Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-303

Ship to Shore Connector Amphibious Craft (SSC)

As of FY 2019 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

~~This document contains information that may be exempt from mandatory disclosure under the FOIA.~~

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Sensitivity Originator

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name
Ship to Shore Connector Amphibious Craft (SSC)

DoD Component
Navy

Responsible Office

Mr. Thomas Rivers
Program Executive Office, Ships
Amphibious Warfare Program Office
1333 Isaac Hull Avenue
Washington, DC 20376-2101

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Date Assigned: September 28, 2015

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated July 5, 2012

Approved APB

Component Acquisition Executive (CAE) Approved Acquisition Program Baseline (APB) dated September 21, 2017

Mission and Description

Ship to Shore Connector (SSC) is the Landing Craft, Air Cushion (LCAC) replacement. It is an Air Cushion Vehicle with the same footprint as the LCAC Service Life Extension Program. The SSC mission is to land surface assault elements in support of Operational Maneuver from the Sea at Over-The-Horizon distances, while operating from amphibious ships and mobile landing platforms. The primary role of SSC is to transport weapon systems, equipment, cargo, and personnel of the assault elements of the Marine Expeditionary Brigades and the Army Brigade Combat Teams during Ship-to-Objective Maneuver and Prepare for Movement operations.

Executive Summary

Program Highlights Since Last Report

The SSC program was successful in CY 2017, with notable progress made in the production of multiple craft. IOC remains on track for August 2020.

The PM's primary concerns are focused on integration testing and ramping up production to meet follow-on SSC procurements. Gearbox First Article Testing was completed in July 2017 and gearboxes are installed on craft supporting ongoing craft testing. General Electric Dowty propeller blade production yields have improved and are forecasted to support PB 2019 and follow on procurement.

Craft 100 transitioned from Textron's production line into its Test and Trials facility during August 2017. Subsequently, a successful fuel onload and an auxiliary power light off occurred, with main engine light off and the commencement of Builder's Trials scheduled to begin early 2018. First in class testing continues to pose challenges, with delivery scheduled for April 2018.

Landing Craft Air Cushion (LCAC) 101 through 106 are under construction, with lessons learned from Craft 100 and LCAC 101 being rolled into LCACs 102 and subsequent craft. These lessons are resulting in better first time quality, as evidenced by reduction in overall man hours and increased outfitting in earlier stages of construction.

In August 2017, the SSC program held a Gate 6 Sufficiency Review with the Service Acquisition Executive (SAE). As a result of that meeting, the SAE approved APB Change 1 which shifts Craft 100 and extends the period of time needed to achieve Initial Operational Test and Evaluation and FRP. The SAE also authorized an increase in LRIP quantities to cover awards for FY 2018 and FY 2019 craft prior to FRP in FY 2020.

A Request for Proposal (RFP) for FY 2017 - 2018 craft procurement was released in April 2017. The RFP will be updated to reflect the quantities in the enacted PB 2018 budget. Long Lead Time Material was placed on contract with Textron in September 2017 for the FY 2017 craft.

FY 2019 quantities are established at the minimum sustainable rate (five) moving up to the ideal rate (eight) later in the FYDP.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

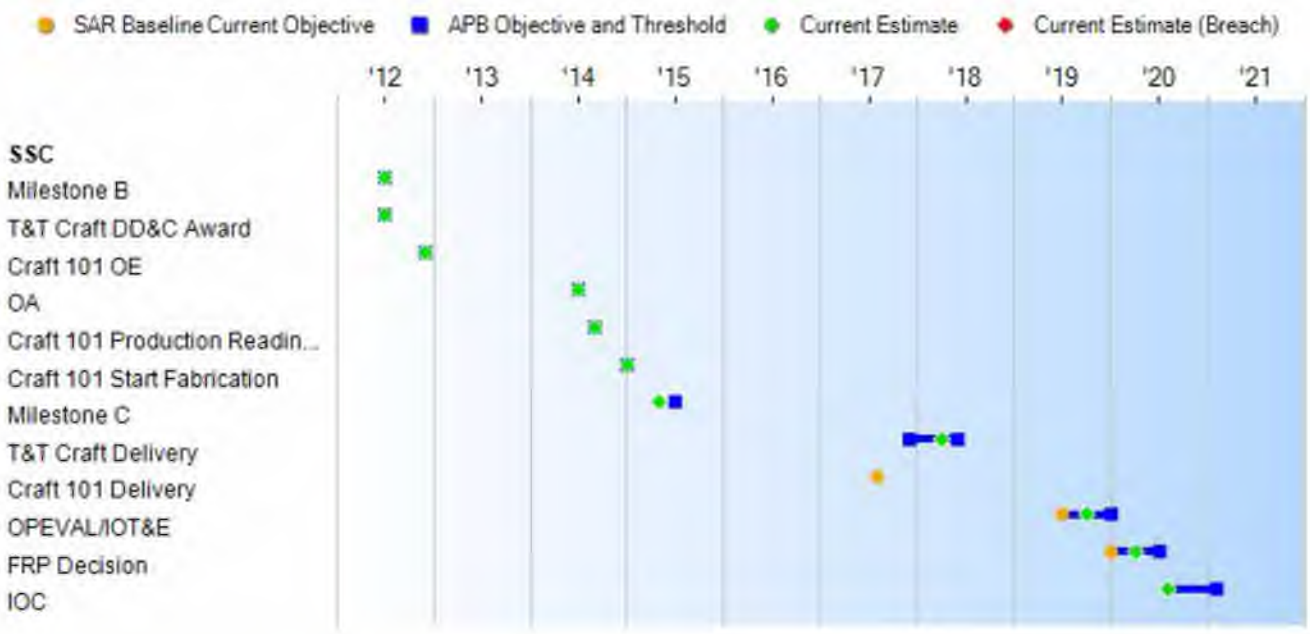
History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
June 2010	On June 10, 2010, an Initial SSC CDD was approved.
July 2012	On July 5, 2012, a Milestone B review of the program was successfully held with the Service Acquisition Executive (SAE). The review included an evaluation of the SSC Milestone B Acquisition Strategy and the APB. Milestone B approval was authorized by the SAE and the program was granted approval to enter into the EMD phase and was authorized a LRIP quantity not to exceed 13 craft.
July 2012	On July 6, 2012, the Navy awarded a $212.7M fixed price incentive fee contract to Textron, Inc. for the detail design and construction of the SSC Test and Training (T&T) Craft with options for eight production craft and technical manuals. The award was based on full and open competition.
September 2014	A Production Readiness Review (PRR) was held in September 2014 to evaluate the SSC craft design maturity and readiness, the availability of materials and components, and industry's ability to successfully start and sustain fabrication. All action items from the PRR were successfully addressed, adjudicated and closed out in October 2014. T&T Craft and Landing Craft Air Cushion (LCAC) 101 began production in November 2014 and January 2015, respectively.
February 2015	On February 5, 2015, a fire occurred at General Electric Dowty's propeller production facility in Gloucestershire, United Kingdom, while the contractor was in process of developing the SSC First Article Test units. In the interim, General Electric Dowty identified a temporary manufacturing facility and reconstituted the SSC production line in September 2015.
May 2015	On May 26, 2015, a Milestone C review of the program was successfully held with the SAE. The review included an evaluation of key factors that ensured adequate design maturity, production readiness, efficient manufacturing capability and low technical risk. Subsequent to this review, Milestone C approval was authorized by the SAE on July 21, 2015 and the program was granted approval to enter into the Production and Deployment Phase.
July 2015	On July 1, 2015, a revalidated CDD was signed by the Chief of Naval Operations and the Logistics Functional Capabilities Board completed its assessment with minor changes. On October 8, 2015, the CDD was signed by the Vice Chairman of the Joint Chiefs, Joint Requirements and Oversight Council.
March 2016	Pursuant to section 2308 of title 10, U.S. Code "Buy-to-Budget Acquisition - End Items" approval, the contract option for LCACs 104-108 construction was exercised in March 2016.
September 2017	Approval of APB Change 1 and increase in LRIP quantities.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Schedule Events					
Events	SAR Baseline Development Estimate	Current APB Production Objective/Threshold		Current Estimate	
Milestone B	Jul 2012	Jul 2012	Jul 2012	Jul 2012	
T&T Craft DD&C Award	Jul 2012	Jul 2012	Jul 2012	Jul 2012	
Craft 101 OE	Mar 2013	Dec 2012	Dec 2012	Dec 2012	
OA	Mar 2014	Jul 2014	Jul 2014	Jul 2014	
Craft 101 Production Readiness Review	May 2014	Sep 2014	Sep 2014	Sep 2014	
Craft 101 Start Fabrication	Dec 2014	Jan 2015	Jan 2015	Jan 2015	
Milestone C	Nov 2014	Jul 2015	Jul 2015	May 2015	
T&T Craft Delivery	Feb 2017	Dec 2017	Jun 2018	Apr 2018	(Ch-1)
Craft 101 Delivery	Aug 2017	N/A	N/A	N/A	(Ch-2)
OPEVAL/IOT&E	Apr 2018	Jul 2019	Jan 2020	Oct 2019	(Ch-3)
FRP Decision	Sep 2018	Jan 2020	Jul 2020	Apr 2020	(Ch-4)
IOC	Aug 2020	Aug 2020	Feb 2021	Aug 2020	

Change Explanations

(Ch-1) T&T Craft Delivery current estimate has changed from December 2017 to April 2018 due to craft Test & Evaluation.
(Ch-2) Craft 101 Delivery current estimate has changed from May 2018 to NA due to the removal of this event in the current APB.
(Ch-3) OPEVAL/IOT&E current estimate has changed from July 2019 to Oct 2019 due to delay in T&T Craft Delivery.
(Ch-4) FRP Decision current estimate has changed from January 2020 to April 2020 due to delay in T&T Craft Delivery.

Notes

Craft 101 Delivery - Aug 2018

Craft 102 Delivery - Apr 2019

Craft 103 Delivery - Jun 2019

Craft 104 Delivery - Jun 2019

Craft 105 Delivery - Nov 2019

Craft 106 Delivery - Feb 2020

Craft 107 Delivery - May 2020

Craft 108 Delivery - Jul 2020

Acronyms and Abbreviations

DD&C - Detail Design and Construction
IOT&E - Initial Operational Test and Evaluation
LCAC - Landing Craft Air Cushion
OA - Operational Assessment
OE - Option Exercise
OPEVAL - Operational Evaluation
T&T - Test and Training

Performance

Performance Characteristics				
SAR Baseline Development Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
Payload Capacity				
The SSC should be capable of transporting 79 short tons over the threshold range in the threshold temperature operating range and threshold sea state.	The SSC should be capable of transporting 79 short tons over the threshold range in the threshold temperature operating range and threshold sea state.	The SSC should be capable of transporting 74 short tons over the threshold range in the threshold temperature operating range and threshold sea state.	TBD	The SSC is capable of transporting 74 short tons over the threshold range in the threshold temperature operating range and threshold sea state.
Interoperability				
In addition to the threshold Interoperabil-ity, the SSC should be able to operate with allied amphibious ships classes with suitable well decks, to include French Mistral, Japanese Osumi, Korean Dokdo, Spanish Juan Carlos, and Australian Canberra if this interoperabil-ity does not alter other interfaces.	In addition to the threshold Interoperabil -ity, the SSC should be able to operate with allied amphibious ships classes with suitable well decks, to include French Mistral, Japanese Osumi, Korean Dokdo, Spanish Juan Carlos, and Australian Canberra if this interoperabil-ity does not alter other interfaces.	The SSC shall be able to: enter, exit, and embark in well decks of current and programmed USN amphibious ships, to include LHD-1, LPD-17, LSD-41, LSD-49 classes, without ship alterations, while transporting an embarked load 168" high; the off cushion length of the SSC shall permit embarkation of (4) SSCs in LSD-41 class, (2) SSCs in LSD-49 and LPD-17 classes, and (3) SSCs in LHD-1 class; and, enter/exit well decks of amphibious ships while on cushion or in displacement mode (wet well only). SSC shall embark on board the planned MLP, without ship alterations, as designed and built for the LCAC. SSC shall be able to operate with existing ships	TBD	The SSC is able to: enter, exit, and embark in well decks of current and programmed USN amphibious ships, to include LHD-1, LPD-17, LSD-41, LSD-49 classes, without ship alterations, while transporting an embarked load 168" high; the off cushion length of the SSC permits embarkation of (4) SSCs in LSD-41 class, (2) SSCs in LSD-49 and LPD -17 classes, and (3) SSCs in LHD-1 class; and, enter/exit well decks of amphibious ships while on cushion or in displacement mode (wet well only). SSC embarks on board the planned MLP, without ship alterations, as designed and built for the LCAC. SSC is able to operate with existing ships services, including the planned MLP, in place for the LCAC including ship's power, fueling/ defueling stations, compressed air, potable and washdown

		services, including the planned MLP, in place for the LCAC including ship's power, fueling/ defueling stations, compressed air, potable and washdown water, lighting, navigational aids, footprint for spare / consumable pack-up kits, and night vision systems.		water, lighting, navigational aids, footprint for spare / consumable pack-up kits, and night vision systems. The SSC is able to enter and exit allied amphibious ships Mistral (French) and Osumi (Japan).
Net-Ready				
The SSC should fully support execution of all operational activities and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges. 2) Compliant with Net - Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communica -tions. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementa-tion guidance of GESPs,	The SSC should fully support execution of all operational activities and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges. 2) Compliant with Net - Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communica-tions. 3) Compliant with GIG Technical Guidance to include IT Standards	The SSC must fully support execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges. 2) Compliant with Net - Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communica-tions. 3) Compliant with GIG Technical Guidance to include IT Standards	TBD	The SSC fully supports execution of joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges. 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non -IP communications. 3) Compliant with GIG Technical Guidance to include IT Standards identified in the TV-1 and implementation guidance of GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution

necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views. 4) Information assurance requirements including availability, integrity, authentica-tion, confidential-ity, and non -repudiation, and issuance of an ATO by the DAA. 5) Supportabil -ity requirements to include SAASM, Spectrum and JTRS require-ments. See appendix A of the CDD for additional details on the NR-KPP.	identified in the TV-1 and implementa-tion guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views. 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an ATO by the DAA. 5) Supportabil-ity requirements to include SAASM, Spectrum and JTRS require-ments. See appendix A of the CDD for additional details on the NR-KPP.	identified in the TV-1 and implementa-tion guidance of GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views. 4) Information assurance requirements including availability, integrity, authenticat-ion, confidential-ity, and non-repudiation, and issuance of an IATO or ATO by the DAA. 5) Supportabil-ity requirements to include SAASM, Spectrum and JTRS require-ments. See appendix A of the CDD for additional details on the NR-KPP.		architecture views. 4) Information assurance requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO or ATO by the DAA. 5) Supportability requirements to include SAASM, Spectrum and JTRS requirements. See appendix A of the CDD for additional details on the NR-KPP.
Force Protection				
The SSC should be equipped with a remotely operated crew -served weapon system and provide ballistic and fragmenta-tion protection for crew, internally carried embarked forces and critical machinery spaces. Appendix F of the CDD describes the specific ballistic protection requirement.	The SSC should be equipped with a remotely operated crew-served weapon system and provide ballistic and fragmenta -tion protection for crew, internally carried embarked forces and critical machinery spaces. Appendix F of the CDD describes the specific ballistic protection requirement.	The SSC shall provide protection to the crew and internally carried embarked forces from small arms, crew served weapons and fragmenta-tion. Appendix F of the CDD describes the specific ballistic protection requirement. The SSC shall be equipped with mounts capable of accepting current US crew-served weapons to include the M2 .50 Caliber (12.7mm) Machine Gun, MK19 40mm Grenade Machine Gun and M60/M240 Series 7.62mm Light Machine Gun.	TBD	The SSC provides protection to the crew and internally carried embarked forces from small arms, crew served weapons and fragmentation. The SSC is equipped with mounts capable of accepting current US crew-served weapons to include the M2 .50 Caliber (12.7mm) Machine Gun, MK19 40mm Grenade Machine Gun and M60/M240 Series 7.62mm Light Machine Gun.

Survivability (Sea-Worthiness)				
T=O The SSC shall be capable of surviving (remaining afloat) in displacement mode without power or steerage through seas up to ten foot SWH without incurring structural damage which would impair mission capability until recovered or towed to a boat haven.	T=O The SSC shall be capable of surviving (remaining afloat) in displacement mode without power or steerage through seas up to ten foot SWH without incurring structural damage which would impair mission capability until recovered or towed to a boat haven.	T=O The SSC shall be capable of surviving (remaining afloat) in displacement mode without power or steerage through seas up to ten foot SWH without incurring structural damage which would impair mission capability until recovered or towed to a boat haven.	TBD	T=O The SSC is capable of surviving (remaining afloat) in displacement mode without power or steerage through seas up to ten foot SWH without incurring structural damage which would impair mission capability until recovered or towed to a boat haven.
Manpower				
The SSC should be fully operable with a crew of no more than three (3).	The SSC should be fully operable with a crew of no more than three (3).	The SSC shall be fully operable, to include conducting on load/offload operations, with a crew of no more than five (5).	TBD	The SSC is fully operable, including conducting on load/offload operations, with a crew of five (5).
Materiel Availability (Am)				
The SSC should have a Materiel Availability of 63 percent.	The SSC should have a Materiel Availability of 63 percent.	The SSC shall have a Materiel Availability of 59.5 percent.	TBD	The SSC Materiel Availability is 61.3 percent.
Inland Accessibility				
T=O The SSC shall be capable of operating over the high water mark. This includes movement over ice, mud, rivers, swamps, and marshes. While moving inland, the SSC shall be able to negotiate obstacles found in the complex operational environment (natural and man-made). The SSC shall be able to operate over a beach high water mark, rocks, rubble, obstacles and walls up to 4 feet high, grass, reeds and dunes.	T=O The SSC shall be capable of operating over the high water mark. This includes movement over ice, mud, rivers, swamps, and marshes. While moving inland, the SSC shall be able to negotiate obstacles found in the complex operational environment (natural and man-made). The SSC shall be able to operate over a beach high water mark, rocks, rubble, obstacles and walls up to 4 feet high, grass, reeds and dunes.	T=O The SSC shall be capable of operating over the high water mark. This includes movement over ice, mud, rivers, swamps, and marshes. While moving inland, the SSC shall be able to negotiate obstacles found in the complex operational environment (natural and man-made). The SSC shall be able to operate over a beach high water mark, rocks, rubble, obstacles and walls up to 4 feet high, grass, reeds and dunes.	TBD	The SSC is capable of operating over the high water mark. This includes movement over ice, mud, rivers, swamps, and marshes. While moving inland, the SSC is able to negotiate obstacles found in the complex operational environment (natural and man-made). The SSC is able to operate over a beach high water mark, rocks, rubble, obstacles and walls up to 4 feet high, grass, reeds and dunes.

Requirements Reference

CDD dated June 10, 2010

Change Explanations

None

Notes

The following footnotes apply to Interoperability Threshold KPP:
1/ LSD-41 well deck can embark a fifth craft in a non-tactical capacity without ship services.
2/ LHD-1 Power converter for 3rd spot not part of Pack Up Kit footprint.
3/ MLP ship's power for SSC may require alteration or separate pieces of equipment which is not part of Pack Up Kit footprint.

Acronyms and Abbreviations

ATO - Authority to Operate
DAA - Designated Approval Authority
DoD IEA - Department of Defense Information Enterprise Architecture
DoDAF - Department of Defense Architecture Framework
GESP - GIG Enterprise Service Profile
GIG - Global Information Grid
IATO - Interim Authority to Operate
IP - Internet Protocol
IT - Information Technology
JTRS - Joint Tactical Radio System
LCAC - Landing Craft Air Cushion
MLP - Mobile Landing Platform
mm - Millimeter
NR-KPP - Net Ready Key Performance Parameter
O - Objective
SAASM - Selective Availability Anti-Spoofing Module
SWH - Significant Wave Height
T - Threshold
TV - Technical View
US - United States
USN - United States Navy

Track to Budget

RDT&E

Appn	BA	PE
Navy	04	0603564N

Project	Name		
3127	Preliminary Design and Feasibility Study	(Shared)	(Sunk)
Notes:	Preliminary Design and Feasibility Study/SSC Design		

Appn	BA	PE
Navy	05	0604567N

Project	Name		
3133	Ship to Shore Connectors Contract Design		(Sunk)
3137	SSC Construction		(Sunk)

Appn	BA	PE
Navy	05	0605220N

Project	Name
3133	Ship to Shore Connectors Contract Design
3137	SSC Construction

Procurement

Appn	BA	PE
Navy	05	0204411N

Line Item	Name	
5110	Outfitting	(Shared)

Appn	BA	PE
Navy	05	0204228N

Line Item	Name	
5112	Ship to Shore Connector	
Notes:	Ship to Shore Connector End Cost	
5300	Completion of Prior Year Shipbuilding	(Shared)

Appn	BA	PE
Navy	04	0204228N

Line Item	Name	
5664	Surface Training Equipment	(Shared)
Notes:	Ship to Shore Connector	

MILCON

Appn	BA	PE
Navy	01	0712776N

Project	Name	
P176	Facilities New Footprint -	(Shared)

			Utilities	
		Notes:	Electrical Upgrades at ACU-4	
	P5002		Facilities New Footprint - Utilities	(Shared)
		Notes:	Electrical Upgrades at ACU-5	
Navy	1205	01	0815976N	
	Project		**Name**	
	P5001		Facilities New Footprint - Training	(Shared)
		Notes:	Trainer Facility	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2011 $M			BY 2011 $M	TY $M		
	SAR Baseline Development Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Production Objective	Current Estimate
RDT&E	552.7	552.7	608.0	511.0	571.9	571.9	528.3
Procurement	3354.4	3354.4	3689.8	3688.5	4137.5	4137.5	4822.5
Flyaway	--	--	--	3603.1	--	--	4711.4
Recurring	--	--	--	3603.1	--	--	4711.4
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	85.4	--	--	111.1
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	85.4	--	--	111.1
MILCON	18.5	18.5	20.4	15.2	21.7	21.7	18.1
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	3925.6	3925.6	N/A	4214.7	4731.1	4731.1	5368.9

Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Production	Current Estimate
RDT&E	2	2	1
Procurement	71	71	72
Total	73	73	73

Cost and Funding

Funding Summary

Appropriation Summary FY 2019 President's Budget / December 2017 SAR (TY$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	502.4	22.4	1.4	2.1	0.0	0.0	0.0	0.0	528.3
Procurement	498.6	222.7	361.0	519.5	540.4	531.8	486.2	1662.3	4822.5
MILCON	0.0	3.4	14.7	0.0	0.0	0.0	0.0	0.0	18.1
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2019 Total	1001.0	248.5	377.1	521.6	540.4	531.8	486.2	1662.3	5368.9
PB 2018 Total	998.5	256.2	361.6	354.6	378.0	361.2	342.0	2415.0	5467.1
Delta	2.5	-7.7	15.5	167.0	162.4	170.6	144.2	-752.7	-98.2

Funding Notes

Quantity Summary FY 2019 President's Budget / December 2017 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	1	0	0	0	0	0	0	0	0	1
Production	0	10	3	5	8	8	8	8	22	72
PB 2019 Total	1	10	3	5	8	8	8	8	22	73
PB 2018 Total	1	10	3	5	5	5	5	5	34	73
Delta	0	0	0	0	3	3	3	3	-12	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	--	--	--	--	--	14.0
2007	--	--	--	--	--	--	13.0
2008	--	--	--	--	--	--	27.0
2009	--	--	--	--	--	--	24.9
2010	--	--	--	--	--	--	33.5
2011	--	--	--	--	--	--	95.5
2012	--	--	--	--	--	--	51.0
2013	--	--	--	--	--	--	112.7
2014	--	--	--	--	--	--	68.2
2015	--	--	--	--	--	--	41.7
2016	--	--	--	--	--	--	8.3
2017	--	--	--	--	--	--	12.6
2018	--	--	--	--	--	--	22.4
2019	--	--	--	--	--	--	1.4
2020	--	--	--	--	--	--	2.1
Subtotal	1	--	--	--	--	--	528.3

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2011 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2006	--	--	--	--	--	--	15.1
2007	--	--	--	--	--	--	13.7
2008	--	--	--	--	--	--	27.9
2009	--	--	--	--	--	--	25.4
2010	--	--	--	--	--	--	33.7
2011	--	--	--	--	--	--	93.7
2012	--	--	--	--	--	--	49.2
2013	--	--	--	--	--	--	107.6
2014	--	--	--	--	--	--	64.2
2015	--	--	--	--	--	--	38.8
2016	--	--	--	--	--	--	7.6
2017	--	--	--	--	--	--	11.3
2018	--	--	--	--	--	--	19.8
2019	--	--	--	--	--	--	1.2
2020	--	--	--	--	--	--	1.8
Subtotal	1	--	--	--	--	--	511.0

Annual Funding 1810 | Procurement | Other Procurement, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2019	--	19.8	--	--	19.8	--	19.8
2020	--	--	--	--	--	--	--
2021	--	14.8	--	--	14.8	--	14.8
Subtotal	--	34.6	--	--	34.6	--	34.6

Annual Funding 1810 | Procurement | Other Procurement, Navy							
Fiscal Year	Quantity	BY 2011 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2019	--	17.1	--	--	17.1	--	17.1
2020	--	--	--	--	--	--	--
2021	--	12.3	--	--	12.3	--	12.3
Subtotal	--	29.4	--	--	29.4	--	29.4

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2015	3	155.4	--	--	155.4	4.2	159.6
2016	5	203.5	--	--	203.5	7.4	210.9
2017	2	125.0	--	--	125.0	3.1	128.1
2018	3	218.2	--	--	218.2	4.5	222.7
2019	5	333.7	--	--	333.7	7.5	341.2
2020	8	507.3	--	--	507.3	12.2	519.5
2021	8	514.0	--	--	514.0	11.6	525.6
2022	8	520.0	--	--	520.0	11.8	531.8
2023	8	473.9	--	--	473.9	12.3	486.2
2024	8	571.5	--	--	571.5	12.8	584.3
2025	8	570.9	--	--	570.9	13.3	584.2
2026	6	428.2	--	--	428.2	10.4	438.6
2027	--	16.5	--	--	16.5	--	16.5
2028	--	16.1	--	--	16.1	--	16.1
2029	--	15.3	--	--	15.3	--	15.3
2030	--	7.3	--	--	7.3	--	7.3
Subtotal	72	4676.8	--	--	4676.8	111.1	4787.9

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 2011 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2015	3	134.8	--	--	134.8	3.7	138.5
2016	5	173.6	--	--	173.6	6.3	179.9
2017	2	104.7	--	--	104.7	2.6	107.3
2018	3	179.4	--	--	179.4	3.7	183.1
2019	5	269.1	--	--	269.1	6.1	275.2
2020	8	401.1	--	--	401.1	9.7	410.8
2021	8	398.5	--	--	398.5	9.0	407.5
2022	8	395.2	--	--	395.2	9.0	404.2
2023	8	353.1	--	--	353.1	9.2	362.3
2024	8	417.5	--	--	417.5	9.3	426.8
2025	8	408.9	--	--	408.9	9.5	418.4
2026	6	300.7	--	--	300.7	7.3	308.0
2027	--	11.4	--	--	11.4	--	11.4
2028	--	10.9	--	--	10.9	--	10.9
2029	--	10.1	--	--	10.1	--	10.1
2030	--	4.7	--	--	4.7	--	4.7
Subtotal	72	3573.7	--	--	3573.7	85.4	3659.1

The 2015 Defense Appropriations Act directed the completion of Craft 101 with the Shipbuilding and Conversion, Navy, appropriation.

Cost Quantity Information 1611 | Procurement | Shipbuilding and Conversion, Navy		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 2011 $M**
2015	3	134.8
2016	5	173.6
2017	2	104.7
2018	3	179.4
2019	5	269.1
2020	8	401.1
2021	8	398.5
2022	8	395.2
2023	8	353.1
2024	8	417.5
2025	8	408.9
2026	6	337.8
2027	--	--
2028	--	--
2029	--	--
2030	--	--
Subtotal	72	3573.7

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	TY $M Total Program
2018	3.4
2019	14.7
Subtotal	18.1

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	**BY 2011 $M** **Total Program**
2018	2.9
2019	12.3
Subtotal	15.2

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	7/5/2012	9/21/2017
Approved Quantity	13	18
Reference	Milestone B ADM	Gate 6 Sufficiency Review ADM
Start Year	2013	2013
End Year	2021	2021

The Current Total LRIP Quantity is more than 10% of the total production quantity per the Milestone B approved Acquisition Strategy which establishes an initial production base for the system, provides for an orderly increase in the production rate prior to approval for FRP, and meets fleet operational requirements by FY 2020.

The Service Acquisition Executive authorized an increase in LRIP quantities to 29 in order to cover fluctuating procurement quantities in FY 2018 and FY 2019. Based on the PB 2019, LRIP quantity is 18 craft.

Foreign Military Sales

None

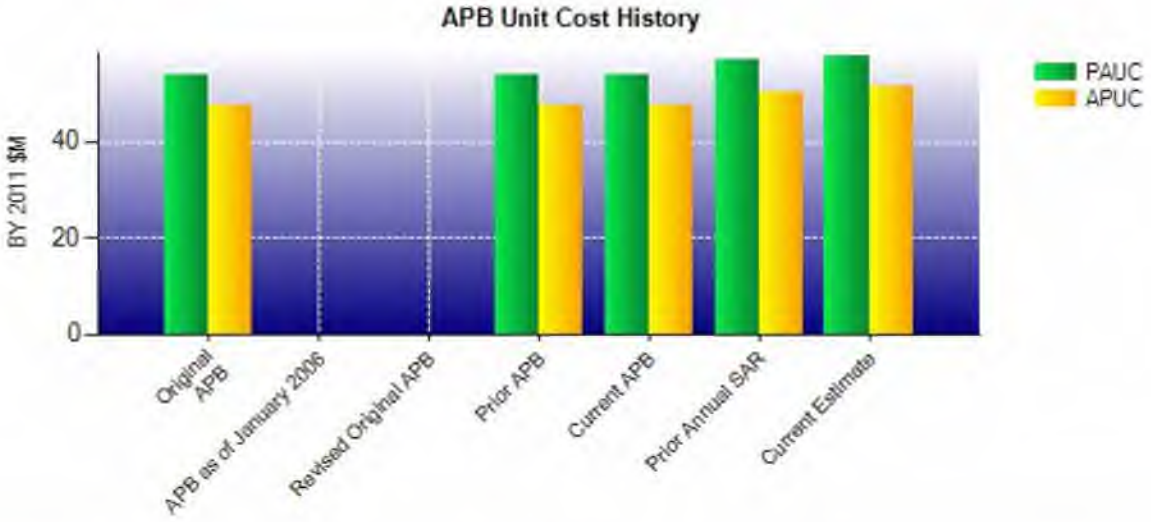
Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2011 $M Current UCR Baseline (Sep 2017 APB)	BY 2011 $M Current Estimate (Dec 2017 SAR)	% Change
Program Acquisition Unit Cost			
Cost	3925.6	4214.7	
Quantity	73	73	
Unit Cost	53.775	57.736	+7.37
Average Procurement Unit Cost			
Cost	3354.4	3688.5	
Quantity	71	72	
Unit Cost	47.245	51.229	+8.43

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2011 $M Original UCR Baseline (Jul 2012 APB)	BY 2011 $M Current Estimate (Dec 2017 SAR)	% Change
Program Acquisition Unit Cost			
Cost	3925.6	4214.7	
Quantity	73	73	
Unit Cost	53.775	57.736	+7.37
Average Procurement Unit Cost			
Cost	3354.4	3688.5	
Quantity	71	72	
Unit Cost	47.245	51.229	+8.43



APB Unit Cost History					
Item	Date	BY 2011 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Jul 2012	53.775	47.245	64.810	58.275
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Jul 2015	53.775	47.245	64.810	58.275
Current APB	Sep 2017	53.775	47.245	64.810	58.275
Prior Annual SAR	Dec 2016	56.832	50.365	74.892	68.400
Current Estimate	Dec 2017	57.736	51.229	73.547	66.979

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
64.810	1.875	-0.021	0.856	0.000	5.732	0.000	0.295	8.737	73.547

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
58.275	1.917	-0.298	0.868	0.000	5.918	0.000	0.299	8.704	66.979

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Jul 2012	N/A	Jul 2012
Milestone C	N/A	Nov 2014	N/A	May 2015
IOC	N/A	Aug 2020	N/A	Aug 2020
Total Cost (TY $M)	N/A	4731.1	N/A	5368.9
Total Quantity	N/A	73	N/A	73
PAUC	N/A	64.810	N/A	73.547

Cost Variance

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	571.9	4137.5	21.7	4731.1
Previous Changes				
Economic	-1.2	+182.6	+0.3	+181.7
Quantity	-38.4	+36.9	--	-1.5
Schedule	--	+214.5	--	+214.5
Engineering	--	--	--	--
Estimating	-6.0	+332.3	-6.0	+320.3
Other	--	--	--	--
Support	--	+21.0	--	+21.0
Subtotal	-45.6	+787.3	-5.7	+736.0
Current Changes				
Economic	-0.1	-44.6	-0.1	-44.8
Quantity	--	--	--	--
Schedule	--	-152.0	--	-152.0
Engineering	--	--	--	--
Estimating	+2.1	+93.8	+2.2	+98.1
Other	--	--	--	--
Support	--	+0.5	--	+0.5
Subtotal	+2.0	-102.3	+2.1	-98.2
Total Changes	-43.6	+685.0	-3.6	+637.8
Current Estimate	528.3	4822.5	18.1	5368.9

Summary BY 2011 $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	552.7	3354.4	18.5	3925.6
Previous Changes				
Economic	--	--	--	--
Quantity	-35.8	+31.8	--	-4.0
Schedule	--	-3.1	--	-3.1
Engineering	--	--	--	--
Estimating	-7.8	+231.9	-5.2	+218.9
Other	--	--	--	--
Support	--	+11.3	--	+11.3
Subtotal	-43.6	+271.9	-5.2	+223.1
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+1.9	+58.4	+1.9	+62.2
Other	--	--	--	--
Support	--	+3.8	--	+3.8
Subtotal	+1.9	+62.2	+1.9	+66.0
Total Changes	-41.7	+334.1	-3.3	+289.1
Current Estimate	511.0	3688.5	15.2	4214.7

Previous Estimate: December 2016

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.1
Revised estimate to reflect actuals. (Estimating)	+1.8	+2.0
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
RDT&E Subtotal	+1.9	+2.0

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-44.6
Acceleration of procurement buy profile from FY 2027 - FY 2030 to FY 2020 - FY 2026 (Shipbuilding and Conversion, Navy (SCN)). (Schedule)	0.0	-152.0
Revised Navy Working Capital Fund estimate (Other Procurement, Navy). (Estimating)	-0.2	-0.2
Revised estimate due to supplier pricing exceeding proposal values (SCN). (Estimating)	+29.3	+48.1
Revised estimate due to higher Textron labor due to increased complexities in various areas, some related to eventual Engineering Change Proposals, craft construction labor, unanticipated additional efforts in System Engineering, Earned Value Management, and Supply Management (SCN). (Estimating)	+12.2	+19.8
Revised estimate due to higher manufacturing and overhead rates (SCN). (Estimating)	+13.2	+21.3
Adjustment for current and prior escalation. (Estimating)	+3.9	+4.8
Adjustment for current and prior escalation. (Support)	+0.2	+0.1
Increase in Initial Spares to reflect the application of new outyear escalation indices. (SCN). (Support)	+3.6	+0.4
Procurement Subtotal	+62.2	-102.3

MILCON	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-0.1
Revised estimates for SSC trainer facility electrical upgrades and new mission trainer. (Estimating)	+1.8	+2.1
Adjustment for current and prior escalation. (Estimating)	+0.1	+0.1
MILCON Subtotal	+1.9	+2.1

(U//FOUO) Contracts

(U//FOUO) Contract Identification	
Appropriation:	RDT&E
Contract Name:	SSC Detail Design & Construction
Contractor:	Textron, Inc
Contractor Location:	19401 Chef Menteur Hwy New Orleans, LA 70129-2565
Contract Number:	N00024-12-C-2401
Contract Type:	Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	July 06, 2012
Definitization Date:	July 06, 2012

(b)(4)

Deliveries and Expenditures

Deliveries				
Delivered to Date	**Planned to Date**	**Actual to Date**	**Total Quantity**	**Percent Delivered**
Development	0	0	1	0.00%
Production	0	0	72	0.00%
Total Program Quantity Delivered	0	0	73	0.00%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	5368.9	Years Appropriated	13
Expended to Date	646.3	Percent Years Appropriated	52.00%
Percent Expended	12.04%	Appropriated to Date	1249.5
Total Funding Years	25	Percent Appropriated	23.27%

The above data is current as of February 12, 2018.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	May 19, 2015
Source of Estimate:	SCP
Quantity to Sustain:	73
Unit of Measure:	Craft
Service Life per Unit:	30.00 Years
Fiscal Years in Service:	FY 2018 - FY 2057

Sustainment Strategy

The SSC product support strategy is based on performance driven sustainment and involves utilizing performance-based objectives with traditional data analysis practices to meet program sustainment goals. Given that the SSC replaces the existing LCAC assets and the same infrastructure is used for logistics support and sustainment, the SSC strategy is baselined on the LCAC program. This strategy is based on implementing an effective supportability analysis program to develop and deliver the logistics products and processes necessary to execute an efficient, affordable sustainment program. Sustainment goals will be applied to both government and contractor support activities to use supportability analysis practices that delivers required craft availability while enabling best-cost improvement opportunities. Performance of the support activities will be measured by their assigned equipment availability as it relates to overall program operational and material availability measures.

Antecedent Information

The Antecedent System is the Landing Craft Air Cushion (LCAC). LCAC Model (-M) is currently used as a financial model and management information tool by the LCAC Program. LCAC-M uses data from the most recent ten years of Operating Target data which funds LCAC Operations, Support, Readiness, Hours of Operation, Sustaining Support, and Continuing System Improvements to predict the O&S cost of a specified level of readiness. The LCAC-M model parameters were adjusted to reflect the specified 150 operating hours per year and manning specified in the CARD for the SSC.

Annual O&S Costs BY2011 $M		
Cost Element	**SSC Average Annual Cost Per Craft**	**LCAC (Antecedent) Average Annual Cost Per Craft**
Unit-Level Manpower	1.525	1.291
Unit Operations	0.454	0.460
Maintenance	1.090	1.357
Sustaining Support	0.463	0.463
Continuing System Improvements	0.264	0.329
Indirect Support	0.819	0.410
Other	0.000	0.000
Total	4.615	4.310

Item	Total O&S Cost $M			
	SSC			LCAC (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	10171.3	11188.4	10106.0	9437.0
Then Year	18058.9	N/A	15657.0	N/A

The total program O&S cost estimate is determined to be $15,657 TY$M. This total was de-escalated by the Naval Center for Cost Analysis to arrive at a total O&S Current Estimate of $10,106.0 BY 2011 $M.

Equation to Translate Annual Cost to Total Cost

Total O&S cost is calculated by multiplying the Average Annual Cost per Craft by the total number of craft by total years of service. 4.615 BY 2011 $M X 73 X 30 = $10,106.0 BY 2011 $M.

O&S Cost Variance		
Category	**BY 2011 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2016 SAR	10106.0	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	10106.0	

Disposal Estimate Details

Date of Estimate: May 19, 2015

Source of Estimate: SCP

Disposal/Demilitarization Total Cost (BY 2011 $M): Total costs for disposal of all Craft are 14.2

The SSC disposal cost estimate is based on the actual disposal costs of the ten LCAC disposed as of February 2018.