

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy										Date: May 2017		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0204202N / DDG-1000							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	1,282.551	101.724	45.642	140.500	-	140.500	120.412	15.966	0.000	0.000	0.000	1,706.795
2464: DD(X) Sys Design, Dev & Integration	1,282.551	101.724	45.642	140.500	-	140.500	120.412	15.966	0.000	0.000	0.000	1,706.795
Program MDAP/MAIS Code: Project MDAP/MAIS Code(s): 197												
A. Mission Description and Budget Item Justification												
This Program Element (PE) provides funds for development of the DDG 1000 Class of U.S. Navy surface combatants. The mission of the DDG 1000 class is to provide credible independent forward presence/deterrence and operate as an integral part of Naval, Joint or Combined Maritime Forces. DDG 1000 will provide advanced land attack capability in support of the ground campaign and contribute to Naval, Joint or Combined battlespace dominance in littoral operations. DDG 1000 will establish and maintain surface and sub-surface superiority, provide local air defense, and incorporate signature reduction to operate in all threat environments. DDG 1000 will have seamless Joint Interoperability to integrate all source information for battlespace awareness and weapons direction.												
B. Program Change Summary (\$ in Millions)				FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total				
Previous President's Budget				103.179	45.642	19.279	-	19.279				
Current President's Budget				101.724	45.642	140.500	-	140.500				
Total Adjustments				-1.455	0.000	121.221	-	121.221				
• Congressional General Reductions				-	-							
• Congressional Directed Reductions				-	-							
• Congressional Rescissions				-	-							
• Congressional Adds				-	-							
• Congressional Directed Transfers				-	-							
• Reprogrammings				-	-							
• SBIR/STTR Transfer				-1.455	0.000							
• Program Adjustments				0.000	0.000	119.821	-	119.821				
• Rate/Misc Adjustments				0.000	0.000	1.400	-	1.400				
Change Summary Explanation												
FY18: An increase of \$119.8M for the DDG1000 Test and Evaluation effort in accordance with Test and Evaluation Master Plan (TEMP) 1560, Port Release 8 Software (SW) Integration, Software Corrections, Tactical Tomahawk Weapon Control System Integration (LASIL), and Component Shock Qualification. \$1.4M increase is for rate and inflation adjustments.												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy									Date: May 2017			
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0204202N / DDG-1000				Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
2464: DD(X) Sys Design, Dev & Integration	1,282.551	101.724	45.642	140.500	-	140.500	120.412	15.966	0.000	0.000	0.000	1,706.795
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 197												
A. Mission Description and Budget Item Justification												
This project encompasses DDG 1000 development efforts required to deliver the Flight I DDG 1000 Class Ships. Major efforts include software requirements analysis, architectural and design code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V) for Software Releases; execution of Integrated Power Systems (IPS) and ship control system testing and integration; Live Fire Test and Evaluation (LFT&E), Developmental Testing (DT), Integrated Testing (IT), and Operational Test (OT) in support of the Test and Evaluation Master Plan (TEMP) and development of Tactical Tomahawk Weapon Control System (TTWCS) software. Funding for previous years is included in PE 0604300N and under 0204202N Project Unit 4009, Advanced Gun System (AGS), on DD(X).												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Product / Software Development								51.906	12.942	72.180	0.000	72.180
								Articles: -	-	-	-	-
Description: Product Development/Software Development												
FY 2016 Accomplishments: Completed software Release 8 to support Sail Away. Developed, integrated, and tested, as required, corrections to Hull Mechanical & Electrical (HM&E) and Mission System code through completion of fully capable Software Delivery in FY16. Continued development of interface specifications of TTWCS. Continued Aircraft Handling and Securing System (AHSS) development and qualification.												
FY 2017 Plans: Continue development of interface specifications of TTWCS. Continue Aircraft Handling and Securing System (AHSS) development and qualification.												
FY 2018 Base Plans: Funding increased due to development and corrections to Post Release 8 software, which will provide critical capabilities in command and control (GCCS-M), Helicopter integration (MH-60R) and Link 16 interoperability with other fleet assets. Fund TTWCS Land Attack System Initiation Lab (LASIL) to add capability to test and certify												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy				Date: May 2017		
Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0204202N / DDG-1000		Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
the interface between TTWCS and the TSCE/DDG 1000 combat system. Continuation of Aircraft Handling and Securing System (AHSS) development and qualification.						
FY 2018 OCO Plans: N/A						
Title: Test and Evaluation		49.818	32.700	68.320	0.000	68.320
Articles:		-	-	-	-	-
Description: Test and Evaluation Master Plan (TEMP) Execution						
FY 2016 Accomplishments: Continued Integration and Test of air warfare elements at Surface Combat System Center (SCSC) Wallops in preparation for conduct of Integrated Test B1-120 on Self Defense Test Ship (SDTS). Completed Integrated Test B4-160 A planning to conduct Radar Cross Section measurements. Initiated test planning for Developmental Test (DT), Integrated Test (IT), and Operational Test (OT) for all warfare areas. Initiated planning for characterization of Medium Frequency and High Frequency Sonars. Initiated test planning for Operational Evaluation (OPEVAL). Provided travel.						
FY 2017 Plans: Initiation of air warfare testing on Self Defense Test Ship (ITB1-120). Continuation of test planning for DT, IT, and OT for air warfare, joint fires, strike, surface warfare and survivability (radar cross section, acoustic, magnetic and Infrared signature testing). Continue to provide travel.						
FY 2018 Base Plans: Funding increase due to 5 test events that will require an increased level of execution. The tests are for ship signature measurements (radar cross section and infrared signatures), structural test firings for both the Vertical Launching System and the Advanced Gun System, and Anti-air warfare live fire test events on the Self Defense Test Ship (SDTS). The relevant test events are DTB4-160B, DTB4-161, DTB4-120, ITB4-610, and ITB1-120. Conduct Full Ship Shock Trial (FSST), SDTS AAW completion, Probability of Raid Annihilation (PRA) Test Bed and Integrated Testing. Continue to provide travel.						
FY 2018 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		101.724	45.642	140.500	0.000	140.500

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy										Date: May 2017	
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0204202N / DDG-1000				Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OMN / 3B1K: Specialized Skill Training	1.018	1.041	3.046	-	3.046	3.110	3.169	3.234	3.299	0.000	45.882
• OPN / 0947: DDG 1000 Class Support Equipment	0.000	33.404	0.000	-	0.000	51.338	2.371	2.424	2.466	0.000	92.003
• PANMC / 0198: LRLAP 155MM Long Range Land Attack Projectile	4.540	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OMN/15BUO: Life Cycle Engineering (IWS))	8.726	8.687	19.101	-	19.101	15.580	0.071	0.073	0.075	0.000	52.313
• OMN/15BR1: DDG 1000 Life Cycle Engineering and Sustainment	5.544	3.988	5.641	-	5.641	5.703	5.819	5.941	6.059	0.000	50.640
• RDTEN/0603795N: Navy Guided Projectile	0.000	0.000	18.000	-	18.000	0.000	0.000	0.000	0.000	0.000	18.000
Remarks											
D. Acquisition Strategy											
In October 2010 a revised acquisition strategy had been determined that supports the DDG-1000/DDG-51 restart shipyard allocation workload Memorandum of Agreements (MOAs). Execution of the MOAs shifted primary construction of all three DDG-1000 class ships to Bath Iron Works (BIW). Award of the DDG 1001/1002 to BIW occurred in September 2011.											
E. Performance Metrics											
Successfully complete Operational Test Readiness Review. Successfully complete Developmental Test/Integrated Test/Live Fire/Operational Test. Successfully achieve Initial Operational Capability.											

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy												Date: May 2017			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0204202N / DDG-1000				Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration Development Software	SS/CPAF	Raytheon : Tewksbury MA	879.907	32.028	Dec 2015	0.000		52.780	Dec 2017	-		52.780	0.000	964.715	-
Ship Integration Development (Prod Dev), TTWCS /ASIST	SS/CPFF	Various : Various	45.468	19.878	Dec 2015	12.942	Dec 2016	19.400	Dec 2017	-		19.400	0.000	97.688	-
Subtotal			925.375	51.906		12.942		72.180		-		72.180	0.000	1,062.403	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SDTS (ITB1-120) / PRA TB	SS/CPFF	Raytheon : Portsmouth, RI	102.797	10.525	Dec 2015	7.925	Dec 2016	6.500	Dec 2017	-		6.500	4.800	132.547	-
T&E Engineering	C/CPIF	CSC : Washington, DC	2.800	0.200	Dec 2015	0.200	Jan 2017	0.200	Dec 2017	-		0.200	0.200	3.600	-
SDTS/PRA/Integrated Test	Various	Various : Various	23.027	11.292	Nov 2015	8.745	Nov 2016	6.078	Nov 2017	-		6.078	5.411	54.553	-
Advanced Program	C/CPIF	NSMA : Arlington, VA	6.679	0.000		5.500	Nov 2016	4.400	Nov 2017	-		4.400	2.400	18.979	-
Eng/M&S/Cert Agents	WR	NSWC : Dahlgren, VA	7.727	0.200	Nov 2015	0.200	Nov 2016	0.200	Nov 2017	-		0.200	0.200	8.527	-
Integrated Test	WR	NSWC : Bethesda, MD	11.377	2.860	Nov 2015	1.096	Nov 2016	1.614	Nov 2017	-		1.614	1.825	18.772	-
HM&E Systems	WR	NSWC : Philadelphia, PA	0.000	0.100	Nov 2015	0.500	Nov 2016	0.250	Nov 2017	-		0.250	0.125	0.975	-
SDTS/PRA/Test Bed/ ESSM Engagement	Various	Various : Various	11.264	0.000		0.000		0.000		-		0.000	0.000	11.264	-
Threat Assesment/IR	C/CPIF	NRL : Washington, DC	0.000	0.000		0.000		1.400	Dec 2017	-		1.400	1.800	3.200	-
SDTS	WR	SCSC : Wallops, Is, VA	5.903	0.000		0.000		0.000		-		0.000	0.000	5.903	-
LFT&E	C/CPIF	ROI : Mullica Hills, NJ	7.950	0.000		0.000		0.000		-		0.000	0.000	7.950	-
ITB3/ITB4/OPEVAL	Various	Various : Various	0.000	0.000		0.000		16.092	Nov 2017	-		16.092	14.800	30.892	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy												Date: May 2017			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0204202N / DDG-1000				Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration					
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration and Testing	Various	Various : Various	0.000	8.230	Dec 2015	3.700	Nov 2016	0.023	Dec 2017	-		0.023	0.024	11.977	-
T&E Engineering	WR	COTF : Norfolk, VA.	6.631	2.200	Dec 2015	1.100	Dec 2016	2.516	Dec 2017	-		2.516	2.634	15.081	-
Int Test/Undersea Warfare	WR	Various : Various	0.000	0.747	Nov 2015	0.000		0.000		-		0.000	0.000	0.747	-
TTWCS	C/CPIF	NAVAIR : Not Specified	0.000	0.000		0.000		2.100	Mar 2018	-		2.100	3.600	5.700	-
Sonobouys	TBD	NAVAIR : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.650	0.650	-
LRLAP Test Article Procurement ITB3/ITB4 (EMD)	C/CPIF	BAE : Minneapolis, MN	54.064	0.000		0.000		0.000		-		0.000	0.000	54.064	-
LFT&E Engineering	C/CPIF	ROI : Mullica Hills, NJ	32.852	0.800	Dec 2015	0.000		1.600	Dec 2017	-		1.600	0.600	35.852	-
ESSM/SM2 Procurement	C/CPIF	Raytheon : Tucson, AZ	39.538	0.000		0.000		0.000		-		0.000	0.000	39.538	-
MOE Test Bed	WR	NUWC : Various	1.510	0.250	Nov 2015	0.000		1.469	Nov 2017	-		1.469	1.657	4.886	-
Component Shock Qualification	WR	Various : Various	0.000	0.000		0.000		7.000	Nov 2017	-		7.000	21.000	28.000	-
SDTS and Integrated Test	Various	PEO IWS : Washington, DC	39.072	8.914	Nov 2015	3.234	Nov 2016	14.978	Nov 2017	-		14.978	9.298	75.496	-
T&E Engineering	WR	NSWC : Panama City, FL	0.530	3.000	Nov 2015	0.000		0.900	Nov 2017	-		0.900	9.200	13.630	-
Travel	Various	NAVSEA : Washingotn, DC	3.455	0.500	Nov 2015	0.500	Apr 2017	1.000	Oct 2017	-		1.000	1.000	6.455	-
Subtotal			357.176	49.818		32.700		68.320		-		68.320	81.224	589.238	-
			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			1,282.551	101.724		45.642		140.500		-		140.500	81.224	1,651.641	-
Remarks															

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy

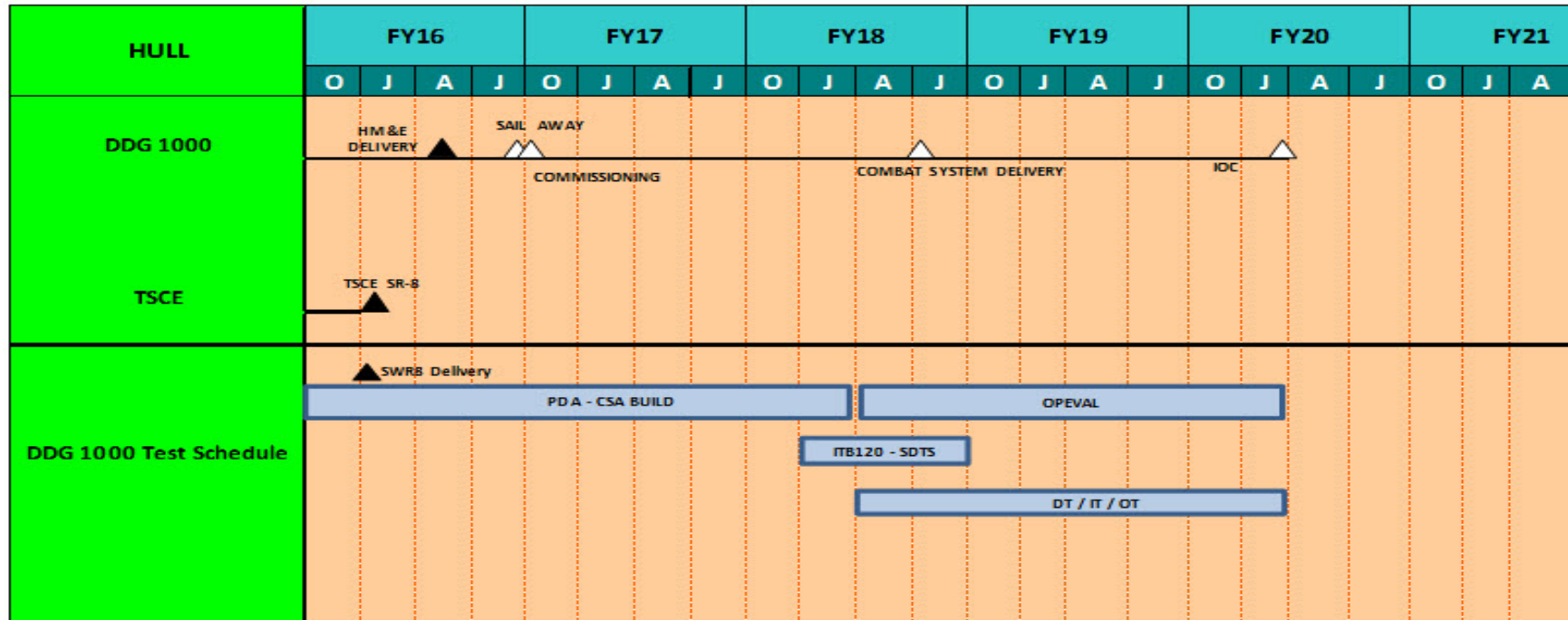
Date: May 2017

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0204202N / DDG-1000

Project (Number/Name)
2464 / DD(X) Sys Design, Dev & Integration

*DDG 1000



KEY	
IOC	INITIAL OPERATIONAL CAPABILITY
SR	SOFTWARE RELEASE
▲	COMPLETED EVENT
OPEVAL	OPERATIONAL EVALUATION
HM&E	HULL, MECHANICAL & ELECTRICAL
SDTS	SELF-DEFENSE TEST SHIP
PDA	POST DELIVERY AVAILABILITY
CSA	COMBAT SYSTEMS ACTIVATION

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / <i>DDG-1000</i>	Project (Number/Name) 2464 / <i>DD(X) Sys Design, Dev & Integration</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 2464</i>				
Software Release 8	2	2016	2	2016
PDA - CSA Software Post Release 8	1	2016	2	2018
Conduct ITB1 - SDTS	2	2018	4	2018
DT / IT / OT	3	2018	2	2020
OPEVAL	3	2018	2	2020