Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	16.705	10.587	8.819	-	8.819	8.616	4.744	4.921	5.068	Continuing	Continuing
0545: *TOMAHAWK*	12.802	10.587	8.819	-	8.819	8.616	4.744	4.921	5.068	Continuing	Continuing
9999: *Congressional Adds*	3.903	-	-	-	-	-	-	-	-	0.000	3.903

A. Mission Description and Budget Item Justification

The Tomahawk Weapons System (TWS) provides a Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). This program ensures that the TWS exploits state-of-the-art technology to preserve the efficiency of this proven weapon system, and includes all missile development, mission planning system development, and submarine and surface ship weapons control system development.

The Tactical Tomahawk (TACTOM) All-Up-Round Block IV missile is a comprehensive spiral baseline upgrade to the TWS that provides the tactical commander a quick reaction response capability as well as improved flexibility, increased accuracy and higher lethality. A five-year multi-year (FY04-FY08) production contract was awarded in August 2004 for the production of up to 2200 Block IV Tomahawk missiles. The essential upgrades of the Block IV missile are: improved guidance, navigation, control and mission computer two-way satellite communications (SATCOM), and a lower production cost as compared to the Block III missile. Block IV provides a UHF SATCOM data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages and to broadcast Battle Damage Indication (BDI) messages. Block IV also includes a high anti-jam Global Positioning System (GPS) receiver, navigation improvements and associated antenna systems. The Tomahawk Program also includes development of Torpedo Tube Launch capability for submarines and the continuing advances identified as spiral development under the Tomahawk Baseline IV Operational Requirements Document, to include development of the Joint Chiefs of Staff-directed incorporation of a Selective Availability Anti-Spoofing Module (SAASM) capability and the Joint Multiple Effects Warhead System/Joint Capability Technology Demonstration.

Under the umbrella of the Theater Mission Planning Center (TMPC), the Tomahawk Command and Control System (TC2S) is the mission planning segment of the Tomahawk Weapon System that provides systems for the precision targeting, route planning, mission distribution, and strike management of Tomahawk cruise missile missions from sites located ashore and afloat. TMPC optimizes all aspects of the Tomahawk missile mission to successfully engage a target and has evolved into five scalable configurations: Cruise Missile Support Activities (CMSA) (2), Tomahawk Strike Mission Planning Cells (TSMPC) (3), Carriers (CVNs) (11), Firing Units (81), Command & Control Nodes (11), Labs (6), & Training Classrooms (6), for a total of 125 sites. A smaller TC2S version is being fielded on CVNs to support deployed Strike Group Commanders. Systems fielded at the CMSAs and TSMPCs provide mission planning and employment support information for conventional TLAM, including the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System and associated communications infrastructure (CMSAs are the only organizations that can support Tomahawk Land Attack Missile/Nuclear (TLAM/N)). Development of Tactical Tomahawk capabilities in TMPC/TC2S includes software development, integration, test, and delivery, including support for training development, installation planning, and simulation/model development required by Commander, Operational Test and Evaluation Force. This project also includes development related to national and tactical imagery architectures, as well as software development to decrease mission-planning time and increase the quality and accuracy of each mission for Block III and IV TLAM.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204229N: *Tomahawk Mssn Planning Ctr*

The Tactical Tomahawk FY10 Congressional funding supporting the Cost Reduction Initiative (CRI) provided for development and implementation of an affordability process to identify, investigate, plan, and execute viable CRIs for the Tomahawk F415 engine.

FY10 Congressional funding for Image-Based Navigation commenced a Phase II Small Business Innovative Research effort to mature the Image-Based Navigation capability into a Tomahawk Weapon System integrated component. This technology has the potentional to enable the Block IV weapon to navigate in a GPS denied environment.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	17.077	10.587	9.333	-	9.333
Current President's Budget	16.705	10.587	8.819	-	8.819
Total Adjustments	-0.372	-	-0.514	-	-0.514
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.313	-			
• Program Adjustments	-	-	-0.386	-	-0.386
• Section 219 Reprogramming	-0.055	-	-	-	-
• Rate/Misc Adjustments	-	-	-0.128	-	-0.128
• Congressional General Reductions Adjustments	-0.004	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2010	FY 2011
Project: 9999: *Congressional Adds*		
Congressional Add: *Tomawk Cost Reduction Initiatives*	3.266	-
Congressional Add: *Low-Cost Image-Based Navigation and Precision Targ*	0.637	-
Congressional Add Subtotals for Project: 9999	3.903	-
Congressional Add Totals for all Projects	3.903	-

Change Summary Explanation

Technical: Not applicable.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204229N: *Tomahawk Mssn Planning Ctr*

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
0545: *TOMAHAWK*	12.802	10.587	8.819	-	8.819	8.616	4.744	4.921	5.068	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Tomahawk Weapons System (TWS) provides a Tomahawk cruise missile attack capability against targets on land (Tomahawk Land Attack Missile (TLAM)). This program ensures that the TWS exploits state-of-the-art technology to preserve the efficiency of this proven weapon system, and includes all missile development, mission planning system development, and submarine and surface ship weapons control system development.

The Tactical Tomahawk (TACTOM) All-Up-Round (AUR) Block IV missile is a comprehensive spiral baseline upgrade to the TWS that provides the tactical commander a quick reaction response capability as well as improved flexibility, increased accuracy and higher lethality. A five-year multi-year (FY04-FY08) production contract was awarded in August 2004 for the production of up to 2200 Block IV Tomahawk missiles. The essential upgrades of the Block IV missile are: improved guidance, navigation, control and mission computer two-way satellite communications (SATCOM), and a lower production cost as compared to the Block III missile. Block IV provides a UHF SATCOM data link to enable the missile to receive in-flight mission modification messages, to transfer health and status messages and to broadcast Battle Damage Indication messages. Block IV also includes a high anti-jam Global Postitioning System (GPS) receiver, navigation improvements and associated antenna systems. The Tomahawk Program also includes development of Torpedo Tube Launch capability for submarines and the continuing advances identified as spiral development under the Tomahawk Baseline IV Operational Requirements Document, to include development of the Joint Chiefs of Staff-directed incorporation of Selective Availability Anti-Spoofing Module (SAASM) capability and the Joint Multiple Effects Warhead System/Joint Capability Technology Demonstration (JMEWS/ JCTD).

Under the umbrella of the Theater Mission Planning Center (TMPC), the Tomahawk Command and Control System is the mission planning segment of the Tomahawk Weapon System that provides systems for the precision targeting, route planning, mission distribution, and strike management of Tomahawk cruise missile missions from sites located ashore and afloat. TMPC optimizes all aspects of the Tomahawk missile mission to successfully engage a target and has evolved into five scalable configurations: Cruise Missile Support Activities (CMSA) (2), Tomahawk Strike Mission Planning Cells (TSMPC) (3), Carriers (CVNs) (11), Firing Units (81), Command & Control Nodes (11), Labs (6), & Training Classrooms (6), for a total of 125 sites. A smaller TC2S version is being fielded on CVNs to support deployed Strike Group Commanders. Systems fielded at the CMSAs and TSMPCs provide mission planning and employment support information for conventional TLAM, including the distribution of mission data and command information essential to TLAM employment via the Mission Distribution System and associated communications infrastructure (CMSAs are the only organizations that can support Tomahawk Land Attack Missile/Nuclear(TLAM/N). Development of Tactical Tomahawk capabilities in TMPC/TC2S includes software development, integration, test, and delivery, including support for training development, installation planning, and simulation/model development required by Commander, Operational Test and Evaluation Force. This project also includes development related to national and tactical imagery architectures, as well as software development to decrease mission-planning time and increase the quality and accuracy of each mission for Block III and IV TLAM.

The Tomahawk Weapons Control System provides launch capability for surface and submarine platforms. Development of the Tactical Tomahawk Weapons Control System (TTWCS) provides a common architecture to launch the Tactical Tomahawk Block IV and all variants in inventory. Development of upgrades to the Tactical

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

Tomahawk Weapons Control System is required to meet the DoD IT Standards Registry, to meet FORCEnet compliance and be Internet Protocol Version 6 (IPv6) ready in order to remain interoperable within the Joint Service Architecture and to retain weapons system viability and usability for our Sailors. These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Tactical Tomahawk All-Up-Round	8.578	7.105	5.320
Articles:	0	0	0
Description: Achieve Selective Availability Anti-Spoofing Module (SAASM) Full Operational Capability (FOC), and completion of the cooperatively funded USN/UK JMEWS/JCTD multi-stage warhead technical demonstration. ***FY 2010 Accomplishments:*** FY10: Continued Phase II ORD requirement hardware and software trade studies. Incorporating SAASM capability into the GPS. Continue JMEWS/JCTD. Completed first demonstration test of JMEWS warhead technology. ***FY 2011 Plans:*** FY11: Continue JMEWS/JCTD. Continue Ordnance Alteration/Temporary Alteration efforts in support of the SEAWOLF program. ***FY 2012 Plans:*** FY12: Complete JMEWS/JCTD. Complete AUR platform integration of SAASM. Achieve SAASM program FOC.			
Title: Tactical Tomahawk Weapons Control System	1.643	0.697	0.990
Articles:	0	0	0
Description: Continue TTWCS Viability activities and complete SAASM integration of TTWCS V5.4.0 in order to enter Follow on Test and Evaluation (FOT&E) for fleet release. ***FY 2010 Accomplishments:*** FY10: Continue TTWCS viability development activities to reduce risk in areas of overall TTWCS supportability, sustainability, Human Complexity Issues (HCI), and interoperability with external interfaces. Address key DoD/DoN mandates, including IPv6, FORCEnet, Open Architecture, and SAASM. ***FY 2011 Plans:*** FY11: Complete SAASM integration of TTWCS v5.4.0. Complete Developmental Test/Operational Test, Technical Readiness Review for TTWCS v5.4.0. Complete code porting of reuse code from UNIX to LINUX. Continue work to reduce HCI complexity. Perform development efforts in support of DDG-113, and DDG-1000. ***FY 2012 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY12: Complete development of TTWCS viability and enter FOT&E. Prepare for Fleet Release of TTWCS v5.4.0. Continue development work on TTWCS v5.4.1 toward achievement of full TTWCS viability, and launch platform integration on platforms existing and in development.			
Title: Tactical Tomahawk Command and Control Systems (TC2S)	2.581	2.785	2.509
Articles:	0	0	0
Description: Development and incorporation of new capabilities in Tomahawk Command and Control systems necessary for the employment of Tactical Tomahawk. Imagery upgrades to Tomahawk Command and Control System. Continue Test & Evaluation support for Tomahawk Command and Control Systems. ***FY 2010 Accomplishments:*** FY10 - Completed evaluation and analysis of Common Geopositioning Services ability to operate with new sensor test data. Completed evaluation of imagery format changes, resulting from National Geospatial Agency (NGA) mandated updates and architectural changes to external interfaces. Continued TLAM navigation and accuracy and weapons delivery Circular Error Probable (CEP) studies and assessments necessary to ensure the TWS is properly employed; Completed TC2S Navigation Toolset Release Candidate One development efforts associated with the Vertical Update Point, Digital Elevation Matrix, Vertical Obstruction Data, Digital Scene Matching Area Correlator modifications, and product validation. Completed evaluation of DSMAC planning modifications that would maintain mission planning timeline capability in a GPS Denied Environment. ***FY 2011 Plans:*** FY11 - Continue TLAM navigation and accuracy and weapons delivery CEP studies and assessments necessary to ensure the TWS is properly employed; Continue evaluation of TC2S design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TC2S. Continue evaluation of imagery formats resulting from NGA mandated architectural changes. ***FY 2012 Plans:*** FY12 - Continue TLAM navigation and accuracy and weapons delivery CEP studies and assessments necessary to ensure the TWS is properly employed; Continue evaluation of TC2S design process to ensure Tactical Tomahawk missile performance characteristics are adequately modeled in TC2S. Continue evaluation of imagery formats resulting from NGA mandated architectural changes.			
Accomplishments/Planned Programs Subtotals	12.802	10.587	8.819

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• WPN/2101: *Tomahawk*	276.499	300.178	303.306	0.000	303.306	312.720	322.158	328.709	336.359	1,454.117	14,508.750
• OPN/5253: *Tomahawk Support Equip*	87.277	88.698	72.861	0.000	72.861	73.777	65.360	62.853	64.086	913.640	1,538.575
• OPN/9020: *Initial and Vendor Direct Spares*	1.123	0.853	0.517	0.000	0.517	0.385	0.418	0.392	0.405	0.000	8.099

D. Acquisition Strategy

In 1998, the Tomahawk Baseline Improvement Program (TBIP) transitioned to the Tactical Tomahawk (Block IV) Program. This program is outlined in the Class Justification and Approval (CJ&A No. AIR-22448) signed by the Under Secretary of the Navy on 29 May 1998. The acquisition strategy was to transition the TBIP to Tactical Tomahawk. The Tactical Tomahawk development program was a cost-sharing contract between the Government and the Contractor to add capability to the missile. A multi-year full-rate production contract was awarded in August 2004 for FY 2004-2008 production. The FY09 through FY11 BLK IV Missile procurement strategy utilizes a FY 2009 annualized Firm Fixed Price contract, along with two fixed price option years for FY 2010 and FY 2011. FY 2009 and FY 2010 have been exercised.

Torpedo Tube Launch missile procurement began in FY 2008 within the current missile production budget as required to meet Fleet load-out requirements. R&D technology demonstration capabilities (Multiple-Effects Warhead, Anti Surface Warfare) will be potentially introduced after successful qualification and testing. Complete SAASM integration efforts.

E. Performance Metrics

The Navy seeks to improve the Tomahawk cruise missile attack capability against land targets through research and development done predominantly through defense contractors and government field activities.

Examples in the area of the All-Up-Round include development of candidate warheads that will enhance weapon ability to cover all assigned target types, provide a quick reaction response capability for the weapon system, and improved guidance, navigation, control, mission computer two-way satellite communications, and a high anti-jam GPS receiver all in line with state of the art technology.

In the area of the Weapon Control System, research and development is performed to ensure viability and usability of the system into the future, providing necessary upgrades to meet the DoD Information Technology standards registry to comply with FORCEnet requirements and be Internet Protocol Version 6 ready to remain interoperable within Joint Service Architecture, in order to provide battle-group tactical flexibility and responsiveness needed to enable full wartime capability.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204229N: *Tomahawk Mssn Planning Ctr*	**PROJECT** 0545: *TOMAHAWK*

In the area of the Command and Control System, continue research and development in order to provide scalable configurations to deploy where and as needed to provide necessary command and control, development necessary to function with national and tactical imagery architectures, decrease mission planning time, and increase the quality and accuracy of each mission for the Tomahawk weapons System.

All of these research and development efforts contribute to the Navy providing the very best weapon system to the war fighter to accomplish the combat mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev - AUR	C/CPFF	Raytheon Co.:Tucson, AZ	220.376	1.809	Jun 2011	1.031	Jun 2012	-		1.031	7.764	230.980	230.980
Systems Engineering - AUR	Reqn	NAVSEA:WNY, DC	29.619	0.418	Mar 2011	0.275	Mar 2012	-		0.275	0.650	30.962	
Prior Year cost no longer funded in FYDP	Various	Various:Various	2,405.912	-		-		-		-	0.000	2,405.912	
		Subtotal	2,655.907	2.227		1.306		-		1.306	8.414	2,667.854	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC:Dahlgren, VA	1.840	0.260	Feb 2011	0.110	Feb 2012	-		0.110	1.015	3.225	
Development Support - AUR	SS/CPFF	SAIC:San Diego, CA	3.632	0.645	Feb 2011	0.718	Feb 2012	-		0.718	3.325	8.320	8.344
Development Support - AUR	WR	Various:Various	1.516	0.260	Feb 2011	0.110	Feb 2012	-		0.110	0.575	2.461	
Development Support - AUR	WR	NAWC:China Lake, CA	66.860	3.713	Feb 2011	3.076	Feb 2012	-		3.076	1.240	74.889	
Soft Dev-Mission Plan Sys TC2S	Reqn	NAVSEA:WNY, DC	20.185	1.174	Feb 2011	1.113	Feb 2012	-		1.113	6.720	29.192	
Soft Dev-Mission Plan Sys TC2S	Reqn	Navy Sys Mgt Act:VA	10.731	1.398	Feb 2011	1.190	Feb 2012	-		1.190	6.223	19.542	
Soft Dev-Mission Plan Sys TC2S	WR	NAWC:Pax River, MD*	0.139	0.213	Feb 2011	0.206	Feb 2012	-		0.206	0.720	1.278	
Soft Dev-Dev Weapons Control Sys	C/CPFF	Lockheed:Valley Forge, VA	105.848	0.697	Feb 2011	0.990	Feb 2012	-		0.990	0.000	107.535	108.093
Prior Year cost no longer funded in FYDP	Various	Various:Various	122.404	-		-		-		-	0.000	122.404	
		Subtotal	333.155	8.360		7.513		-		7.513	19.818	368.846	

Remarks

* Funding sent to NAWC, PAXRIV beginning in FY10.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year cost no longer funded in FYDP	Various	Various:Various	83.412	-		-		-		-	0.000	83.412	
		Subtotal	83.412	-		-		-		-	0.000	83.412	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year cost no longer funded in FYDP	Various	Various:Various	0.401	-		-		-		-	0.000	0.401	
		Subtotal	0.401	-		-		-		-	0.000	0.401	

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,072.875	10.587		8.819		-		8.819	28.232	3,120.513	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0204229N: *Tomahawk Mssn Planning Ctr*	**PROJECT** 0545: *TOMAHAWK*

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 0545: *TOMAHAWK*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Tomahawk Mission Planning Center				
Acquisition Milestones: Milestones: TTWCS V5.4.0 Full Operational Capability (FOC)	1	2012	1	2012
Acquisition Milestones: Milestones: Tactical Tomahawk Missile Integration FOC	2	2012	2	2012
Acquisition Milestones: Milestones: TC2S 4.3 FOC	3	2012	3	2012
Acquisition Milestones: Milestones: TC2S 5.0 FOC	2	2015	2	2015
Acquisition Milestones: Milestones: TTWCS V5.4.1 FOC	2	2015	2	2015
Systems Development: Software Development: Tactical Tomahawk (TT) SAASM Integration	1	2010	1	2012
Systems Development: Hardware Development: TT Preplanned Product Improvement (P3I)	1	2010	4	2016
Systems Development: Hardware Development: Tactical Tomahawk (TACTOM) Full Rate Production	1	2010	4	2016
Systems Development: Reviews: Tactical Tomahawk Weapon Control System (TTWCS) V5.4.0 Developmental Test/Operational Test (DT/OT) Technical Readiness Review (TRR)	3	2011	3	2011
Systems Development: Reviews: TTWCS V5.4.1 Sys TRR	1	2012	1	2012
Systems Development: Reviews: TTWCS V5.4.1 DT/OT TRR	2	2014	2	2014
Test and Evaluation: Tomahawk Comand and Control System (TC2S) 4.3 DT	1	2010	1	2012
Test and Evaluation: TC2S 5.0 DT/OT - III G	1	2010	1	2015

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0204229N: *Tomahawk Mssn Planning Ctr*	PROJECT 9999: *Congressional Adds*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9999: *Congressional Adds*	3.903	-	-	-	-	-	-	-	-	0.000	3.903
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Tactical Tomahawk FY10 Congressional funding supporting the Cost Reduction Initiative (CRI) provides for development and implementation of an affordability process to identify, investigate, plan and execute viable CRIs for the Tomahawk F415 engine.

FY10 Congressional funding for Image-Based Navigation and Precision Targeting provided for analysis to assess reliability and performance of Image Navigation Reference Products in the TC2S. Additional funding received in FY10 will be added to the Phase 2.5 contract to support additional tasking in Concept of Operation (CONOPS) development, hardware integration, and actual flight software development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011
Congressional Add: Tomawk Cost Reduction Initiatives ***FY 2010 Accomplishments:*** FY10 - Continued efforts to plan and execute the remaining approved CRI's - Continued Evaluation of new CRIs while capitalizing on Reuse, Refurbishment, and Service Life Extension opportunities	3.266	-
Congressional Add: Low-Cost Image-Based Navigation and Precision Targ ***FY 2010 Accomplishments:*** FY10 - Continued effort with Phase 2.5 contract to support additional tasking in CONOPS development, hardware integration, and actual flight software development.	0.637	-
Congressional Adds Subtotals	3.903	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.