



## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-197



### **DDG 1000 Zumwalt Class Destroyer (DDG 1000)**

As of FY 2016 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Common Acronyms and Abbreviations for MDAP Programs

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

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

## Program Information

**Program Name**

DDG 1000 Zumwalt Class Destroyer (DDG 1000)

**DoD Component**

Navy

## Responsible Office

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**Date**

**Assigned:** August 6, 2010

## References

**SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated November 23, 2005

**Approved APB**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 25, 2011

## Mission and Description

DDG 1000 Zumwalt Class Destroyer (DDG 1000) will be an optimally-crewed, multi-mission surface combatant designed to fulfill volume firepower and precision strike requirements. 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 in support of forces ashore. To ensure effective operations in the littoral, DDG 1000 will incorporate signature reduction, active and passive self-defense systems, and enhanced survivability features.

## Executive Summary

### Program Highlights Since Last Report:

#### General

The DDG 1000 Program has received increased funding in accordance with the Nunn-McCurdy certification and Milestone B prime ADM. Through the FY 2016 PB, the program funding remains approximately one to two percent below the March 2011 APB Objective values.

The Senate Appropriation Committee report for the FY 2015 Authorization directs the Director, CAPE to provide with the FY 2016 budget submission an updated Independent Cost Estimate for the DDG 1000 program. The program has supported the CAPE visits to Raytheon, Bath Iron Works (BIW), and Navy Program Offices.

In October 2010, in conjunction with the Milestone B decision, certification was made pursuant to section 2366b of title 10, United States Code. Based on program maturity, the DDG 1000 Zumwalt Class Destroyer program was deemed ready to re-enter the Engineering and Manufacturing Development phase; however, the USD(AT&L) waived two of the 2366b provisions, (a)(1)(B) and (a)(1)(D). USD(AT&L) cleared these specific waivers on July 7, 2014 based on the DDG 1000 Zumwalt Class Destroyer program being fully funded in the FY 2015 PB FYDP.

#### Ship Status

The DDG 1000 program accomplished several construction milestones in 2014. Significant test and activation efforts continued for DDG 1000's propulsion and power plants with Sea trials planned for 2015 in preparation for the ship to enter the Fleet in 2016.

The DDG 1001 Composite Deckhouse was accepted in Gulfport, MS from Huntington Ingalls Industries (HII) on July 31, 2014, completing the scope of the program being performed by HII. The deckhouse arrived in Bath, ME on September 5, 2014, and was successfully landed and joined to the hull on November 14, 2014.

BIW completed the design of the DDG 1002 steel deckhouse and started fabrication in November 2014.

BIW and the Navy have evaluated yard-wide workload and scheduling for all construction efforts and contracts to address cost effective ship delivery approaches. The Schedule Breach to the current APB (APB approved March 25, 2011) is due to technical risk, shipyard performance, and shipyard workforce constraints. The complexity of the first of class activation of the ship's unique Engineering Control System and Integrated Propulsion System has extended the time required for test and activation. An updated APB schedule to address impacts is in review.

Ninety eight percent of Mission Systems Equipment is installed in DDG 1000 and 1001. Release eight (8) (the last planned release prior to life cycle support) delivers in FY 2016.

Raytheon submitted a proposal for the balance of the DDG 1002 MSE on September 5, 2014. Navy evaluation and negotiations are ongoing.

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

### History of Significant Developments Since Program Initiation:

January 8, 1995: Achieved Milestone 0 and started its 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.

January 1998: Achieved Milestone I for DD 21 and proceeded into the Program Definition and Risk Reduction phase. The

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. The Navy awarded Phase I and II concept development contracts to two industry teams: to maintain competitive cost pressure and to maintain technical competition.

November 13, 2001: Restructured DD 21 program to DD(X) program.

April 2002: Phase II 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 BIW, Lockheed Martin, and Boeing. The NG concept required Research, Development, Test, and Evaluation (RDT&E) 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.

June 2004: The Operational Requirements Document (ORD) was approved and the DD(X) program completed a system-level Preliminary Design Review.

2005: The 10 EDMs completed testing and reached sufficient technical maturity to support a Critical Design Review (CDR).

At this 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 Guns System (AGS) with a Long Range Land Attack Projectile (LRLAP).

November 23, 2005: Achieved Milestone B. The major outstanding risks at Milestone B were related to the schedule and cost of software development and Mission Systems Integration and Test, shipbuilder construction costs, and DBR and AGS costs.

January 23, 2006: The Operational Requirements Document (ORD) Change 1 approved for addition of Force Protection and Survivability Key Performance Parameters (KPPs).

April 7, 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).

December 22, 2007: ADM issued authorizing the Navy to enter Production Phase for DDG 1000.

February 13, 2008: DoD approved Low Rate Initial Production for seven ships, and lead ship construction contracts were awarded to BIW and NGSB.

July 10, 2008: House Armed Services Committee Seapower and Expeditionary Forces Subcommittee hearing on the Navy surface combatant shipbuilding plan held, including discussion to buy more DDG 51s in place of DDG 1000.

July 31, 2008: Navy testimony to the House Armed Services Committee Seapower and Expeditionary forces Subcommittee requesting Congressional support to truncate the DDG 1000 program and restart the DDG 51 program.

February 2010: The President's Budget (PB) FY 2011 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 is the most cost-effective solution to fleet air and missile defense requirements.

February 1, 2010: The Secretary of the Navy notified Congress of a critical DDG 1000 program Nunn-McCurdy breach to the PAUC and APUC due to the quantity change, not program performance.

June 1, 2010: 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

October 8, 2010: Achieved Milestone B prime for the restructured program following the Nunn-McCurdy certification.

March 25, 2011: APB for the restructured DDG 1000 Program approved.

March 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&E. The approximate \$70.2M FY 2013 SCN sequester prevented awarding an \$145M FY 2013 option to Raytheon for remaining 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&E was approved to continue Long Range Land Attack Projectile (LRLAP) Guided Flight Tests and combat systems development.

August 2, 2013: The Navy awarded BIW a contract modification for the design and construction of a steel deckhouse, hangar, and Aft PVLS for DDG 1002. The award to BIW occurred after the DDG 1002 sole source negotiation with HII for the procurement of the DDG 1002 composite deckhouse, composite hangar, and Aft Peripheral Vertical Launch System (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 limited completion.

October 2013: An ATR for \$70.279M was received to restore the SCN sequestration mark.

October 22, 2013: The December 2012 Undefined Contract Action (UCA) with Raytheon for the remaining MSE was, which included \$58M for DDG 1000/1001 remaining MSE and a \$17M FY 2014 option for long lead DDG 1002 MSE.

November 22, 2013: Exercised the FY 2014 option for long lead DDG 1002 MSE.

## Threshold Breaches

APB Breaches		Explanation of Breach
<b>Schedule</b>	<input checked="" type="checkbox"/>	The Schedule Breach is due to technical risk, shipyard performance, and shipyard workforce constraints. The complexity of the first of class activation of the ship's unique Engineering Control System and Integrated Propulsion System has extended the time required for test and activation. The shipbuilder estimates First Ship Delivery for November 2015. Operational Evaluation, IOC and Milestone C are being assessed in view of the First of Class issues. The Service Acquisition Executive has been briefed and concurred to revising the APB. A revised APB is in process to correct the breach.
<b>Performance</b>	<input type="checkbox"/>	
<b>Cost</b>	<input type="checkbox"/>	
RDT&E	<input type="checkbox"/>	
Procurement	<input type="checkbox"/>	
MILCON	<input type="checkbox"/>	
Acq O&M	<input type="checkbox"/>	
<b>O&amp;S Cost</b>	<input type="checkbox"/>	
<b>Unit Cost</b>	<input type="checkbox"/>	
PAUC	<input type="checkbox"/>	
APUC	<input type="checkbox"/>	

Nunn-McCurdy Breaches	
<b>Current UCR Baseline</b>	
PAUC	None
APUC	None
<b>Original UCR Baseline</b>	
PAUC	None
APUC	None

## Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate
Milestone B	Nov 2005	Nov 2005	May 2006	Nov 2005
Lead Ship Awards	Jan 2006	Aug 2006	Feb 2007	Aug 2006
Milestone B Re-approval	N/A	Sep 2010	Mar 2011	Oct 2010
First Ship Delivery	Sep 2012	Apr 2014	Oct 2014	Nov 2015 <sup>1</sup> (Ch-1)
OPEVAL	Sep 2013	Oct 2015	Apr 2016	Aug 2017 <sup>1</sup> (Ch-2)
IOC	Jan 2014	Apr 2016	Oct 2016	Sep 2018 <sup>1</sup> (Ch-3)
Milestone C	Mar 2015	Apr 2016	Oct 2016	Sep 2018 <sup>1</sup> (Ch-4)

<sup>1</sup> APB Breach

### Change Explanations

- (Ch-1) The current estimate for First Ship Delivery has changed from September 2014 to November 2015 due to delay in shipyard contract completion. Shipbuilder estimated delivery is November 2015.
- (Ch-2) The current estimate for OPEVAL has changed from October 2015 to August 2017 due to delay in shipyard contract completion.
- (Ch-3) The current estimate for IOC has changed from July 2016 to September 2018 due to delay in shipyard contract completion.
- (Ch-4) The current estimate for Milestone C has changed from July 2016 to September 2018 due to delay in shipyard contract completion. Milestone C is not applicable since all three ships of the class are under contract and thus IOC is used as the Milestone C date.

### Notes

First Ship Delivery marks completion of DDG 1000 Hull, Mechanical and Electrical (HM&E) construction contract at point of pre-mission system activation. An initial Inspection and Survey Trial has been performed targeting HM&E.

Navy is in the process of assessing the delivery and subsequent dates in view of First of Class issues impacting test and activation events. Current First Ship Delivery estimate based on BIW's latest CPR.

#### **Acronyms and Abbreviations**

OPEVAL - Operational Evaluation

## Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold	Demonstrated Performance	Current Estimate	
<b>Number of Advanced Gun Systems</b>				
2	2	2	TBD	2
<b>Number of Advanced Vertical Launch Cells</b>				
128	128	80	TBD	80
<b>Total Ship Advanced Gun System Magazine Capacity</b>				
1200 rounds (600 rounds per magazine)	1200 rounds (600 rounds per magazine)	600 rounds total ship magazine capacity	TBD	600 rounds (300 rounds per magazine)
<b>Number of ship's company personnel (helicopter detachment included)</b>				
125	125	175	TBD	175
<b>Operational Availability (Ao) for mission critical systems:</b>				
<b>Ao for 120-day wartime profile</b>				
0.95	0.95	0.90	TBD	0.95
<b>Ao for 18 month extended forward deployment</b>				
0.95	0.95	0.90	TBD	0.95
<b>Interoperability: All top-level IERs will be satisfied to the standards specified in the Threshold and Objective values.</b>				
Achieve 100% of top-level IERs. 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 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	Achieve 100% top-level IER designated as critical. 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 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	TBD	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 IERs which are listed in DDG 1000 ORD Rev 15 (Table B) and the DDG 1000 TEMP Rev D (Table D-3).

(Ch-1)

	NSS), including future updates.	Systems (IT and NSS), Including future updates.		
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Classified Performance information is provided in the classified annex to this submission.

### Requirements Reference

DDX Operational Requirements Document (ORD) Change 1 dated January 23, 2006

### Change Explanations

(Ch-1) The ships company current estimate increased from 148 to 175. The ship's company includes a crew of 147 and a helicopter detachment of 28, for a total of 175 reflected in PB 2016.

### Acronyms and Abbreviations

CJCSI - Chairman of the Joint Chiefs of Staff Instruction  
IER - Information Exchange Requirement  
IT - Information Technology  
NSS - National Security System  
Rev - Revision  
SIAP - Single Integrated Air Picture  
TEMP - Test and Evaluation Master Plan

## Track to Budget

## RDT&amp;E

Appn	BA	PE		
Navy	1319	05	0204202N	
	<b>Project</b>		<b>Name</b>	
	2464		DDG 1000 System Design, Development and Integration	
	4009		Advanced Gun System on DDG 1000 (Sunk)	
Navy	1319	04	0603513N	
	<b>Project</b>		<b>Name</b>	
	2465		DC Survivability (Shared) (Sunk)	
	2467		Advanced Gun System (Shared) (Sunk)	
	2468		Undersea Warfare (Shared) (Sunk)	
	2469		Open System Architecture (Shared) (Sunk)	
	2470		Integrated Topside Design (Shared) (Sunk)	
	2471		Integrated Power System (Shared) (Sunk)	
	4019		Radar Upgrades (Shared) (Sunk)	
Navy	1319	05	0604300N	
	<b>Project</b>		<b>Name</b>	
	2463		DD(X) Construction (Shared) (Sunk)	
	2464		DD(X) Sys Design, Dev & Integration (Shared) (Sunk)	
	2465		DC Survivability (Shared) (Sunk)	
	2466		MFR Development (Shared) (Sunk)	
	2735		Volume Search Radar (Shared) (Sunk)	
	4009		Advanced Gun System (Shared) (Sunk)	
	4010		Integrated Power System on DD(X) (Shared) (Sunk)	
Navy	1319	05	0604366N	
	<b>Project</b>		<b>Name</b>	
	0439		Standard Missile Improvement: DDG 1000 (Shared) (Sunk)	
Navy	1319	05	0604755N	
	<b>Project</b>		<b>Name</b>	
	2735		Volume Search Radar (Sunk)	

## Notes

The congressional adds in PE 0603513N and PE 0604300N are not part of the core DDG 1000 Program.

## Procurement

Appn	BA	PE		
Navy	1611	02	0204228N	
	<b>Line Item</b>		<b>Name</b>	
	211900		DDG 1000 FY05-FY07 (Sunk)	
	<b>Notes:</b>	FY 05-07		

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Navy	1611	02	0204222N	
	<b>Line Item</b>		<b>Name</b>	
	211900		DDG 1000 FY08-FY09	(Sunk)
	<b>Notes:</b>	FY 08-09		

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Navy	1611	02	0204202N	
	<b>Line Item</b>		<b>Name</b>	
	211900		DDG 1000 Construction FY10 and follow	
	<b>Notes:</b>	FY 10 and follow		

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Navy	1611	05	0204222N	
	<b>Line Item</b>		<b>Name</b>	
	511000		Outfitting/Post Delivery	(Shared)
	530000		Destroyers - Missile	(Sunk)

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Navy	1810	01	0204202N	
	<b>Line Item</b>		<b>Name</b>	
	094700		DDG 1000 Class Support Equipment	

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2005 \$M			BY 2005 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	8313.2	8994.0	9893.4	8794.8	8483.0	9325.5	9114.3
Procurement	23234.7	10195.3	11214.8	10073.3	27813.3	12497.8	12889.8
Flyaway	--	--	--	10073.3	--	--	12889.8
Recurring	--	--	--	8505.3	--	--	11071.2
Non Recurring	--	--	--	1568.0	--	--	1818.6
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	31547.9	19189.3	N/A	18868.1	36296.3	21823.3	22004.1

#### Confidence Level

Confidence Level of cost estimate for current APB: 50%

The Independent Cost Estimate (ICE) to support DDG 1000 revised Milestone B decision, like all life-cycle cost estimates previously performed by the Cost Assessment and Program Evaluation (CAPE), is built upon a product-oriented work breakdown structure, based on historical actual cost information to the maximum extent possible, and, most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Department has been successful.

It is difficult to calculate mathematically the precise confidence levels associated with life-cycle cost estimates prepared for Major Defense Acquisition Programs (MDAPs). Based on the rigor in methods used in building estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the estimate will prove too low or too high for execution of the program described.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	0	0	0
Procurement	10	3	3
Total	10	3	3

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2016 President's Budget / December 2014 SAR (TY\$ M)									
Appropriation	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
RDT&E	8775.4	202.5	103.2	20.1	13.1	0.0	0.0	0.0	9114.3
Procurement	11357.3	479.9	520.5	252.4	56.9	37.5	41.7	143.6	12889.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2016 Total	20132.7	682.4	623.7	272.5	70.0	37.5	41.7	143.6	22004.1
PB 2015 Total	20118.0	701.8	421.6	216.0	7.3	46.0	0.0	148.5	21659.2
Delta	14.7	-19.4	202.1	56.5	62.7	-8.5	41.7	-4.9	344.9

Quantity Summary										
FY 2016 President's Budget / December 2014 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	3	0	0	0	0	0	0	0	3
PB 2016 Total	0	3	0	0	0	0	0	0	0	3
PB 2015 Total	0	3	0	0	0	0	0	0	0	3
Delta	0	0	0	0	0	0	0	0	0	0

## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	7.0
1996	--	--	--	--	--	--	10.0
1997	--	--	--	--	--	--	12.0
1998	--	--	--	--	--	--	53.5
1999	--	--	--	--	--	--	215.1
2000	--	--	--	--	--	--	281.2
2001	--	--	--	--	--	--	532.4
2002	--	--	--	--	--	--	490.4
2003	--	--	--	--	--	--	895.4
2004	--	--	--	--	--	--	1002.2
2005	--	--	--	--	--	--	1120.2
2006	--	--	--	--	--	--	1040.6
2007	--	--	--	--	--	--	755.8
2008	--	--	--	--	--	--	516.5
2009	--	--	--	--	--	--	431.2
2010	--	--	--	--	--	--	503.8
2011	--	--	--	--	--	--	347.9
2012	--	--	--	--	--	--	249.8
2013	--	--	--	--	--	--	120.8
2014	--	--	--	--	--	--	189.6
2015	--	--	--	--	--	--	202.5
2016	--	--	--	--	--	--	103.2
2017	--	--	--	--	--	--	20.1
2018	--	--	--	--	--	--	13.1
Subtotal	--	--	--	--	--	--	9114.3

Annual Funding 1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1995	--	--	--	--	--	--	8.0
1996	--	--	--	--	--	--	11.3
1997	--	--	--	--	--	--	13.4
1998	--	--	--	--	--	--	59.1
1999	--	--	--	--	--	--	234.8
2000	--	--	--	--	--	--	302.6
2001	--	--	--	--	--	--	565.1
2002	--	--	--	--	--	--	515.3
2003	--	--	--	--	--	--	927.3
2004	--	--	--	--	--	--	1009.8
2005	--	--	--	--	--	--	1099.7
2006	--	--	--	--	--	--	990.7
2007	--	--	--	--	--	--	702.4
2008	--	--	--	--	--	--	471.4
2009	--	--	--	--	--	--	388.5
2010	--	--	--	--	--	--	447.2
2011	--	--	--	--	--	--	301.6
2012	--	--	--	--	--	--	212.9
2013	--	--	--	--	--	--	101.4
2014	--	--	--	--	--	--	157.6
2015	--	--	--	--	--	--	165.7
2016	--	--	--	--	--	--	83.0
2017	--	--	--	--	--	--	15.9
2018	--	--	--	--	--	--	10.1
Subtotal	--	--	--	--	--	--	8794.8

Annual Funding 1611   Procurement   Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	--	--	304.0	304.0	--	304.0
2006	--	--	--	706.2	706.2	--	706.2
2007	2	1779.2	--	808.4	2587.6	--	2587.6
2008	--	3159.8	--	--	3159.8	--	3159.8
2009	1	1504.3	--	--	1504.3	--	1504.3
2010	--	1378.5	--	--	1378.5	--	1378.5
2011	--	247.1	--	--	247.1	--	247.1
2012	--	512.6	--	--	512.6	--	512.6
2013	--	676.2	--	--	676.2	--	676.2
2014	--	281.0	--	--	281.0	--	281.0
2015	--	479.9	--	--	479.9	--	479.9
2016	--	520.5	--	--	520.5	--	520.5
2017	--	217.3	--	--	217.3	--	217.3
2018	--	23.3	--	--	23.3	--	23.3
2019	--	35.0	--	--	35.0	--	35.0
2020	--	39.1	--	--	39.1	--	39.1
2021	--	--	--	--	--	--	--
2022	--	143.6	--	--	143.6	--	143.6
Subtotal	3	10997.4	--	1818.6	12816.0	--	12816.0

Annual Funding 1611   Procurement   Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	--	--	275.1	275.1	--	275.1
2006	--	--	--	617.3	617.3	--	617.3
2007	2	1486.8	--	675.6	2162.4	--	2162.4
2008	--	2553.5	--	--	2553.5	--	2553.5
2009	1	1179.7	--	--	1179.7	--	1179.7
2010	--	1044.8	--	--	1044.8	--	1044.8
2011	--	181.5	--	--	181.5	--	181.5
2012	--	368.3	--	--	368.3	--	368.3
2013	--	476.6	--	--	476.6	--	476.6
2014	--	194.6	--	--	194.6	--	194.6
2015	--	326.5	--	--	326.5	--	326.5
2016	--	347.5	--	--	347.5	--	347.5
2017	--	142.3	--	--	142.3	--	142.3
2018	--	15.0	--	--	15.0	--	15.0
2019	--	22.0	--	--	22.0	--	22.0
2020	--	24.1	--	--	24.1	--	24.1
2021	--	--	--	--	--	--	--
2022	--	85.2	--	--	85.2	--	85.2
Subtotal	3	8448.4	--	1568.0	10016.4	--	10016.4

Cost Quantity Information 1611   Procurement   Shipbuilding and Conversion, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2005 \$M
2005	--	--
2006	--	--
2007	2	5799.6
2008	--	--
2009	1	2648.8
2010	--	--
2011	--	--
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	--	--
2022	--	--
Subtotal	3	8448.4

Annual Funding 1810   Procurement   Other Procurement, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	35.1	--	--	35.1	--	35.1
2018	--	33.6	--	--	33.6	--	33.6
2019	--	2.5	--	--	2.5	--	2.5
2020	--	2.6	--	--	2.6	--	2.6
Subtotal	--	73.8	--	--	73.8	--	73.8

Annual Funding 1810   Procurement   Other Procurement, Navy							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	--
2009	--	--	--	--	--	--	--
2010	--	--	--	--	--	--	--
2011	--	--	--	--	--	--	--
2012	--	--	--	--	--	--	--
2013	--	--	--	--	--	--	--
2014	--	--	--	--	--	--	--
2015	--	--	--	--	--	--	--
2016	--	--	--	--	--	--	--
2017	--	27.4	--	--	27.4	--	27.4
2018	--	25.7	--	--	25.7	--	25.7
2019	--	1.9	--	--	1.9	--	1.9
2020	--	1.9	--	--	1.9	--	1.9
Subtotal	--	56.9	--	--	56.9	--	56.9

Cost Quantity Information 1810   Procurement   Other Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2005 \$M
2007	--	37.9
2008	--	--
2009	--	19.0
2010	--	--
2011	--	--
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
2019	--	--
2020	--	--
Subtotal	--	56.9

## Low Rate Initial Production

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

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

## **Foreign Military Sales**

None

## **Nuclear Costs**

None

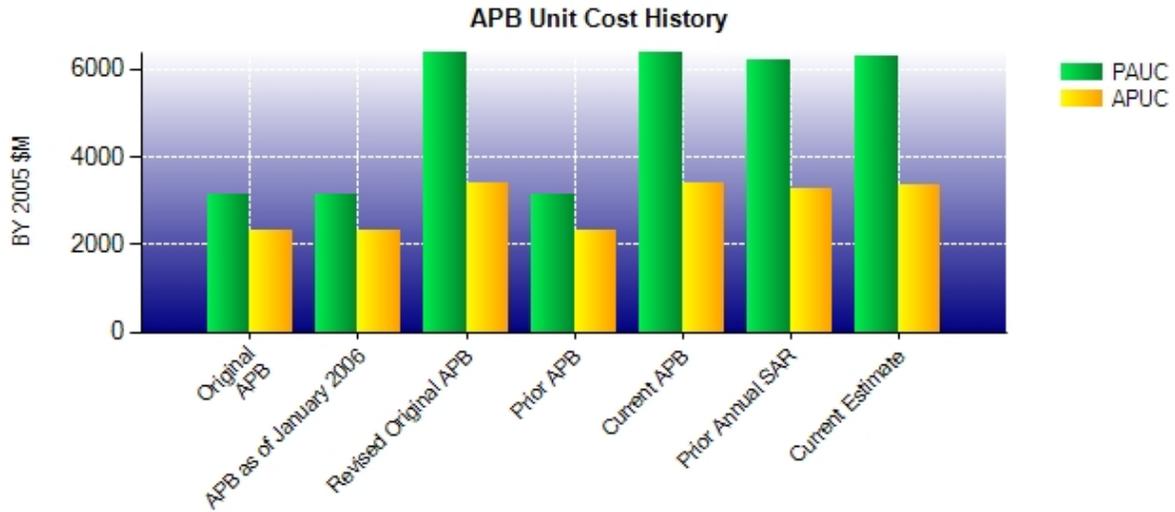
## Unit Cost

### Unit Cost Report

Item	BY 2005 \$M	BY 2005 \$M	% Change
	Current UCR Baseline (Mar 2011 APB)	Current Estimate (Dec 2014 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	19189.3	18868.1	
Quantity	3	3	
Item	6396.433	6289.367	-1.67
<b>Average Procurement Unit Cost</b>			
Cost	10195.3	10073.3	
Quantity	3	3	
Unit Cost	3398.433	3357.767	-1.20

Item	BY 2005 \$M	BY 2005 \$M	% Change
	Revised Original UCR Baseline (Mar 2011 APB)	Current Estimate (Dec 2014 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	19189.3	18868.1	
Quantity	3	3	
Unit Cost	6396.433	6289.367	-1.67
<b>Average Procurement Unit Cost</b>			
Cost	10195.3	10073.3	
Quantity	3	3	
Unit Cost	3398.433	3357.767	-1.20

**Unit Cost History**



Item	Date	BY 2005 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Nov 2005	3154.790	2323.470	3629.620	2781.320
APB as of January 2006	Nov 2005	3154.790	2323.470	3629.620	2781.320
Revised Original APB	Mar 2011	6396.433	3398.433	7274.433	4165.933
Prior APB	Nov 2005	3154.790	2323.470	3629.620	2781.320
Current APB	Mar 2011	6396.433	3398.433	7274.433	4165.933
Prior Annual SAR	Dec 2013	6213.633	3283.700	7219.733	4181.967
Current Estimate	Dec 2014	6289.367	3357.767	7334.700	4296.600

**SAR Unit Cost History**

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
3629.630	608.233	2104.836	20.167	22.067	949.767	0.000	0.000	3705.070	7334.700

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2781.330	604.433	125.471	19.233	-126.500	892.633	0.000	0.000	1515.270	4296.600

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	N/A	N/A	N/A	N/A
Milestone B	Nov 2005	Nov 2005	N/A	Nov 2005
Milestone C	Mar 2015	Mar 2015	N/A	Sep 2018
IOC	Jan 2014	Jan 2014	N/A	Sep 2018
Total Cost (TY \$M)	36296.2	36296.3	N/A	22004.1
Total Quantity	10	10	N/A	3
PAUC	3629.620	3629.630	N/A	7334.700

## Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	8483.0	27813.3	--	36296.3
Previous Changes				
Economic	+17.2	+1794.9	--	+1812.1
Quantity	--	-19092.9	--	-19092.9
Schedule	--	+57.7	--	+57.7
Engineering	+445.7	-379.5	--	+66.2
Estimating	+167.4	+2352.4	--	+2519.8
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+630.3	-15267.4	--	-14637.1
Current Changes				
Economic	-5.8	+18.4	--	+12.6
Quantity	--	--	--	--
Schedule	+2.8	--	--	+2.8
Engineering	--	--	--	--
Estimating	+4.0	+325.5	--	+329.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+1.0	+343.9	--	+344.9
Total Changes	+631.3	-14923.5	--	-14292.2
CE - Cost Variance	9114.3	12889.8	--	22004.1
CE - Cost & Funding	9114.3	12889.8	--	22004.1

Summary BY 2005 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Development Estimate)	8313.2	23234.7	--	31547.9
Previous Changes				
Economic	--	--	--	--
Quantity	--	-14646.0	--	-14646.0
Schedule	--	+63.8	--	+63.8
Engineering	+385.3	-369.4	--	+15.9
Estimating	+91.3	+1568.0	--	+1659.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+476.6	-13383.6	--	-12907.0
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+1.7	--	--	+1.7
Engineering	--	--	--	--
Estimating	+3.3	+222.2	--	+225.5
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+5.0	+222.2	--	+227.2
Total Changes	+481.6	-13161.4	--	-12679.8
CE - Cost Variance	8794.8	10073.3	--	18868.1
CE - Cost & Funding	8794.8	10073.3	--	18868.1

Previous Estimate: December 2013

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-5.8
Adjustment in FY 2016 through FY 2018 due to stretch-out of Test schedule. (Schedule)	+1.7	+2.8
Adjustment for current and prior escalation. (Estimating)	+3.3	+4.0
RDT&E Subtotal	+5.0	+1.0

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	+18.4
Adjustment for current and prior escalation. (Estimating)	-12.3	-16.9
Revised estimate to fund shipbuilding program within the FYDP. (Estimating)	+177.5	+268.6
Revised estimate to reflect requirement for Other Procurement, Navy funding. (Estimating)	+57.0	+73.8
Procurement Subtotal	+222.2	+343.9

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** Phase IV BIW DD&C (DDG 1000)  
**Contractor:** Bath Iron Works  
**Contractor Location:** 700 Washington Street  
 Bath, ME 04530-2574  
**Contract Number:** N00024-06-C-2303  
**Contract Type:** Cost Plus Award Fee (CPAF), Cost Plus Incentive Fee (CPIF), Cost Plus Fixed Fee (CPFF)  
**Award Date:** August 08, 2006  
**Definitization Date:** September 08, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
373.5	N/A	1	2038.3	N/A	1	2763.9	2724.6

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of transition to production and exercise of the ship construction CLIN and the deobligation for Class Common Equipment for DDG 1001.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/28/2014)	-219.0	-63.9
Previous Cumulative Variances	-189.2	-63.6
Net Change	-29.8	-0.3

### Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to primarily electrical work as the lead ship progresses through ship activation. Bath Iron Works (BIW) has implemented several mitigation steps to improve electrical performance; however DDG 1000 program office has seen limited improvement in the overall performance trend from risk mitigation measures. BIW and the DDG 1000 program office are holding daily risk reduction meetings on technical risk areas impacting ship completion and test and activation. In addition, the DDG 1000 program office will continue to hold on-site Engineering Review Boards to control and prioritize changes as DDG 1000 construction progresses. BIW and the Navy have evaluated yard-wide workload and scheduling for all construction efforts and contracts to address cost effective ship delivery approaches. DDG 1000 program office will continue reviewing that analysis, including impacts when the DDG 1000 starts Post Delivery Availability and Mission Systems Activation, and subsequently adjusting the related Navy EACs, if necessary.

The unfavorable net change in the schedule variance is due to the level of total construction completion.

**Notes**

BIW's DDG 1000 contract scope previously included long lead time material and advanced procurement efforts for DDG 1001. The BIW DDG 1001/1002 contract was awarded September 15, 2011. Therefore, the DDG 1000 contract now includes only the detail design and construction of the DDG 1000 lead ship.

This contract is more than 90% complete; therefore, this is the final report for this contract.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** Phase IV BIW (DDG 1001 & 1002)  
**Contractor:** Bath Iron Works (BIW)  
**Contractor Location:** 700 Washington Street  
 Bath, ME 04530  
**Contract Number:** N00024-11-C-2306  
**Contract Type:** Fixed Price Incentive (Successive Targets) (FPIS), Fixed Price Incentive(Firm Target) (FPIF),  
 Firm Fixed Price (FFP), Cost (CR)  
**Award Date:** September 15, 2011  
**Definitization Date:** May 15, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1825.7	N/A	2	1607.0	N/A	2	1898.5	1914.1

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to reflecting Contract Performance Report scope; this excludes the values of the Firm Fixed Price Class Common Equipment. The Current Contract Price Target does reflect the modification for the design and construction of a steel deckhouse, hangar, and Aft Peripheral Vertical Launch System for DDG 1002 on August 2, 2013.

Contract Variance			
Item	Cost Variance	Schedule Variance	
Cumulative Variances To Date (12/28/2014)	-110.1	-158.8	
Previous Cumulative Variances	-76.9	-116.9	
Net Change	-33.2	-41.9	

**Cost and Schedule Variance Explanations**

The unfavorable net change in the cost variance is due to overall effects of shipyard performance in addition to variances related to material and engineering support. The DDG 1000 program is aggressively working to minimize the overall exposure and is addressing the cost variance through Cost Reduction Candidates (CRCs). Through month ending December 2014, the program has processed modifications for \$29.9M of scope reductions and will continue to identify CRCs.

Bath Iron Works and the Navy have evaluated yard-wide workload and scheduling for all construction efforts and contracts to address cost effective ship delivery approaches. The DDG 1000 program office will continue reviewing that analysis, including impacts when the DDG 1000 starts Post Delivery Availability and Mission Systems Activation, and subsequently adjusting the related Navy Estimate Price At Completion, if necessary.

The unfavorable net change in the schedule variance is due to yard-wide workforce constraints and scheduling impacts being addressed following the joint BIW and Navy review.

**Notes**

BIW's DDG 1001 contract scope for long lead time material and advanced procurement efforts were initiated and previously captured and reported under contract N00024-06-C-2303. The BIW DDG 1001/1002 contract was awarded September 15, 2011 as a Fixed-Price Incentive Successive Targets contract. The Navy awarded BIW a contract modification for the design and construction of a steel deckhouse, hangar, and Aft PVLS for DDG 1002 on August 2, 2013. The Program Office conducted an Integrated Baseline Review for the production of the steel superstructure the week of December 8, 2014.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** Phase IV AGS Equipment (DDG 1002)  
**Contractor:** BAE Systems  
**Contractor Location:** 4800 E. River Rd  
 Minneapolis, MN 55421  
**Contract Number:** N00024-12-C-5311  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF), Cost Plus Fixed Fee (CPFF)  
**Award Date:** October 26, 2011  
**Definitization Date:** November 19, 2012

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
73.0	N/A	2	189.1	N/A	2	189.4	184.1	

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the exercise of the FY 2012 and FY 2013 option, which is reflected in the current contract price of \$164.8M. Estimated Price at Completion has increased to \$168.0M due to inclusion of the FY 2013 and FY 2014 option years.

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date (12/26/2014)	+1.9		-6.3
Previous Cumulative Variances	-0.3		+14.9
Net Change	+2.2		-21.2

**Cost and Schedule Variance Explanations**

The favorable net change in the cost variance is due to reduced Support and Engineering costs.

The unfavorable net change in the schedule variance is due to delays for components of MT62, and is expected to be recovered.

**Notes**

The Navy awarded the Advanced Gun System (AGS) for DDG 1002 to British Aerospace Engineering (BAE) on October 26, 2011 as an Undefined Contract Action (UCA). The UCA was definitized November 19, 2012. The definitization was delayed by changes in contract terms and conditions to better control cost and performance and a change in government contracts negotiator personnel. BAE established the Performance Measurement Baseline for the DDG 1002 effort, and conducted an Integrated Baseline Review for that effort in April, 2013. The contract includes options for FY 2012, FY 2013, and FY 2014 to complete the two AGS for the DDG 1002 and the supporting systems.

## Deliveries and Expenditures

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

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	22004.1	Years Appropriated	21
Expended to Date	18708.7	Percent Years Appropriated	75.00%
Percent Expended	85.02%	Appropriated to Date	20815.1
Total Funding Years	28	Percent Appropriated	94.60%

The above data is current as of January 27, 2015.

## Operating and Support Cost

### Cost Estimate Details

Date of Estimate:	December 31, 2011
Source of Estimate:	SCP
Quantity to Sustain:	3
Unit of Measure:	Ship
Service Life per Unit:	35.00 Years
Fiscal Years in Service:	FY 2016 - FY 2054

### 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 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 Information

The most analogous system to DDG 1000 is DDG 51. 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 2014 unit cost of the DDG 51 (Antecedent) is derived using the Naval Visibility and Management of Operating and Support Costs (VAMOSOC) database 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 54 Flight IIA and Flight III ships. The DDG 51 reports in BY 1987 \$M.

Annual O&S Costs BY2005 \$M		
Cost Element	DDG 1000 Average Annual Cost Per Ship	DDG 51 (Antecedent) Average Annual Cost Per Ship
Unit-Level Manpower	10.235	18.495
Unit Operations	8.378	6.235
Maintenance	19.446	11.205
Sustaining Support	1.803	1.015
Continuing System Improvements	11.436	2.090
Indirect Support	3.372	16.010
Other	0.000	0.000
<b>Total</b>	<b>54.670</b>	<b>55.050</b>

Item	Total O&S Cost \$M			
	DDG 1000			DDG 51 (Antecedent)
	Current Development APB Objective/Threshold		Current Estimate	
Base Year	7744.4	8518.8	5740.3	93259.6
Then Year	15245.3	N/A	11187.7	N/A

#### Equation to Translate Annual Cost to Total 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 = \$54.670M \* 3 \* 35 = \$5740.35M.

O&S Cost Variance		
Category	BY 2005 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2013 SAR	5740.3	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	5740.3	

#### Disposal Estimate Details

**Date of Estimate:** December 31, 2011  
**Source of Estimate:** SCP  
**Disposal/Demilitarization Total Cost (BY 2005 \$M):** Total costs for disposal of all Ship are 36.1