Selected Acquisition Report (SAR)

DDG 1000 Zumwalt Class Destroyer

FY 2024 President's Budget

Defense Acquisition Visibility Environment (DAVE)

Table of Contents

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

DDG 1000 Zumwalt Class Destroyer

DoD Component

Navy

Responsible Office
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Mission and Description

After a comprehensive review of Zumwalt class requirements, the Navy decided in November 2017 to refocus the primary mission of the Zumwalt Class Destroyers from Land Attack to Offensive Surface Strike. This advanced warship will provide credible forward naval presence while operating independently or as an integral part of Naval, Joint, or Combined Expeditionary Strike Forces. Armed with an array of weapons, DDG 1000 will provide offensive, distributed, and precision firepower at long ranges.

Executive Summary

DDG 1000

Program Highlights Since Last Report

Executive Summary:

This is the final submission of the SAR for the DDG 1000 program.

DDG 1000 executed three Anti-Air Warfare Integrated test phase events in April 2022, to include successful live fire engagements of supersonic targets, and successfully conducted its first Air Defense Operational Test against an asymmetric Low Velocity Air Target with Evolved Sea Sparrow Missiles in May 2022. DDG 1000 completed Radar Cross Section testing to verify performance against the KPP prescribed by the program's ORD. Following an Initial Employment from August to November 2022, DDG 1000 completed a Board of Inspection and Survey (INSURV) Special Trial in October 2022. DDG 1000 has been supporting first-of-class Cooperative Vulnerability Penetration Assessment Test and Evaluation Master Plan testing in her homeport of San Diego, CA. DDG 1000 will continue first-of-class developmental and integrated at-sea testing, as well as participate in fleet employment opportunities prior to commencing Conventional Prompt Strike (CPS) installation availability October 2023.

USS MICHAEL MONSOOR (DDG 1001) continues activating weapons, sensors and communication systems. DDG 1001 participated in Submarine Command Course Mini-Wars in route to Pearl Harbor in February-March 2022, conducted Survivability test events in March 2022, and Deck Landing Qualifications with Marine Light Attack Helicopter Squadron 169 (HMLA-169) in April 2022 to include 16 deck landings with the squadron's UH-1Y (Huey) and AH-1Z (Cobra) helicopters and fueling during the landings operations. DDG 1001 participated in exercises for the 28th edition of the biennial Rim of the Pacific international maritime exercises off the coast of Hawaii in July 2022 and completed Failure and Recoverability Mode Testing / Enhanced Total Ship Survivability Trial in September 2022. DDG 1001 began Post Shakedown Availability (PSA) in November 2022, and is scheduled to complete PSA in May 2023. Final delivery is planned for October 2023 following completion of an INSURV Trial.

Pre-Commissioned Unit LYNDON B. JOHNSON (DDG 1002), is being maintained and operated by Huntington Ingalls Industries (HII) in Pascagoula, MS. The Navy executed a contract with HII for ship support services (e.g. shore power, care and protection, fire watch, etc.), and a contract for the full Combat Systems Availability (CSA) work scope was awarded August 2022.
The Navy approved a plan to install CPS on DDG 1002 during the current CSA, allowing for single delivery of a complete DDG 1002 to the Fleet with CPS capability. The Navy intends to take delivery in the first quarter of FY 2027 upon completion of a successful acceptance trial. Unlike DDGs 1000 and 1001, the Navy will not crew DDG 1002 until final delivery, to align with a more traditional shipbuilding delivery schedule.

The Navy is on track to field CPS on all Zumwalt-class destroyers by FY 2028. In support of the Zumwalt Class being the first Navy platform to deliver CPS capability, the Navy commenced engineering design planning that will allow for integration of CPS on DDG 1000 during a planned FY 2024 availability period. Engineering design planning includes removal of the two 155 mm Advanced Gun System (AGS) mounts. The CPS capability will be installed in the space previously occupied by the forward AGS gun mount while the aft mount will remain open for future capabilities. Justification & Approval to sole-source to HII for USS ZUMWALT and USS MICHAEL MONSOOR CPS installation was signed by ASN (RD&A) November 01, 2022. The DDG 1000 availability is scheduled October 2023 through June 2025. DDG 1002 CPS installation is scheduled March 2025 through November 2026. DDG 1001's availability is scheduled August 2026 through April 2028.

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**
Nov - 2022	Build Yard Modernization Periods (BYMP) Justification & Approval (J&A) to sole-source to HII was signed by ASN (RD&A) November 01, 2022, for DDG 1000 and DDG 1001.
Nov - 2022	DDG 1001 commenced Post-Shakedown Availability (PSA) November 07, 2022, at BAE Systems, San Diego, CA.
Oct - 2022	DDG 1000 completed eight-day Board of Inspection and Survey (INSURV) Special Trial.
Aug - 2022	Awarded sole source contract to conduct DDG 1002 Combat System Availability to HII in Pascagoula, MS.
Aug - 2022	DDG 1000 conducted initial employment.
Jan - 2022	DDG 1002 arrived at HII in Pascagoula, MS for completion of Combat Systems installation and activation on January 17, 2022.
Jan - 2022	DDG 1002 sailed away January 12, 2022 from BIW.
Jan - 2022	Awarded undefinitized contract January 13, 2022 to HII for DDG 1002 scope associated with support services for the ship (ex. shore power, care and protection, fire watch, etc.).
Dec - 2021	DDG 1000 SCN Obligation Work Limiting Date (OWLD) on December 31, 2021.
Dec - 2021	PEO Ships transferred USS Zumwalt In-Service sustainment and lifecycle management to SEA 21 at OWLD.
Nov - 2021	Navy formally accepted completion of production and test activity from BIW of DDG 1002 on November 17, 2021.
Sep - 2021	DDG 1002 completed builder's trials off the coast of Bath, ME.
Nov - 2020	Congressional add of $15M RDT&E enables initiation of CPS ship integration design work.
Apr - 2020	Navy accepted final delivery of DDG 1000 on April 24, 2020.
Mar - 2020	DDG 1001 completed Combat System Availability in March 2020 and commenced activation of weapons, sensors and communication systems.
Apr - 2019	DDG 1002 was christened at BIW in Bath, ME.
Jan - 2019	DDG 1001 commissioned in San Diego, CA.
Dec - 2018	DDG 1000 Class Planning Yard Services contract was awarded to BIW.
Dec - 2018	DDG 1001 arrived at its homeport of San Diego, CA.
Dec - 2018	DDG 1002 was launched at BIW.
Nov - 2018	DDG 1001 Sail-away.
Sep - 2018	DDG 1000 completed Combat Availability and entered Combat Testing.
Apr - 2018	DDG 1001 Hull Mechanical and Electrical Delivery.
Jan - 2018	DDG 1001 completed builder's trials and acceptance trials off the coast of Bath, ME.
Nov - 2017	Navy redefined the primary mission of the Zumwalt Class Destroyers from Land Attack to Offensive Surface Strike.
Mar - 2017	DDG 1000 entered Combat Availability at the BAE shipyard in San Diego, CA.
Jan - 2017	DDG 1002 keel laid at the BIW facility in Bath, ME.
Dec - 2016	DDG 1000 arrived at its homeport of San Diego.

Nov - 2016	BAE was awarded the $192 million contract for post-delivery execution yard efforts to install combat systems, as well as to complete PSAs on DDG 1000 and DDG 1001. The work will be executed at British Aerospace's (BAE) San Diego, CA facility near the ships' homeport at Naval Station San Diego and will be overseen by Naval Sea Systems Command.
Oct - 2016	DDG 1000 was commissioned in Baltimore, MD.
Sep - 2016	DDG 1000 sailed away from BIW en route to its homeport of San Diego, CA.
Jun - 2016	DDG 1001 was christened at BIW in Bath, ME. DDG 1001 floated off in Bath, ME.
May - 2016	DDG 1000 delivered to the Navy (Hull, Mechanical & Electrical (HM&E) delivery).
Apr - 2016	DDG 1000 completed acceptance trials off the coast of Bath, ME.
Dec - 2015	Raytheon was awarded a contract for remaining DDG 1002 MSE.
Apr - 2014	DDG 1000 was christened at BIW in Bath, ME.
Aug - 2013	The Navy awarded a contract modification for the design and construction of a steel deckhouse, hangar, and Aft Peripheral Vertical Launch System (PVLS) for DDG 1002 to BIW. The award occurred after the DDG 1002 sole source negotiation with HII for the procurement of the DDG 1002 composite deckhouse, composite hangar, and Aft PVLS did not reach an affordable solution and deliveries of these components for DDG 1002 were becoming time critical. The Navy concurrently pursued a steel deckhouse, hangar, and Aft PVLS using limited competition.
Mar - 2013	Due to the FY 2013 sequestration impacts commencing during the execution year, the program experienced budget reductions of approximately $70.2M of Shipbuilding and Conversion, Navy (SCN) and $10.3M of RDT&EN. The approximate $70.2M FY 2013 SCN sequester prevented the award of a $145M FY 2013 option to Raytheon for remaining Mission Systems Equipment (MSE) efforts for DDG 1000, 1001, and 1002, necessitating restructuring of the FY 2013, FY 2014, and FY 2015 options. A Below Threshold Reprograming for $9.999M of RDT&EN was approved to continue LRLAP guided flight tests and combat systems development.
Mar - 2011	The APB for the restructured DDG 1000 Program was approved.
Oct - 2010	Milestone B prime was achieved for the restructured program following the Nunn-McCurdy certification.
Jun - 2010	The USD (AT&L) certified a restructured three-ship program that included removal of the Volume Search Radar from the ship design, changed the IOC from FY 2015 to FY 2016, and revised test and evaluation requirements.
Feb - 2010	The PB FY2011 budget submission confirmed the reduction of the DDG 1000 Program to three ships as a result of the Future Surface Combatant Radar Hull Study in which the Navy concluded a modified DDG 51 with an Advanced Missile Defense Radar was the most cost-effective solution to fleet air and missile defense requirements.
Jul - 2008	The Navy provided testimony to the House Armed Services Committee Sea power and Expeditionary Forces Subcommittee requesting Congressional support to truncate the DDG 1000 program and restart the DDG 51 program.
Feb - 2008	The DoD approved Low Rate Initial Production for seven ships, and lead ship construction contracts were awarded to BIW and NGSB.
Dec - 2007	The ADM was issued authorizing the Navy to enter Production Phase for DDG 1000.
Apr - 2006	The DD(X) program was renamed DDG 1000 and detail design contracts for the dual lead ships were awarded to BIW and Northrop Grumman Shipbuilding (NGSB) (formerly ISI).

Nov - 2005	The program achieved Milestone B. Major outstanding risks at Milestone B were related to the schedule and cost of software development and the integration and test of Mission Systems, as well as the costs of shipbuilder construction, DBR and AGS.
Jan - 2005	The 10 EDMs completed testing and reached sufficient technical maturity to support a Critical Design Review. At that point, DD(X) was programmed to consist of 10 highly automated, reduced signature, reduced manning electric drive ships. DD(X)'s major new systems included Dual Band Radar (DBR), and Advanced Gun System (AGS) with a Long Range Land Attack Projectile (LRLAP).
Apr - 2002	Phase II concept development concluded, and the Navy competitively selected and awarded a Design and Development contract to Northrop Grumman (NG) Ship systems (now Huntington Ingalls Shipbuilding - HII). The NG team was subsequently expanded to a DD(X) national team that also included Bath Iron Works (BIW), Lockheed Martin, and Boeing. The NG concept required Research, Development, Test, and Evaluation, Navy (RDT&EN) increases for many of the new technologies including integrated electric drive, radars, software development, optimized manning, the advanced gun, and munitions. To reduce risk, the Navy contracted for Engineering Development Models (EDMs) for 10 subsystems.
Nov - 2001	The DD 21 program was restructured into the DD(X) program.
Jan - 1998	The program achieved Milestone I for DD 21 and proceeded into the Program Definition and Risk Reduction phase. Primary Milestone I risks identified were a ship with a new hull form, several new combat system elements, significantly reduced manning level, very low signatures, and at lower costs than DDG 51. In order to maintain competitive cost pressure and to maintain technical competition, the Navy awarded Phase I and II concept development contracts to two industry teams.
Jan - 1995	The program achieved Milestone 0 and started the Cost and Operational Effectiveness Analysis for the surface combatant for the twenty-first century (SC 21), comprised of destroyers (DD 21) and cruisers (CG 21). The DD 21 was intended to replace the DDG 51 by providing advanced land attack and multi-mission capabilities.

Schedule

DDG 1000

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Milestone B		Nov 2005	May 2006	Nov 2005	
Lead Ship Awards		Aug 2006	Feb 2007	Feb 2008	
Milestone B Re-approval		Sep 2010	Mar 2011	Oct 2010	
First Ship Delivery		Apr 2014	Oct 2014	Apr 2020	
OPEVAL		Oct 2015	Apr 2016	May 2024	Yes
IOC		Apr 2016	Oct 2016	May 2024	Yes
Milestone C		Apr 2016	Oct 2016	May 2024	Yes

Notes

Schedule Notes:

First ship Hull Mechanical and Electrical delivery occurred in May 2016 marking completion of DDG 1000 at point of pre-mission systems activation. FY 2017 National Defense Authorization Act language recommended a provision that would require the Secretary of the Navy to deem ship delivery to occur at completion of the final phases of construction.

Since all three ships of the class are under contract, IOC is used as the Milestone C date.

DDG 1000 Final Delivery - Apr 2020 - OWLD Dec 2021

DDG 1001 Final Delivery - Oct 2023 - OWLD - Aug 2024

DDG 1002 Final Delivery - Dec 2026 - OWLD - Nov 2027

Deviation Explanation

Deviation Explanations:

As reported in the December 2021 SAR, First Ship Delivery was previously reported in the December 2019 SAR as March 2020, and has moved to April 2020. The shift in date is driven by first-in-class combat systems shipboard test, integration, and activation, to include operational demonstrations.

Operational Evaluation, IOC, and Milestone C were previously reported in the December 2021 SAR as December 2022, and has moved to May 2024. The shift in date is driven by the completion of Test and Evaluation Master Plan events in May 2024; At this point the DDG 1000 Class will have achieved IOC.

Performance

DDG 1000 Classified performance information is provided in the classified annex to this submission.

Performance Characteristics					
Milestone Baseline	**Current Baseline Objective/Threshold**		**Demonstrated Performance**	**Current Estimate/Actual**	**Deviation**
Operational Availability (Ao) for mission critical systems: - Ao for 18 month extended forward deployment					
0.95	0.95	0.9	TBD	0.95	
Operational Availability (Ao) for mission critical systems: - Ao for 120-day wartime profile					
0.95	0.95	0.9	TBD	0.95	
Interoperability: All top-level IERs will be satisfied to the standards specified in the Threshold and Objective values.					
Achieve 100% of top-level IER. DD(X) joint tactical battle management and command and control computer programs shall conform to the SIAP System Engineer's Integrated Architecture and Integrated Architecture Behavior Model now being developed. DD(X) will remain in compliance with CJCSI 6212.01 (Series), Inter-operability and Support-ability of Information Technology and National Security Systems (IT and NSS), including future updates.	Achieve 100% of top-level IER. DD(X) joint tactical battle management and command and control computer programs shall conform to the SIAP System Engineer's Integrated Architecture and Integrated Architecture Behavior Model now being developed. DD(X) will remain in compliance with CJCSI 6212.01 (Series), Interoperability and Support-ability of Information Technology and National Security Systems (IT and NSS), including future updates.	Achieve 100% top -level IER designated as critical. DD(X) joint tactical battle mangage-ment and command and control computer programs shall conform to the SIAP System Engineer's Integrated Architecture and Integrated Archi-techture Behavior Model for Track Management now being developed. DD(X) will remain in compliance with CJCSI 6212.0 (Series), Interoperability and Support-ability of Information Technology and National Security Systems (IT and NSS), Including future updates.	Achieve 100% of interfaces; services; policy enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the Joint integrated architecture. This includes the ORD threshold requirements for meeting the Information Exchange Requirements which are listed in DDG 1000 ORD Rev 15 (Table B) and the DDG 1000 TEMP Rev D (Table D- 3).	Achieve 100% of interfaces; services; policy enforcement controls; and data correctness, availability and processing requirements designated as enterprise level or critical in the Joint integrated architecture. This includes the ORD threshold requirements for meeting the Information Exchange Requirements which are listed in DDG 1000 ORD Rev 15 (Table B) and the DDG 1000 TEMP Rev D (Table D- 3).	

Number of Advanced Vertical Launch Cells					
			TBD		
Number of ship's company personnel (helicopter detachment included)					
125	125	175	TBD	In accordance with DDG 1000 ORD Change 2, dated July 16, 2018, the ships crew has been increased to 217. L1C1 and Conventional Prompt Strike integration will have a future impact on crew manning size. Assessments on crew manning is in process.	

Requirement Reference

1. Note: DDX ORD Change 1 dated January 23, 2006

Deviation Explanation

No deviations for this program/subprogram

Notes

Performance Notes:
DDG 1000 ORD Change 3 dated July 17, 2021
JROCM 015-13 dated January 23, 2013
Acronyms and Abbreviations
CJCSI - Chairman of the Joint Chiefs of Staff Instruction
CNO - Chief of Naval Operations
IER – Information Exchange Requirement
IT - Information Technology
NSS - National Security System
Rev – Revision
SIAP - Single Integrated Air Picture
TEMP - Test and Evaluation Master Plan

Acquisition Budget Estimate

DDG 1000

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	2005	8,994.0	8,994.0	9,893.4	9,244.8	9,725.7	
Procurement	2005	10,195.3	10,195.3	11,214.8	10,920.5	14,353.6	
MILCON	2005	0	0		0	0	
Acq. O&M	2005	0	0		0	0	
Total		19,189.3	19,189.3		20,165.3	24,079.3	
PAUC	2005	6,396.433	6,396.433	7,036.076	6,721.767	8,026.433	
APUC	2005	3,398.433	3,398.433	3,738.276	3,640.167	4,784.533	

Appropriation Category Deviation Explanations

PAUC Deviation Explanation

APUC Deviation Explanation

Budget Notes

PB 2024 Budget Estimate and APB Objective/Threshold do not include Conventional Prompt Strike funding.

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	0	0
Procurement	3	3
O&M-Acquired	0	0

Quantity Notes

History of Acquisition Cost and Unit Cost since December 2001:

November 2005: The program achieved Milestone B. Procurement quantity is ten.

February 2010: DDG 1000 program Nunn-McCurdy breach to the PAUC and APUC. This breach was due to the change in ship procurement quantity (from ten to three).

Unit Cost

DDG 1000

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2005	**Current UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	19,189.3	20,165.3	
Quantity	3	3	
Unit Cost	6,396.433	6,721.767	
Average Procurement Unit Cost			5.09%
Cost	10,195.3	10,920.5	
Quantity	3	3	
Unit Cost	3,398.433	3,640.167	7.11%

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2005	**Original UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	19,189.3	20,165.3	
Quantity	3	3	
Unit Cost	6,396.433	6,721.767	
Average Procurement Unit Cost			5.09%
Cost	10,195.3	10,920.5	
Quantity	3	3	
Unit Cost	3,398.433	3,640.167	7.11%

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

The program will continue to monitor cost and funding and will update APB cost and funding objectives and thresholds if new requirements require procurement funding.

Risk and Sensitivity Analysis

DDG 1000

Risk and Sensitivity Analysis
Current Procurement Cost (December - 2022)
1 The Current Procurement Cost remains below the threshold of the Revised Original Estimate (March 2011).
Revised Original Estimate (March - 2011)
The USD (AT&L) directed the restructured DDG 1000 program to be funded to the CAPE estimate in FY 2011-2015 and the Navy estimate in FY 2016 and later. The cost risk is the difference in the cost estimates and resource requirements in FY 2016 and beyond, which total approximately $1.2 billion (Then Year $).
Current Baseline Estimate (March - 2011)
The USD (AT&L) directed the restructured DDG 1000 program to be funded to the CAPE estimate in FY 2011-2015 and the Navy estimate in FY 2016 and later. The cost risk is the difference in the cost estimates and resource requirements in FY 2016 and beyond, which total approximately $1.2 billion (Then Year $).

Schedule Risk		
Current	2021-12-31	There are no risks identified with this program.
MS B	2010-10-01	Since there was a Nunn-McCurdy Breach, then a Schedule adjustment was made in accordance with Nunn-McCurdy Certification. Mitigation: Schedule adjustment shifts IOC to FY 2016 via Milestone B ADM. Risk mitigated through adjustment to APB, and realized through Bath Iron Works and Navy evaluation of yard-wide performance, identified in December 2014 Risks.
Technical Risks		
Current	2021-12-09	DDG 1000 Program has retired or mitigated all program level technical risks.

Low Rate Initial Production

DDG 1000

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	11/22/2005	10/08/2010
Approved Quantity	8	3
Reference	Milestone B ADM	Milestone B ADM
Start Year	2007	2007
End Year	2014	2009

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

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the revised Milestone B ADM of October 8, 2010 reducing the LRIP quantity to three ships, which represents the total quantity of the program.

Notes:

Contracts & Efforts

Contract Data	
Contract Number	
Effort Number	
Modification Number	
Award Date	
Definitization Date	
Order Number	
CAGE Code/CAGE Legal Name	
Contract Title	
Contract Address	
Contracting Office	
Supported Phase	
Contract Strategy	
Contract Type	
Modification Date	
Work Start Date	

Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
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: As noted in prior SARs, associated contracts are out of reporting or firm fixed price and therefore not included in this SAR.

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

DDG 1000

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	0.00%
Production	0	1	3	33.33%
Total Program Quantity Delivered	0	1	3	33.33%

Expended and Appropriated (TY $M)

Years Appropriated to date: 29

Total Years Appropriated Funding (Current Baseline): 34

Percent Years Appropriated: 85.29%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 98.60%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 97.73%

Total Acquisition Cost: 24,079.3

Deliveries & Expenditures Notes:

In accordance with 10 U.S. Code § 4351(g), SAR is no longer required after a program achieves 90% planned expenditures. DASN APB has agreed that the DDG 1000 Program, which has expended 97.7% of the program funds and will delivery the second of three hulls by October 2023, so this will be the final SAR for the DDG 1000 Program.

The Expenditure data is current as of March 13, 2023.

Operating and Support Costs

DDG 1000

O&S Cost Breakdown:

Category (BY$ Million)	DDG 1000
Unit-Level Manpower	
Unit Operations	
Maintenance	
Sustaining Support	
Continued System Improvements	
Other	
Total	.0

Cost Estimate Source: O&S

Cost Notes: above data provided in subsequent unitized costs section

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
Total O&S	7,744.4	8,518.8	8,681.0	20,156.0	Yes

O&S Cost Deviation Explanation
As reported in December 2021 SAR, O&S Cost has breached primarily due to a 34% increase in crew size (from 147 to 197) and 33% decrease in support personnel (from 27 to 18) for a total increase of 24% in ship company personnel (from 174 to 215), and fact of life changes in Rate/ Visibility and Management of Operating and Support Costs (VAMOSC) data. The DDG 1000 O&S Cost Estimate continues to assume a marginally lower amount of Ship Company Personnel than the KPP for Ship Company Personnel in the Performance section; the Performance section KPP for Ship Company Personnel Current Estimate is 217 (O&S Current Estimate assumes 215) and the APB Threshold is 175 (previous O&S Cost Estimate assumes 174).

Operating and Support Costs - Disposal and Unitized Costs

DDG 1000

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

The equation that links the unitized cost to the total cost for DDG 1000 is Total Cost = average annual cost per ship * number of ships * service life = $82.676M per Ship x 3 Ships x 35 year (service life) = $8,680.980M (BY 2005) and $191.962M per Ship x 3 Ships x 35 year (service life) = $20,156.010M (Then-Year)

Sustainment Factors	System Name: DDG 1000	Antecedent System Name: DDG 51
Quantity to Sustain	3	101
Unit of Measure	Ship	Ship
Unit Expected Service Life	35	38.6

Base Year:

Annual Unitized O&S Cost by Category (Base Year $Millions)	System Name: DDG 1000	Antecedent System Name: DDG 51
Unit-Level Manpower	16.3	19.2
Unit Operations	6.5	6.8
Maintenance	27.3	12.2
Sustaining Support	19.3	2.3
Continued System Improvements	13.3	7.9
Other	0.0	0.0
Total O&S	82.7	48.3

Disposal/Demilitarization Cost Estimate

(Base Year $Millions)	System Name: DDG 1000	Antecedent System Name: DDG 51
Total Disposal	53.3	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	Center for Naval Analyses 02/25/2022

Note:
O&S cost estimates have been created by NAVSEA 05C.

Disposal Cost Notes:
Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

Additional O&S Estimate Assumptions:
O&S cost estimates have been updated to account for a 34% increase in crew size (from 147 to 197) and 33% decrease in support personnel (from 27 to 18) for a total increase of 24% in ship company personnel (from 174 to 215), and fact of life changes in Rate/ Visibility and Management of Operating and Support Costs (VAMOSC) data. The DDG 1000 O&S Cost Estimate continues to assume a marginally lower amount of Ship Company Personnel than the KPP for Ship Company Personnel in the Performance section; the Performance section KPP for Ship Company Personnel Current Estimate is 217 (O&S Current Estimate assumes 215) and the APB Threshold is 175 (previous O&S Cost Estimate assumes 174). Costs are shown in BY 2005 dollars. The estimate is based on an average unit cost of three ships with an average 35 year service life. The estimate includes separately priced mission system equipment sustainment cost. Mid-life modernization is not included.

Sustainment Strategy:
DDG 1000 maintenance is apportioned to either the ship or a land-based facility. There are two levels of maintenance planned for the DDG 1000 ship class: "on-ship" - accomplished by ship's force and "off-ship" - accomplished through maintenance support contracts in addition to the legacy Navy maintenance infrastructure. Maintenance support contracts similar to legacy Multi Ship/Multi Option contracting strategy for repairs and overhauls are planned. The DDG 1000 program provides Integrated Logistics Support oversight and guidance to Participating Acquisition Resource Managers that develop various sustainment approaches for combat systems and Communications, Command, Control, Computers, and Intelligence.

Antecedent Estimate Assumptions:
The Antecedent System is the DDG 51 ship class. The DDG 1000 and DDG 51 ships differ in various aspects that make comparison difficult. Considerations include new technologies, size difference, and an all electric ship design. The unit cost of the DDG 51 (Antecedent) is derived using the Navy VAMOSC database for FY 2005 - FY 2014 for all systems in service during that time and is shown in BY 2005 $M. DDG 51 estimates are based on a service life of 35 years for the 28 Flight I and Flight II ships and 40 years for the 73 Flight IIA and Flight III ships.