Navy		<b>Date:</b> February 2016
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0206629M / (U)Amphibious Assault Vehicle	<b>Project (Number/Name)</b> 2938 / Amphibious Assault Vehicle

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2938</b>				
CDR	1	2015	2	2015
Prototype Build Option	2	2015	2	2016
Developmental Test and Evaluation	2	2016	2	2017
MS C	2	2017	2	2017
LRIP Option Award	3	2017	3	2017
LRIP	3	2017	2	2019
IOT&E	4	2018	4	2018
Full Rate Production Contract Award	2	2019	2	2019