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Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

## **Selected Acquisition Report (SAR)**



# **SSBN 826 COLUMBIA Class Submarine (SSBN 826)**

**FY 2024 President's Budget**

**Defense Acquisition Visibility Environment  
(DAVE)**

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## Common Acronyms and Abbreviations

\$B - Billions of Dollars  
\$K - Thousands of Dollars  
\$M - Millions of Dollars  
ACAT - Acquisition Category  
Acq O&M - Acquisition-Related Operations and Maintenance  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
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  
FMS - Foreign Military Sales  
FOC - Full Operational Capability  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
Inc - Increment  
IOC - Initial Operational Capability  
JROC - Joint Requirements Oversight Council  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
O&S - Operating and Support  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
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  
U.S. - United States  
UCR - Unit Cost Reporting  
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

### Program Name

SSBN 826 COLUMBIA Class Submarine

### DoD Component

Navy

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## Responsible Office

### Program Manager

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## **Mission and Description**

The COLUMBIA Class Submarine Program (SSBN 826) will design and construct 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 2080. 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.

## Executive Summary

SSBN 826

### 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 lead ship DISTRICT OF COLUMBIA (SSBN 826), Advance Procurement / Advance Construction (AP / AC) of WISCONSIN (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, and Government activities (Naval Foundry and Propeller Center, etc.), the Program is proactively managing these risks and is confident it will achieve planned COLUMBIA Class design, construction, and delivery schedules. 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 2022, supporting Huntington Ingalls Industries Newport News (HII-NNS) near-term design and construction efforts. Further improvement is planned in this area to support increasing full construction efforts at NNS in CY 2023.

Construction efforts are ongoing on all six Super Modules (SM) throughout various locations within GDEB and HII-NNS. The second ship, SSBN 827, is in advance construction with manufacturing and structural assembly efforts ongoing at both shipbuilders. 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 FY 2023 budget submission realigned funds to support five shipsets of Economic Order Quantity (EOQ)/MPMP to help de-risk schedules and level load the supplier base, and minor modifications were made to the funding profile in the FY2024 budget submission.

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 continued Critical Supplier Assessments in CY 2022 to analyze supplier capacity limitations, workload efficiencies, first-tier and sub-tier cross dependencies, strategic sourcing, and supplier quality. The industrial base remains a top program 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 2022 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 is executing an August 2022 Missile Tube (MT) allocation plan, which was updated to address program's prioritization between U.S Hull 2 and UK Hull 2, and changes to Vendor Promise Dates for downstream MTs.

Submarine Industrial Base (SIB) 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 FY2023 budget submission included the addition of funding for the SIB investment per Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation (CAPE) 2021 SIB study. This SIB investment is enterprise funding to support a generational increase in demand and includes supplier development, shipbuilder/supplier infrastructure, workforce development, technology advancements, and strategic sourcing.

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. On December 21, 2022, the Navy awarded the Build II AP / AC contract for the next five ships of the class (SSBN 828-832). This award funds AP/AC of critical components and material to support Build II, efforts to support continuous missile tube production, enhancements to develop the Submarine Industrial Base, and sustained class maintenance and support.

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. At the March 2022 Gate 6 review, the program aligned on an updated Acquisition Strategy (AS) for COLUMBIA Class Builds II/III planning, which was approved by the MDA in September 2022.

The program held the second ship (SSBN 827) Integrated Baseline Review (IBR) in October 2022. Government representatives included PMS397, SUPSHIPS, NR, and SSP. COLUMBIA continues to aggressively pursue cost reduction efforts through IPPD contract incentives and the Cost Control Management Board (CCMB), which based on the SEA05C 2021 estimate, resulted in approximately \$3.8B in savings into the program.

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
Dec 2022	MILCON project P676 TRIDENT Training Facility (TTF) Kings Bay contract awarded
Dec 2022	Navy awarded Build II Advanced Procurement (AP) and Advanced Construction (AP) contract for the next five ships in the class (SSBN 828-832)
Sep 2022	Milestone Decision Authority (MDA) approves the Acquisition Strategy (AS) for COLUMBIA Class Builds II/III
Nov 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.



Sep 2021	Assistant Secretary of the Navy (Research, Development and Acquisition) approved the organizational structure realignment of PEO CLB to PEO SSBN
Feb 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.
Nov 2020	Exercised COLUMBIA Build I Option (SSBN 826 and SSBN 827 2 ship procurement).
Oct 2020	SSBN 826 Start of Construction authorized.
Aug 2020	The Milestone Decision Authority (MDA) approved entry into Build I construction
Oct 2019	Ongoing Advance Construction efforts now in progress for all 6 super modules.
Jan 2019	APB updated to reflect actual award of IPPD contract (September 2017) and align affordability targets with approved Capabilities Development Document (CDD).
Sep 2018	Award of the Two Year Advance Procurement Funding modification to the IPPD contract.
Sep 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.
Jan 2017	Milestone B Acquisition Program Baseline (APB) approved (Program Initiation).
Nov 2015	Incremental funding authority and authority to enter in contracts for Advance Construction and economic order quantity provided by Public Law 114-92.
Dec 2014	National Sea-Based Deterrence Fund established by Public Law 113-291.
Dec 2012	Research, Development, Test and Evaluation (RDT&E) Design Contract issued to General Dynamics - Electric Boat.
Feb 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).
Jan 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 inch missile tubes.
Sep 2010	SCP approved with new design SSBN based on 12 ships with 16 - 87 inch missile tubes
Oct 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.
Jul 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.

**Schedule****SSBN 826**

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

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

826 2027-10 / 2030-03

827 2030-04 / 2032-01

828 2031-08 / 2033-05

829 2032-09 / 2034-06

830 2033-08 / 2035-04

831 TBD / TBD

832 TBD / TBD

833 TBD / TBD

834 TBD / TBD

835 TBD / TBD

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.

#### Deviation Explanation

No deviations for this program/subprogram

## Performance

SSBN 826

Performance Characteristics				
Milestone Baseline	Current Baseline Objective/Threshold	Demonstrated Performance	Current Estimate/Actual	Deviation
<b>(APA) - Lead Ship First Deployment Key Schedule Parameter</b>				
	Third quarter of FY 2030	First quarter of FY 2031		Third Quarter of FY 2030
<b>(KPP) - Net-Ready KPP</b>				
	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 CLB SSBN PIIT of the Common Submarine Information Support Plan
<b>(KPP) - Operations and Support (O&amp;S) Cost KSA</b>				
	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>(KPP) - Procurement Cost KCP</b>				
	APUC of \$7.3B (CY 2017\$)	APUC of \$8.0B (CY 2017\$)		\$7.12B (CY 2017\$)
<b>(KSA) - Space, Weight, Power, and Cooling (SWAP-C) KSA</b>				
	Future Growth Margin: 3% of Condition A-1 weight Cooling Capacity: 10% cooling capacity over the chill water design heat load Power - 10% electrical power future growth margin for ship's electrical loads at full power while underway at delivery	(T=O) Future Growth Margin: 3% of Condition A-1 weight Cooling Capacity: 10% cooling capacity over the chill water design heat load Power - 10% electrical power future growth margin for ship's electrical loads at full power while underway at delivery		
<b>(KPP) - Training KPP</b>				

	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		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	
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**Requirement Reference**

CDD Revision one for the COLUMBIA Class Submarine dated January 22, 2018

**Deviation Explanation**

No deviations for this program/subprogram

**Notes**

CLB replaces OR (OHIO Replacement)

**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

**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.

## Acquisition Budget Estimate

SSBN 826

### Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	Base Year	Objective (BY\$M)	Objective (BY\$M)	Threshold (BY\$M)	BY\$M	TY\$M	Deviation
RDT&E	2017	13,031.7	13,031.7	14,334.9	12,938.6	13,737.2	
Procurement	2017	89,440	89,440	98,384	80,015.6	115,880.3	
MILCON	2017	314.6	314.6	346.1	308.8	416.7	
Acq. O&M	2017	0	0	0			
<b>Total</b>		<b>102,786.3</b>	<b>102,786.3</b>		<b>93,263.0</b>	<b>130,034.2</b>	
PAUC	2017	8,565.525	8,565.525	9,422.078	7,771.917	10,836.183	
APUC	2017	7,453.333	7,453.333	8198.666	6,667.967	9,656.692	

### Appropriation Category Deviation Explanations

#### PAUC Deviation Explanation

#### APUC Deviation Explanation

### 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 2024 Joint Inflation Calculator (JIC) Escalation Index.

Procurement costs exclude supplier development and SIB funding.

FY23 CLB RDTE Congressional Adds C909 (+\$8M) maps to PE/LI 0101221N and C895 (+\$2.75M) maps to PE/LI 0605013N, but are included in CLB's PE 0603595N for completeness.

### Total End Item Quantity

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

### Quantity Notes

**Unit Cost**

SSBN 826

**Current UCR Baseline and Current Estimate (Base-Year Dollars)**

Category (\$M) Base Year:2017	Current UCR Baseline	Current Estimate	% Change
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**Program Acquisition Unit Cost**

Cost	102,786.3	93,263.0	
Quantity	12	12	
Unit Cost	8,565.525	7,771.917	-9.27%

**Average Procurement Unit Cost**

Cost	89,440.0	80,015.6	
Quantity	12	12	
Unit Cost	7,453.333	6,667.967	-10.54%

**Original UCR Baseline and Current Estimate (Base-Year Dollars)**

Category (\$M) Base Year:2017	Original UCR Baseline	Current Estimate	% Change
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**Program Acquisition Unit Cost**

Cost	100,221.9	93,263.0	
Quantity	12	12	
Unit Cost	8,351.825	7,771.917	-6.94%

**Average Procurement Unit Cost**

Cost	87,426.5	80,015.6	
Quantity	12	12	
Unit Cost	7,285.542	6,667.967	-8.48%

**Cost Growth Details****Current Baseline PAUC Breach Explanation****Current Baseline APUC Breach Explanation****Original Baseline PAUC Breach Explanation****Original Baseline APUC Breach Explanation****Impacts of Schedule Changes on Unit Cost****Impacts of Performance Changes on Unit Cost****Actions Taken or Proposed to Control Future Cost Growth**

**Risk and Sensitivity Analysis****SSBN 826**

<b>Risk and Sensitivity Analysis</b>	
<b>Current Procurement Cost (December - 2022)</b>	
PAUC / APUC changes since the December 2021 SAR submission were driven by MPMP/EOQ profile updates and inflation impact adjustments as well as updated inflation to PB24 JIC.	
<b>Original Baseline Estimate (January - 2017)</b>	
The Navy's Cost position was approved at MSB and the President's Budget for 2018 fully funded the COLUMBIA Class Submarine in accordance with the Milestone B Cost Estimate. Risk: The program office identified two main cost drivers: maintenance and reliability of ships in order to operate within O&S Cost/Hull/Year \$131M, and risks associated with planned construction efforts such as: design maturity, Shipbuilder facilitization and build plan, facilities support, material availability, and Integrated Tube & Hull (ITH) fixturing/welding efforts.	
<b>Current Baseline Estimate (February - 2021)</b>	

<b>Schedule Risk</b>		
Current	2021-12-31	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.
Current	2021-12-31	Ability to meet SSBN Operating Cycle and operate ships within OSD Affordability Caps (CY 2017\$).
<b>Technical Risks</b>		
Current	December 20, 2021	Ability to host and conduct timely launch of the TRIDENT II missile.



**Low Rate Initial Production**

SSBN 826

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	01/04/2017	01/04/2017
<b>Approved Quantity</b>	12	12
<b>Reference</b>	Milestone B ADM	Milestone B ADM
<b>Start Year</b>	2021	2021
<b>End Year</b>	2035	2035

**Rationale if quantity exceeds 10% of the total number of articles to be procured:**

**Notes**

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.

**Contracts & Efforts**

Contract Data	
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	Groton, CT
Contracting Office	
Supported Phase	Development
Contract Strategy	
Contract Type	Other
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$3,028.9	\$3,547.5	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

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**Contract Notes:**

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

Contract Data	
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	Groton, CT
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$5,072.8	\$5,080.6	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

**Contract Notes:**

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

Contract Data	
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	Groton, CT
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$4,953.5	\$4,953.5	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM EAC	
Initial Quantity	Current Quantity	Delivered Quantity
BAC	BCWP	ACWP
BCWS	Cost Variance	Schedule Variance

**Contract Notes:**

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

Contract Data	
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	Groton, CT
Contracting Office	
Supported Phase	Production
Contract Strategy	
Contract Type	Other
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY\$M)		
Initial Target Price	Current Target Price	
\$682.7	\$2,259.2	
Initial Ceiling Price	Current Ceiling Price	
Contractor EAC	PM 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.

**Factors Contributing to Cost Variance and Projected Effects on Program Costs**

**Factors Contributing to Schedule Variance and Projected Effects on Program Schedule**

### External Government Activities

Activity Title		Government Entity		Supported Phase
CAGE		Work Start Date		
City		State/Province:		
Notes				

## Deliveries and Expenditures

### SSBN 826

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered

Development

Production

Total Program Quantity Delivered

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

Years Appropriated to date: 16

Total Years Appropriated Funding (Current Baseline): 36

Percent Years Appropriated: 44.44%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 24.61%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 16.56%

Total Acquisition Cost: 130,034.2

Deliveries & Expenditures Notes:

Expenditure data as of 3/13/23

## Operating and Support Costs

SSBN 826

### O&S Cost Breakdown:

Category (BY\$ Million)	SSBN 826
Unit-Level Manpower	31.0
Unit Operations	2.6
Maintenance	35.9
Sustaining Support	5.7
Continued System Improvements	33.3
Other	14.4
<b>Total</b>	<b>122.9</b>

Cost Estimate Source: SEA05C 2021 Cost Estimate

O&S Cost Notes:

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
	Objective (BY\$M)	Threshold (BY\$M)	Current Estimate (BY\$M)	Current Estimate (TY\$M)	Deviation
<b>Total O&amp;S</b>	64,044.1	70,448.5	122.9	151,859.2	

Note:

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.

**O&S Cost Deviation Explanation**

***Operating and Support Costs - Disposal and Unitized Costs***

SSBN 826

**Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:**

Sustainment Factors	System Name: SSBN826	Antecedent System Name:
Quantity to Sustain	12	
Unit of Measure		
Unit Expected Service Life	42.5	

**Base Year:**

Annual Unitized O&S Cost by Category Base Year \$ Unit:(\$M)	System Name: SSBN826	Antecedent System Name:
Unit-Level Manpower	31.0	
Unit Operations	2.6	
Maintenance	35.9	
Sustaining Support	5.7	
Continued System Improvements	33.3	
Other	14.4	
Total O&S	122.9	0.0

**Disposal/Demilitarization Cost Estimate**

(Base Year \$Millions)	System Name: SSBN826	Antecedent System Name:
Total Disposal	1,614.0	

**Cost Estimate Source - Disposal**

Type:	Program Office Estimate
Approval Authority and Date:	10/15/2021
Note:	
O&S Estimate from SEA05C 2021 Cost Estimate. Annual Cost multiplied by 12 ships and 42.5 service-life years to achieve Total Cost.	
Disposal Cost Notes:	
Antecedent Estimate Assumptions:	

**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.

**Antecedent Estimate Assumptions:**

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.