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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW



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# COLUMBIA CLASS SUBMARINE (SSBN 826)

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**December 2021 Selected Acquisition Report (SAR)**



DECEMBER 31, 2021  
DEPARTMENT OF THE NAVY

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**Common Acronyms and Abbreviations**

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(A&S) - Under Secretary of Defense (Acquisition and Sustainment)  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

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## Program Manager

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**Date Assigned:** July 12, 2018

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## Mission and Description

The COLUMBIA Class Submarine Program (SSBN 826) is designing and constructing a replacement for the OHIO Class Fleet Ballistic Missile Submarines (SSBN) which begin retiring in 2027 at a rate of one per year. The program goals are to provide an affordable platform capable of executing the strategic mission while remaining survivable through 2084. The mission of the COLUMBIA Class Submarine is strategic deterrence which will be enabled through the integration and deployment of the TRIDENT II D5 Life Extended Strategic Weapon System (SWS) on a new submarine class that satisfies the Sea Based Strategic Deterrent Initial Capabilities Document and Chief of Naval Operations approved Capabilities Development Document attributes.

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## Executive Summary

### ***Program Highlights Since Last Report***

Since the previous submission, the COLUMBIA Class Program has continued executing detail design, component development, and construction activities. The Program has continued Build I construction efforts authorized in October 2020, including full-scale construction of SSBN 826, Advance Procurement / Advance Construction (AP / AC) of SSBN 827 to de-risk its construction start in FY 2024, and additional follow-on ships AP/AC efforts. COLUMBIA Class continues executing several Lines of Effort (LOE) for Integrated Enterprise Plan (IEP) Initiatives to reduce COLUMBIA Class schedule risk through Design, Construction, Material & Supplier Base, Government Furnished Equipment, Acquisition, and Cost Reduction across the submarine enterprise. While risk areas remain with the Industrial Base, shipbuilder performance, Government activities (Naval Foundry and Propeller Center, etc.) and ongoing Missile Tube (MT) recovery efforts, the Program is proactively managing these risks and is confident it will achieve planned COLUMBIA Class design, construction, and delivery schedules. The Program continues working closely with the shipbuilders and DoD to identify and mitigate risks due to the COVID-19 pandemic, including travel and industrial base challenges, to ensure efforts progress.

The program's design is currently slightly behind schedule but achieved the required milestone of 83% design maturity in May 2020 despite challenges from the COVID-19 pandemic. Continued design maturation into construction is vital to the success of COLUMBIA Class Program with the planned lead ship construction span the same as the SSN 774 Lead Ship, despite being 2.5 times the displacement. The Program continues to drive disclosure completions and has increased focus on managing design change efforts and design-to-build processes. The Navy and General Dynamics Electric Boat (GDEB) continue to work towards validating the Integrated Product Development Environment (IPDE) and business process functionality to further improve design and construction progress. IPDE design-to-build processes between GDEB and Newport News Shipbuilding (NNS) progressed in 2021, supporting Huntington Ingalls Industries Newport News (HII-NNS) near-term design and construction efforts. Continued improvement is needed in this area to support increasing full construction efforts at NNS in CY 2022.

Construction efforts are ongoing on all six Super Modules (SM) throughout various locations within GDEB and HII-NNS. In addition to full-scale construction efforts of SSBN 826, the Program has continued conducting extensive prototyping, Advance Construction (AC), and component development to retire technical, schedule, and manufacturing risks for follow-on ships AP and AC efforts. The program has conducted detailed production planning, to include manufacturing reviews, required facility construction, and resource (manning) efforts. The IEP initiatives execute industrial base risk mitigation, procurement and production efficiencies across the Submarine Enterprise, and manpower and facilities planning efforts. As part of the FY 2022 budget submission, the Navy programmed the following additional IEP initiatives: Continuous Production (CP) of Propulsors; CP of Missile Tube (MT) Outfitting; Multi-Program Material Procurement (MPMP) for SSBN 828-830; MPMP of Production Backup Units (PBU) for SSBN 837; and CP of Launchers, including Strategic Weapon System (SWS) umbilical housings and launch tubes. Implementation and proper phasing of funding of these initiatives support the Integrated Enterprise Plan (IEP) and are required to allow the program to target the accelerated delivery dates contained within it.

The Program is continuing to implement procurement and production efficiencies including MT CP, AC, MPMP (including PBUs), and material ordering to support Shipyard Manufactured Items CP in order to realize construction schedule efficiencies and cost savings consistent with authorities provided by 10 USC 2218a: National Sea-Based Deterrence Fund (NSBDF). COLUMBIA conducted Critical Supplier Assessments in CY 2021 to analyze supplier capacity limitations, workload efficiencies, first-tier and sub-tier cross dependencies, strategic sourcing, and supplier quality. In CY 2021, the Navy continued to invest in supplier improvement and facilitization to de-risk COLUMBIA construction schedules by improving the sub-vendor industrial base health. However, the industrial base remains the top program

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risk.). GDEB and HII-NNS are investing in facilities to support the COLUMBIA construction schedule and VIRGINIA Class production requirements.

The Navy, GDEB, and their suppliers continued executing MT recovery efforts in 2021 resulting from the previous welding and non-destructive testing (NDT) issues identified at the MT vendors, as well as the most recent challenges due to COVID-19. The program's MT Allocation Plan is used to mitigate vendor challenges with COVID-19 and supports schedules across both the UK and U.S. programs. Super Module 3 (SM3) construction activities were re-baselined in FY 2021 based on the updated vendor MT delivery dates.

Submarine Industrial Base funding was provided as a plus-up to SSBN 826 AP in FY 2019, FY 2020, and FY 2021. This funding continues to be utilized for supplier development initiatives, MPMP, CP and PBU. The Government Line of Effort (LOE) 3 team continues to work with the shipbuilders on supplier development funding efforts, readiness results, and supply base health.

The Program previously awarded the Integrated Product and Process Development (IPPD) contract in November 2017 to execute COLUMBIA Class Design Completion, Component Development, and Prototype efforts. The IPPD contract spans through the completion of the lead ship COLUMBIA Class submarine design and includes incentives for design, construction readiness, material, cost reduction, supplier efforts, and facilities. Subsequent contract modifications in FY 2018 and FY 2019 support Advance Construction, Long Lead Time Material procurements, and Missile Tube Continuous Production. A Contract Modification for ongoing design and prototyping efforts was awarded on June 22, 2020, which also included the Build I pre-priced option for construction of SSBN 826 & SSBN 827, as well as associated design and support efforts. The Navy exercised this contract option on November 5, 2020. This was a modification to the IPPD contract and aligned with the program's approved Acquisition Strategy. The Build I Option resulted in savings of up to \$1.5B when compared to single ship procurement and leveraged the authorities in the NSBDF. SSBN 826 construction was authorized at the start of FY 2021. SSBN 826 is being funded with three years of incremental funding full funding. Authorization of SSBN 827 will be requested in FY 2024 and will be funded with two years of incremental full funding.

USD (A&S) approved the Program's updated APB for Production in February 2021. At the post-IBR Gate 6 Review, the Real Time Warplan Efficiency Generator (RT-WEG), required for the strategic weapons system, was approved. Following the Semi-Annual IPR in August 2021, USD(A&S), as the MDA, signed an ADM on November 5, 2021, directing COLUMBIA to be funded to the program baseline and IEP requirements. On September 9, 2021, the Assistant Secretary of the Navy (Research, Development and Acquisition) approved the organizational structure realignment of PEO CLB to PEO SSBN.

The program held the Lead Ship (SSBN 826) Integrated Baseline Review (IBR) in April 2021. Government representatives included PMS397, SUPSHIPS, NR, and SSP. The program similarly plans on holding the SSBN 827 IBR in FY22. COLUMBIA continues to aggressively pursue cost reduction efforts through IPPD contract incentives and the Cost Control Management Board (CCMB), which based on the SEA05C 2020 estimate being locked in, resulted in approximately \$3.7B in savings into the program.

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

**Significant Accomplishments:**

Specific program accomplishments are not provided as the details and roll up of this information is considered CUI. In FY 2021, progress continued in all areas including detailed design, component development efforts, risk reduction, program and construction efforts, test and evaluation assessments, and sustainment planning.

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### *History of Significant Developments Since Program Initiation*

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
July 2008	USD for Acquisition, Technology, and Logistics (AT&L) issues Acquisition Decision Memorandum (ADM) directing entry into the Concept Refinement Phase and conduct of an Analysis of Alternatives.
October 2008	Secretary of Defense sends letter to United Kingdom (UK) Secretary of State for Defense to affirm the U.S.-UK Mutual Defense Agreement (MDA) and cost sharing for the MDA and Polaris Sales Agreement.
September 2010	SCP approved with new design SSBN based on 12 ships with 16 - 87" missile tubes.
January 2011	Milestone A ADM issued which authorized entry into Technology Maturation and Risk Reduction (TMRR) phase to complete a new design SSBN based on 12 ships with 16 - 87" missile tubes.
February 2012	PB 2013 shifts lead ship construction from FY 2019 to FY 2021; the two year recapitalization delay removed all margin during the OHIO-OHIO Replacement (OR) transition period (FY 2027- FY2042), any delay in OR delivery or unexpected aging impact to OHIO will have significant impacts on SSBN Operational Availability (Ao).
December 2012	Research, Development, Test and Evaluation (RDT&E) Design Contract issued to General Dynamics – Electric Boat.
December 2014	National Sea-Based Deterrence Fund established by Public Law 113-291.
November 2015	Incremental funding authority and authority to enter in contracts for Advance Construction and economic order quantity provided by Public Law 114-92.
January 2017	Milestone B Acquisition Program Baseline (APB) approved (Program Initiation).
September 2017	Award of the Integrated Product and Process Development (IPPD) contract. The Navy has transitioned all design efforts from the OHIO Replacement Research & Development (R&D) Design contract to the IPPD contract.
September 2018	Award of the Two Year Advance Procurement Funding modification to the IPPD contract.
January 2019	APB updated to reflect actual award of IPPD contract (September 2017) and align affordability targets with approved Capabilities Development Document (CDD).
October 2019	Ongoing Advance Construction efforts now in progress for all 6 super modules.
August 2020	The Milestone Decision Authority (MDA) approved entry into Build I construction
October 2020	SSBN 826 Start of Construction authorized.
November 2020	Exercised COLUMBIA Build I Option (SSBN 826 and SSBN 827 2 ship procurement).
February 2021	USD (A&S) approved the Program's updated Acquisition Program Baseline for Production to reflect 2020 Cost Estimate and CAPE Lead Ship Authorization (LSA) Issue.
September 2021	Assistant Secretary of the Navy (Research, Development and Acquisition) approved the organizational structure realignment of PEO CLB to PEO SSBN
November 2021	USD(A&S) Milestone Decision Authority (MDA) signed an Acquisition Decision Memorandum (ADM) directing COLUMBIA to be funded to the program baseline and Integrated Enterprise Plan (IEP) requirements.

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## Schedule

### Schedule Events

Schedule Events					
Events	Development APB Objective	Current APB Development Objective/Threshold		Current Estimate/Actual	Deviation
Milestone A	Dec 2010	Dec 2010	Dec 2010	Dec 2010	
Pre-RFP Release DAB	Dec 2015	Dec 2015	Dec 2015	Dec 2015	
Preliminary Design Review	Apr 2016	Apr 2016	Apr 2016	Apr 2016	
Milestone B	Nov 2016	Jan 2017	Jan 2017	Jan 2017	
Integrated Process and Product Development Contract Award	Jan 2017	Sep 2017	Sep 2017	Sep 2017	
Two Year Advance Procurement Funding Modification	Oct 2018	Sep 2018	Sep 2018	Sep 2018	
Critical Design Review	Apr 2020	Apr 2020	Apr 2020	Apr 2020	
Build 1 Construction Contract Award	Oct 2020	Jun 2020	Jun 2020	Jun 2020	
Lead Ship Authorization / Construction Start	Oct 2020	Oct 2020	Oct 2020	Oct 2020	
Lead Ship Contract Delivery	Apr 2027	Apr 2027	Oct 2027	Apr 2027	
Initial Operational Test and Evaluation Complete	Feb 2029	Feb 2029	Aug 2029	Feb 2029	
Lead Ship First Deployment Start	Apr 2030	Apr 2030	Oct 2030	Apr 2030	
Initial Operational Capability	Apr 2030	Apr 2030	Oct 2030	Apr 2030	

#### Schedule Notes:

SSBN Hull Delivery (Threshold) / Obligation Work Limiting Date (OWLD) Dates [note threshold dates are used to develop the OWLD dates]

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- 826 2027-10 / 2030-03
- 827 2030-10 / 2032-06
- 828 TBD / TBD
- 829 TBD / TBD
- 830 TBD / TBD
- 831 TBD / TBD
- 832 TBD / TBD
- 833 TBD / TBD
- 834 TBD / TBD
- 835 TBD / TBD
- 836 TBD / TBD
- 837 TBD / TBD

**Deviation Explanations:**

The Lead Ship Contract Delivery current estimate changed from October 2027 to April 2027 to reflect the Program Manager's updated estimate as of CY 2021.

The Initial Operational Test and Evaluation Complete current estimate changed from August 2029 to February 2029 to reflect the Program Manager's updated estimate as of CY 2021.

The Lead Ship First Deployment Start current estimate changed from October 2030 to April 2030 to reflect the Program Manager's updated estimate as of CY 2021.

The Initial Operational Capability current estimate changed from October 2030 to April 2030 to reflect the Program Manager's updated estimate as of CY 2021.

**Significant Schedule Risks**

Significant Schedule Risks	
Current Estimate (December 2021)	
1.	Ability to construct lead ship in 84 months within cost and schedule and ability to reduce from an 84-month production span for the lead ship to a 70-month span for the eleventh and twelfth ships.
2.	Ability to meet SSBN Operating Cycle and operate ships within OSD Affordability Caps (CY 2017\$).

Performance

Performance Characteristics				
Development APB Objective	Current APB Development Objective/Threshold	Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
<b>Operations and Support (O&amp;S) Cost KSA</b>				
Average annual O&S cost per unit of \$96M (CY 2010\$)	Average annual O&S cost per unit of \$119M (CY 2017\$)	Average annual O&S cost per unit of \$131M (CY 2017\$)	\$122.80M (CY 2017\$)	
<b>Net-Ready KPP</b>				
Meet the requirements defined within the OR SSBN PIIT of the Common Submarine Information Support Plan	Meet the requirements defined within the CLB SSBN PIIT of the Common Submarine Information Support Plan*	(T=O) Meet the requirements defined within the CLB SSBN PIIT of the Common Submarine Information Support Plan*	Meet the requirements defined within the OR SSBN PIIT of the Common Submarine Information Support Plan	
<b>Training KPP</b>				
OR SSBN crews are capable of being certified proficient for strategic patrol operations by the Group Commander upon completion of the normal PDTP in accordance with Fleet instructions	CLB SSBN crews are capable of being certified proficient for strategic patrol operations by the Group Commander upon completion of the normal PDTP in accordance with Fleet instructions*	(T=O) CLB SSBN crews are capable of being certified proficient for strategic patrol operations by the Group Commander upon completion of the normal PDTP in accordance with Fleet instructions*	OR SSBN crews are capable of being certified proficient for strategic patrol operations by the Group Commander upon completion of the normal PDTP in accordance with Fleet instructions	
<b>Procurement Cost KCP</b>				

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Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
Lead Ship End Cost Less Plans of \$6.3B (CY 2010\$) using Navy Inflation / Deflation Indices Average Follow Ship Hulls 2-12 End Cost of \$4.9B (CY 2010\$) using Navy Inflation / Deflation Indices	APUC of \$7.3B (CY 2017\$)	APUC of \$8.0B (CY 2017\$)		\$7.12B (CY 2017\$)	
<b>Lead Ship First Deployment Key Schedule Parameter</b>					
Third quarter of FY 2030	Third quarter of FY 2030	First quarter of FY 2031		Third Quarter of FY 2030	

**Acronyms and Abbreviations:**

- CLB - COLUMBIA Class Submarine
- KPP - Key Performance Parameter
- KSA - Key Schedule Attribute
- OR - Ohio Replacement
- PDTP - Pre Deployment Training Period
- PIIT - Platform Information Integration Table

**Performance Notes:** CLB replaces OR (OHIO Replacement)

**Requirements Source:** Capability Development Document (CDD) Rev 1 (22 January 2018)

**Deviation Explanations:**

The Operations and Support (O&S) Cost KSA Current Estimate updated from \$123.99M (CY 2017\$) to \$122.80 (CY2017\$) to reflect the latest SEA05C 2021 Cost Estimate.

The Lead Ship First Deployment Key Schedule Parameter Current Estimate updated from Q1 of FY 2031 to 3Q of FY 2030 to reflect the Program Manager's updated estimate as of CY 2021.

The Procurement Cost KCP reflects the PB 2023 Joint Inflation Calculator (JIC) Escalation Index. This is updated from an APUC of \$7.39B based on PB 2022 JIC escalation.

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## Acquisition Budget Estimate

### Total Acquisition Cost

Category	Base Year	Development APB	Production APB (Production) (02/2021)		Budget Estimate PB 2023		Deviation
		Objective (BY\$)	Objective (BY\$)	Threshold (BY\$)	BY\$	TY\$	
RDT&E	2017	12,648.1	13,031.7	14,334.4	13,040.7	13,674.2	
Procurement	2017	87,426.5	89,440.0	98,383.6	85,454.1	115,827.9	
MILCON	2017	147.3	314.6	346.1	320.4	409.4	
Acq. O&M	2017	0.0	0.0	0.0			
<b>Total</b>							
PAUC	2017	8,351.8	8,565.5	9,422.0	8,234.6	10,826.0	
APUC	2017	7,285.5	7,453.3	8,198.6	7,121.2	9,652.3	

### Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	0	0
Procurement	12	12

#### Budget Notes:

Current APB Cost Estimate Reference: Office of the Secretary of Defense, Cost Assessment and Program Evaluation (OSD CAPE) Lead Ship Assessment for the Annual COLUMBIA Class Submarine In-Process Review dated August 26, 2020, and COLUMBIA Class 2020 Cost Estimate Updates dated June 26, 2020

Affordability Caps (CY 2017\$) based on an inventory objective of 12 ships and projected life of 42.5 years.

- APUC: \$8.0B;
- Average Annual Operations and Support Cost Per Hull: \$131M

For reporting purposes, the antecedent system for this program is the OHIO Class submarine. The Affordability Cap for O&S and the objective/threshold O&S estimates include United States Naval Ship (USNS) Waters and disposal / inactivation costs. Budget Estimate Costs reflect the PB 2023 Joint Inflation Calculator (JIC) Escalation Index.

### Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
<b>Current Procurement Cost (December 2021)</b>	
1.	PAUC / APUC changes since the December 2020 SAR submission were driven by a combination of acquisition initiatives, design and prototype testing requirements, and an updated program cost estimate.
<b>Original Baseline Estimate (September 2018)</b>	
1.	None
<b>Revised Original Estimate (N/A)</b>	
None	
<b>Admin Baseline Estimate (Month YYYY)</b>	
1.	None

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## Unit Cost

### *Current Baseline Compared with Current Estimate*

Category (\$M)	Current APB	Current Estimate	% Change	NMC Breach
<b>PAUC</b>				
Cost	102,786.3	98,815.2	-3.9%	-
Quantity	12	12	-	-
Unit Cost	8,565.5	8,234.6	-3.9%	
<b>APUC</b>				
Cost	89,440.0	85,454.1	-4.5%	-
Quantity	12	12	-	-
Unit Cost	7,453.3	7,121.2	-4.5%	

### *Original Baseline Compared with Current Estimate*

Category (\$M)	Original APB	Current Estimate	% Change	NMC Breach
<b>PAUC</b>				
Cost	100,221.9	98,815.2	-1.4%	-
Quantity	12	12	-	-
Unit Cost	8,351.8	8,234.6	-1.4%	
<b>APUC</b>				
Cost	87,426.5	85,454.1	-2.3%	-
Quantity	12	12	-	-
Unit Cost	7,285.5	7,121.2	-2.3%	

#### **Unit Cost Notes:**

Current Estimate Unit Costs reflect the PB 2023 Joint Inflation Calculator (JIC) Escalation Index. Original APB data is from January 2017 and Current APB data is from February 2021

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**Contracts**

Contract Data (\$TYM)		
Contract Number	N00024-17-C-2117	
Effort Number	1	
Modification Number		
Award Date	09/21/2017	
Definitization Date	10/01/2017	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics	
Contract Title	CLIN 1000 COLUMBIA CLASS Design Completion	
Contract Address	75 Eastern Point Road, Groton, CT 06340	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
3028.9	3106.6	
Initial Ceiling Price	Current Ceiling Price	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance



Contract Data (\$TYM)		
Contract Number	N00024-17-C-2117	
Effort Number	2	
Modification Number		
Award Date	09/21/2017	
Definitization Date	09/21/2017	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics	
Contract Title	CLIN 1100 SSBN 826 Construction	
Contract Address	75 Eastern Point Road, Groton, CT 06340	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
5,072.8	5,080.5	
Initial Ceiling Price	Current Ceiling Price	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

Contract Data (\$TYM)		
Contract Number	N00024-17-C-2117	
Effort Number	3	
Modification Number		
Award Date	09/21/2017	
Definitization Date	10/01/2017	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics	
Contract Title	CLIN 1200 SSBN 827 Advance Procurement/Advance Construction	
Contract Address	75 Eastern Point Road, Groton, CT 06340	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
4,953.5	4,953.5	
Initial Ceiling Price	Current Ceiling Price	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance



Contract Data (\$TYM)		
Contract Number	N00024-17-C-2117	
Effort Number	4	
Modification Number		
Award Date	09/21/2017	
Definitization Date	10/01/2017	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics	
Contract Title	CLIN 2000 IPPD COLUMBIA Component Development and DFA	
Contract Address	75 Eastern Point Road, Groton, CT 06340	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
682.7	1,206.0	
Initial Ceiling Price	Current Ceiling Price	
Contract's EAC	PM's EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

**Contract Notes:**

CUI data in this SAR section has been eliminated. This data is available upon Congressional request to OUSD(A&S).

Cost and Schedule Variance reporting is not required on (CPFF) contract CLINs.

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## Technologies and Systems Engineering

### *Significant Technical Risks*

Significant Technical Risks
Current Estimate (December 2021)
1. Ability to host and conduct timely launch of the TRIDENT II missile.

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## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	0.00%
Production	0	0	0	0.00%
Total Program Quantity Delivered	0	0	0	0.00%

### Expended and Appropriated (TY \$M)

Total Acquisition Cost: \$129,911.4  
 Expended to Date: \$17,964.0  
 Percent Expended: 13.83%  
 Total Funding Years: 35  
 Years Appropriated: 15  
 Percent Years Appropriated: 42.85%  
 Appropriated to Date: \$25,974.2  
 Percent Appropriated: 19.98%

The above data is current as of April 18, 2022.

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## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	1/4/2017	1/4/2017
Approved Quantity	12	12
Reference	Milestone B ADM	Milestone B ADM
Start Year	2021	2021
End Year	2035	2035

**Rationale if Current Total LRIP Quantity exceeds 10% of the total Procurement quantities:**

The Current Total LRIP Quantity is more than 10% of the total production quantity in accordance with the Milestone B ADM approved January 4, 2017, which approved a LRIP quantity of 12, which is the total buy necessary due to the earliest date at which Operational Test and Evaluation could be conducted on the lead ship.

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## Operating and Support Costs

### Total Program O&S Cost Compared with Baseline

	Current APB Objective (BY\$)	Current APB Threshold (BY\$)	Current Estimate (BY\$)	Current Estimate (TY\$)	Deviation
<b>Total O&amp;S (\$Millions)</b>	64,044.1	70,448.5	60,760.2	151,859.2	

### O&S Cost Breakdown:

Allocate O&S estimate by each weapon system (or system variants) acquired by the program) into the CAPE Cost Categories. Add a fresh column for each variant/system.

	SSBN 826
<b>Unit-Level Manpower</b>	31.0
<b>Unit Operations</b>	2.6
<b>Maintenance</b>	35.9
<b>Sustaining Support</b>	5.7
<b>Continued System Improvements</b>	33.3
<b>Other</b>	14.4
<b>Total O&amp;S</b>	122.8

**Cost Estimate Source:** O&S Estimate from SEA05C 2021 Cost Estimate. Annual Cost multiplied by 12 ships and 42.5 service-life years to achieve Total Cost.

### O&S Cost Notes:

- a. Disposal/Demilitarization Cost Estimate and Source of Estimate:  
Other costs includes Disposal costs.
- b. Sustainment Strategy:  
  
The SSBN 826 COLUMBIA Class Submarine will operate with two crews (Blue/Gold) in two oceans under current strategic presence requirements from existing bases in Bangor, WA and Kings Bay, GA. The COLUMBIA Class Submarine SSBN will have an approximately 42.5-year service life from delivery to retirement.
- c. For Each Acquired System or System Variant:
  - i. Quantity to Sustain: 12
  - ii. First Operational Fiscal Year: 2031
  - iii. Final Operational Fiscal Year: 2085
  - iv. Unit Expected Service Life: 42.5
- d. Antecedent System(s) O&S Costs:
  - i. The antecedent system is SSBN 726. The ship's O&S estimate is based on a Blue/Gold manning philosophy analogous to the OHIO Class manning structure, current maintenance and modernization requirements, and historical submarine data. There are currently 14 OHIO Class Submarines.

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