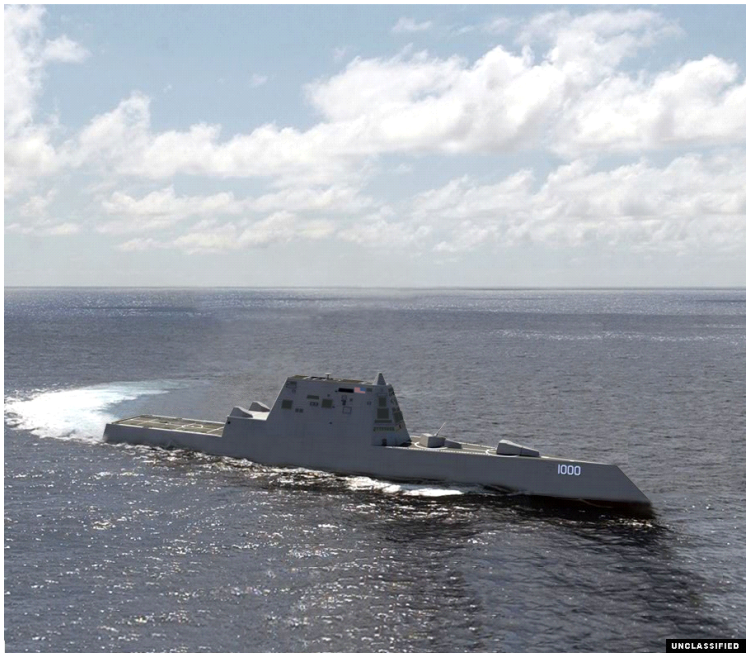
Selected Acquisition Report (SAR)

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



DDG 1000

As of December 31, 2011

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Program Information

Designation And Nomenclature (Popular Name)

DDG 1000 Zumwalt Class Destroyer (DDG 1000)

DoD Component

Navy

Responsible Office

Responsible Office

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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 will be an optimally-crewed, multi-mission surface combatant designed to provide littoral dominance, while fulfilling volume firepower and precision strike requirements. This advanced warship will provide credible forward naval presence either 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 full spectrum signature reduction, active and passive self-defense systems, and cutting-edge survivability features.

Executive Summary

In April 2009, the Navy, Bath Iron Works (BIW), and Northrop Grumman Shipbuilding (NGSB) (now Huntington Ingalls Industries (HII)) signed Memorandums of Agreement (MOA) regarding the allocation of the ship construction workload for the DDG 1000 and DDG 51 Class ships. Reflecting the agreements within the MOAs, the DDG 1000 Acquisition Strategy for a three-ship program was approved by the Under Secretary of Defense for Acquisition, Technology & Logistics (USD(AT&L)) in August 2009.

The FY 2011 President's Budget (PB) 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 that a modified DDG 51 with an Advanced Missile Defense Radar (AMDR) is the most cost-effective solution for fleet air and missile defense requirements. The Secretary of the Navy notified Congress on February 1, 2010 of a critical DDG 1000 Program Nunn-McCurdy breach to the Program Acquisition Unit Cost (PAUC) and Average Procurement Unit Cost (APUC) due to the quantity change, not program performance. On June 1, 2010 USD(AT&L) certified a restructured three ship program that included the removal of the Volume Search Radar (VSR) from the ship design, changed the Initial Operational Capability (IOC) from Fiscal Year (FY) 2015 to FY 2016, and revised test and evaluation requirements. Additionally, the DDG 1000 Program was directed to be funded to the Director of Cost Assessment and Program Evaluation (D,CAPE) cost estimate in FY 2011 - FY 2015 and to the Navy estimate in FY 2016 and beyond.

USD(AT&L) approved DDG 1000 Milestone B and reentry into the Engineering and Manufacturing Development Phase on October 8, 2010. In addition, USD(AT&L) approved the continued production of both the DDG 1000 and DDG 1001 and the start of production of the DDG 1002; phased procurement, activation, and test of the Mission Systems Equipment for the class; and a reduction in Low Rate Initial Production (LRIP) quantity from eight to three ships. The updated Acquisition Program Baseline (APB) was signed on March 25, 2011. In accordance with the October 8, 2010 Acquisition Decision Memorandum (ADM), an Overarching Integrated Product Team (OIPT) was held on October 27, 2011 and the Defense Acquisition Board (DAB) Readiness Meeting (DRM) was held on November 10, 2011. The Zumwalt Class Destroyer (DDG 1000) Nunn-McCurdy annual cost review ADM was signed on December 22, 2011.

In the December 22, 2011 ADM, USD(AT&L) approved a change to the full funding level for the program and designated the DDG 1000 program as an Acquisition Category (ACAT) IC program. Further, the ADM provides that the Navy shall fully fund (and restore prior year and FY 2011 shortfall totaling $72.2M) in the President's FY 2013 Budget the DDG 1000 program to the levels identified in the December 22, 2011 ADM. The Navy shall continue to provide the OIPT leader with quarterly cost management control metrics until completion of the 2012 annual cost review. The Navy is executing the Nunn-McCurdy certified program while recognizing, addressing, and retiring risks for the program.

As a result of the truncated program and consistent with the workload swap MOAs, BIW submitted its Fixed Priced Incentive (FPI) proposal for DDG 1001 and 1002 on February 12, 2010. The Nunn-McCurdy breach and rescission of Milestone B delayed the award of contracts. The Navy awarded the DDG 1001 and 1002 contract to BIW on September 15, 2011. The Navy awarded the Advanced Gun System for DDG 1002 to British Aerospace Engineering (BAE) on October 26, 2011. Negotiations for the remaining mission systems efforts for DDG 1000, 1001 and 1002 are ongoing with Raytheon, as are the DDG 1002 negotiations with HII.

The DDG 1000 Program funding reflects reprogramming from Research, Development, Test, and Evaluation (RDT&E) to Procurement to fund to the CAPE estimate in the June 1, 2010 USD(AT&L) Nunn-McCurdy certification ADM and the inclusion of FY 2017 and future year outfitting and post delivery costs in the PB FY 2013. With these changes, the APUC increased by $64.5M (Base Year (BY) 2005) due to the transfers to Procurement. The PAUC, which includes both RDT&E and Procurement funds, decreased by $34.8M (BY 2005). The APUC reflects the increases from the reprogramming actions and the inclusion of the future year outfitting and post delivery (Shipbuilding and Conversion, Navy (SCN)). The PAUC reflects the increases in future year outfitting and post delivery (SCN), but the reprogramming increases to SCN (reflected in APUC) are offset by the decreases in RDT&E. Consequently, the APUC increased and the PAUC decreased in BY 2005 dollars after adjusting for

changes in the 2013 inflation indices.

There are no significant software-related issues with this program at this time. The software development is more than ninety percent complete. The remaining ten percent of Software development was negotiated with Raytheon and awarded on November 17, 2011.

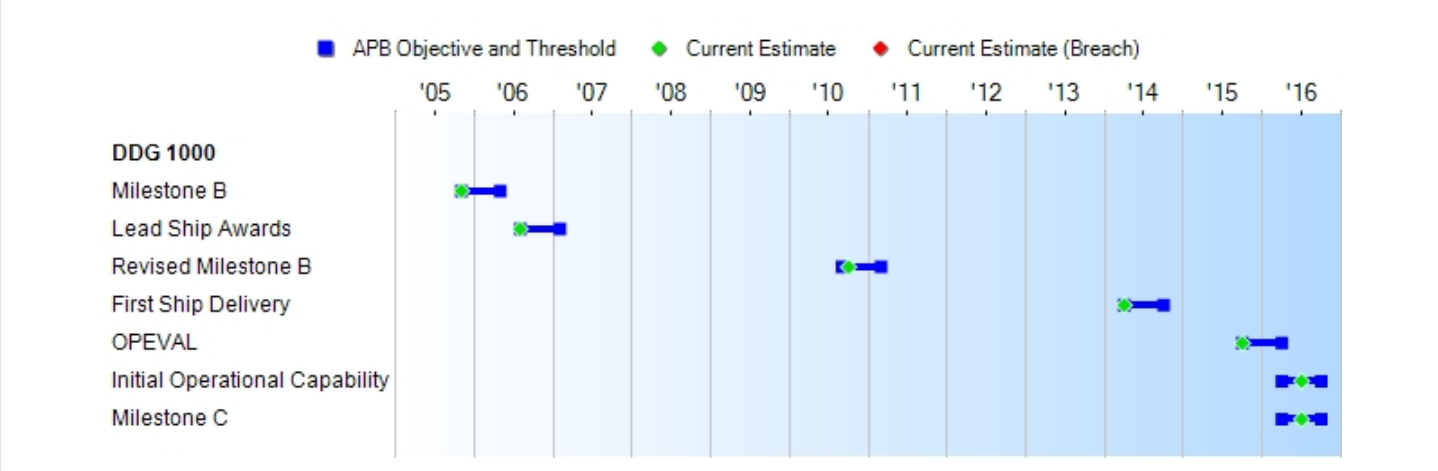
The Operating and Support Costs have decreased from $7,288.4M (BY 2005) to $5,776.4M (BY 2005). This decrease is largely due to cost reductions associated with changes in the projected software maintenance cycle.

Threshold Breaches

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

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

Schedule



Milestones	SAR Baseline Dev Est	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	
Revised Milestone B	N/A	SEP 2010	MAR 2011	OCT 2010	(Ch-1)
First Ship Delivery	SEP 2012	APR 2014	OCT 2014	APR 2014	
OPEVAL	SEP 2013	OCT 2015	APR 2016	OCT 2015	
Initial Operational Capability	JAN 2014	APR 2016	OCT 2016	JUL 2016	(Ch-2)
Milestone C	MAR 2015	APR 2016	OCT 2016	JUL 2016	(Ch-2)

Acronyms And Abbreviations

OPEVAL - Operational Evaluation

Change Explanations

(Ch-1) Schedule change reflects actual date of Revised Milestone B Acquisition Decision Memorandum (ADM) signature from September 2010 (Est) to October 2010 (Actual).

(Ch-2) Schedule change reflects updated program estimates for achieving Initial Operational Capability (IOC) and Milestone C from April 2016 to July 2016 in accordance with the 2011 Nunn-McCurdy Annual Cost Review ADM.

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate	
Number of Advanced Gun Systems	2	2	2	TBD	2	
Number of Advanced Vertical Launch Cells	128	128	80	TBD	80	
Total Ship Advanced Gun System Magazine Capacity	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)	
Number of ship's company personnel (helicopter detachment included)	125	125	175	TBD	148	(Ch-1)
Operational Availability (Ao) for mission critical systems:						
Ao for 120-day wartime profile	0.95	0.95	0.90	TBD	0.95	
Ao for 18 month extended forward deployment	0.95	0.95	0.90	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 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	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	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 Integr-ed Architecture and Integrated Archi-techture	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	(Ch-2)

	developed. DD(X) will remain in compliance with CJCSI 6212.01 (Series), Inter-operability and Support-ability of IT and NSS, including future updates.	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.	Behavior Model for Track Management now being developed. DD(X) will remain in compliance with CJCSI 6212.0 (Series), Inter-operability and Support-ability of Information Technology and National Security Systems (IT and NSS), Including future updates.		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).

Requirements Source:
DDX Operational Requirements Document (ORD) Change 1, Navy Serial #678-76-06, validated by Joint Requirements Oversight Council 008-06 on January 23, 2006.

Acronyms And Abbreviations

Ao - Operational Availability
CJCSI - Chairman of the Joint Chiefs of Staff Instruction
IER - Information Exchange Requirement
IT - Information Technology
NSS - National Security System
ORD - Operational Requirements Document
SIAP - Single Integrated Air Picture
TBD - To Be Determined
TEMP - Test and Evaluation Master Plan

Change Explanations

(Ch-1) Current Estimate updated from 125 to 148, reflecting Nunn-McCurdy, revised Milestone B, and 2011 Nunn-McCurdy Annual Cost Review Acquisition Decision Memorandum (ADM) results.

(Ch-2) Current Estimate updated to reflect incorporation of Test and Evaluation Master Plan (TEMP) Rev D.

Classified Performance information is provided in the classified annex to this submission.

Track To Budget

RDT&E				
APPN 1319	BA 05	PE 0204202N	(Navy)	
	Project 2464			
	Project 4009			
APPN 1319	BA 04	PE 0603513N	(Navy)	
	Project 2465			(Sunk)
	Project 2467			(Sunk)
	Project 2468			(Sunk)
	Project 2469			(Sunk)
	Project 2470			(Sunk)
	Project 2471			(Sunk)
	Project 4019			(Sunk)
APPN 1319	BA 05	PE 0604300N	(Navy)	
	Project 2463			(Sunk)
	Project 2464			(Sunk)
	Project 2465			(Sunk)
	Project 2466			(Sunk)
	Project 2735			(Sunk)
	Project 4009			(Sunk)
	Project 4010			(Sunk)
APPN 1319	BA 05	PE 0604366N	(Navy)	
	Project 0439			
APPN 1319	BA 05	PE 0604755N	(Navy)	
	Project 2735			(Sunk)

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

Procurement				
APPN 1611	BA 02	PE 0204228N	(Navy)	
	ICN 211900 FY05-07	DDG 1000		(Sunk)

APPN 1611	BA 02	PE 0204222N	(Navy)	
	ICN 211900 FY08-09	DDG 1000		(Sunk)
APPN 1611	BA 02	PE 0204202N	(Navy)	
	ICN 211900 FY10 and follow	DDG 1000		
APPN 1611	BA 05	PE 0204222N	(Navy)	
	ICN 511000	Outfitting/Post Delivery	(Shared)	

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

	BY2005 $M			BY2005 $M	TY $M		
Appropriation	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	8313.2	8994.0	9893.4	8810.4	8483.0	9325.5	9134.8
Procurement	23234.7	10195.3	11214.8	9502.3	27813.3	12497.8	11894.9
Flyaway	23234.7	--	--	9502.3	27813.3	--	11894.9
Recurring	21726.7	--	--	7933.3	26170.8	--	10076.3
Non Recurring	1508.0	--	--	1569.0	1642.5	--	1818.6
Support	0.0	--	--	0.0	0.0	--	0.0
Other Support	0.0	--	--	0.0	0.0	--	0.0
Initial Spares	0.0	--	--	0.0	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	18312.7	36296.3	21823.3	21029.7

Confidence Level For the Current APB Cost is 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 (MDAP). 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.

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

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2013 President's Budget / December 2011 SAR (TY$ M)

Appropriation	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	To Complete	Total
RDT&E	8219.5	257.6	124.7	168.0	163.6	99.7	101.7	0.0	9134.8
Procurement	9870.3	458.5	679.2	252.2	397.6	22.9	20.8	193.4	11894.9
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 2013 Total	18089.8	716.1	803.9	420.2	561.2	122.6	122.5	193.4	21029.7
PB 2012 Total	18194.2	720.0	856.6	494.3	521.3	105.0	0.0	0.0	20891.4
Delta	-104.4	-3.9	-52.7	-74.1	39.9	17.6	122.5	193.4	138.3

DDG 1000/1001 are funded in FY 2007 (split funded in FY 2008), and DDG 1002 is funded in FY 2009 (split funded in FY 2010). In the President's Budget (PB) FY 2011, the Navy truncated the program from ten ships to three. A revised Acquisition Program Baseline (APB) reflecting a three ship profile was approved on March 25, 2011 by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)).

Quantity	Undistributed	Prior	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	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 2013 Total	0	3	0	0	0	0	0	0	0	3
PB 2012 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 TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
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	--	--	--	--	--	--	519.5
2009	--	--	--	--	--	--	431.6
2010	--	--	--	--	--	--	503.8
2011	--	--	--	--	--	--	348.8
2012	--	--	--	--	--	--	257.6
2013	--	--	--	--	--	--	124.7
2014	--	--	--	--	--	--	168.0
2015	--	--	--	--	--	--	163.6
2016	--	--	--	--	--	--	99.7
2017	--	--	--	--	--	--	101.7
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**9134.8**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2005 $M	Non End Item Recurring Flyaway BY 2005 $M	Non Recurring Flyaway BY 2005 $M	Total Flyaway BY 2005 $M	Total Support BY 2005 $M	Total Program BY 2005 $M
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	--	--	--	--	--	--	474.1
2009	--	--	--	--	--	--	388.9
2010	--	--	--	--	--	--	447.2
2011	--	--	--	--	--	--	303.8
2012	--	--	--	--	--	--	220.5
2013	--	--	--	--	--	--	105.0
2014	--	--	--	--	--	--	139.0
2015	--	--	--	--	--	--	133.0
2016	--	--	--	--	--	--	79.6
2017	--	--	--	--	--	--	79.8
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**8810.4**

Annual Funding TY$
1611 | Procurement | Shipbuilding and Conversion, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2005	--	--	--	304.0	304.0	--	304.0
2006	--	--	--	706.2	706.2	--	706.2
2007	2	1748.9	--	808.4	2557.3	--	2557.3
2008	--	3154.5	--	--	3154.5	--	3154.5
2009	1	1504.3	--	--	1504.3	--	1504.3
2010	--	1378.5	--	--	1378.5	--	1378.5
2011	--	265.5	--	--	265.5	--	265.5
2012	--	458.5	--	--	458.5	--	458.5
2013	--	679.2	--	--	679.2	--	679.2
2014	--	252.2	--	--	252.2	--	252.2
2015	--	397.6	--	--	397.6	--	397.6
2016	--	22.9	--	--	22.9	--	22.9
2017	--	20.8	--	--	20.8	--	20.8
2018	--	193.4	--	--	193.4	--	193.4
Subtotal	**3**	**10076.3**	**--**	**1818.6**	**11894.9**	**--**	**11894.9**

Annual Funding BY$
1611 | Procurement | Shipbuilding and Conversion, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2005 $M	Non End Item Recurring Flyaway BY 2005 $M	Non Recurring Flyaway BY 2005 $M	Total Flyaway BY 2005 $M	Total Support BY 2005 $M	Total Program BY 2005 $M
2005	--	--	--	275.1	275.1	--	275.1
2006	--	--	--	617.3	617.3	--	617.3
2007	2	1463.8	--	676.6	2140.4	--	2140.4
2008	--	2559.2	--	--	2559.2	--	2559.2
2009	1	1188.2	--	--	1188.2	--	1188.2
2010	--	1063.0	--	--	1063.0	--	1063.0
2011	--	200.8	--	--	200.8	--	200.8
2012	--	340.9	--	--	340.9	--	340.9
2013	--	496.4	--	--	496.4	--	496.4
2014	--	181.1	--	--	181.1	--	181.1
2015	--	280.5	--	--	280.5	--	280.5
2016	--	15.9	--	--	15.9	--	15.9
2017	--	14.2	--	--	14.2	--	14.2
2018	--	129.3	--	--	129.3	--	129.3
Subtotal	**3**	**7933.3**	**--**	**1569.0**	**9502.3**	**--**	**9502.3**

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	5695.3
2008	--	--
2009	1	2238.0
2010	--	--
2011	--	--
2012	--	--
2013	--	--
2014	--	--
2015	--	--
2016	--	--
2017	--	--
2018	--	--
Subtotal	**3**	**7933.3**

Low Rate Initial Production

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

The current total Low Rate Initial Production (LRIP) quantity is more than 10% of the total production quantity due to the 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 Cost

None

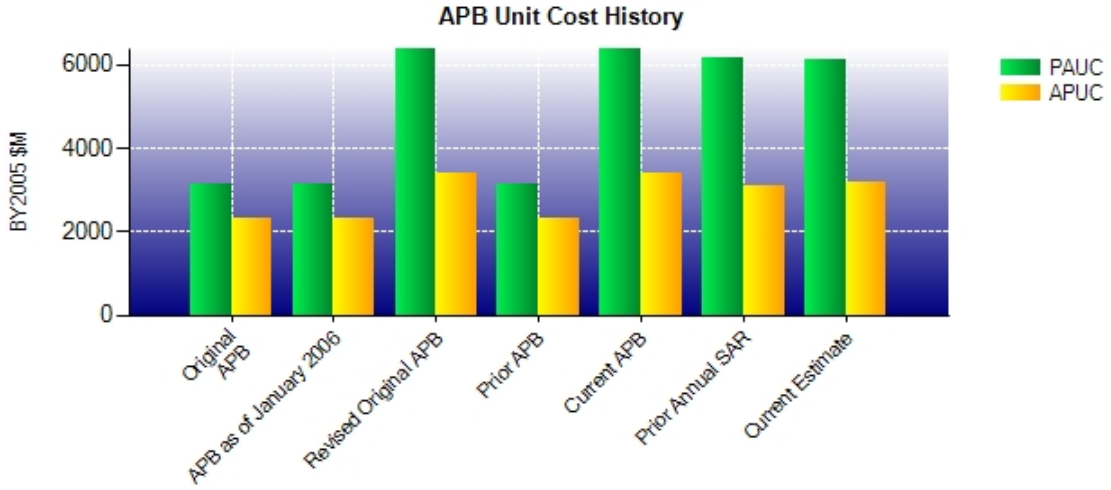
Unit Cost

Unit Cost Report

Unit Cost	BY2005 $M Current UCR Baseline (MAR 2011 APB)	BY2005 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	19189.3	18312.7	
Quantity	3	3	
Unit Cost	6396.433	6104.233	-4.57
Average Procurement Unit Cost (APUC)			
Cost	10195.3	9502.3	
Quantity	3	3	
Unit Cost	3398.433	3167.433	-6.80

Unit Cost	BY2005 $M Revised Original UCR Baseline (MAR 2011 APB)	BY2005 $M Current Estimate (DEC 2011 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	19189.3	18312.7	
Quantity	3	3	
Unit Cost	6396.433	6104.233	-4.57
Average Procurement Unit Cost (APUC)			
Cost	10195.3	9502.3	
Quantity	3	3	
Unit Cost	3398.433	3167.433	-6.80

Unit Cost History



		BY2005 $M		TY $M	
	Date	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 2010	6139.000	3102.967	6963.800	3812.767
Current Estimate	DEC 2011	6104.233	3167.433	7009.900	3964.967

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
3629.630	563.267	2104.836	19.233	22.067	670.867	0.000	0.000	3380.270	7009.900

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
2781.330	559.467	125.470	19.233	-126.500	605.967	0.000	0.000	1183.637	3964.967

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	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	JUL 2016
IOC	JAN 2014	JAN 2014	N/A	JUL 2016
Total Cost (TY $M)	36296.2	36296.3	N/A	21029.7
Total Quantity	10	10	N/A	3
Prog. Acq. Unit Cost (PAUC)	3629.620	3629.630	N/A	7009.900

Cost Variance

Cost Variance Summary

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	8483.0	27813.3	--	36296.3
Previous Changes				
Economic	-10.0	+1510.2	--	+1500.2
Quantity	--	-19092.9	--	-19092.9
Schedule	--	+57.7	--	+57.7
Engineering	+445.7	-379.5	--	+66.2
Estimating	+534.4	+1529.5	--	+2063.9
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+970.1	-16375.0	--	-15404.9
Current Changes				
Economic	+21.4	+168.2	--	+189.6
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-339.7	+288.4	--	-51.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-318.3	+456.6	--	+138.3
Total Changes	+651.8	-15918.4	--	-15266.6
CE - Cost Variance	9134.8	11894.9	--	21029.7
CE - Cost & Funding	9134.8	11894.9	--	21029.7

Summary Base Year 2005 $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	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	+409.6	+1025.8	--	+1435.4
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+794.9	-13925.8	--	-13130.9
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	-297.7	+193.4	--	-104.3
Other	--	--	--	--
Support	--	--	--	--
Subtotal	-297.7	+193.4	--	-104.3
Total Changes	+497.2	-13732.4	--	-13235.2
CE - Cost Variance	8810.4	9502.3	--	18312.7
CE - Cost & Funding	8810.4	9502.3	--	18312.7

Previous Estimate: December 2010

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+21.4
Adjustment for current and prior escalation. (Estimating)	-10.1	-11.6
Revised cost estimate to fund the program to the truncated level of three ships; Annual Nunn-McCurdy Cost Review Acquisition Decision Memorandum (ADM). Reflects reprogramming from Research Development, Test and Evaluation (RDT&E) to Procurement. (Estimating)	-287.6	-328.1
RDT&E Subtotal	-297.7	-318.3

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	+168.2
Adjustment for current and prior escalation. (Estimating)	-104.1	-131.4
Revised cost estimate to fund the program to the truncated level of three ships; Annual Nunn-McCurdy Cost Review ADM. Reflects reprogramming from Research Development, Test and Evaluation (RDT&E) to Procurement and inclusion of future year outfitting and post delivery costs. (Estimating)	+297.5	+419.8
Procurement Subtotal	+193.4	+456.6

Contracts

Appropriation: RDT&E

Contract Name	**Phase IV AGS Equipment Completion (DDG 1000 / 1001)**
Contractor	BAE Systems
Contractor Location	4800 East River Road Minneapolis, MN 55421
Contract Number, Type	N00024-05-C-5117, CPAF
Award Date	May 23, 2005
Definitization Date	September 30, 2006

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
376.0	N/A	4	999.0	N/A	4	1052.8	1010.4

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/30/2011)	-50.4	-15.6
Previous Cumulative Variances	-33.8	-14.7
Net Change	-16.6	-0.9

Cost And Schedule Variance Explanations

The unfavorable net change in the cost variance is due to Advanced Gun System (AGS) magazine fabrication, AGS Gun mount fabrication, and the Long Range Land Attack Projectile (LRLAP) systems engineering and test projectile design. In addition, rate increases at the Cordova, AL production facility occurred due to cancellation of an Army program and delays in contract award for the planned DDG 1002 AGS guns and magazines and for the DDG 1000 and 1001 AGS Intra-ship Rearmament System (AIRS). The AGS technical issues have been resolved, and the remaining cost driver is Cordova rates. With the award of the DDG 1002 products, in addition to DDG 1000 and 1001 AIRS, the rates will stabilize. The cost drivers for LRLAP are rocket motor update related. Guided flight tests in FY 2012 are expected to incorporate rocket motor improvements. Baseline contract completion date is November 2014.

The unfavorable net change in the schedule variance is due to incorporating the updated rocket motor design for the LRLAP. Guided flight tests in FY 2012 are expected to incorporate rocket motor improvements. Baseline contract completion date is November 2014.

Contract Comments

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

The difference between the initial contract price target and the current contract price target is due to the addition of transition to production and procurement efforts for DDG 1000 and DDG 1001.

The scope of the British Aerospace Engineering (BAE) contract includes development and land based qualification of the Long Range Land Attack Projectile (LRLAP), completion of detail design for the Advanced Gun System (AGS), transition to production for AGS and procurement of four AGS for final test and installation aboard DDG 1000 and DDG 1001.

Appropriation: RDT&E

Contract Name	**Phase IV System Design and Integration (DDG 1000 / 1001)**
Contractor	Raytheon
Contractor Location	50 Apple Hill Drive Tewskbury, MA 01876
Contract Number, Type	N00024-05-C-5346, CPAF
Award Date	May 24, 2005
Definitization Date	May 17, 2006

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
2750.0	N/A	2	5356.7	N/A	2	5454.8	5429.5

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2011)	-176.0	-60.4
Previous Cumulative Variances	-124.4	-50.7
Net Change	-51.6	-9.7

Cost And Schedule Variance Explanations

The unfavorable net change in the cost variance is due to Software (SW) development and design verification, Mission Systems Equipment (MSE) production, and program support labor (previously bid as being allocated across ships 3-7). Mission Systems are proceeding through production, integration, and test. First time integration issues with new MSE in production continue to drive cumulative cost performance. SW cost growth to date has primarily been associated with first time SW builds. Releases 1-6, or 90%, of total software development has been completed.

The unfavorable net change in the schedule variance is due to SW development and design verification and MSE production. The SW development and design verification efforts have been re-phased to deliver Hull, Mechanical, and Electrical (HM&E) capability to support builder trials and ship delivery. HM&E interfacing equipment readiness checks have been successfully completed with all machinery activated via Engineering Control System (ECS). Integration and testing continues in support of FY 2012 HM&E ECS Developmental Testing (DT). Ship test procedure development for shipyard installation of delivered MSE items continues.

Contract Comments

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

The difference between the initial contract price target and the current contract price target is due to the addition of procurement of the first two ship sets of Mission Systems Equipment (MSE) and associated transition to production DDG 1000 and DDG 1001.

The scope of the Raytheon contract includes the remaining development of selected components of the DDG 1000 and 1001 Mission System, the development of software (SW) for the DDG 1000 Class ships, procurement of the first two ship sets of Mission Systems Equipment (MSE), and associated detail design and transition to production for DDG 1000 and DDG 1001. In addition, the procurement of the Dual Band Radar (DBR) for CVN-78 is included within the scope of this contract. Contract effort remains on track to support shipbuilder in-yard need dates.

The DDG 1000 MSE for the first two ship sets was definitized on March 18, 2009.

Appropriation: RDT&E

Contract Name	**Phase IV BIW DD&C (DDG 1000)**
Contractor	Bath Iron Works
Contractor Location	700 Washington Street Bath, ME 04530-2574
Contract Number, Type	N00024-06-C-2303, CPAF
Award Date	August 08, 2006
Definitization Date	September 08, 2006

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	2224.5	N/A	1	2334.8	2343.7

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/25/2011)	-135.8	-54.3
Previous Cumulative Variances	-157.4	-42.4
Net Change	+21.6	-11.9

Cost And Schedule Variance Explanations

The favorable net change in the cost variance is due to increased cost control through the establishment of on-site Navy Engineering Review Boards (NERB) to control change. A process to identify and evaluate cost reduction opportunities has resulted in significant savings.

The unfavorable net change in the schedule variance is due to late functional design caused by engineering change proposals. The completion of production planning on the ship design and added controls over design changes imposed by the program office are improving the schedule performance. The DDG 1000 Program will continue to hold on-site NERB to control change in FY 2012.

The Performance Measurement Baseline (PMB) was updated in accordance with the Nunn-McCurdy change in the Initial Operational Capability (IOC) of the DDG 1000 from FY 2015 to FY 2016. The revised shipbuilding schedule was approved by the Navy, and the shipbuilder revised its PMB through its Earned Value Management system (EVMS) accordingly. Defense Contract Management Agency (DCMA) reviewed the shipbuilder's EVMS in the second quarter of FY 2011.

Contract Comments

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 Contract Line Item (CLIN) and the deobligation for Class Common Equipment (CCE) for DDG 1001.

Bath Iron Work's (BIW) 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 on September 15, 2011. Therefore, the DDG 1000 contract now includes only the detail design and construction of the DDG 1000 ZUMWALT Class Destroyer program’s lead ship, resulting in the Current Contract Price and Estimated Price at Completion reductions. BIW is establishing the PMB for the DDG 1001 and 1002 effort, and an Integrated Baseline Review (IBR) for that effort will be conducted in the second quarter of FY 2012.

Appropriation: RDT&E

Contract Name	**Phase IV HII DD&C (DDG 1000 / 1001)**
Contractor	Huntington Ingalls Industries (HII)
Contractor Location	1000 Access Road Pascagoula, MS 39568-7003
Contract Number, Type	N00024-06-C-2304, CPAF
Award Date	August 31, 2006
Definitization Date	August 31, 2006

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
364.0	N/A	1	1431.4	N/A	1	1600.7	1510.7

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/25/2011)	-64.1	-34.6
Previous Cumulative Variances	-25.2	-69.3
Net Change	-38.9	+34.7

Cost And Schedule Variance Explanations

The unfavorable net change in the cost variance is due to continued higher than expected rework rates for the composite deckhouse and hanger. Improvement has been achieved in successive composite panel assemblies. Navy and Huntington Ingalls Industries (HII) continue to hold weekly DDG 1000 Production Tiger Team (PTT) reviews to identify opportunities to reduce cost drivers.

The favorable net change in the schedule variance is due to the alignment of the Performance Measurement Baseline (PMB) due to the Nunn-McCurdy change in the Initial Operational Capability (IOC) of the DDG 1000 from FY 2015 to FY 2016. The revised shipbuilding schedule was approved by the Navy, and the shipbuilder revised its PMB through its Earned Value Management system (EVMS) accordingly. Defense Contract Management Agency (DCMA) reviewed the shipbuilder's EVMS in the second quarter of FY 2011.

Contract Comments

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 Contract Line Item (CLIN), the deobligation of Class Common Equipment (CCE) for DDG 1001, and the partial termination of construction of the DDG 1001.

In April 2009, the Navy, Bath Iron Works (BIW), and Northrop Grumman Shipbuilding (NGSB) (now HII) signed Memorandums of Agreement (MOA) regarding the allocation of ship construction workload for the DDG 1000 and DDG 51 Class ships. The current scope of the HII contract is for the detail design and construction of the DDG 1000 and 1001 Deckhouse and Aft Peripheral Vertical Launching System (PVLS), in accordance with the MOA. The previously awarded scope for construction of the DDG 1001 Hull has been removed from the HII contract and awarded to BIW, in accordance with the MOA, resulting in the Current Contract Price and Estimated Price at Completion reductions. HII will maintain construction of the Deckhouse and Aft PVLS under a class work share agreement with BIW for all three DDG 1000 Class ships.

Appropriation: Procurement

Contract Name	**Phase IV BIW Construction (DDG 1001 & 1002)**
Contractor	Bath Iron Works (BIW)
Contractor Location	700 Washington Street Bath, ME 04530
Contract Number, Type	N00024-11-C-2306, FPIS/FFP/CR
Award Date	September 15, 2011
Definitization Date	May 15, 2011

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	1825.7	N/A	2	1825.7	1825.7

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	0.0	0.0
Previous Cumulative Variances	--	--
Net Change	+0.0	+0.0

Cost And Schedule Variance Explanations

None

Contract Comments

The Navy awarded the DDG 1001 and DDG 1002 contract to Bath Iron Works (BIW) on September 15, 2011. BIW is establishing the Performance Measurement Baseline (PMB) for the DDG 1001 and DDG 1002 effort, and an Integrated Baseline Review (IBR) for that effort will be conducted in the second quarter of FY 2012. Cost and Schedule Variance data will be reported in the next SAR. The contract ceiling value is $2,190.0M and is not subject to redetermination.

Appropriation: Procurement

Contract Name	**Phase IV AGS Equipment (DDG 1002)**
Contractor	BAE Systems
Contractor Location	4800 E. River Rd Minneapolis, MN 55421
Contract Number, Type	N00024-12-C-5311, FPIF/CPFF
Award Date	October 26, 2011
Definitization Date	

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	125.0	N/A	2	168.0	168.0

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date	0.0	0.0
Previous Cumulative Variances	--	--
Net Change	+0.0	+0.0

Cost And Schedule Variance Explanations

None

Contract Comments

The difference between the initial contract price target and the current contract price target is due to the exercise of the FY 2012 option, which is reflected in the Current Contract Price of $125.0M. Estimated Price at Completion has increased to $168.0M due to inclusion of the FY 2013 and FY 2014 option years.

The Navy awarded the Advanced Gun System (AGS) for DDG 1002 to British Aerospace Engineering (BAE) on October 26, 2011. BAE is establishing the Performance Measurement Baseline (PMB) for the DDG 1002 effort, and an Integrated Baseline Review (IBR) for that effort will be conducted in FY 2012. Cost and Schedule Variance data will be reported in the next SAR. 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. The FY 2012 option was executed on January 31, 2012.

Deliveries and Expenditures

Deliveries To Date	Plan To Date	Actual To Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	0	0	3	0.00%
Total Program Quantities Delivered	0	0	3	0.00%

Expenditures and Appropriations (TY $M)			
Total Acquisition Cost	21029.7	Years Appropriated	18
Expenditures To Date	15821.8	Percent Years Appropriated	75.00%
Percent Expended	75.24%	Appropriated to Date	18805.9
Total Funding Years	24	Percent Appropriated	89.43%

Operating and Support Cost

Assumptions And Ground Rules

Operating and Support (O&S) cost estimates are based on the Navy 2011 revised Milestone B DDG 1000 Navy Program Life Cycle Cost Estimate (PLCCE). Costs are shown in Base Year (BY) 2005 dollars. The estimate is based on an average unit cost of three ships with an average 35 year service life.

The O&S costs are provided in revised cost elements based on the October 2007 O&S Cost Estimating Guide.

There is no antecedent system for DDG 1000.

Disposal costs for DDG 1000 are included and shown under Cost Element 'Other' in the table below.

Costs BY2005 $M		
Cost Element	**DDG 1000 Avg. Annual Cost per ship**	**Antecedent System**
Unit-Level Manpower	10.24	--
Unit Operations	8.38	--
Maintenance	19.45	--
Sustaining Support	1.80	--
Continuing System Improvements	11.44	--
Indirect Support	3.37	--
Other	0.34	--
Total Unitized Cost (Base Year 2005 $)	55.02	--

Total O&S Costs $M	DDG 1000	Antecedent System
Base Year	5776.4	--
Then Year	11277.0	--

The O&S Costs have decreased from $7,288.4M (BY 2005) to $5,776.4M (BY 2005). This decrease is largely due to cost reductions associated with changes in the projected software maintenance cycle.